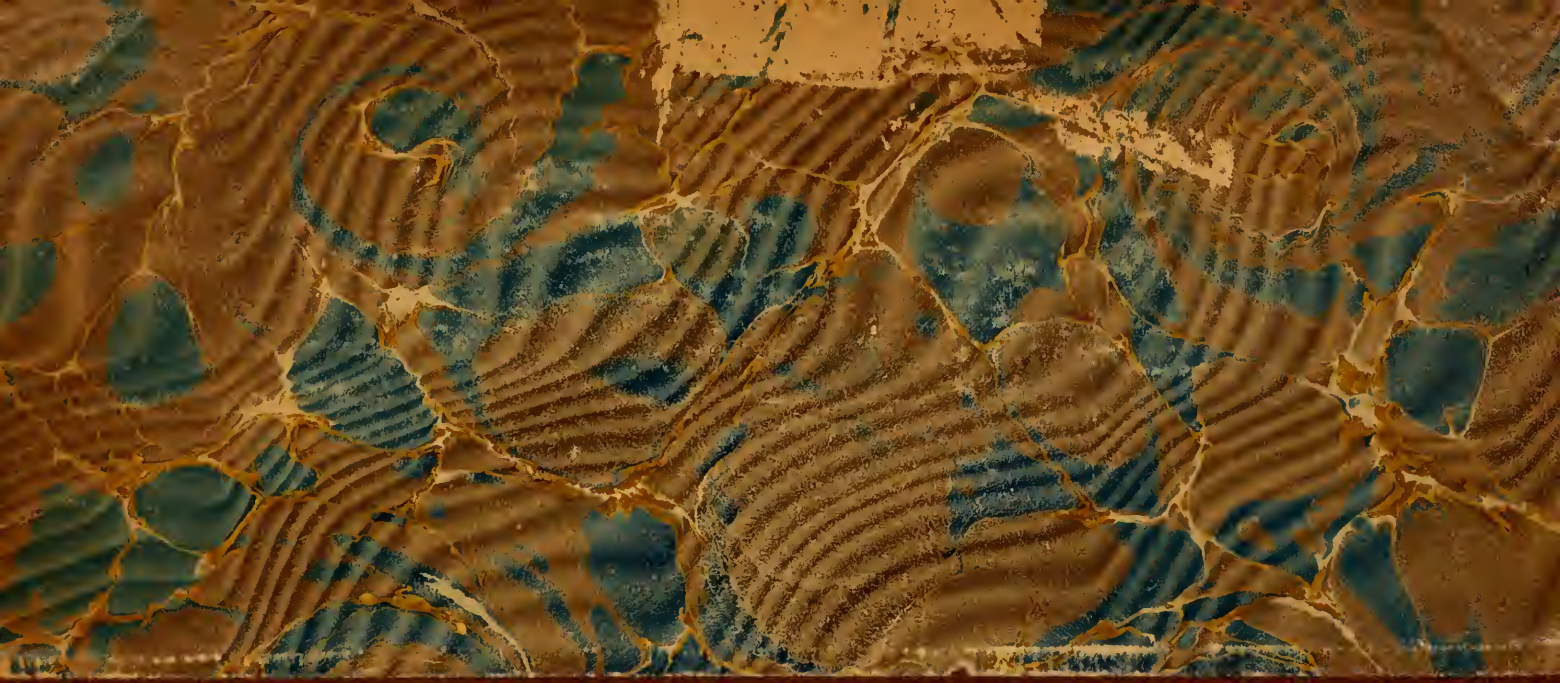


THE

HORTICULTURAL REGISTER,

AND

GENERAL MAGAZINE.

VOL. I.

BY

JOSEPH PAXTON, F. L. S. H. S.

AND

JOSEPH HARRISON.

LONDON:

PUBLISHED BY BALDWIN AND CRADOCK, PATERNOSTER-ROW.

PREFACE.

THOMAS HARDCASTLE, PRINTER, SHEFFIELD.

PREFACE.

Having, in the introduction, stated the motives, objects, and inducements, which led the Conductors of the Horticultural Register to issue the present publication, it will be unnecessary to make any lengthened remarks in the preface. On viewing the contents of the first volume we trust it will be evident, that we have at least endeavoured, as far as practicable, to carry our promises into effect. Many of the subjects treated upon are of paramount importance: arboriculture has been ably discussed by several Correspondents, whose observations will be found to merit the attention of every experienced and inexperienced Forester. We would particularly recommend to the notice of our readers the growth of grapes in pots, and to those who are troubled with strong clayey land, Mr. Stafford's article on burning clay will be of great advantage; many others are equally deserving attention.

We have to regret the typographical errors which the present volume contains, which from a variety of local disadvantages were rendered unavoidable, but as they are removed, we trust we shall not have a recurrence. It is, however, gratifying to be enabled to state the satisfaction which we have experienced from the fact, that notwithstanding the large number printed, we have been called upon by our Publishers to reprint the first Number to meet the demands of a more extensive circulation. We sincerely thank our friends for their readiness in communicating their sentiments on various subjects connected with Horticulture, &c., and we can assure them that none of their suggestions for improvement shall be disregarded. In consequence of the list of fruits and flowers occupying more room than was contemplated, we have been compelled to omit the list of fruits and flowers that won the most prizes during the year; we hope, however, no great deficiency will be experienced by this omission as all the necessary information is furnished in the list already given.

ERRATA.

Page 30, 3 lines from bottom for "Bambycidæ" read Bombycidæ.
45, line 23, for "sold" read bought.
48, line 28 for " once a month" read once a week.
56, line 4 from bottom, for " one barrowful" read half a barrowful
179, line 21, for " 10" read 5.
327, line 8 from bottom, for " valuable" read variable.
374, line 12 from top, for "clytra" read elytra.
375, line 6, for "Moth" read Butterfly.
386, line 2 for "Miatre" read Maître.
386, line 4, for (Sukou, a fig, and phano, show) read Suchoyhantes (derived from Sukon a fig, and phano, I shew.)
475, line 16 from bottom, for "two feet" read twenty two feet.
448, line 3 from bottom, for "Crawshaws" read Crawnshaws.
557 & 558, for " Chrenberg" read Ehrenberg.
559, line 2 from bottom for " Philomelor" read Philomela.
559, line 7 for " notacilla" read Motacillæ.
Do. 11, for " notorcillæ" read Motacillæ.
Do. do. ten lines from bottom, for " Mortensis" read Nortensis.
Do. 13, for "Ledge Bird" read Sedge Bird.
Do. 7, for " Sibillans" read sibilatrix.
617, line 5, for " Oram" read Oran.
697, line 5, for " experience" read experienced.
739, line 6 from bottom, for " lightening" read lightning.
702, line 11, for "faculty" read facility.
813, line 10, for " than" read that.
588, line 4, for " twenty" read ninety.
591, line 5 from bottom, for "Quod" read Quot.
593, line 14, for "credo" read credé.
634, line 7, for " becomes" read and become.
633, line 2 from bottom, for " heated" read treated.
635, line 18 from bottom, for pæniflora" read pæoniflora.
635, line 9, for " Dranthiflora" read dianthiflora.
" 31, for " imbucata" read imbricata.
636, line 15, for " sasanqua" read sesanqua.
648, line 21, for " Berfo" read Bufo.
688, line 10 from bottom, for " Woodin" read Woodsii.
689, line 1, for " pauntata" read punctata.
29, for " munda" read mundi.
813, line 2, for "Heney" read Henley.
9, for " wirg" read wiry.
18, from bottom, for " nearly" read " rarely.

THE

HORTICULTURAL REGISTER.

JULY 1st, 1831.

INTRODUCTION.

ON the introduction of a new periodical in the present day, when publications of almost every description so greatly abound, there may appear at first sight considerable difficulty to explain the motives which have induced the Conductors of the Horticultural Register, to add to the number of those already in print, by bringing before the public what may seem an unneccessary work. As we feel ourselves thus called upon to state the reasons of presentation, we shall endeavour to do so, in as brief and explicit a manner as we can.

In complying with the customary formality of a preface, we conceive it unnecessary to pursue the usual method of Editors, by attempting to prove the decided advantages and enjoyments, afforded by attention to the arts or subjects upon which they treat. The subjects comprised in the present Work, will embrace every thing valuable and useful in Horticulture, Natural History, and Rural Economy; and judging from the almost universal, and increasing pursuit after an extended acquaintance with these, we are fully satisfied, that to dilate on their being advantageous, and affording enjoyment, would, in the present enlightened age, be an unpardonable presumption: for it is an admitted, because an indispytable fact, that an extensive acquaintance with these subjects on which we propose to treat, is both of real utility, and peculiarly pleasing.

It is evident that a taste for Horticulture, in all its branches, both of Vegetable Culture, and Propagation, also Landscape and Architectural Gardening, has, within the last twenty years, very rapidly increased, and a corresponding improvement has consequently attended it; for at no period of time has it reached so high a state of perfection as the present. This has been effected in a great measure by the readiness of Garden Proprietors, in general, to afford facilities to their Gardeners, in order to encourage them to attempt at improvements, and the results of the labour of these practical Gardeners, and

Horticulturists, have been liberally communicated by themselves to the public, in as extensive a manner as the means of circulation afforded; but although this has been done in a certain degree by publications already extant, yet, owing to these works being voluminous, and sold at a high price, the informations, however valuable and liberally contributed, were thus placed out of the reach of many persons in the humbler classes of society, and necessarily very limited in their circulation.

The primary object we have in bringing the present Work before the public, is to afford at a cheap rate, a medium of circulating to a far greater extent, every real improvement and interesting account, than has heretofore been done; whether it relates to Horticulture, Natural History, or subjects of Rural and Domestic Economy; in doing which, we feel it incumbent upon us to state, that as practical Gardeners, we are not allowing our names to be applied to the Horticultural Register for any booksellers' purposes, having no other than the required connexion with them as our printers and publishers: but our object is, to promote and further in every possible way, the interests of all lovers of Horticulture, and admirers of other branches of Natural History, and in endeavouring to accomplish this, the utmost attention will be given by us, to obtain full, clear, and correct descriptions, of all real improvements connected with the subjects in hand, and also of whatever will be useful and interesting.

Such will be nature of the present Work, that Gardening in all its branches, will be the leading feature; but sensible that what is of real benefit to ourselves, as practical Gardeners, would also be useful to other persons similarly situated, and being aware of the very close connection in many instances, which subsists between Horticulture and Natural History generally, and that to connect them in this Work would not only present to its readers, subjects highly interesting, and at the same time agreeable and delightful sources of recreation, but also be truly valuable. In the selection of our articles, great care will be taken to insert only such as will answer the desired end, and as far as the limits of our Magazine will allow, no expense whatever shall be spared to illustrate the different subjects on which we treat, by neat engravings.

In order to furnish the readers of the Horticultural Register with a correct description of all new and valuable Fruits, Flowers, and Improvements in Horticulture, whether it consists in Vegetable Culture, Landscape Gardening, or Designs of Horticultural Buildings, we have obtained the promises of the proprietors of nearly all the Public Horticultural Establishments in the Kingdom, and of a great number of Practical and Landscape Gardeners, of the first-rate eminence in

their profession, to supply us regularly with notices and descriptions, of every thing that will contribute to the purpose, and that these accounts may have speedy circulation, we have resolved on publishing the work the first day of every month.

We shall not only present to the readers of the Horticultural Register, valuable Original Communications from our friends, but we shall also make extracts of every thing that we judge will promote our ultimate object; and such extracts will not be confined merely to present publications, but where anything of a decidedly useful character is found, and such having been very limited in its circulation, we shall avail ourselves of the opportunity of giving it insertion in our pages, and in so doing, it will be our endeavour to condense every Article in as small a space as is practicable, consistent with giving the true meaning; our object in doing so is to be able to insert as great a fund of information in our little work as the limits of its pages will allow.

In the Review department, we have commenced with works published since the year 1830, and we intend omitting no work of merit, that comes within the range of subjects to be treated of; we shall at all times rigidly abstain from introducing anything of a political tendency, but shall endeavour to confine ourselves to what we have before stated.

A Monthly Horticultural Calendar will be given at the end of each number, embracing every thing new in cultivation. This we judge will be found very useful, as it will enable the reader to see what is necessary to be attended to in the coming month, in whatever department it belongs, which will render it unnecessary for him to have recourse to other Works for calendarial information.

We also intend furnishing our readers, at the end of each volume, with a list of all Fruits and Flowers which have been previously named in it, with reference to the page, &c., and which of them we consider most worthy of attention; and in addition to this, a general list of all the best Fruits and Vegetables in cultivation: so that any one wishing to make a selection for a small or large garden, will see at once, which are considered most desirable, at what time the Fruits are naturally in perfection, how long they generally keep, and those will be marked which are known to be most valuable: thus placing without any research, a guide for materials to plant any extent of Fruit Trees of the best possible kinds. We consider that an Annual List of this kind, will give universal satisfaction to our readers.

On inserting the account of Horticultural Meetings, &c., care will be taken that such only are admitted, as accord with the determination of the Conductors in the following details. We be beg to notice, that

we shall be happy to insert all accounts and lists of Meetings, provided the name of the Fruit or Flower exhibited, with observations upon the merits of the best, be given, as well as the name of the person obtaining the prize; but when the name of the person only is given, without any other remark, as to the sort of Fruit, &c., we cannot permit the pages of this Work to be occupied in so useless a manner; for however proper it might be to insert such accounts in publications devoted to the purpose, it would by no means answer the desired end in the present Work, and would at best be only an insult to our readers, and as too much space be not occupied by these accounts, the Lists will be arranged in as uniform a manner as possible. And under this same head of Horticulture and Floricultural Societies, we intend at the end of each Volume, to present our readers with a List of all Fruits, Flowers, &c., that have won the most prizes during the year, so as to make a complete Guide to the Horticulturist, Florist, &c., in the choice of his articles for cultivation.

The whole arrangement of the Work will always be found so classed, as to be referred to in the readiest manner.

The Horticultural Register will be printed in small type, in order to give as much matter as possible in each number, and the Work being sold at so moderate a price, we hope that it will meet the wishes and obtain the approval of the Public, as well as of every lover of Horticulture and Natural History; and that this may be the case to the utmost extent, we earnestly invite the assistance of Gardeners, Horticulturists, and the studious in Natural History; and from the acknowledged liberality of such persons, we are not without confidence that our wishes will be met with the most cheerful compliance, by furnishing us with contributions to the Work.

The Articles on Natural History that will be inserted in this Work, will consist of all new discoveries and interesting accounts, that are worthy of being recorded in every department of this delightful study, and each will be so given, that the uninitiated in science, may readily and without any difficulty understand them.

To enter into any details respecting what will be given on Rural Affairs, would, we think, be superfluous;—we intend recording all kinds of useful information, connected with these subjects, and the selections shall be such, as we trust will be most valuable.

As we intend this work for the advantage of all classes of society, we shall always endeavour to adhere to this rule, that all our Articles shall be inserted in so plain and intelligible a form, and each subject be so stated and described, as to be within the comprehension of all its readers

Such being the clear and easy manner in which the Horticultural Register will be presented to the public, we trust our friends, will, with the utmost readiness, and as plainly as possible, send us communications—and such we solicit from every quarter of the globe. Any hints for improving the Work, will be very gratefully acknowledged by us, as all our efforts will be uniformly directed, to render it as useful as possible.

In conclusion, we wish it to be understood, that on no account whatever, will the size and expence of the work be increased; but to accomplish the object we set out with, as before stated, will all our future efforts be directed, and we trust they will be so approved of, by a liberal and enlightened public, as to merit increasing support. There will be no necessity for us to advance any apology, as it is very obvious both from the repeated applications made to us from time to time, by Gentlemen, Practical Gardeners, and other persons, as well as from the reasons we have before advanced, that a Work similar to the present, has been long wanting in this country, and from the nature of our business, we have necessarily extensive connexion with all classes of society, and consequently have considerable knowledge from our own experience, what will be deemed worthy their attention; and we can assure the public that we have not entered the literary field without hopes that our efforts, however humble, may be the means of benefitting the community at large. Thus far have we been led, with a view to explain why the present Work is introduced to public notice, and hoping we have proved satisfactorily the necessity of its appearance, we have only to add, that no pains or exertion shall be spared on our parts, to render each succeeding number more and more worthy of general acceptation.

PART I.—HORTICULTURE.

ORIGINAL COMMUNICATIONS.

ARTICLE I.—*Description of a House for Forcing Vines in Pots.* By MR. STAFFORD, Gardener to Richard Arkwright, Esq., of Willersley-Castle, near Cromford, Derbyshire.

GENTLEMEN,

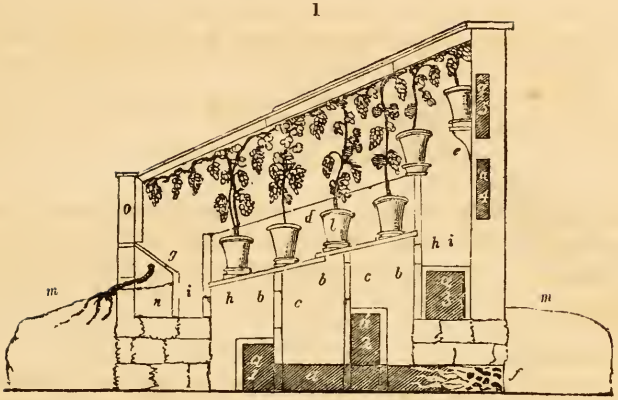
As you requested to be furnished with my ideas on early forcing of Vines, I have sent you a rough sketch of a Vinery which I have often thought would be well adapted for growing early Grapes in pots:—from the very ill success I have always witnessed in this part of the kingdom, I have long been anxious to point out some permanent method to obtain this object, without risking the crop on the rafters or back walls, and should the method here described be adopted, I feel satisfied that both the plan, and the practice here attached to it, will be found to answer.

The Plan itself will require but little explanation, being a very simple construction. The flues under the pit, will heat the air-chamber to a a very high degree, this heat should always be so applied as to act as a reserve, and be admitted into the house occasionally as may be required, through apertures in the back and front walls of the pit; the same flue returns under the back walk, and likewise in the back wall;—and from having such a quantity of heated masonry, you may calculate upon a certainty with regard to the heat of your house, let the external air be what it may. I have so economised the heat of a house here, that I have often in the winter months had no fire for three weeks together, and have always had pine plants at the same time in the house.

It will be unnecessary (and what I should by no means recommend) to fill the pit with bark during the time the vine pots stand in it, but they should be placed in rows in the pit, on the back curb and shelf, putting a feeder (or pan) under each pot, as the success will greatly depend on the proper application of water at the different periods of the season.

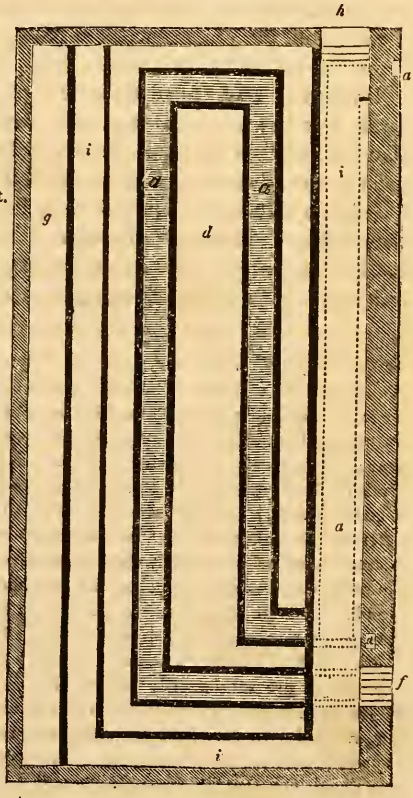
In the front, it is intended to have vines to supply the rafters, which might be brought to vegetate some time before the pots were ready to remove; and by planting them in the border in the front of the house, and with apertures to allow the outer air to enter under the partition marked on the plan, the vines will without difficulty remain torpid until May.—These are facts I have proved, in a house approaching in form very near to the one here mentioned.

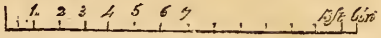
1



REFERENCES.

- *a* The flues.
- *b* An air-chamber under the pit.
- *c* Archways left in the walls which bear the floor of the pit, to admit a person thro' for cleaning and repairing.
- *d* Pit, 7 feet 4 inches wide
- *e* Back shelf.
- *f* Furnace.
- *g* Partition to inclose the Vines planted in the front border, for the rafters.
- *h* Apertures to admit the hot air into the house.
- *i* Back and front walks.
- *k* Door.
- *l* Vine pots, shewing the manner of training, &c.
- *m* Level of the ground.
- *n* Part of front partition filled with soil, to keep the Vines cool.





In respect to the treatment of the plants, I never throw them out on account of old age, I always renovate them, and have plants 10 years of age as perfectly young to all appearance as though they were raised last year in the pot. The size of the pots I grow them in, is 13 inches wide at the top, (inside measure) tapering to about half the width at the bottom, and about 15 inches deep. The soil I make use of is light rich vegetable mould.

The sorts I would recommend are those naturally prolific, and not the large-bunch-bearing kinds; all the most delicate sorts are more superior when grown in pots, to any I ever saw grown on the rafters; and I have often proved that a pot placed in the house on the first of January, and the same species trained up the rafter and subjected to the same heat, the former will ripen its fruit at least a month earlier than the latter.

After the Vines in the pots have done bearing, the pit might be filled with bark, and pine plants plunged in it, which might be allowed to remain until the Vines were again brought in, this should be some time before the rafters are cleared of fruit.

It might be conjectured by some that the roof in the sketch here given, was much too flat, and were there no upright sashes in front, I should be of their opinion. I am no advocate for narrow steep houses, and am sorry there are so many constructed this way. I can call them little better than shells. It will be quite unnecessary for me to state the number of bunches, and weight of the fruit borne by each plant, but I am ready to prove that it is almost possible to produce a weight of fruit equal to the weight of earth the plant grows in.

I am, &c.

May 18th, 1831. GEO. STAFFORD.

NOTE.—If a Vinery was built on this plan, and well managed, there is little doubt but it would produce sufficient grapes for a small family nearly the whole of the year; for instance, suppose the first plants in pots were put in on the first of December, these grapes would be ripe about the end of April, or beginning of May; a quantity more might be introduced on the first of February, to ripen about the latter end of June; the half of those on the rafter should then be put in action, about the beginning of April, these would ripen in August; and the other half of the rafter crop could be introduced by the middle of May, which would ripen in October; and in August more pots might be brought in, to ripen in January; thus giving a complete succession of Grapes all the year round.

We are about erecting a house for the purpose, and as soon as the results of our experiments are satisfactorily known, they shall be laid before our readers, for we are satisfied the contents of this ARTICLE are not mere theories. Mr Stafford is a practical gardener of the first order, and one of the best grape-growers we are acquainted with; he furnishes Mr. Arkwright's table with grapes nearly all the year round, and that, in super-abundance.—His plan of treating them in pots, is deserving the attention of every person who has a hot-house, or is likely to erect one: for it is an astonishing fact, that he can produce nearly as great a weight of fruit as the weight of the soil in which the plant grows; this has repeatedly come

under our observation, we can therefore speak of the surprising crops he produces in this way, equally as well swelled, and much better flavoured, than when trained up the rafters;—indeed the best swelled and best coloured bunches of the *Grizley Frontignac*, we ever saw, were grown in a pot, by Mr. Stafford. Although he recommends the smaller and more delicate sorts, he sometimes cultivates the larger, and these are equally well grown and beautiful;—we saw on one of his plants in pots, two years ago, 37 bunches, all well swelled and ripe! and he has at this present time, some of his plants nearly as prolific.

The means he uses to prevent his plants ever becoming old and useless, is well deserving notice;—he puts the plant deeper in the pot, every succeeding year, thus allowing the wood that was above the pot the preceding year, the opportunity of making new roots, which it does in abundance;—at his next time of potting, he takes from the bottom about the same proportion of old roots, by which practice, the vine fills its pot with new roots every year; he attends to them well with water during the whole time of forcing; (of course when the fruit begins to ripen they are allowed much less) they appear to answer well either on Spur or Single-rods, and when any one becomes weakly from over-bearing, it is cut down nearly close to the pot, and allowed a year's rest.

Great praise is due to Mr. Arkwright, for the liberal means he has afforded; he has done much towards the advancement of Horticulture, and we have long considered him a kind friend to Gardeners.

CONDUCTORS.

ARTICLE II.—*Remarks on Harrison and Curtis's New Mode of Glazing.* By JOSEPH PAXTON, F.H.S., Gardener and Forester to his Grace the Duke of Devonshire; and one of the Conductors of this Magazine.

A PATENT has been taken out by Mr. Harrison and Mr. Curtis, for a new mode of Glazing, and which in many respects is a great improvement.

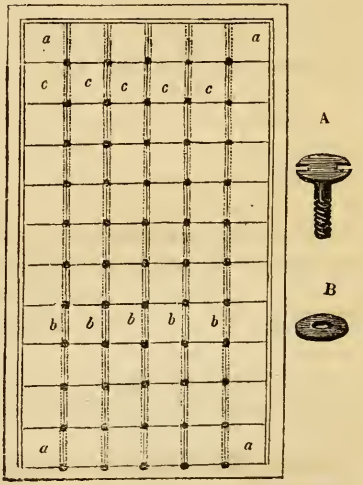
This new method consists "when complete" in having one plane surface, and no projecting part above the glass, except the collars and small heads of screws employed at the angles, to fasten down the squares.

Having had some frames constructed for his Grace the Duke of Devonshire, we are enabled to give an accurate description of the mode, as well as to state our decided approval of the system as far as we are at present able to judge. The chief reason of our early noticing it, is to call the attention of all practical men to the subject of Glazing in all its different ways, and also to request them to take into consideration, of what materials the roofs of Hothouses ought to be constructed. No subject relative to Horticultural buildings is more deserving of the decided explanations of experienced men than this; for we daily see the "blind leading the blind" on this very important topic; and while practical men are almost silent on this subject it is no wonder that persons

having only a superficial acquaintance with the nature and effects of ill-constructed roofs on vegetation, should be daily cavilling as to which is best suited for the purpose; we therefore invite, as we before stated, the attention of all practical men to this unsettled question; and shall be happy to insert any opinion respecting it. Experiments of this kind are under our especial notice, and have been for a considerable time; and as soon as they are completed we will insert them in connexion with any other account that can possibly be collected, and endeavour if practicable to set this conflicting subject at rest. But to proceed:—

The outer frame of the sash is made in the usual way, and rabbetted at the inside of the head and side-stiles of the frame or sash, to receive the outside edge of the glass: the inside of the frame is furnished with bars, the upper surfaces of which are flat, and made even with the rabbet (*Fig.*2, *aa*) at the sides and head of the frame. The glass is cut in squares, so that when placed on the bars, it meets quite close at the edges, up the middle of the bars, (*b b*) and close to the sides of the rabbet, (*a*) In this progress of glazing, a very thin coat of putty is laid on the surface of the bars upon which the glass is placed, and then pressed down, so as to leave the least quantity possible remaining at the under side of the glass. The squares are secured by means of a metallic screw, (A) and lead collar, (B) screwed on at each angle, (*c c*) the lower edge of the collar being bent down to hold the glass in its place. When the sash is completed, it has a most beautiful appearance. The screw heads being flat, their projection is very trifling.

2



There is a very extensive vinery, in this part of the country, glazed upon this principle. The rafters are metallic, and consequently narrow; the whole of the roof, including the rafters, is covered with glass, and its appearance is handsome beyond anything of the sort ever before erected, and when viewed obliquely, has the effect of a complete sheet of glass. The expense of glazing over the rafters will be no more than the usual cost of painting, as small sized squares are used.

Not only is this mode to be recommended from its elegant appearance, but also from the advantages it possesses in other respects over the old method; for in consequence of there being no mid-rib above the glass, there is much less shade than in the old plan, which is of some

importance in early forcing. The evils naturally attendant on the cracking of putty, its separating from the wood, and admitting water to enter and drop into the house, are all entirely prevented; it also dispenses with the renewal of putty, or having to paint the outside of the frame, which is an annual saving in expense, and keeps all the materials under the glass quite dry; thus preserving a house a great number of years longer than can possiby be done by the old way.

In the old mode, in general down the sides of the midribs, there is an accumulation of dirt and soot which causes shade, but it is not the case with this, all being clean; also, when the frames are painted, it generally occurs that the painters encroach upon the glass down the sides of the ribs; this evil is entirely prevented.

It is worthy of remark that the outside cost of this invention, including a trifling charge for patent-right, does not in any case exceed the expense of the old plan, but in some instances is cheaper, and it also secures an annual saving afterwards. The method is so simple, that any person keeping a few squares of glass in possession, can replace a broken square, without being at the trouble of sending for a glazier.

This system is not only well calculated for hothouses and sky-lights, but for every other description of glazing; an upright sash glazed upon this plan, has a very novel and striking appearance, and upon the whole this method well deserves the consideration and attention of the public, for if it answers the desired end, of which we have hitherto no doubt, it will be one of the most useful inventions ever brought forward.

May 25th, 1831. J. P.

Article III.—*On Changing the Colour of the Flowers of the Hydrangea Hortensis.* By Rusticus.

Gentlemen,

I hope you will not consider me as trespassing on the pages of your Magazine, or intrusive on the patience of your readers, if I make a few observations on what has come under my notice, relative to the treatment of the *Hydrangea Hortensis*, with a view to change the colour of the flowers. Some years ago, I turned my attention to the cultivation of this plant, and looking over the pages of the Encyclopedia of Gardening, I read the opinions of some eminent practical men, who stated that a compost of turf ashes, or ashes of Norway spruce, &c., &c., would effectually change the colour; this I made use of, but without the desired effect: for I found that the plants neither grew so healthy, nor

were the trusses of flowers any thing near so large as when free from it, and the colour was by no means a good blue. I next had recourse to a kind of peat-earth which appeared to contain a small portion of the oxide of iron; the plants in this grew very healthy, and bore large trusses of flowers—but these too were far from being of a good blue. Nevertheless, I am satisfied that when the soil can be obtained with a good portion of the oxide of iron, the flowers will be blue; but as I found this to be a method on which a practical gardener could by no means permanently depend, I was very anxious to discover something that would answer the desired end. All the means I made use of proved ineffectual, and I was forced, though reluctantly, to give up the experiment; but coming into the neighbourhood in which I now reside, I was much struck with the vigorous and healthy state of the Hydrangeas kept by the cottagers here: the flowers are of an exquisitely fine blue, and in size the trusses are surpassed by none I ever saw, and a particular friend of mine who had lived some years in the neighbourhood, assured me, that every year they blow the same beautiful colour. The compost they are potted in, is common *sandy loam*, mixed with about one third of *fresh sheep's dung*. A portion of the same dung is mixed with the water that is given to the plant, and I am informed that the young plants, which have been grown in all parts of the village, that have received this treatment, the same effects have been produced. As I have not hitherto, had an opportunity of proving the experiments myself, I beg leave to submit it to the notice of your readers, some of whom, may perhaps have used similar means.

I am, Gentlemen,

Yours' &c.

May 24th, 1831. RUSTICUS.

ARTICLE IV.—*ARBORICULTURE.—On the Neglect of Forest Planting, in Great-Britain.* By QUERCUS

GENTLEMEN,

I HAVE received your circular, inclosing a prospectus of your contemplated Horticultural Register, and to prove to you that I am sincere in my wishes for the success of your undertaking, I shall endeavour to comply with the request with which the prospectus concludes. In doing so, I shall attempt to direct the attention of gardeners, and others, to the science of ARBORICULTURE, a branch of rural economy, which, in addition to their multifarious duties, gardeners are frequently required to superintend: but to which, neither they, nor persons, who as foresters undertake the management of wooded lands,

have devoted that attention which the importance of the subject would seem to demand I am not sanguine enough to expect that those to whom these observations apply will acquiesce in the justice of them; on the contrary, I am well aware that not only gardeners, and stewards, but even woodmen, and hedge-carpenters, would consider themselves insulted, were it but intimated that a doubt could be entertained of their competency to conduct operations, which in their opinion, required little beside a certain degree of strength for performing them; but which, those who have directed their attention to the study, are convinced can only be acquired by years of close observation and experience. And what is the result of this lack of information on a subject which ranks next, in point of importance, to agriculture? The writer of this article, happens to know something of the management of wooded lands, as practised in each portion of the United Kingdom, and he is convinced that the fact will bear him out, when he asserts, that on this important subject, wide-spread, I had almost said universal, ignorance prevails.

It will readily be conceded, that the gardeners of Scotland are not inferior to those of the other divisions of the United Kingdom, either in general intelligence, or proficiency in their particular profession:—Yet, how do they stand with reference to the subject in question? an eminent modern writer on Arboriculture, and a native of Scotland, and therefore not liable to the imputation of prejudice, shall answer that enquiry. On the subject of Arboricultural knowledge in Scotland, Sir Henry Stewart, of Alanton, has the following remarkable passage, "Unacquainted with the history, properties, and culture of trees, he (the Scottish landed proprietor) naturally sees with the eyes and hears with the ears of his gardener, and as the gardener, ninety-nine times out of a hundred, knows nothing himself, it is 'the blind leading the blind,' in this important branch of rural economy. Sometimes, the forester is the operating person, which is still more unfortunate; for he is generally a mere lopper and cutter of wood:—in ordinary cases, he is much worse educated than the gardener, with equal pretensions and equal ignorance." Such is the testimony borne by a competent witness of the state of Arboricultural knowledge, in a country where, to use the words of Lord Kairn, "the spirit of planting has been aroused," and in which, the prediction of the same excellent writer, that the spirit of improvement will not be arrested until it has effected happy results for the country, proceeds steadily to its completion.

The neglected state of the wooded lands in England, has been the constant theme of every writer on foresting, from the days of Lauson, who wrote in 1597, to those of Lord Melville, in 1810. "How many are the forests and woods," says the former of these writers,

"wherein you shall have for one lively thriving tree, four, nay twenty-four evil-thriving, rotten, and dying trees, ever whiles they live; and instead of trees, thousands of bushes and shrubs. What rottenness! what hollowness! what dead arms! withered tops! curtailed trunks! what loads of moss, drooping boughs, and dying branches, shall you see every where!" And all this he attributes to the ignorance of the "Arborists," of his day. The father of British foresting, the truly respectable Evelyn, proceeds in a similar strain, to deprecate the barbarous ignorance of the woodmen of his time.—"It is a pity," says he, "to see our fairest trees defaced and mangled by unskilful woodmen, who hack and chop off every-thing that comes in their way; by which our trees are made full of knots, stubs, boils, cankers, and deformed bumps, to their utter destruction."* Arthur Young, compares the mutilated trees in many parts of England, to mop-poles; and asserts, as a result of the neglect, so general at that time, that fifty forests were eradicating, for one which was being formed. And Lord Melville, in his letter to Mr Percival, predicts with good reason, that if this culpable apathy to the interests of the nation shall continue, England will, "ere long experience a fatal want of an article, on which her existence as a nation, in no mean degree depends."

To what other cause then, but an unaccountable want of information as to the advantages to be derived from wooded lands properly managed, can we account for the necessity which exists, for importing timber into a country, where, for centuries, millions of acres of land, capable of producing valuable timber, have been permitted to remain totally unproductive.—When we traverse the wilds of Conemarra, or the Grampians, we are incessantly struck with the eligibility of vast tracts for the production of timber, but that they should continue in a state of comparative waste, does not excite surprise. In Scotland, we have seen that much has been already effected; and the day has not yet arrived, when the resources of Ireland shall be called into action; but that the hills of Yorkshire and Derbyshire, in the north, or the level plains of Hampshire, in the south, of England, should be suffered to produce heath instead of oak and deal; and that too, in a country where unlimited capital exists, and industry only requires permission to exert itself, must be ranked amongst the most extraordinary anomalies connected with the history of the country.

Foresting, as a distinct profession, so far at least as I have been able to observe, can scarcely be said to exist in Ireland.—Much land has doubtless been planted in that country within the last 40 years, indeed more has been done to excite a spirit for this improvement there, than in either England or Scotland; the Royal Dublin Society having within a few years before the commencement of the present century,

* Hunter's Evelyn's Sylva, page 470.

as appears by their published transactions, awarded premiums for that purpose, amounting to upwards of £12000. But the plantations having been made, (if we may judge from the present appearance of the majority of them, as well as from the published reports in some of the county surveys) little was done towards the attainment of the end contemplated in awarding the premiums:—and Ireland, with her five millions acres of waste land, three-fourths of which is adapted to the growth of timber, and her population perishing for want of employment, presents a picture of bleak desolation, not elsewhere to be witnessed.

In my next, I shall endeavour to point out the advantages to be derived from plantations judiciously managed; and as my name could not attach any additional importance to these remarks, I shall take leave, to sign myself,

With great respect,

May 27th, 1831. QUERCUS.

NOTE.—The above, is one of a series of Articles on Arboriculture, that will be continued by the same writer, who has an extensive acquaintance with this subject, and has more facilities than most persons, of knowing and seeing the different systems of managing woods. We hope they will be particularly attended to, as the subject is of national importance.

COND.

ARTICLE V.—*On retarding the blooming season of the common French and English Roses.* By MR. J. HAYWARD.

THE nobility and gentry who remain from their country seats till late in the summer, are generally prevented from seeing this class of flowering shrubs, in perfection, but the following practice causing them to blow three or four weeks later than when grown in the usual manner, well merits attention from those persons who are desirous of having Roses to bloom as late as August and September.

The border in which the shrubs are planted, is manured with well-rotted cow-dung, about the first week in February. The shrubs are not pruned during the autumn or the early part of the winter, but remain untouched till the buds have pushed, some of them half an inch long; the shoots are then shortened below where the buds have pushed. The shortening the shoots so late in the spring, does not in the least weaken the shrubs, they blossom as vigorously and as freely as in the usual mode of treatment.

When desirable to have the blooming season prolonged, a portion of the Roses cut, as is here described, while the remainder are treated in the usual way, will produce the desired end.

May 21st, 1831. J. HAYWARD.

PART II.

HORTICULTURAL AND RURAL SUBJECTS.

REVIEWS AND EXTRACTS.

ARTICLE I.—*Extracts from Works on Horticulture, and Rural and Domestic Economy.*

1.—GARDENERS' MAGAZINE; edited by J. C. LOUDON, F.L.S., &c. published every two months, 8vo. 3s.6d.

No. 33, for JUNE, 1831,—contains an article,

5.—Page 280. *On Destroying Woodlice on Trees or in Frames;— with a Notice of a Mixture for protecting the Stems of Trees from the erosion of Hares and Rabbits.* Communicated by MR. JAMES WALDRON, late Gardener to Sir William Call, Bart., of Whitford, near Callington, Cornwall.

TAKE one lb. of dried cheese, and about one dram of powdered arsenic, perfectly dry, for it is a fact not generally known, that arsenic when moist is not a poison; (*query*) the best way therefore is to keep it in the lump, grate the cheese, and mix it and the arsenic well together, Then take small pieces of old board, and bore in each a hole about one inch in diameter, and as much in depth, put as much of the mixture as will lie on a shilling in each hole, and beat it down hard to the bottom; this done, lay the bits of wood with the holes undermost, wherever the insects are troublesome. The mixture requires to be renewed every day, and very little of it should be made at a time, as in two or three days the arsenic loses all its poisonous qualities.

Notice of a Mixture, for preserving the Stems of Trees from the erosion of Hares and Rabbits.—Mr. Waldron. has also a Balsam of very great efficacy in protecting trees from the ravages of hares and rabbits. It is not at all unsightly in its appearance, but is so offensive to the hares and rabbits, that they will not approach it within a considerable distance. The composition he considers too valuable a secret to be disclosed without a pecuniary remuneration: to which the editor adds, "a circumstance we regret, and by no means approve of;" but we must beg leave to differ from Mr. Loudon in this particular;—it is our opinion that every person who makes a discovery that will be of permanent advantage to society, ought to have a proper remuneration for his invention, or what is the use of humble individuals applying themselves to a particular object, if their reward is to be nothing more than the bare applause of the public. If Mr. Waldron has discovered any mixture that will prevent the devastation made by hares and rabbits on young trees, and the application of it is not expensive, the discovery is a most valuable one; we have hitherto seen nothing of the kind that has had the desired effect without injuring the trees; and if he will send us a little of his nostrum and its effects are as represented, we will make him a handsome compliment to know what it consists of, for had we been aware of any real preventative, we could have saved our employer upwards of a thousand pounds in the storm of last year.

9.—Page 285. *On Heath-Mould and Peat.* By J. D.

I HAVE often, (says the writer) found the terms *Peat*, *Peat-earth*, and *Bog-earth*, employed to designate that particular kind of soil in which the British species of heath, the Cape heaths, and the North American plants, thrive so perfectly; that this kind of soil (which he calls "Heath-mould") is distinct enough from Peat, the following characters of each, will evince.—

Heath-mould is the soil which occurs on heaths, sites not extremely wet and low, as bogs are, but usually elevated, and in consequence well drained, and exposed to the scorching rays of the sun of summer, and the withering blasts of winter. The stratum, or layer of soil, is usually less than twelve inches in thickness, lying on a stony subsoil, and both the soil and subsoil of so sterile a quality as to forbid tillage, yielding usually a tough, thickly-woven turf, and heath or ling, and furze in abundance, with occasional brambles, and low stunted specimens of other species of shrubs or trees. This stratum taken off, so as to leave the stones bare, forms, when partially decomposed and comminuted, the invaluable and indispensable soil for innumerable plants of the garden; and is composed of the decaying turf, with its spongy interwoven roots, a highly friable black soil, and a plentiful admixture of small-grained white sand. The blackness of the soil is doubtless partly owing to the perpetually progressive rotting of the exuviæ, continually supplied by the growing turf, and which decaying exuviæ, besides the blackness, give to the soil also, in no small degree, the properties of leaf or vegetable mould. From this, the spongy masses of vegetable fibres, the friable nature of the soil itself, the decomposed vegetable matter, and the large proportion of white sand which it contains, arises its peculiar eligibility for all plants with delicate hair-like roots.

Peat-earth or *Bog-earth*, on the contrary, is the soil yielded by fens, turbaries, bogs, and morasses. It constitutes almost the entire soil of the fens of Lincolnshire and Cambridgeshire, and is, in fact, the soil forming the turf, of which so many millions are annually dug, sold, and burnt, as an article of domestic fuel. Peat, instead of being in a thin stratum, forms sometimes a stratum of great depth; instead of occupying high sites and being well drained, it occupies the lowest, and is usually saturated with water to the very roots of the herbage it bears; instead of a stony subsoil, stones are almost totally absent; and the subsoil is a water-holding clay. While Heath-mould is most important to the gardener, Peat is unfit for, and inimical to, most of the purposes of floriculture.

20.—Page 314. *On the injurious effects of Ants on early-forced Peach Trees, with the means of extirpation.* By MR. JOSEPH THOMPSON, Jun., Welbeck-Gardens, Notts.

THE writer informs us, his earliest peach-house was shut up, and small fires applied on alternate evenings, after the 25th of November: on the 10th of December, some few ants were observed traversing the trellis in quest of their favourite food produced by the aphis, but as great attention had been paid to washing every shoot when the trees were pruned, no aphis' eggs, &c., were on them;—this probably caused the ants to injure the peach blossoms, which was not discovered until the opening of the petals of two or three of the earliest blossoms, when the filaments, anthers, and pistillum, were observed to fall out of the corolla. On closer examination we found that many of the earliest blossoms had the unexpanded petals perforated, the filaments eaten out, and the ants lodged in the nectaries, feeding upon the honey. This was on the evening of the 13th of December, and we immediately commenced killing them by hand, dislodging them from the blossoms with slender wires. Some bones of roast meat, &c., were placed, which attracted their attention and prevented them from climbing the trees, but when

the colony was discovered under the fire-flue, at its entrance into the peach-house, they were supplied with the preparation below, and two days after not an ant appeared. Take thin slices of wheaten bread, (say half an ounce weight) dry it slowly, but well, and pound it in a mortar;—three quarters of an ounce of fine loaf sugar, powder it also; then add half an ounce of the oxide of arsenic, commonly called levigated mercury; triturate the whole well in a mortar, then put it into a clean, dry, glass bottle; (of course it is a strong poison) very small portions of this may be applied on bits of glass or the flat side of an oyster-shell, as the smell of a recent oyster-shell is also an excellent decoy to ants. Small bell-glasses, such as are used for striking cuttings, or small flower pots, may be placed over it to prevent moisture from rendering it pasty, as well as to hinder any domestic animals from taking it. This poison is equally as fatal to vegetable as to animal life; for if it be laid on the soil round the stem of an orange or other plant, it will corrode the bark and alburnum, to the destruction of the plant.

2.—Memoirs of the Caledonian Horticultural Society. Vol. 4, Part II.

Page 421.—Article 48. *On Destroying Caterpillars.* By Mr. Alexander Witherspoon, Haddington. Read May 23rd, 1815.

Mr. Witherspoon's garden was small, with a few rows of gooseberry bushes, and by constantly looking after them he was able to keep them pretty free from caterpillars, but after his crop of fruit, notwithstanding his care, he observed a numerous swarm of them of a very diminutive size. As the season was so far advanced, he conjectured they were the succeeding race of depredators for the following spring, and consequently, they must have some means of self-preservation, and if he could discover their retreat, it would be an easy matter to kill them. By careful observation he found that they retired to the lower parts of the bushes, where they live through the winter in a torpid state, without food, in clusters or groups principally, under chopped leaves, which are woven and bound to the creatures and to the branches, by a fine silken thread, which, like the spider, they have the power of working from their bowels; they are likewise found bound together by the same thread, but without such covering as leaves on the under side of the horizontal and angular branches, where the branches divide, and especially near any rough or knotty part, which serves them for shelter and covering. I find, (he adds,) such numbers collected in these retreats, that it appears few have died this winter, (1814—1815) though it is now January. Although they were torpid, they became lively when brought into the house, and seemed as if they could long subsist without food:—he infers from these observations, that these creatures come forth from the egg while it is yet summer heat, and spread themselves over the bushes, but being so minute are not discovered till near the close of the season: they then seek a place of safety until the returning spring again brings them into action.—He proposes to kill them in their winter quarters, which, (he says) may be done by besmearing the parts with tar: he, however finds some difficulty with them on the walls, as they get under pieces of lime and stones, but being certain of the stage they are in, (he observes,) they can be traced out.

Page 446.—Art. 51. *On the cultivation of Peaches and Nectarines on flued walls: —On screening the blossoms of wall trees, with Nets and Fern.—On saving Peas and Beans from the attacks of Mice.—and, On Destroying these Vermin.* By Mr. William Irving, Gardener to Sir C. Swinburn, Bart., of Capheaton. Read June 14th, 1814.

The flued walls were built in the common way, twelve feet high, with three turns or levels, each forty feet in length, and trellised the height of the first flue

to save the trees from being scorched by the heat of the fire. The borders were composed of eighteen inches of strong clay, which is the natural soil, and eighteen inches of light soil, over a bottom of six inches of stones and lime-rubbish, all beat and smoothed together; the manure is stable dung, soot, and vegetable mould. He prefers fan training to horizontal, both of which he tried. His method of pruning is, to unnail most of the tree and cut out all the wood that is most worn out by last year's crop, shortening such as are wanted for new wood, and such as have not ripened their shoots to the point: when they are well ripened to the point, he lays them in at their full length, allowing them a proper distance, he then nails them with all new shreds, boiling the old ones and laying them by for summer nailing. When all is finished, he washes the trees and walls over with the following wash:—2 lb flowers of sulphur; 1 lb soft soap; and a few pints of soft water. Boil the mixture slowly for some time, take a tub, fill it nearly full of soap suds, and then put in a tolerable quantity of the boiled mixture, making all milk warm:—to be used with a squirt or garden engine, stirring it all the time to prevent the sulphur settling. The winter is the best time for using it; and by these means (he says) his trees are quite free from mildew, &c., though in a very bleak and cold situation. As soon as the fruit is all off his trees, he again washes them with soap suds, and if the wood is not ripe he lights his fires to ripen it.

On screening the blossoms of fruit trees with Nets and Fern, to save the blossom from frost and bleak winds.—In September he gathers a quantity of fern, and having fixed poles at the distance of four feet from each other, resting their tops against the coping and their lower ends about eighteen inches from the wall, he draws a net over them, and fastens it to the poles with matting; fern is then placed or stuck in the net on the under side, afterwards another net is thrown over the whole, which safely preserves them till the fruit is properly set, when they are gradually removed.

Method of saving Peas and Beans from the attacks of Mice.—When the peas &c., are sown in the common way, he gets a quantity of the tops of whins, (gorse) these he lays in the drills above the seed, so close, that the shoots touch each other; he then covers the drills with earth, and gently presses them with the foot, and then draws the remainder of the earth with the hoe, into a small ridge. He recommends sticking them as soon as they appear above ground.

Cheap method of catching Mice.—He sinks a bell-glass into the earth to the level of the rim, and fills it half full of water; he then throws some meal on the top of the water, and also spreads a little outside the glass on the soil: which means he has successfully proved.

3.—British Farmers' Magazine; 8vo. published quarterly.

No. 19 for May, 1831,—contains an article,

Page 162.—*On Orcharding, as a means of increasing the produce of Small Farms.* By William Reed, Esq, of Chat-Moss, near Warrington, Lancashire.

After eulogising the laudable efforts of the wealthy landholders, and endeavouring to clear them of the imputations generally cast upon them, he goes on to say that "the small farmer lies under some disadvantages," which proves the necessity of something being done to render the land more productive, and "as one great means," to answer this end, he recommends "Orcharding," on a plan which he himself has practised with considerable success; he, at once, reprobates the old system of planting, "here and there a straggling tree in a field of grass," which are constantly exposed to the ravages of "rabbits, hares, goats, or sheep, which

gnaw off the bark; or cattle, which break them down altogether. The orchard, or fruit-ground, I propose to the small farmer, is a very different affair from the straggling sort of thing, which I have before attempted to describe. The acre of orchard I recommend, shall be an acre of ground planted with fruit-trees, and not an acre of inferior pasture or meadow, with here and there a straggling old tree. They should be planted in rows, 5½ yards apart, and 11 feet from tree to tree in the rows; and if, after the lapse of years, they are found too close, 120 of them may be removed. The sorts recommended for planting, are—

120 Hawthorn Dean, or Hawthornden,
20 Keswick Codlin,
20 Nonsuch,
20 Farnes Pippin,
20 French Crab,
20 Ribstone Pippin,
20 Scarlet Nonpareil,

making in the whole 240, to be planted on an acre," he also particularly recommends the purchaser to be careful that the roots are cut as little as possible. After giving a description of the fruits he before named, he states, that the Hawthorndean, the Keswick Codlin, and the Nonsuch, should be half standards, or such as form their heads about three feet from the ground, because the weight of the fruit is apt to bend the branches so low, that it is necessary if dwarfs, to cut the healthful bearing wood away, to keep them from the ground. When the trees are planted, he recommends cutting down about half the head; and in the spring, forking-in a little well rotted dung about the roots; and as there will be considerable ground to spare while the trees are small, on this spare ground he plants 240 gooseberries and currants, and 2 feet from the lines of apple trees, on each side, is to be occupied by potatoes, onions, turnips, French-beans, peas, &c.—but to avoid cabbages, parsnips, or carrots; strawberries might be introduced, provided they were not allowed to stand above two years without a removal. The most important question of all comes next, which is expense;—well, Mr. Reed proceeds, the labour of trenching the acre two spit deep with a spade, would in most parts be worth £6; trench-ploughing the same twice over, would perhaps be £2.10*s.* to £3; and by the third plan the expense would not exceed £2 5s, if only a single deep ploughing were had. If the depth of the soil will allow it, that is, if the surface soil would not be materially injured by such admixture with the subsoil as trench-ploughing twice would occasion, he thinks it the best plan of the three; in either case all the expense of working the land cannot in fairness be charged to the trees.

	£.	*s.*	*d.*
The cost of preparing the ground is assumed to be	2	0	0
240 Apple Trees at 9*d.* each,	9	0	0
240 Gooseberries and Currants,	1	0	0
Planting and contingencies,	1	0	0

"I do not wish however," says the writer, "to lead or mislead others by prophesying what may or will be the results; I have shown the cost, and I will now state what have been the returns from 10 acres planted in a similar manner by myself, in the spring and autumn of 1822;—the fruit alone has produced as follows. viz:—

	£.	*s.*	*d.*
1823,	0	0	0
1824,	13	0	0
1825,	65	0	0
1826,	103	0	0
1827,	412	0	0
1828,	265	0	0
1829,	261	0	0

The produce in 1826 would have been still greater, but for a sharp frost which almost destroyed the whole of the promised crop. I believe that £300 out of £360 received for apples in 1827 was for Hawthorndeans, the remainder was received for gooseberries and currants. A piece of ground containing rather less than an acre, which was occupied exclusively by Hawthorndeans, produced £80, besides growing an excellent crop of potatoes, followed by turnips. The average price for which the apples were sold, was only 4s.6d. per bushel. The trees were rather weak in 1828, from over-bearing the preceding year:—in 1829, the weather was wet, cold, and stormy The ground has since been under-let to a tenant who pays a rent amply remunerating the planter for his outlay, and at the same time, affording a means of respectable livelihood to a worthy and industrious man, who I hope will in some one year not far distant, receive £1000 for his fruit."

4.—Quarterly Journal of Agriculture, 8vo.

No. 13, for May, 1831,—contains an article,

On Pruning Forest Trees. By Mr. Gavin Cree, Nurseryman, Biggin.

After some preliminary observations on the evils consequent on bad pruning, and stating his views of the reaction of the sap and manner of vegetation in spring, Mr. Cree says, that "to manage woods properly, young trees should be examined the third year after they are planted; and if more than one leading shoot is found to exist, the best one should be selected, and the others shortened to one half the length of the selected shoot. This practice of examining the trees should be continued every year, until they are about 15 feet high. These shortenings, however, should not be confined to superfluous leading shoots, but should include any branch which is gaining a disproportionate ascendancy over other branches of the same year's growth; and as trees produce only one regular tier of branches in each year, any branch should be shortened which is of greater length than the majority of the branches of the same tier, or if the whole are too long they must all be shortened. In the case of trees intended for timber, after they are at and above 15 feet high, this rule of shortening the branches must also be applied to the undermost tiers of branches. After the trees are 15 feet high, the undermost tier of branches only should all be cut off close to the stem, in one year; in the subsequent year, another tier should in like manner be cut off, and so on every year afterwards, always cutting off only a single tier in one year. The same process of shortening the branches is always to be continued as before directed, but must be left off some years before the cutting off the branches shall be discontinued, so as to give a more extended top to the tree; for all trees that have naturally conical heads, such as the willow, poplar, larch, silver and spruce fir, require longer heads than those trees which are of a spreading nature, such as the oak, beech, and others. But no branch, wherever it be situated, is be to cut off close to the stem, until such branch stands upon the undermost tier. In this mode of shortening the branches, it will be seen that the tree will at all times present a head of nearly a conical form; and advantage should always be taken of shortening such branches as will balance the tree best, and produce the proper shape of the top."

Having stated the size the tree ought to be when the "shortening and cutting off the branches" should commence, Mr. Cree goes on to show, how long it ought to be continued, or in other words, what proportion the head of a tree ought to bear to the trunk; he supposes the tree "to have 12 tiers of branches, or be 13 years old, it is evident," he says, "that for a number of years to come, by only taking off one tier in a year, the part of the tree covered with branches will be

greater than the part of the trunk which will be cleared." This will be more distinctly known by the following table:—in it, the statements are made at intervals of 4 years, for the sake of brevity; the growth of the tree too, for the sake of simplicity, is assumed to be the same in each year, namely 15 inches; "this" he says, "I am well aware, is much less than the annual growth of properly pruned trees, the assumption therefore, is merely taken up as one convenient for illustrating the effects of this system of pruning :—

	Height o tree.	Number of tiers.	No. of tiers remaining	No. of tiers removed.	Length cov. remaining.	Length of naked trunk
At 15 ft. high & 12 tiers of branches	*feet* 15	12	12	0	*feet.* 15	*feet* 0
Four years after	20	16	12	4	15	5
Four years after,....	25	20	12	8	15	10
Four years after,....	30	24	12	12	15	15
Four years after,....	35	28	12	16	15	20
Four years after,....	40	32	12	20	15	25

"In the last line of the table, it will be seen, that at 33 years of age, at the assumed rate of growth, the tree will be 40 feet in height, it will have had 32 tiers of branches, of which 12 are still remaining, and 20 removed; and the height of the part of the stem cleared of branches will be 25 feet, and of the part covered with branches 15 feet." He says, the proportion he has "found best is, the trunk to be about three-fifths of the whole height, and the head two-fifths, that is, in a tree of the size in question, 45 feet of trunk to 30 feet of head." He sets this down as a rule for forest trees, but where trees are intended for ornament or shelter, a different mode of pruning will be required to be adopted. For ornament, the object is to have large heads with long pendulous branches. In such circumstances the tree may be pruned to the height of 5, 6, or more feet, as may suit the taste of the individual, annually shortening and cutting off the branches as recommended for forest trees, until they are at the height required; and to produce the conical form, the long branches ought to be shortened; and in those which are of a proper length, and are not required to grow longer, the buds on the extremities of the branches should be cut off. Where shelter alone is wanted, in general the branches should only be shortened. Trees in plantations, &c., by this mode of shortening are in a great measure prevented from suffering by the destructive effects of heavy falls of snow.

Old trees that have been neglected, he proceeds to state, may be greatly improved by this system. But after the shortenings have been performed, a considerable period must elapse before the branches are cut off close to the stem, which must be performed with much care, first by being cut off about 12 or 18 inches from the stem, and finally, by being cut off close, but so as not to injure the adjoining bark.

Article II.—*Catalogue of British Works on Gardening, Rural Subjects, &c.*

1.—Edward's Botanical Register, &c. (new series) by John Lindley, F.R.S. &c., Professor of Botany to the London University. Monthly numbers, 8vo., 4s. coloured.

Vol. IV, No. 3, for May, contains,

Cáttlèya Guttàta, Spotted Cattleya;—this species is very remarkable for the curious spotting of the flowers; it was sent from Brazil, by the Right

Hon. Rob. Gordon. *Azálea Calendulàcia*, var. *Stapletoniàna;*—Lady Harriet Stapleton's Highclere Azalia ;—(so called, in compliment to the daughter of the Earl of Caernarvon)—the flower is of a rich deep rose colour. *Trifólium Vesiculòsum*, Bladdery Trefoil ;—a neat perennial, discovered by M. Robert, in Corsica. *Jasmìnum Wallichiànum*, Dr. Wallich's Nipal Jasmine;—this nearly resembles the *J. Revolutum*, it is hardy, and an acquisition to the flower garden. *Alströmèria Pulchélla*, var. *Pilosa;*—Red-Speckled-Flowered Alstromeria, hairy variety ;—this is a rich flower, of a bright orange colour, mixed with red, it is nearly hardy, and easily cultivated; we would recommend it to every lover of plants; it is said to be subject to variation, and the present plate, Mr. Lindley has figured, to show a slight difference that exists between one represented in the same work, (fol. 1008) and the present one; but we think it advisable not to put the subscribers to the expense of a plate for the information which might have been conveyed in two lines of letter-press, and as the editor of the Botanical Register possesses the privilege of figuring all the new and rare plants in the Horticultural Gardens, it cannot be for want of subjects ; yet notwithstanding, we believe the Botanical Register to be, by far, the best work of the kind published. *Gaulthèria Shallon*, the Shallon Gaultheria ;—a dwarf shrub, with some share of beauty, it grows in the woods of North-west America, and was introduced by Mr. Douglas, in 1826. The fruit is made into cakes and eaten by the native Indians, but is not very palatable to an English stomach. *Potentílla Missóurica*, Missouri Cinquefoil;—a hardy yellow-flowering perennial, from North-America; the seeds were collected by Dr. Richardson. Also the letter-press of the *Iris Bìcolor*, figured in No. 2, for April, (page 1404) this is one of the gayest of this beautiful tribe of plants; it is treated as a half-hardy, and planted during the summer, on a north aspect, where it greatly flourishes; its origin is unknown.

No. 4, for June, contains,

Turræa Pinnàta;—a tender stove plant, with light rose-coloured flowers, was brought to England, by Dr. Wallich, in 1828, and presented to the Horticultural Society, in whose gardens it flowered in March, 1830, but as the learned Doctor's acquaintance with the shrub was very limited, its genus is scarcely determined. *Rhododéndron Alta-Clerense*, Highclere Rhododendron;—this is an hybrid of the most exquisite beauty, its flowers are of a transparent crimson colour, rendered still more bright by a few distinct spots of a darker hue; its foliage too is very handsome; it was raised at Highclere, the seat of the Earl of Caernarvon, and is intermediate between the *R. Arbòreum* of Nipal, (which is known to be rather a tender plant, bearing flowers of a deep carmine colour and growing to the height of a small tree) and a seedling from *R. Catawbiénse*, which had been fertilized by the pollen of *R. Pónticum*; it is quite hardy, and of extremely vigorous growth, and is by far the handsomest variety that has yet appeared. *Epidéndrum Odoratíssimum*, Sweet-scented Epidendrum;—this fragrant plant is a native of the woods near Rio Janeiro, from whence it was introduced a few years since, and flowered in the Society's garden, at Chiswick, last summer; the flowers have no particular beauty, being small, and of a greenish-yellow colour, it grows freely in decayed moss and wood, well drained, and placed in a hot damp part of the stove. *Crócus Vérnus*, v. *leucorhyncus*, Pheasant's-feather Crocus;—a pretty variety, raised by Mr. Williams, of Turnham Green, who gave it its name; the colour of the petals are a pale blue, except the

tops, which have a small purple spot surmounted with a patch of pure white. *Habránthus Phycellóides*, Phycella-like Habranthus;—this fine species was brought from Chili, by R. Gower, Esq.; the colour of the flowers on the upper part of the petals is a bright red, whilst at their base they are of a bright yellow; it flowered at Spofforth, in October, the pot standing out of doors. *Glycine Bilóba*, Two-lobed Glycine;—a desirable conservatory plant, attaining the height of twenty feet; it is a native of Mexico; the seeds were intoduced by Mr. Geo. Ackermann. *Tulipa Oculus-Solis*, var. *præcox*, Early Sun's-eye Tulip;—this flower is of a brilliant crimson colour, hardy, and was collected by Mr. Strangeways, near Florence; it differs from the plant of the same name, described by Tenora, which Mr. Strangways conceives to be the *T. Radii*. Here again we must beg to remind Mr. Lindley that the present figure is unnecessary, as what is here described might have been done without a plate for illustration.

2.—Curtis's Botanical Magazine, &c., New Series, Edited by Dr. Hooker. Monthly Numbers, 3s.6d. coloured; 3s. plain.

Vol. 5, No. 53, for May, contains,

Mimulus Perfoliátus, Perfoliate Monkey-Flower;—this is the *Conóbea Alàta*, of Graham, in the Philosophical Journal, 1830; it was raised from Mexican seeds, in the Garden of P. Neil, Esq. Cannon-Mills. and has since been ascertained to be a *Mimulus*. *Eránthemum Strictum*, Upright Eranthemum;—a neat stove plant, with blue flowers, rather larger than *E. Pulchella*, is a native of Nipal, and was introduced by Dr. Wallich. *Browállia Grandiflóra*, Large-flowered Browallia;—an annual of some beauty, with light blue flowers, was raised in the Botanic Garden, Glasgow, from seeds collected in Peru, by Mr. Cruikshanks. *Schizánthus Hookèri*, Acute-petalled Schizanthus; This is a biennial that deserves a place in any garden; it was brought to this country by Dr. Gillies; and its flowers are of a rose colour with a flame of bright yellow. *Janìpha Manihot*, Eatable-rooted Physic Nut, Bitter Cassada, Manioc or Tapioca;—This plant was introduced in 1739 from South America, the juice of its roots is of such a poisonous nature, that if a small portion of it be taken inwardly, it produces instant death, nevertheless, the root is manufactured into bread and eaten by the natives, and it is also supposed that our Tapioca is extracted from it. The editor gives a most interesting account of its deadly nature, which we will extract as it stands. "Such is the poisonous nature of the expressed juice of the Manioc, that it has been known to occasion death in a few minutes; by means of it the Indians destroyed many of their Spanish persecutors. M. Ferrier, a physician, at Surinam, administered a moderate dose to dogs and cats, who died in the space of twenty-five minutes, passed in great torments: their stomachs on being opened, exhibited no symptons of inflammation, nor affection of the viscera, nor was the blood coagulated; whence it appeared that the poison acted upon the nervous system, an idea that was afterwards confirmed by thirty-six drops being administered to a criminal; these had scarcely reached the stomach, when the man writhed and screamed with the agonies under which he suffered, and fell into convulsions in which he expired in six minutes; three hours afterwards, the body was opened, but no alteration was found, except that the stomach was shrunk to less than its natural size, so that it would appear the fatal principle resides in a volatile substance, which may be

dissipated by heat, as indeed is satisfactorily proved by the mode of preparing the root for food." *Chrysophyllum Cainìto*, Broad-leaved Star-Apple;—the foliage of this plant is very handsome, but its flowers are small and but seldom appear, and are of a yellowish white colour; it is said to grow to the height of thirty or forty feet, and was introduced by Philip Miller, from the West Indies, in 1737, and is pretty well known in our stoves. *Argemóne Grandiflòra*, Large-flowered Mexican Poppy;—this is a hardy perennial, introduced from Mexico, by Mr. Barclay; its blossoms are of a delicate white, showy, and well worth cultivating.

No. 54, for June, contains,

Dendròbrium Speciòsum, Great Dendrobrium;—this plant is a native of New Holland, and an old inhabitant of our stoves, but as it seldom flowers, has been but little noticed.—The flower however is by no means despicable, its colour is pale yellow, darkening as it approaches the extreme ends of the petals. *Lobèlia Hypocrateriformis*, Salver-shaped Lobelia;—an annual, with rose-coloured flowers, tinted with purple.—The seeds of it were sent to the Botanical Garden, Glasgow, by Mr. C. Frazer; it is a native of the southern shores of New Holland, where it was discovered by Mr. Brown. *Broughtònia Sanguínia*, Crimson-Flowered Broughtonia;—"This," says Brown, in his Natural History of Jamaica, "is one of the most beautiful of this tribe of plants," its flowers are a brilliant mixture of red and orange colour, it was introduced to the garden at Kew, in 1793. *Ornithógalum Fimbriàtum*; a bulbous plant with flowers of a green and white colour, a native of the Crimea, introduced in 1821. *Rhipsàlis Mèsembryanthemòides*, Fig-Marigold-like Rhipsalis. *R. Fasciculàta*, Cluster-branched Rhipsalis; and *R. Cassytha*, Naked Rhipsalis;—all parasites, but will flourish in a pot of common soil in the stove; with yellowish white flowers. The plants are in appearance not unlike the *Cactus* tribe, (to which natural family they belong,) they bear white berries, somewhat resembling the missletoe, and have (particularly the latter) long been inhabitants of our stoves.

3.—Botanical Cabinet, by Messrs. Loddiges, in 4to. and 8vo. Monthly. 4to. coloured, 5s.; 8vo. partly coloured, 2s. 6d.

Part 169, for May, contains,

Justícia Aspérula;—A low, shrubby plant, with rose-coloured flowers, a native of India, lately introduced by Dr. Wallich; it will prove a pleasing addition to the stove. *Hákea Oblíqua*;—a curious green-house plant, from the south coast of New Holland, where it was discovered by Mr. Brown. *Alstrœmèria Salsilla*;—this is an elegant climbing stove plant, the colour of its flowers a light crimson and yellow, with dark spots; it is a native of South America and St. Domingo; report says, the roots are eaten as potatoes. *Corræa Pulchélla*, is a native of the south coast of New Holland, and resembles both in foliage and flowers the *C. Speciòsa*, its flowers continue a long time; it was introduced in 1824. *Erìca Droseröides*;—an old inhabitant of our green-house, a very delicious and handsome species, flowers freely most of the summer and is well worth keeping. *Erica Beaumontiàna*;—it is an abundant flowerer, the colour is white, it was raised by Mr. Rollisson, who named it in honour of Mrs. Beaumont of Bretton Hall, Yorkshire. *Zygopétalon Crinìtum*;—a fragrant stove plant, and native of Brazil, with handsome spotted flowers, found by Mr. Warre. *Céstrum Laurifólium*,—a fine-leaved

stove plant, with small yellow flowers, has long been cultivated in England. *Ptéris Calomelànos*,—a new and very beautiful fern, was sent to Messrs. Loddiges, in 1830, by their friend, Mr. Otto, of Berlin. *Vernònia Axillæflòra*,—a handsome stove plant, with purple flowers, lately introduced from Brazil, by the late invaluable friend to Botanists, Robert Barclay Esq. of Bury Hill, whose loss will be long felt and not easily replaced.

PART 170, FOR JUNE, CONTAINS,

Epàcris Impréssa;—this is a plant of real beauty, its colours are not so handsome as the *E. Grandiflòra*, but from the abundance of rose-coloured flowers it bears, it makes a much better show; it is a native of Van-Dieman's-Land, and was introduced in 1825, by Mr. Baxter; it requires the shelter of the greenhouse. *Andésmia Micróphylla;*—a low, shrubby, greenhouse plant, with many branches, producing solitary yellow flowers at various seasons of the year: it is supposed to have been first discovered by Mr. Menzies. *Cánna Pàtens*,—a beautiful species; Mr. Roscoe considers it to be a native of St. Helena, it is usually kept in the stove, and flowers in March and April. *Camèllia Japónica, variegàta símplex;*—this is a pleasing variety, it was raised from seed by Mr. Press, at E. Gray's, Esq., Hornsey; its flowers are freely produced, and are white beautifully streaked with red. *Erìca Præstans;*—the growth of this plant is bushy, and rather short, it produces delicate white flowers, is a native of the Cape of Good Hope, and was introduced in 1810. *Erìca Vestìta Cárnea;*—this is a rich flesh-coloured and beautiful variety of the *Vestita*. *Ficus Urophylla;*—a dwarf stove plant, bearing orange-coloured berries, which give it a very gay appearance; it was brought from India, by Dr. Wallich. *Othónna Abrotanifòlia;*—this is a yellow-flowering greenhouse plant, rather ornamental: it is a native of the Cape of Good Hope. *Saxífraga Virginiénsis;*—a little white-flowering hardy plant, a native of North America; it grows freely in light soil mixed with a portion of old mortar. *Asplènium Monánthemum;*—a beautiful fern; it has been cultivated in the stoves, by Messrs. Loddiges, for some time.

4.—THE BRITISH FLOWER GARDEN. By ROBERT SWEET, F.L.S., &c. 8vo. monthly. Coloured, 3s. Plain, 2s.3d.

NO. 24, FOR MAY, CONTAINS,

Dictámnus Angustifòlius, Narrow-leaved Fraxinella, *Diosmeæ*,—this is a very interesting plant, the flowers resemble in colour, *D. Fraxinella*, but are more tinted with purple; it is growing in the open border in the Apothecaries' Company's garden at Chelsea, and was raised from seed by Mr. Anderson, in 1821; it was sent by Dr. Fischer, and is believed to be a native of Siberia:—it succeeds well in the open border, in a rich light soil, and may be increased by seed. The generic name, according to Linnæus, is derived from the Greek word, *Tiktein*, to bring down or pull down, perhaps from its glutinous matter in catching flies; when rubbed, it has a scent like lemon-peel; the root is said to be of great use as an opiate and drastic.—If a lighted candle be put under the leaves of the plant, in dry weather, on a dark night, the small resinous glands with which it is covered, will emit flames. *Mahònia Diversifòlia*, Different-leaved Mahonia, *Berberideæ*,—a small yellow-flowering shrub, the seeds of it were collected by Mr. Anderson, in the neighbourhood of Monte Video, in a late voyage to the Straits of Magellan and various parts of South America: it thrives very well in a pot, or on the border, requiring but a slight protection during winter, and increases by suckers from the root. The generic

name was given by Mr. Nuttall, in memory of Mr. Bernard M'Mahon, of North America, an ardent lover of botany. *Rhododéndron Farrèri,* Mrs. Farrer's Rhododendron;—a rare and handsome bushy dwarf shrub, with solitary flowers, of a pale purple or lilac colour, elegantly spotted at the back with bright red spots, much resembling in appearance, the *Azàlea Indica*: it was brought into this country in 1829, from China, by Captain Farrer, and promises to be a great acquisition to the cultivators of rare plants: it thrives best in soil composed of two-thirds of peat-earth and about one-third of sand, and it will doubtless endure our winters in the open air, as it is sub-deciduous. *Oxàlis Déppii,* Deppe's Wood Sorrel;—this is a most beautiful species, the colour of the flower is a bright red with a shade of copper, it blows freely from March to November; in winter it loses its leaves, it may then be taken up, and kept in a dry place until spring. It was named after D. Deppe, a Mexican traveller and botanical collector.

No. 25, FOR JUNE, CONTAINS,

Tùlipa Rèpens, Creeping-Rooted Tulip;—this is a rare and beautiful species of a bright yellow colour; it was received several years ago by Mr. Anderson, from Dr. Fischer, curator of the Botanic Garden, St. Petersburgh. *Crôcus Imperàtii,* Imperati's Crocus;—this is a very handsome early spring-flowering bulb, of a purple colour, and is well worth a place in any collection. *Ganymèdes Pulchéllus,* White-Cupped Ganymedes;—this is the *Narcissus Triándrus* var. *Lùteus,* of the Bot. Mag. and the *N. Pulchéllus* of Sweet's Hort. Brit. 2nd ed. p. 515.—All the plants of the present genus are very delicate, but none of them are more beautiful than this, it has delicate pale yellow flowers. *Bérberis Dúlcis,* Sweet-Fruited Berberry;—the plant from which the drawing was taken, was collected in the Straits of Magellan, the fruit is there used as gooseberries, both green and ripe, for making pies and tarts, &c. for which it is most excellent; the berries are black, and the size of black currants, and are produced in abundance. The blossoms are of a bright yellow colour, and make a very elegant appearance; it will form a very valuable addition to gardens, as it will doubtless be quite hardy. The best soil for it is a mixture of sandy loam and peat.

5.—THE FLORIST'S GUIDE. By ROBERT SWEET, F.L.S., &c. 8vo. Monthly. Coloured, 3s. Plain, 2s.

No. 47, FOR MAY, CONTAINS,

The Rose Bacchus Tulip, *Tùlipa Gesneriàna,* var. *Bacchùsii*;—a very handsome flower belonging to the collection of Mr. Pile, Cambridge Road, Mile End; Hogg's Magnificent Auricula, *Prímula Auricula,* var. *Magnìficans*;—this is a choice and very desirable plant, it was grown by Mr. Hogg, Florist, Paddington Green, and is indispensable in a collection. Robert Bruce Ranunculus, *Ranúnculus Asiáticus,* var. *Bruceànus.* The flowers are of a pale straw colour, edged with a brownish purple, very double, of a handsome form, and was grown from seed by Mr. Waterson, of Paisley. Prinz Von Oranien Picotee, *Diánthus Caryóphyllus,* var. *insignis*;—a brilliant flower with yellow ground, edged with red, and striped with dark purple, it was grown by Mr. Hogg, of Paddington Green.

No. 48, FOR JUNE, CONTAINS,

Duke of Wellington Rose, *Rosa Wellingtòni*;—this beautiful hybrid Rose was raised from the seed of the *Rosa Indica,* that had been fertilized by the pollen of *Rôsa Damascèna,* its colour is a rich dark red, and there is scarcely a more splendid rose grown, for its abundance of flowers all through the summer is scarcely to be equalled. Caledonian Hero, *Tulipa Gesneriàna,* var. *Caledonica*;—this

handsome Tulip is in the possession of W. Strong Esq., Albion Cottage, Brook Green, where it is supposed to have been raised from seed, the colours are yellow variegated with a velvetty brown. Lady Haggerston's Pink, *Diánthus Plumárius*, var. *Haggerstoni*;—the drawing of this was taken at the nursury of Mr. Davy, King's Road, is well worth cultivating.—petals white, edged with a velvetty purple. Nestor Ranunculus, *Ranúnculus Asiáticus* var. *Nestòri*;—the flowers of this variety are very double and handsomely formed, consisting of several circles of petals, of a bright yellow edged with dark purple, and is in the collection of L. Weltje, Esq. of Kensington.

6.—The Botanic Garden, &c. by B. Maund, F.L.S. in small 4to Monthly. Large paper, 1s.6d.; small, 1s.

No. 77, for May, contains,

Linària Alpìna, Alpine Toad-flax;—a neat trailing perennial, growing about six inches high, suited for rock-work, and in a south aspect will bear the severest winter, it flowers from July to September. *Dàhlia Supérflua*, Crimson Globe-flowered variety;—this is a most splendid flower, it grows to the height of about five feet and is indispensable to those who are choice in their collection. *Dictàmnús Fraxinélla*, Red Fraxinella;—this plant is so well known to all who are conversant with herbaceous plants, that it is unnecessary to give any description. *Mìmulus Lùteus*, Spotted Yellow Monkey-Flower;—this variety delights in a watery situation, and has therefore been called *M. Rivulàris*; the gay appearance of its flowers give it a sufficient recommendation, being a bright yellow with a rich brown spot on the lip, which greatly adds to its beauty.

No. 78, for June, contains,

Phlóx Pilòsa, Hairy-leaved Phlox;—a handsome perennial, a native of North America, bearing rose-coloured flowers, and was introduced in 1759, its name is derived from a Greek word signifying flame, which was given by Linnæus to this family of plants in lieu of *Lychnídea*. *Lupìnus Perénnis*, Perennial Lupin; this plant is so well known that a description would be unnecessary; its height is two feet, is a native of North America, introduced in 1658; its name is derived from the Latin word *lupus*, (a wolf,) from its over-running and destroying the soil, or from the Greek *lupe*, signifying grief, from some fancied property by which it produces sadness of countenance. *Pæònia Edùlis*, var. *Whitlèji*, Eatable Pæony;—this species has flowered of a white and faint blush colour, from which it has been called *Albiflòra*, its roots are made use of in its native soil; it grows about two feet high, and is a native of Siberia, and was introduced in 1784: its generic name is derived from Pæon, a fabulous physician of the ancients. *Betónica Incàna*, Hoary Betony;—this plant was introduced in 1759 from Italy, it grows to the height of about nine inches, its generic name *Betonica*, is a corruption from *Vettonica*, which originated in Vettones, an ancient people of Spain, who according to Pliny, first noticed its virtues.

7.—Flora and Pomona, By C. Mc.Intosh, C.M., &c., monthly numbers, 8vo. coloured, 1s. 8d.

Part 19, for May, contains,

The White Hawthornden or Hawthorndean Apple;—so called from having its origin in the neighbourhood of a village of that name, about nine miles from Edinburgh. The original tree or one of its early scions is said to exist there now, in a garden where was the residence and birth-place of Drummond the poet; it is an excellent apple for culinary purposes, and a profuse bearer, the colour is a very delicate pale green, with a tint of carmine towards the sun; it ripens about the

beginning of October, and will keep till the middle of December. *Coe's Golden Drop Plum*;—this is a most excellent late fruit, not so much on account of its flavour as its properties of keeping; it will hang on the trees without damage, four or five weeks after it is ripe; it is said to have been raised by a person of the name of Coe, at Bury St. Edmunds, in Suffolk, about the beginning of the present century. Mr. Mc.Intosh also gives an account of a Queen Pine, grown at Claremont, with a sucker attached to the plant, both of which are in fruit, (by no means an uncommon occurrence,) as also the crown on the perfect fruit starting. *Kerrison's Hothouse Cucumber* he recommends to those who cultivate through the winter, A hint is given to gardeners, on training Raspberries as espaliers, to give a free circulation of air through them. He finishes his remarks by proving that the method of pruning the roots of sterile Pear trees, in order to make them bear, is no modern invention, but was practised a century ago with success.

PART 20, FOR JUNE, CONTAINS,

Rhododéndron Arbóreum;—one of the richest flowers of this beautiful tribe, being of a deep carmine colour; it will grow to the height of ten feet, it is a native of Nepaul, and consequently not hardy, and was introduced in 1820: its generic name was derived from the Greek words, *rodon*, a rose, and *dendron*, a tree: it requires a considerable portion of water during the time of its flowering and making shoots. *Glycine Sinénsis*, Chinese Glycine;—This is the *Wistèria Sinénsis* of M. de Candolle, and the *W. Consèqua* of Loud. Hort. Brit. it is an extremely interesting plant; its flowers are of a rich blue mixed with rose colour; it is a native of China, and was introduced in 1816. There is also an account of the culture of the *Gardènia Flórida* and *Rádicans*;—they are readily increased by cuttings of the young and half-ripened shoots, taken off as soon as they have flowered, and planted in fine sand in a moist heat without being covered with bell-glasses or having their leaves shortened. When slightly rooted they ought to be put into small-sixty sized pots, in rich light mould, where they are to remain for one season, in which they will flower freely: after they have done flowering they should be re-potted in large sized pots, and this rule may be followed until the plants become large. In autumn the plants are placed in a cold glass pit or frame, upon a stratum of sifted coal ashes, and freely supplied with air, when the weather will admit; during the night when the weather is cold, they must be covered with mats, and even during the day when the frosts are severe, as they are incapable of bearing any great degree of cold, In February or March, all that are wanted to flower should be placed in a pit or frame, upon a strong bottom heat but not plunged; the temperature may be increased to ninety degrees, giving them plenty of water, syringing them often to keep them clear from insects, &c. After they have flowered, they should again be potted, and kept in a heat of sixty-five or seventy degrees, and not much exposed to the air till autumn, when they will have formed the flower-buds. By this treatment Mr. Mc.Intosh has proved they will flower in the greatest perfection. On the propagation of *Nepénthes Distillatòria*, Pitcher Plant;—This is very rare and difficult of cultivation; it is a native of China and the East Indies, it requires a high temperature and a humid atmosphere; it is propagated by seed which should be sown as soon as ripe in a pot filled about half full of small stones, mixed with moss, over which should be spread about two or three inches of moss, and about half an inch of fine sifted mould, to form a smooth surface to sow the seeds upon; they are not to be covered with mould, but should have a bell-glass placed over them, and the pot placed in a hot-bed frame, in the temperature of about seventy or eighty degrees, the pot should be set in a pan of water, which should be kept filled up, that the contents may be rendered sufficiently moist for vegetation.

PART III.—NATURAL HISTORY.

ORIGINAL COMMUNICATIONS.

Article I.—*Some circumstances connected with the Natural History of the Goat Moth.* By Edward Murphy, Esq. Agent to the Horticultural and Arboricultural Societies of Ireland.

Gentlemen,

In an excursion which I made some time since to the far-famed Dargle and Waterfall in the county of Wicklow, my attention was arrested by observing the devastation committed by the Caterpillars of the Goat Moth, (*Cossus Ligniporda,*) on some trees in the vicinity of the latter place; and although I cannot hope to afford much information on a subject to which I have devoted very little attention, yet being desirous to promote by every means within my power, the success of an undertaking, which I earnestly hope will prove an invaluable boon to the rising generation of gardeners in this country, and being aware that the prudent caution, which persons really competent, usually observe towards an infant Work, cannot fail to embarrass its Conductors, I take the liberty of presenting you with the few following observations, and at the same time hoping that a pressure of more valuable matter may enable you to exclude so crude an essay.

The accompanying outline (3) will enable those who have not seen this beautiful insect, to form an idea of its dimensions; the thorax, or anterior part of the body is of a rich brown colour; the abdomen is greyish; the first pair of wings are of a purple and reddish brown, clouded with yellowish grey, and are larger than the under wings, which are of a brown colour. It is beautifully figured in the second volume of Curtis's British Entomology, (plate 60,) a work which should be in the hands of every person engaged in the study of Entomology. A figure of it is also given in Vol. IV of Donovan's British Insects. This Moth was ranked amongst the *Phalænæ* of Linneus, and forms one of the tribe of *Bambycidæ* of modern Entomological writers; it is well known as having been the subject of the celebrated Lyonnett's researches, whose minute investigations of its economy, and splendid illustrations of the anatomy of the larva, have immortalized that naturalist, and are a credit to the pictorial art.

The Caterpillars are produced from eggs, deposited by the female Moth, in the crevices in the bark of such trees as she knows are fit for the support of her offspring; of these eggs it is said she deposits

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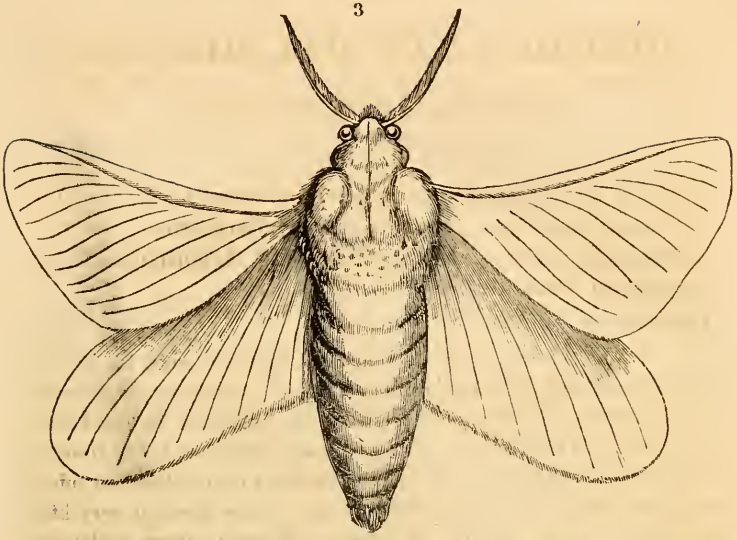

no less than one thousand at a time,* they are soon vivified by the warmth of the summer's sun, and commence their ravages on the tree, by eating a passage for themselves horizontally, through the bark to the soft wood.—Having established themselves in the soft wood, they continue to burrow downwards, the diameter of the perforations increasing with the stature of its inmate, until, at the expiration of the third winter, the period they continue in their larva state, they have attained the size of a man's finger, (4) and are, according to Lyonett, 72,000 times heavier than when they issued from the egg; they are of a dingy white colour, and emit an intolerable fœtid odour, yet in in the opinion of Linnæus, they were a favourite dish with the Romans.† It occasionally feeds on the ash and oak, but its favourite plant appears to be the alder, (*Alnus Glutinòsus*) and the round leaved willow, (*Sàlix Càprea*) and amongst these its attacks are in a great measure limited to trees growing in watery places, possibly the great quantity of water, absorbed by the tree in such situation, may render it more palatable, but the greater probability seems to be, that the soft wood of such

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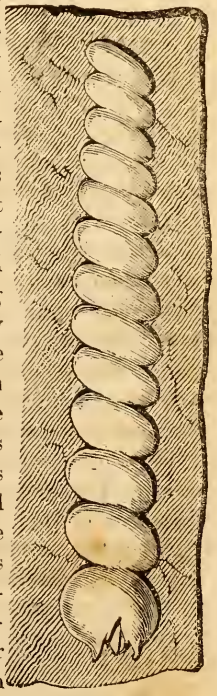

* Kirby and Spence's Introduction to the Study of Entomology, Vol. III, page 89.

† The tastes of mankind are as various as their complexions;—in one part of the world, Assafœtida is so much relished as to be termed "Food of God," in another it is execrated as "Devil's-Dung."

trees being more porous than those growing on high and dry ground, offers less opposition to its progress; be that as it may, the fact of their predeliction is certain, ten trees growing in low moist situations being infected for one in a situation of an opposite nature.

The accompanying sketch (5) is from a piece of alder in my possession, it was one of many trees of the same kind, which, in consequence of the innumerable perforations, were not enabled to resist even a moderate blast, and were blown down. The circumstances which I have hitherto detailed, are so generally known, that I do not think I should have troubled you with a recital, of them, were it not for the purpose of affording myself an opportunity of mentioning a few others, which, though they appear extremely hypothetical, are nevertheless, deserving of attention.

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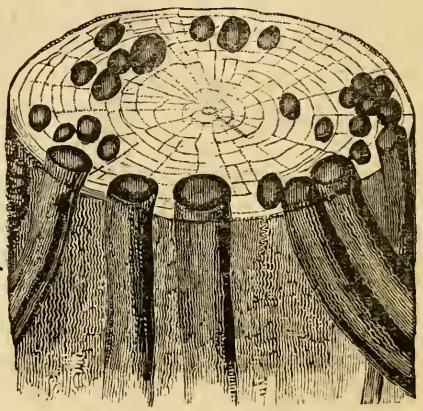


It is a generally received opinion amongst the country people here that the larva of this insect, if not the sole, is at least the principal cause of the disease amongst cattle known by the name of "Murrain." They assert that it is with the utmost difficulty they can prevent their cows from haunting the trees in which the worms exist; that they not only lick these trees, but endeavour to get at the worms by tearing the bark with their teeth, and that having got possession of one they greedily devour it, and an attack of the Murrain is then inevitable. These people are so firmly persuaded of the evil effects of the "Murrain worm" that they do not suffer cattle to enter fields, the trees in which are infected, until they have first prevented the possibility of danger, by forming an impenetrable fence of thorns around the infected trees.

I have already expressed my doubts as to these alledged facts, and only mention them for the purpose of exciting enquiry. I hope it is not too much to expect that your neighbour, Mr. Major, by whose industry we are put in possession of all that is known respecting the insect enemies of the garden, will, through the medium of the Horticultural Register, assist us in our enquiries concerning the no less important Dendrophagi.

I am, Gentlemen,

Yours, &c.

Dublin, May 21st, 1831. EDWARD MURPHY.

NOTE.—We shall feel happy at all times, to have Mr. Major's valuable assistance.——CONDUCTORS.

PART IV.

REVIEWS AND EXTRACTS.

1.—Extracts from the JOURNAL OF AGRICULTURE, &c. Quarterly numbers, 8vo., price 6s.

Page 1.—*An interesting Account of the Meterological Observations of* MR. ADIN, *of Edinburgh.*—

WHICH may not only be useful and instructive to the Agriculturist, for whom they were intended, but also to the Horticulturist. He says "the most prominent feature of the changes that take place in our atmosphere, is the variation in its pressure. This variation is indicated in the rise and fall of the mercurial column of the Barometer. The invention of this instrument, by means of which those changes were first shown to exist, was achieved by Torricelli in 1643, and it has from that time undergone various alterations and improvements, till it has arrived at its present state of perfection. The instrument of this kind, which in all respects may be considered the best, is the perpendicular column of mercury, when the variations in its length are observed by a scale of inches and parts. The mean height of the Barometer at the mean temperature of the air reduced to the level of the sea, from nine years observation was found to be 29,948 inches, and its greatest range 28 to 31 inches. In observing the Barometer, the rising or falling of the mercury is to be taken as indicating changes in the weather, without regard being paid to the actual height of the column. When the Barometer is high and stationary a continuance of steady and good weather may be expected, corresponding to the season of the year; and in general it may be remarked, that the rise is slow and regular when such weather follows. A sudden fall is commonly prognostic of a gale of wind, whereas, when the fall is slow and regular. rain generally ensues. Steady weather is never to be expected when sudden changes in the height of the mercury occur; good days may indeed intervene, but we cannot depend upon their continuance. In making use of the Barometer as an indicator of the changes to be expected in the weather, by variations in its height, it is of some importance that the mean height, or changeable point at the place of observation be found. If the altitude of the place above the level of the sea be known, the mean height of the Barometer may be found by computation, or simply by subtracting from the mean height at the level of the sea, one-tenth of an inch to every eighty-eight feet of altitude. But when the height of the place of observation is not known, which will be most generally the case, a register of the height of the Barometer should be kept, noting every morning and evening at ten o'clock for one year or more; and from these observations the mean height will be obtained by dividing their sum by the number of observations:—for example, the sum of one year's

observations, made at ten A.M. and ten P.M. in 1827, was 21615,41 and this number divided by the number of observations, 730, or twice the number of days in that year gives 29,61 inches as the height or changeable point of the Barometer. It is from the mercury's being above or below this point then, that you are to conclude what weather may be expected from its indications or changes, From a want of this knowledge, many are led into a mistake by supposing that the words Fair, Change, and Rain, engraved on the scale of the Barometer indicate such weather in all places, whereas, they can only do so at one particular altitude."

Having now explained the principal causes of failure in using the common Barometer for general purposes, he next proceeds to give a description of that Instrument, to be used where the greatest accuracy is required, for the determination of minute changes of the height of the ground above the sea.

"The instrument to be used for such purposes should have a tube of large diameter, in which the mercury is boiled, to expel from it all air or moisture. In the cistern containing the mercury there is another tube of the same internal diameter as that of the Barometer, with a metal ring embracing it, and an adjustment is made at each observation, by forcing the mercury from the cistern by means of a screw, till its surface cuts off the light seen through the glass tube, below the ring. An instrument of this construction is said to have an adjustable surface;—that is, the surface of the mercury in the cistern is always brought to a fixed point, consequently the length of the mercurial column is at all times observed above the point. For the measurement of heights, the scale of this Instrument is made to read off to the 1000th part of an inch. There has lately been constructed a cast-iron cistern, which renders the Instrument much less liable to injury from carriage, and gives great stability to the mercury during observation. The method of using the Barometer for the purpose, is to observe its height at the upper and lower stations; and the temperature of the mercury in the barometer is to be ascertained by means of a thermometer attached to it, and also that of the air, by one freely exposed. All the instruments must be well defended from the sunshine, and when time will permit, it is of great importance to allow them to remain till both the attached and detached thermometers indicate the same temperature. When two Barometers are used, that at the lower station should be observed at the same moment as that at the upper, by signals, or at times previously fixed upon by the observers. When one instrument only is used, any change in the Barometer that may take place during the time required in passing from one station to another, gives an error in the deduced height. Steady weather should always be selected, and though great distances may intervene, between the situations, the results may be equally accurate. In a series of observations in which I was engaged to determine the height of Ben Lomond, where four observers were engaged, one at the top of the mountain, a second at the base, and the other two at Edinburgh, a distance of about 60 miles; after comparing the heights deduced from the three lower of these observations, the agreement was found to be very close." He next proceeds "to give a table showing the elevation corresponding to the depression of the 10th part of an inch on the Barometer, when at its mean state, by an inspection of which an idea of the altitude may be formed. Thus, if the changeable point of the Barometer, in any situation, be 29,4, and that at the level of the sea 29,9, subtracting the height corresponding to this in the table is 439 feet. This will be nearly the altitude of the situation.

TABLE

SHEWING THE NUMBER OF FEET OF ALTITUDE CORRESPONDING TO THE DEPRESSION OF THE BAROMETER.

Depression.	Altitude, in feet.	Depression.	Altitude, in feet.
,1	87	,6	527
,2	176	,7	616
,3	262	,8	705
,4	350	,9	795
,5	439	1 inch.	885

This may be useful to the Agriculturist and Horticulturist too, as the temperature diminishes the higher we ascend, causing a consequent diminution in the productiveness of the soil.

When the Barometer is used within doors, the best situation for it is any room were the temperature is equal and not exposed to sunshine.

2.—MAGAZINE OF NATURAL HISTORY; edited by J. C. LOUDON, F.L.S. &c. published every two months, 8vo. 3s.6d.

VOL. IV. No. 20, FOR MAY, CONTAINS,

Page 245.—Art. 13.—*On the Temperature of the Atmosphere on the different parts of the Earth's Surface*, by MR. W. H. WHITE, H.M.C.S.

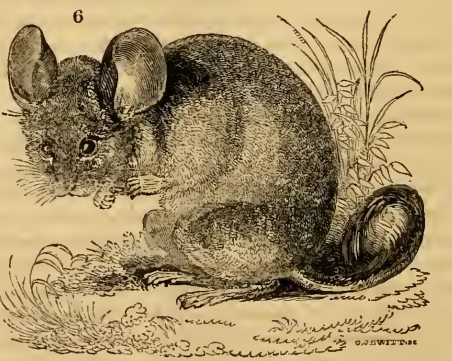
HE says the atmosphere is composed of a thin fluid mass of matter, which gravitates towards the earth, and revolves with it, both in its diurnal and annual motions; a knowledge of which serves to throw much light on the history and functions of the animal and vegetable creation, for it is through this medium that heat, light, electricity, oxygen, and the great springs of vital phenomena are conveyed to all classes of organized matter. It is by the means of this wonderful agent, that we gain the theory of respiration in all classes of creatures possessing animal life;—it is by this we become acquainted with the migrations of animals, as well as with many of their peculiar instincts and habits. It is the atmosphere that enables us to account for the periodical changes in the plumage of birds, and furs of animals, and also the variety of colours to be found amongst them. It is by means of the elasticity of the atmosphere, that sounds and odours are transmitted to sensitive beings. "Had a uniform climate" he adds "been established over the face of the whole earth, we should have been deprived of that beautiful variety of plants and animals which now strikes us with astonishment at every step. As the word *climate*, according to the Greek import, signifies to incline, or to slope, it was probably first adopted by the ancient geographers, to denote the different inclinations at which the rays of the sun fell upon the surface of the earth, and which they restricted to certain belts of the earth's surface, beginning at the equator and proceeding towards the poles. The distinction between one of these belts and another, or one climate and another, was a difference of half an hour in the length of the longest day. According to this division of the earth's surface into climates, the difference of temperature and the difference of the length of the longest day, lost all proportion; for it was soon discovered that the breadth of the first climate, that is, the one nearest the equator, measured 295 miles, while the twenty-second climate, or that in the northern part of England, measured less than 70 miles."

However satisfactory this might be, to show the inclination of the solar rays, it did not in any degree, point out how far the climates of these different latitudes, were favorable or unfavorable to animal and vegetable existence. The ancients

considered the sun to be the only source of the variation of temperature, except some small influence which Hippocrates attributed to the winds of Greece, and some of the neighbouring countries, where a few local observations had been made. But as nations became civilized and enlightened, travellers were despatched to every part of the habitable globe, and observations have been successfully made, not only upon every-thing that affected science in general, but particularly upon atmospheric temperature; and it is from a comparison of these patient and laborious investigations, that the science of Climatology, has kept pace with every other science.

3.—Review of the Gardens and Menagerie of the Zoological Society, in 2 vols. 8vo. with Descriptions and Figures of Living Animals in the Society's possession.

These volumes are the valuable results of the united exertions of a Society, which has, (considering the time it has been established,) by far outstripped all others in popularity and prosperity. No institution perhaps, has done so much in so small a space of time, to improve the taste in this branch of Natural History, as the Zoological Society. The care and trouble of performing this work has been confided to Mr. Bennett, who has executed it in a manner highly to be approved of—highly we say, because he has avoided technical phrases wherever it was possible to convey the true meaning without them: this we think ought to be the aim of all writers in every branch of Natural History, for there are but comparatively few persons who are conversant in more than one branch of science, but many anxiously striving to gain a general knowledge of all, though to obtain this has been hitherto almost impracticable. We hope however, a brighter day is dawning upon us, and that works merely written to shew the learning of the author, are beginning to give way to such as are plain and intelligible to the general reader. We shall speak more at large on this work in a future Number, and in the mean while present our readers with the following extract.—



THE CHINCHILLA. (*Chinchilla Lanigera*)

"The peculiar softness and beauty of the fur of the Chinchilla has been so long, so ornamentally, and so comfortably, known to our fair country-women," (says Mr. Bennett) "that it would be paying their taste and curiosity a sorry

compliment, to imagine they have no desire to become acquainted with the animal by which it is furnished; we are happy therefore to have it in our power to gratify them, as well as the scientific Zoologist, by a figure and description of so interesting a creature, the former the only one that has yet been given to the world, and the latter the first that has appeared in our language.

"Notwithstanding the extensive trade carried on in its skins, the Chinchilla might have been regarded until the last year, almost an unknown animal. The earliest account of it which has been met with, is contained in Father Joseph Acosta's Natural and Moral History of the East and West Indies, published at Barcelona, in Spanish, in the year 1591. From an English translation of this work, printed at London, in 1604, we have extracted the following sentence, which is all that relates to the animal in question. 'The Chinchilles is another kind of small beastes, like squirrels, they have a wonderfull smooth and soft skinne, which they weare as a healthfull thing to comfort the stomacke and those partes that have neede of a moderate heate.' The concluding part of the extract however shows that this latter is spoken of the human natives, as it says 'they make coverings and rugges of the haire of these Chinchilles which are found on the Sierre of Peru.'

"The animals are again mentioned, and nearly to the same purpose in Observations of Sir Richard Hawkins, Knight, in his Voyage into the South Sea, A.D. 1593, he says, 'among others they have little beastes, like unto a squirrell, but that he is grey, his skinne is the most delicate, soft, and curious furre that I have seene and of much estimation in the Peru, few of them come into Spaine, because difficult to be come by, for that the princes and nobles laie waite for them, they call this beast Chinchilla, and of them they have great abundance." Molina's Essay on the Natural History of Chili, was originally published in Italian at Bologna, in 1782, and in a second edition published in 1810 the following has been translated. 'The Chinchilla is another species of field rat, in great estimation for the fineness of its wool, if a rich fur, as delicate as the silken webs of the garden spider may be so termed: it is of an ash grey and sufficiently long for spinning. The little animal which produces it is six inches long, from the nose to the root of the tail, with small pointed ears, with a small muzzle, teeth like the house rat, and a tail of moderate length, clothed with a delicate fur. It lives in burrows under ground, in the open country of the northern provinces of Chili, and is very fond of being in company with others of its species. It feeds upon the roots of various bulbous plants, which grow abundantly in those parts; and produces five or six young ones twice a year. It is so docile and mild in temper that if taken into the hand it neither bites nor tries to escape, but seems to take a pleasure in being caressed. If placed in the bosom it remains there as still and quiet as if it were in its own nest. This extraordinary placidity may possibly be due to its pusillanimity which renders it extremely timid. As it is in itself peculiarly cleanly, there can be no fear of its soiling the clothes of those who handle it, or of its communicating any unpleasant smell to them, for it is entirely free from that ill odour which characterizes the other species of rats. For this reason it might well be kept in houses with no annoyance, and at a trifling expense, which would be amply repaid by the profits on its wool. The ancient Peruvians, who were far more industrious than the modern, made of this wool coverlets of beds and valuable stuffs." The same writer adds, 'there is found in the same northern provinces another little animal with fine wool, called the Hardilla, which is variously described by those who have seen it, but as he had never observed it himself, he could not determine to what genus it belonged. 'There can be little doubt (remarks Mr. Bennett,) but that this animal is identical with the Chinchilla.' Another extract is made from Schmidtmeyar's Travels into Chili, over

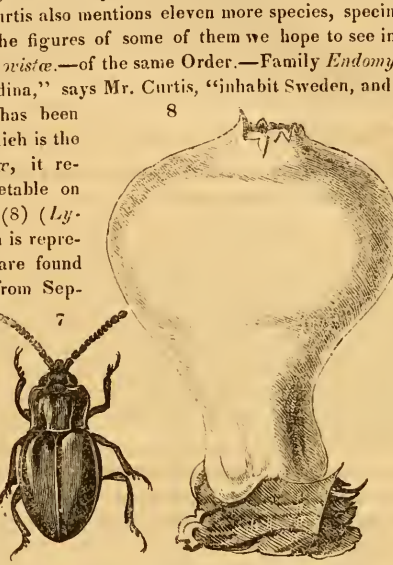
the Andes, in which the author speaks of great numbers of these being caught in the neighbourhood of Coquimbo and Copiapo, generally by boys with dogs, and sold to traders, who bring them to Santiago and Valparaiso, from whence they are exported. These are the chief of the extracts which throw any light upon the subject, and such is the history" (says Mr. Bennett,) "of our knowledge of this interesting animal, until the arrival of a living specimen which was brought to England by the late expedition to the north-west coast of America, under the command of Captain Beechy, and by him presented to the Zoological Society. The length of the body in our specimen is about nine inches, and that of the tail nearly five; the proportions are close set, and the limbs comparatively short, the posterior being considerably longer than the anterior. The fur is long, thick, close, woolly, somewhat crisped, and entangled together; grey or ash-coloured above, and paler beneath; the form of the head resembles that of the rabbit, the eyes are full, large, and black, and the ears broad, naked, rounded at the tips, and nearly as long as the head; the moustaches are plentiful, and very long, the longest being twice the length of the head, some of them black and the others white; four short toes, with a distinct rudiment of a thumb terminate the anterior feet, and the posterior are furnished with the same number, three of them long, the middle more produced than the two lateral ones, and the fourth external to the two others, very short, and placed far behind. On these toes the claws are short and nearly hidden by tufts of bristly hairs. The tail is about half the length of the body, of equal thickness throughout, and covered with long bushy hairs; it is usually kept turned up towards the back, but not reverted as in the squirrel The animal usually sits upon its haunches, and is even able to raise itself up upon its hinder feet. It feeds in a sitting posture, grasping its food and conveying it to its mouth by means of its fore paws. In its temper it is generally mild and tractable, but will not always suffer itself to be handled without resistance, and sometimes bites the hand which attempts to fondle it, when not in a humour to be played with."

4.—British Entomology. By John Curtis, F.L.S. monthly numbers, 4s. 6d coloured.

We conceive this work to be one of the best publications on these subjects. The accuracy of the engravings in connection with the minute descriptions of each insect, renders it a valuable acquisition to those who are anxious to become acquainted with this branch of natural history. We know of none, when formed into a volume, that on a perusal would give more pleasing views to the mind of a young Entomologist than this. The citizen, wearied with the busy scenes of the day, might retire with a companion like this, and study the wonders of creation. While the simple rustic would tread with heedless steps on the creatures and plants which encompassed his path, the studious mind would find in every step something to pleasingly divert, and at the same time prove a relaxation from the arduous duties of the day. Perhaps nothing has been so little regarded by the generality of persons as the insect world, yet nothing exhibits greater wonders or calls for more enquiries. When this is taken into the account, it greatly enhances the value of a work that throws such light upon what to thousands of persons has been comparatively hidden in obscurity. But this is not all by which it recommends itself to the public.—The exact representation of British plants, form another great and prominent feature in its favour, for by its assistance, the young English Botanist may gain an acquaintance with almost all the plants indigenous to his native country; we intend, therefore, to be minute in our extracts from so useful a work as the one before us.

No. 89, for May, contains,

Of the Order Coleoptera—Family Carybydæ—Dyschirius Inermis. Mr. Curtis has had a specimen of it for some years, but has no recollection where it was taken; it is of a shining bluish black colour; and is the largest and strongest of the genus, being two lines and a half long; it is accompanied with a plant, the Viscous Bartsia, (*Bartsia Viscosa.*) Mr. Curtis also mentions eleven more species, specimens of which have been taken:—the figures of some of them we hope to see in his future numbers. *Lycoperdina Bovistæ.*—of the same Order.—Family *Endomychidæ.* "Four species of Lycoperdina," says Mr. Curtis, "inhabit Sweden, and two of them France, but only one has been discovered in Great Britain, which is the present figure, (7) *L. Bovistæ*, it receives its name from the vegetable on which it feeds, the puff-ball, (8) (*Lycoperdon Bovista* of Linn,) which is represented with the insect. They are found in these balls in abundance, from September to June, both on commons and in fir plantations at Coombe Norwood, near Kimpton, and Mr. Newman has remarked that they make their egress through the hole in the centre, at the top of the puff-ball; it is of a piceous-chesnut colour, sometimes ochreous, smooth and shining, sparingly and minutely punctured, each puncture producing a short hair. Order *Lepidoptera*,.—Family *Noctuidæ, Acosmetia Fuscula*, the Marbled White-spot. The color of this little moth is brown, freckled with ochre; it however varies considerably in colour and strength of marking in the upper wings. It is found at Colney-hatch, Coombe, and Bexley woods, Chisslehurst, the New Forest, and in corn fields in June at Wrentham, in Suffolk. The caterpillar feeds on the common bramble, and in the plate is accompanied by a figure of the dewberry bush, (*Rubus Cæsius*) in fruit. Besides this, Mr. Curtis gives an account of six more species that have been captured in different places in this country. Order *Hymenoptera.*—Family *Aparaiæ, Anthophora Haworthana.* This insect was first described by Mr. Kirby, from a specimen taken by the gentleman whose name it bears, in Ashdown forest, Sussex, he believes. The specimen, which is a male, is of a black colour, thickly and minutely punctured, and its head and thorax clothed with bright fulvous hairs; the *A. Retusa* is also described, which builds its nests in banks and old walls, and is seen flying about sunny and sandy banks from March till the beginning of June. The male in its flight very much resembles *A. Helophilus*; the female is black and very hairy. Mr. Kirby says, "early in the spring the male of this species may be seen attending upon his swarthy bride, fluttering round her, or hovering over her, while she with great coolness, collects the honey from flower to flower, without bestowing any attention upon him: if she departs, he departs, and if she returns, he returns likewise; during the season of courtship his whole employment seems to be to attend upon her, but when the halcyon days of love are over, like many other husbands he goes about his business and leaves



her to take her flights in solitude." Mr. Matthews, who is now engaged collecting subjects of Natural History in South America, found a nest of this insect in a wall at Chiswick, where they destroyed the grapes in the garden in September, and having caught a male and confined it in an open box, he was enabled to take specimens of the female that came and settled there, this led him to think the first was a female. He also saw the *Melecta Punctata* entering and coming out of of this nest, as if they lived together, which renders Mr. Kirby's supposition very probable, that they deposit their eggs in the nest of *A. Retusa*. The plant that accompanies the *A. Haworthana* is the Crested Hair-grass; (*Aira Cristata*) communicated by Professor Henslow.

5.—Edinburgh Philosophical Journal. By Robert Jamieson, Regius Professor of Natural History, Lecturer on Mineralogy, &c. Quarterly. 8vo. 7s.6d.

The reasons for introducing into our pages, the contents of a work, like the one before us, will need no explanation, for the recollection of its being the valuable production of the pens of so many eminent and able writers on the subjects of Natural History, and its Conductor, being one whose merits have long been appreciated, will render any attempt to prove its utility unnecessary; we have only therefore, to add, that we consider it a work well calculated to give the general reader, correct ideas of the interesting discoveries made in the different branches of this Science. We shall, therefore, not be sparing of our extracts from a work of such importance.

The Number for April, contains,

On the Diluvial Theory, and on the Origin of the Valleys of Auvergne, By C. Daubeny, M.D., F.R.S., Professor of Chemistry in the University of Oxford, &c. &c.

This is an interesting paper, on a subject on which the opinions of Geologists are, and long have been, unsettled and conflicting Their principal difference, as Dr. Daubeny states, seems to be, that one, supposes the igneous and aqueous agents at work to be proceeding at all times in a gentle but uniform manner; while the other, imagines periodical returns of violent action, with intervals of comparative tranquility, and thus accounts for the elévation of large tracts of land, by the short but forcible operation of those agents, which, according to the former hypothesis, have occasioned both, by an action that compensated for its inferior energy by its longer duration. Neither of these explanations, (adds the writer) ought to be viewed as inconsistent with the actual course of nature; for it is evidently quite conceivable, that the same catastrophes, both of fire and water, which we have a knowledge of from History, may at some future period again occur. Dr Daubeny, goes on to say, that there seems no reason to question, that in volcanic districts, the common rocks of the country are sometimes heaved up around a circumscribed area; and if similar examples cannot be pointed out in other countries, it ought not to excite our surprise, that where all other indications of igneous action are wanting, this one should not occur. And if it is granted that the throwing up of a cone of *Trachyte*, serves as a prelude to the volcanic operations which are generally witnessed, an additional reason, he says, will exist for admitting that such convulsions would have attended the first breaking out of a volcano in a new district, as might have brought about an extensive flood, when a sea or lake was contiguous: and by operations like these, Dr. Daubeny proves the origin of the Valleys of Auvergne.

On the Characters and Affinities of certain Genera, chiefly belonging to the Flora Peruviana, by Mr. David Don.—On the Adaptation of the Fly-wheel and Pulley of the Turning Lathe, to a given length of Band, by Mr. Edward Sang, Teacher of Mathematics, Edinburgh.—On the Developement of the Vascular System in the Fœtus of Vertebrated Animals, by Allan Thompson, M.D.—Analysis of a powerful Chalybeate Water from Vicar's Bridge, near Dollor, in Clackmannanshire, by Arthur Connell, Esq. F.R.S.E.—Observations on the History and Progress of Comparative Anatomy, by D. Cragie, M.D.—On Indian Hail-storms, by A. Turnbull Christie, M.D.—On the Form of the Ark of Noah.—Remarks on Audubon's Birds of America, and Ornithological Biography.—Observations on the Glaciers of the Alps, by J. F. Hugi, Professor at Soleure.

New Observations on the Blood-like Phenomena observed in Egypt, Arabia and Siberia; with a View and Critique of the early Accounts of similar Appearances by Mr. C. G. Ehrenburgh Scoresby, *in a communication to Professor Jameson.*

He informs us that he observed orange coloured snow in Greenland, and he attributes the colour to minute marine animals. In the year 1821, a report was general in the province of Padan, that blood-red spots were observed on all kinds of food, Mr. Sette observed that it was owing to a small red mushroom, belonging to the genus *mycoderma* of Persoon. De Candolle, in 1825, observed the surface of the Merton Lake in Switzerland, of a red colour; this he ascertained to be caused by a minute plant, a species of *oscillatoria*, which he named from its colour *rubescens*. An extensive series of laborious observations on the chemical ingredients of meteoric masses, by Professor Zimmerman, of Giessen, are connected with our present subject. These were occasioned by the occurrence of a red shower that fell in Giessen, 3rd May, 1821. Its water was of a peach-red colour, and flakes of a hyacinth colour floated on its surface. It was only chemically analysed, but had it been botanically and microscopically examined, which it was not, it might easily have afforded a satisfactory result. The collective result of this investigation was, that there is in meteoric water, a peculiar animal and vegetable substance, chemically different from the extractive matter, and from the gluten of plants and animals; and this substance, on account of its uniform yellowish brown colour, is called pyrhine, that is, yellow matter. Among the different volatile substances formed near the surface of the earth, this may be taken up by the clouds in an aërial form, and again precipitated in rain water, as a stimulant and nutritive material for plants and the lower animals. There is also annexed an observation made at Cairo, in Egypt, in the months of January and February, 1821 and 1823, where the redness of the waters &c. were discovered to be produced by animal, vegetable, and inorganic bodies, the various descriptions of which Mr. Ehrenburgh gives.

(TO BE CONTINUED)

PART V.

MISCELLANEOUS INTELLIGENCE,

ON NATURAL HISTORY, HORTICULTURE, AND RURAL AFFAIRS.

I.—NATURAL HISTORY.

Bicephalous Lizard.—We extract the following singular account from the Intelligence of Sunday, May 22nd, which, to those who have not read the paper, may not be uninteresting. It appears this memoir was read before the Academy of Science, at Paris, on May 9th. "This animal lived for a space of five months, in the possession of M. Rigal, an apothecary and druggist, at Angeller, in the department of the Upper Pyrenees. In a short time it became quite familiar with its master, and was an adept at communicating its various wants to him; if athirst, when an insect was given it to devour, it was satisfied with licking it, and if hungry, when drink was set before it it would strike the water with its tail. The two heads set to eating simultaneously, if both could conveniently seize the food at the same moment; when a single insect was offered it, both heads were eager to lay hold of it, and would contend for the right of possession; but as soon as one of them was satisfied, the other lost its appetite, and would refuse any food that was presented; but when water was set before the animal, the one mouth performed the office of drinking for both. It had five feet, four of which were of the usual conformation, and were in their usual places, but the fifth was situated at the junction of the two necks, and at the upper extremity of the body, common to both. It had nine distinct fingers or toes. This extra foot or arm it used for cleaning itself, or carrying the food to its mouths: it never carried the food to the same mouth in succession, and if it began with the right it always finished with the left. The two heads and necks were perfectly distinct, of the same dimensions, and neither of them misshapen. In order to protect it against the severe winters in 1829 and 1830, the owner was accustomed to take it to bed with him, and one morning it was found dead of suffocation."

Burning Cliff.—The burning cliff at Holworth, near Weymouth, is now becoming an object of particular attention.—Fissures have, within the last fortnight opened, discharging vapour at another part, about five hundred feet to the westward of the long line of apertures, which have for some time past, been in active operation.—*Hampshire Advertiser.*

Zoological Society.—The Zoological Society has prepared a paddock in its Garden, with a large tank in the centre, for the accommodation and refreshment of a fine elephant, which reached its destination on Friday night. He had walked from the East India Docks in little more than two hours; his paces were so active, as to compel the keepers who accompanied him to run frequently in order to keep up with him. He seemed, indeed, to be pleased at having regained the power of exercising his limbs with somewhat like freedom, and it is rather surprising that he used them so well, immediately after quitting the ship, in which he had been confined more than nine months, having arrived in England by way of China, whither the vessel proceeded

after quitting Madras. He took a great liking when on board of ship, to articles of femal apparel: while at Blackwall, he took from her head, and devoured without ceremony, a lady's bonnet, and took from another her reticule, containg half-a-dozen nonpareils, which he swallowed, bag and all!—*Der. Rep. May* 26.

II.—RURAL AFFAIRS.

NATURE OF EARTHS WITH REFERENCE TO THE GROWTH OF PLANTS.—The report of M.M. Thenard and Sylvester, on a memoir upon this interesting subject by M. J. St. Hilaire, is to the following purport. The author remarks that most persons who have analyzed arable earths, have taken exclusively such as have been cultivated, the original constitution of which has been more or less altered. He believes the various kinds of earths in their first state, have peculiar properties of nourishing particular plants; and that the exact knowledge of these peculiarities would enable cultivators to put those seeds in the ground, which are most suited to it. From various analyses, he draws the following inferences;—1st, that all earths are composed of silica, alumina, lime, magnesia, &c. in different proportions, together with a vegito-animal matter, which is more abundant as the earth is more fitted for the nourishment of plants.—2ndly, that plants placed in earths, of which the constituent parts have an analogy with the particular nature of the plants do not exhaust the soil.—3rdly, that a series of observations on the different species, genera, and families, which grow naturally and in great numbers, perpetuating themselves on certain soils, with the analysis of these soils, would be of great utility in agriculture.—*Revue Encyclopedique.*

CABBAGE TREE OF LAPLAND.—M. Garnier, of Auxonne, has received from the direction of the nursery of Lyons, twenty seeds of this cabbage, which is said to be entirely different from the *chou cavalier*, the *rutabaga*, or the common cabbage of Lapland. M. Garnier says, that it thrives better and puts forth more shoots, the more bitter the cold is; that its leaves are rather more than a foot long. In the second year it attains the height of four or five feet that its top becomes ramified, (branching ont,) its flowers yellow, and streaked. The fruit is about four inches long; and it produces three times as much seed as other oleaginous plants, and also in winter it affords a considerable forage.—*Journal de Bruxelles.*

III.—HORTICULTURE.

GAGEA FASCICULARIS.—The limestone rocks in the vicinity of Doncaster, abound wtih this beautiful and rare indigenous plant; and the *tulipa sylvestris* is found in the fields near the river Don, in such dense patches, as to leave little doubt of its being a native of this kingdom.—S. APPLEBY, *St. James's Garden, Doncaster, May* 10*th*, 1831.

THE PILGRIM OAK.—On Sherwood Forest, by the left hand side of the turnpike Road, leading from Nottingham to Mansfield, about one hundred yards north of the little pot-house, universally known by the name of Robin Hood's Hut, being, it is said, the place where that distinguished outlaw often resorted, to levy his tax upon the passing traveller, stands a majestic spreading oak. At the time the late Lord Byron's grandfather held the Newstead estate, he ordered all the trees on his domain, that were saleable to be cut down; this, however, was preserved from the fate of the others, by Mr. Dodsworth, a wealthy and highly respectable attorney, of Mansfield, who had often, when on his road to Nottingham, admired its beauty; and hearing that his favourite was about to share the common fate, went himself to Newstead and offered

Lord Byron £50 to allow it to remain, which offer his Lordship readily accepted, and an agreement was speedily made, to the effect that neither Lord Byron, or any future proprietor of Newstead, should ever have the power to cut down this tree, but when it dies, the ground on which it stands or overshadows with its wide-spreading branches, should again belong to the possessor of the Newstead estate. This agreement is regularly entered in the estate deeds, and we should think, it is the only tree in existence, which it would be unlawful to cut down Mr. Dodsworth, deserves to have his name recorded and rendered illustrious, for a deed so noble. Until within these few years, this tree was partly surrounded by young trees, planted by the late Lord Byron, but Col. Wildman has cleared them away for a considerable distance, and with excellent taste, has his principal entrance from the London Road, opposite to it. The outer branches are about 200 feet in circumference, and the bole, about 4 feet from the ground, measures 13 feet in circumference; the tree appears to be about 150 years of age; and looked when we saw it last spring, remarkably healthy.—Col. Wildman was then about erecting a seat round it, as an accommodation and rest for the weary traveller.—Cond.

IV.—HORTICULTURAL AND FLORICULTURAL SOCIETIES.

LONDON HORTICULTURAL SOCIETY.

On the 1st of May, a Lecture was delivered in the Society's Rooms, Regent-Street, by Mr. Lindley, F.R.S., F.L.S., F.G.S., Prof. Bot. Univ. Lond., which was well attended. The Professor principally dilated on the Physiology and Anatomy of plants, classing them under three heads, Vascular, Cellular, and Fibrose; which he explained by large drawings with the assumed vessels very much magnified. No living proof was brought forward, except a feeble one, in the stalk of a Strawberry leaf having a tortuous pith. He attempted to prove that metallic hot-houses were preferable to wooden ones, in as much, as they afforded a greater degree of light, thus giving a colouring to fruit, leaving out the effects of heat altogether; he also expatiated on a south-wall being preferable to a north one, for the same reason, without regard to heat. After some general remarks on the circulation of the sap; the Professor stated, that a foreigner at Modena, had discovered in the Canna, a circulation, something like that of the blood in the human body. He then proceeded to state another arrangement, dividing the vegetable world into two parts; *Yucca Aloefolia*, was exhibited to illustrate one, and the *Ficus Elasticus*, the other. Upon the whole, the Lecture was well received.

The Periodical Meeting of the Society, was lately held at their Great Rooms, Regent Street, Dr. Henderson in the chair. It presented the most brilliant assemblage that ever met on a similar occasion; the room was tastefully decorated with a great variety of shrubs and and flowers. There were more than 40 different species of the Rose, all in full bloom; 4 varieties of the Horse-Chesnut, variegated; several varieties of the Honeysuckle; Lupines, and Pœonies, in perfection. But the most fragrant of all the flowers, was the *Aerides cornutum*. All these were eloquently expatiated upon by Mr. Lindley, the assistant secretary. Lord Caernarvon sent from his garden at Highclere, some noble Rhododendrons, and other beautiful and rare shrubs, which he had cultivated with complete success. Mr. Young of Epsom, Mr. Groom, and Mr. Donald, each sent some choice shrubs and flowers, and Mr. Welstead favoured the Society, with a basket of excellent Black Hamburgh Grapes.

Fete at Chiswick, June 22nd, 1831.—This is the Fourth Exibition, the Society has had, in the Gardens at Chiswick, and although the weather was extremely favorable for the occasion, the attendance of rank was much less than any previous year. The number of Tickets hired for this Fête, was about 3000, being 600 less than that which took place 2 years ago, however owing to the unfavorable state of the weather at that time, not half of those who had Tickets came; but at the present one, very few, if any, were absent, the attendance was therefore upon the whole, more numerous than on any former occasion. At the Fête, 2 years since, more than 000 Tickets were gratuitously given to the inhabitants of the neighbourhood, and to such Fellows with their friends, as were desirous of seeing the preparations, &c. the day previous.—We much regret that this privilege was not granted this year, the reasons of which we are at a loss to account for, as from our own experience, we can speak to the good behavi-

our of such visitors, perhaps they might in some degree occupy the attention of those who were making preparations, otherwise, we are satisfied it could do no damage whatever.—We also much regret, that practical gardeners are not allowed to see the Exhibition of Fruit gratuitously, until 12 o'clock on the day of the Fête.—This would no doubt be the means of increasing the number of contributors of Fruit, &c. as there are but few gardeners who like to contribute unless they are permitted to see them exhibited; this, under the present regulations, they cannot do, without paying a guinea, which to the greater part of gardeners is too great a sacrifice.

We were very sorry to see the smallness of the contributions from private gardens, this, we in some degree attribute to the manner in which the Prizes have hitherto been awarded, the plan differing from those of any other Establishment of the kind in the kingdom—and in our opinion by no means so good, or so well calculated to assure a good display. Other Horticultural Societies award Prizes for the first, second, and third best fruit of any particular kind, such as for best grapes, second best, &c. and so on with all other sorts; as it is not for the value of the Prizes that persons are anxious to obtain them, but simply for the satisfaction of having a Prize awarded, be it ever so trifling. This is not the case with the London Horticultural Society—their medals are given for the best exhibition of various fruits, thereby giving those persons who possess extensive gardens, undue advantage over the others who cultivate to a more limited extent; and instead of giving so many medals to provincial Horticultural Societies, we think it would be much better to award more at their own exhibition, and by that means cause a greater competition. The general Exhibition of Fruit was not so good as on former occasions, and we have seen much finer at the provincial Meetings. A great part of the fruit was of course sold, among which we observed some excellent Melons, Grapes, Pines, Cherries, &c. We much object to the manner in which fruit for Exhibitions of this kind are generally arranged; instead of naming all kinds together, as is always the case, we would, while the Exhibition lasted, have all the different fruits placed according to their sorts, and a comparison of their merits would then be much easier understood, and in our opinion have a far better appearance.

Almost every dish of fruit was placed upon the table by the Honorary Secretary himself, and his excellent arrangement, made them appear to the best advantage.

At half-past three o'clock, the refreshment tents were thrown open, and the rush to the tables was tremendous, many were obliged to wait an hour or more, before they could get near for the purpose of refreshment. The tables devoted to Fruit, were first exhibited to the company, but were closed during the time of refreshment: at half-past four, the gates leading to the fruit tents were opened, and the instantaneous advance of the company, beggars all description, and although the tables were laden with fruit, in five minutes time not a vestige of it, except Strawberries, was to be seen, and we are quite convinced there were more than 2000 individuals who never tasted an atom of any fruit except Strawberries The general management of the Fête, considering the magnitude of the affair, was very well arranged. We shall take occasion to speak more at length on this subject in a future number, in which we shall discuss the various opinions given, as to the propriety of the Society having an exhibition of the kind at all.

The paper announcing the Medals awarded on this occasion, was as under:—

"We, the Judges appointed to award the Medals, at the Exhibition of Fruit, in the Horticultural Society's Gardens, June the 22nd, 1831; award them as follows:—

LARGE SILVER MEDALS.

"Mr. Wilaiam Deas, Gardener to his Grace the Duke of Norfolk, Arundel Castle, for a collection of Pines, Melons, Figs, Peaches, and Nectarines.

"Mr. W. Dolby, Gardener to Josiah John Guest, Esq for Queen Pines."

BANKSIAN MEDALS.

"Mr. Joseph Paxton, Gardener to his Grace the Duke of Devonshire, Chatsworth, Derbyshire; for Grapes, Peaches, Pines, and Cherries.

"Mr. John Wilson, Gardener to the Right Honorable the Earl of Surrey, Worksop Manor, Notts.; for Grapes, Peaches, and Nectarines.

"Mr. S. Bennett; for a Providence Pine."

"Mr. John Bower, Gardener to the Right Honorable Lord Selsey, West-Dean House; for Nectarines and Grapes."

signed, "Hugh Ronalds.
"Joseph Wells.
"William Greenshields."

At a recent Meeting of the Horticultural Society, a paper was read, entitled, "An account of the different modes of keeping fruit, which have been tried at the Society's garden, for the season, 1831," The statement was drawn up at the garden, and enumerated eight different modes; the three best and most practicable of which were, the covering of the fruit in pure

and perfectly dry sand, dry fern, or in a deal box buried in the earth. By any of these modes it might be preserved, free from shrivelling and any disagreeable flavour; in all, it must be deposited in a cold situation. By the other five modes, although the fruit was preserved in a pretty sound state, a musty flavour was found to be communicated; this was especially the case where oat-chaff was the medium.

DEVON AND EXETER BOTANICAL AND HORTICULTURAL SOCIETY.

THE First Exhibition of this Society, for the season, was held at Cowdon's Public Rooms, in Exeter, on Thursday, April 26th. The display of flowers and early vegetables was very splendid, and reflected great credit on the different gardeners. The plan of awarding prizes to cottagers has already been productive of great good, as was shewn in the specimens from that class of persons, produced on this occasion, and will, doubtless, lead the Society still further, to see how much good to the labouring classes, and consequently to society at large, they may be the happy instruments in effecting by perseverance. Forty new Subscribers were reported by the Chairman.—*Exeter Paper.*

DISS HORTICULTURAL SOCIETY.

A SOCIETY has lately been established at Diss, in Norfolk; it held its First Meeting, on Thursday, April 19th. This Society has received very general and warm support from the nobility and gentry of the neighbourhood; 130 families having become Subscribers.

The Second Exhibition of the Society, was held on Thursday, June 9th. The display of flowers was excellent; and the vegetables, both in variety and quality, rivalled those which graced the tables of the Norwich Society.—Those sent by the cottagers were particularly worthy the highest encomiums. The specimens of Strawberry were splendid, and here again the cottagers bore off the palms from the more wealthy Subscribers, both in point of flavour and size. Among the very many objects worthy of peculiar notice, and a source of great attraction, was a selection of 40 choice Pelargoniums, from the greenhouse of T. L. Taylor, Esq. of Diss; some splendid Ranunculuses, and a magnificent bouquet, with some Grapes and Strawberries, from G. St. Vincent Wilson, Esq. of Redgrove; Cauliflowers, Peas, Potatoes, and a beautiful bouquet of flowers, were sent by T. Havers, Esq. of Thelton; and Mr. Walker, of Scole, also contributed a beautiful basket of flowers. A Cucumber, called the "Serene," measuring 20 inches, and weighing 2 lb. was exhibited by Mr. Lombe Taylor; and Lord Bayning displayed a very fine dish of Strawberries. A number of prizes were awarded.

Every succeeding Meeting of the Societies which have arisen out of the complete establishment of the Norfolk and Norwich, afford additional proof of the increased and increasing stimulus the Horticulture of Norfolk, is deriving from a proper, well-directed, and spirited support. But a few short months have elapsed, since the seeds of these Societies were sown,—no sooner sown, than they took root,—no sooner taken root, than they flourished, and bore with the most luxuriant abundance. The soil and seed were good,—the cultivation has been judicious and nutritive; and the fruit has been proportionally increased.—COUNTRY TIMES.

DORSET HORTICULTURAL SOCIETY.

THIS Society held its First or Spring Meeting, at the County-Hall, Dorchester, on Wednesday, April 25th; when there was exhibited one of the finest displays of Horticultural produce, at this early season.

NORWICH HORTICULTURAL SOCIETY.

MR. GEORGE THURTELL has exhibited a bed of Tulips this season, which has attracted the attention of most of the lovers of flowers in the neighbourhood, about 300 specimens were collected in one parterre, and for symmetry of shape, and brilliancy of colour, have scarcely if ever been equalled; he also had an abundance of Strawberries, of good size and rich flavour, Mushrooms, and very fine Cucumbers.

The Exhibition of the Society, was on Wednesday, May 25th; the tables were richly and luxuriantly filled with flowers, the Geraniums were in vast abundance and beauty; there were many specimens of the *Cactus*, one of them, the *speciosissima*. There was also a table covered with Tulips, which were remarkably fine, but these wanted some of the beauty of Mr. Thurtell's collection. The vegetables were as fine and various as the season would allow; one very curious thing was a singular substance resembling *blanc mange*, formed from seaweed, and said to be very nutritious. If there was any deficiency, it was in the fruit, for which, the season is not sufficiently advanced to allow the natural growth, and there was scarcely a proportional contribution from the hot-houses in the county;—there were some Grapes, one Pine, and one Melon, and a few, but by no means superior Strawberries, there were Apples, in very fair preservation. During the whole time that the Hall was open it was much thronged, and is supposed to have always had as many as from one to two thousand persons in the room. The Society's dinner was attended by about fifty gentlemen, and much interesting conversation passed, relative to the science of gardening:—The president, E. Lombe, Esq. made some remarks upon the encouragement afforded to Cottage Gardeners, and its obvious good effects. Numerous prizes were awarded for fruits, flowers, vegetables, and cottager's gardens.

PERTHSHIRE HORTICULTURAL SOCIETY.

THE First Meeting for the season, of the Perthshire Horticultural Society, was held in the Council-Chamber, on Friday, May 13th, when a very superior display of flowers, fruit, and vegetables took place.—Besides the fruit offered for competition, a basket of Strawberries from Kinfauns, and another from Methven-Castle, were produced, both fully ripened and beautiful; indeed the exhibition drew forth the highest approbation from of the numerous assemblage of ladies and gentlemen, who honoured the Meeting with their presence. It must be highly gratifying to the practical Members, to experience the very liberal support and patronage which the noblemen and gentleman of the county, their employers, as well as many gentlemen in Perth, bestow upon the Society. A number prizes were awarded.—PERTH COURIER.

NOTTINGHAM FLORIST AND HORTICULTURAL SOCIETY.

THE second exhibition was held on Wednesday, May 25th, and from the favourable weather, and the increased diligence of the flower growers, the show of Tulips was superior to any hitherto exhibited in this town; the room was tastefully decorated with choice plants from the green-houses of Robert Padley, Esq., Thomas Barber, Esq., Thomas Crowther, Esq , Messrs. Needham and Green, Mr. Pearson, &c.—Amongst other curiosities, were two leaves of the *Musa Rosacea*, (Rosaceous Plantain-Tree) each from eight to ten feet long, sent by W. E. Elliott, Esq. A great number of prizes were adjudged to exhibitors.

SHEFFIELD HORTICULTURAL SOCIETY.

THE first exhibition of the above-named Society took place on Wednesday, May 4th, in the Saloon of the Music-Hall, in Surrey-Street, and it is gratifying to state was attended by a very numerous and highly respectable company. The show of auriculas and polyanthuses was of the most splendid description, while the collection of hyacinths, herbaceous plants, cut flowers, &c. was such as afforded general satisfaction. The display of stove and green-house plants and fruits was of the most extensive kind, and afforded a rich treat to the lovers of horticulture. One specimen of fruits richly deserves especial notice, viz. several pots of Keene's seedling strawberries, which was perhaps the finest ever seen in this country; one pot contained sixty-three ripe strawberries, some of them measuring near six inches in circumference. These were sent by Mr. Paxton, from the splendid gardens of His Grace the Duke of Devonshire.—The same individual also furnished some specimens of Rhubarb, which elicited the praise of the visitants, as also a choice collection of stove and green-house plants. As a first exhibition, the most sanguine expectations of the friends of the institution were fully realized, if not surpassed; and we trust that in addition to the new subscribers (sixty in number,) who have been enrolled at the time and since the exhibition, all our townsmen who have a taste for the cultivation of flowers, plants, &c. and who love to behold the beauties of nature, as exhibited in the vegetable world, will come forward and lend their aid to an institution which is so richly deserving of support, from the innocency of its objects and its undoubted usefulness. In the mean time the members are preparing in due season for a second exhibition, when we hope the attendance of visitors will be greater than even on the present occasion, for the directors are determined to bestir themselves, and render it worthy the most extensive patronage and support. The Society is now permanently established, and is very likely to be one of the first of the kind in the kingdom; it has already received high and distinguished patronage, and we do not hesitate to say it was well merited. A variety of premiums were awarded.—*Sheffield Mercury*.

The Second Exhibition of this Society, which took place at the Music-Hall on Wednesday May 25th, was visited during the afternoon by a large portion of the first families in the town and neighbourhood, who expressed themselves highly gratified. There was a rich and varied display of fruits, vegetables, stove and green-house plants, cut flowers, tulips, &c. kindly supplied from the gardens of noblemen, gentlemen, and practical gardeners in the neighbourhood. It is worthy of notice that the Duke of Devonshire, with his wonted liberality, again complimented the Society by contributing fruit, vegetables, and plants for the exhibition The subscribers, we are sure, feel truly grateful to this distinguished nobleman for the handsome and disinterested manner in which his support was afforded in the establishment of this infant but highly useful Society. The Earl of Surrey added no small degree of interest to the exhibition, by a variety of fruit, vegetables, plants, &c. We trust such examples of liberality will be imitated by other noblemen in the neighbourhood, and this Society, which certainly has made rapid progress since its commencement, and which deserves the warmest support, will have the honour of their countenance and support, as well as that of the gentry throughout the district.—SHEFFIELD COURANT.

YORKSHIRE HORTICULTURAL SOCIETY.

WE are sorry to observe in the Leeds Intelligencer, an announcement, that the Committee have found it necessary to dissolve this useful Society, from want of the requisite pecuniary encouragement.

V.—MONTHLY HORTICULTURAL CALENDAR.

FOR JULY.

THE Conductors intend to give a Gardening Calendar for the Month, in every number; not with a view to fill up the pages of the Work, with directions for digging, weeding walks, &c., but to state what operations are necessary, and can most successfully be performed, either in sowing of crops, or propagating and managing of plants, and likewise to give some instructions, where it is found necessary, as to the mode of performing them. Where articles have been published upon anything coming under notice in the Calendar for the month, reference will be made to them, so that the operations and detailed statements of practical men may be readily consulted.

FRUIT DEPARTMENT.

Budding.—Peach, Nectarine, Apricot, Plum and Cherry Trees, may now be budded.

Thinning Fruit.—In the thinning of Fruit, no more should be left upon a tree, than what will be able to swell the full size; it is far preferable to allowing a great number to remain, and such consequently being of a diminished size and flavour.

Wall and espalier Fruit Trees.—The shortening of the young shoots of wall and espalier Fruit Trees, should now be particularly attended to, for if the shoots are permitted to grow many inches without shortening, they rob the buds which should be the productive ones for the following year; but if attention be paid to shortening, as often as possible, it very materially contributes to the perfecting of the buds, and it also enables the present crop of fruit, to swell finer.

Mildew.—Where Peach and Nectarine trees are affected with Mildew, on its earliest appearance, the trees should be sprinkled over with common sulphur, having been previously washed with soap suds.

Melons and Cucumbers.—Plants of Melons and Cucumbers raised from cuttings, may now be planted upon hot-beds; and if properly treated, by frequent stopping of the shoots, will bear abundantly from the early part of September.

Strawberries.—Pot Strawberries for Forcing, if not done before.

VEGETABLE DEPARTMENT.

Mushrooms.—Mushroom-Beds now made, come into use from the end of August.

Endive.—Early-sown Endive now planted off, will be fit for use from the end of September. Sow more seed, about the first and second weeks, for late crops

Chervil.—Chervil now sown, is useful during the autumn.

Celery.—Celery for winter use may now be planted off in rows; and if there is any danger of the plants running, taking up and re-planting them once or twice, checks that teudency.—Also, earth-up that which was planted in May and June.

Cauliflowers.—Cauliflowers, planted now, come in from the end of September: and seed may be sown, for a late crop, to come in from November, if the weather permit.

Leeks.—Leeks should now be transplanted in rich soil, six inches apart.

Lettuces.—Lettuces sown this month, come into use from the end of September.

Brocolies.—Brocolies of all sorts may still be planted off for winter; and more seed sown in the first week, for late spring use.

Cabbage.—Cabbage seed for an early crop to cut in spring as Coleworts, should be sown about the first, and in the middle of the month, and will be fit to plant out by the first of September. Advantage must be taken in dripping weather, still to continue planting-out Savoys and Cabbage.

Spinach.—Sow Round Spinach about every fortnight; and in the course of the last week, sow Prickly, to stand for winter; but the principal sowing must be reserved for next month.

Kidney-Beans.—Kidney-Beans ought to be put in, about the 1st and 10th, for the last crops.

Radishes.—Short-Top Radish should be sown every ten days; and Turnip-Rooted about two or three times in the course of the month.

Mustard and Cress.—Mustard and Cress should be sown about once a month.

Onions.—When Onions are required for a regular supply, there may be a few sown about twice during the month. Onions should now be taken up, if ready.

Cardoons.—If Cardoons were not planted-out last month, it should now be done without delay

Peas.—Peas for late crops, must be sown about the beginning or middle of the month; Charlton, Hotspur, or Frame, answer by far the best, at this time of the year.

Beans.—A few Mazagan or Long-Pod Beans, may be put in about the 1st and 10th.

Garlic and Shallots.—Garlic and Shallots, will in general, be ready to take up, which should be done in dry weather.

Herbs.—Herbs will mostly be ready to cut for drying. Be careful to select fine weather for the purpose. Slips of the various kinds may now be planted in shady situations.

FLOWER DEPARTMENT.

Carnations.—Carnations may now be layed; or cuttings taken off horizontally, cut close under a joint, and planted under a hand-glass or frame.

Rose Trees.—This is the best season for budding Roses of any kind, except the China Rose and its varieties.

Mignonette.—Mignonette sown now, flowers from the end of September.

Ranunculuses and Anemones.—Ranunculuses and Anemones now planted, will bloom from the middle of September.

Violets.—This is the best time for increasing patches of Violets, as the shoots are now generally striking full of roots.

Biennials.—Biennial Flower Seeds, as Sweet-Williams, &c. may still be sown; such as were sown early, and are strong enough for planting out, should be done so, to have the plants bushy.

Annuals.—Late sown Tender Annuals, now planted, will bloom early in September. Hardy Annuals, now sown come into bloom, from the end of September.

Dahlias.—Dahlia cuttings taken off close to the parent branches, inserted into sandy loam, and placed in a hot-bed frame, will readily strike. and form good strong roots, calculated to be kept firm through the following winter. When the cuttings have pushed, gradually inure them to the open air, and finally place them in a sheltered sunny situation.

Rose-Acacia.—The shoots of the Rose-Acacia, now shortened, will push anew, and produce abundance of bloom in autumn.

G. Jewitt, Printer, Duffield, near Derby.

THE

HORTICULTURAL REGISTER.

August 1st, 1831.

PART I.—HORTICULTURE, &c.

ORIGINAL COMMUNICATIONS.

ARTICLE I.—*Account of a successful Method of Cultivating the White Tokay Grape.* By MR. CHARLES PARKIN, Gardener to Viscount Galway, Serlby-Hall, Notts.

GENTLEMEN,

A VERY great dissimilarity in the size of the berries of the White Tokay Grape, is generally observable upon the same bunch of fruit, some being two or three inches in circumference, whilst others are no larger than peas; this is accounted for, by the circumstance of a defective or an omitted impregnation of the blossoms.

The following method of treatment, with this Grape, has uniformly been so successful with me, that each berry is alike a desirable size, and even much finer than any I have seen elsewhere under a different mode of treatment; and the difference is so apparent, that all gardeners who have seen them, have spoken of them in terms of praise, whilst the greater part have become converts to the mode of culture I practise.

When the bunches of fruit have expanded, and before the blossoms are opened, I have them carefully thinned-out. Where the blossoms are thickly set on the bunches, I thin them out so freely as to have only about every sixth or eighth blossom. If the blossoms are rather straggling, I proportionally thin them out; performing it, so that there will be a sufficient space for the berries to swell to three inches or more in circumference. After the operation has been once attended to, it is easily discovered on what scale it is required to thin.

The benefit of this early thinning-out of the un-expanded blossom, is, that those remaining, are considerably strengthened by it, The pollen becomes more perfect, and the stamens more erect, and thus a certain fecundation is effected. Also, by this early removal of a greater part of the blossoms, those remaining receive a proportionate degree of

support from the Vine; and the result is, as I have before stated, a much increased size of the fruit.

It is a general remark, that in order to have the Tokay Grape to set well, a much greater degree of heat is required than with any other kind:—under a different mode of treatment from mine it may be necessary, but in my method of culture it is not requisite; 70 degrees of Fahrenheit, being the highest heat I allow the house to arrive at.

The pruning of the Vine, both in summer and winter, is after the same mode of treatment I practise with any other sort of Grape.

I am, Gentlemen, &c., &c.

May 25th, 1831. CHARLES PARKIN.

ARTICLE II.—*On a Successful Method of Blooming the Triverania Coccinea.* (Cyrilla Pulchella) By an AMATEUR.

GENTLEMEN,

THIS most charming plant having never failed with me of annually blooming a profusion of large petalled brilliant flowers, whilst those cultivated by my neighbours, though growing freely, seldom bloom, and even then very meagre, I judge that my mode of treatment has something in it of merit, and deserving a trial; and through the medium of your new publication, I shall feel pleasure in conveying the mode of treatment to those who are, with myself, admirers of the plant in question.

The mode of treatment I pursue is, as soon as the plants have done blooming I begin to be sparing of watering, gradually lessening the quantity, so that in a month or six weeks, at the utmost, I desist entirely. The pots of plants are then placed in a dry and cool part of a green-house or back shade, where the frost will not touch them. I allow them to remain there till the end of March; I then cut off the the tops and turn out each pot of roots, these I very carefully divide with a sharp knife into four portions, keeping each part as entire as possible. The size of the pots I use are 24s.

The retaining of these portions of roots entire is quite indispensible, in order to succeed in flowering the plants; I have tried them several times when the roots have been separated, but never could flower them, whilst on the other hand I never failed; and I am of opinion that the failures in those I have seen at other places, have been either through separating the roots, or by keeping the whole pot of roots entire and re-potting without any dividing of the ball,—in both cases there was the same evil. The soil I use is a rich sandy one.

In potting the roots, I place them in the pots so that they are covered about half an inch deep. After potting them, I place them in a hot-bed frame, which is not in a powerful heat.

When the plants are about two inches high, I remove them into a vinery. I give a regular supply of water, so that they are not suffered to wither. The beauty of the plants so treated, more than compensates for the attention paid.

I am, &c.,

May 27th, 1831. AN AMATEUR.

ARTICLE III.—*On the Evil Effects of Metallic Hot-Houses on Vegetation.* By MR. MC MURTRIE, Gardener to Viscount Anson, Shugborough-Hall, Staffordshire.

GENTLEMEN,

FROM the conversation we had, respecting Metallic Hot-houses, when I last had the pleasure of seeing you at Shugborough, and as you are desirous to hear all sides of the question, relative to so important a topic, I beg to send you the inclosed paper on that subject, a copy of which, was sent to the London Horticultural Society, more than three years since, but never appeared in their Transactions. I have not changed my opinion, having seen nothing to induce me to do so, nor do I think it probable I ever shall.

Shugborough, June 10th, 1831. W. MC M.

To the Secretary of the Horticultural Society.

SIR,

I KNOW not whether the following remarks upon Metallic Hot-houses, will be admissible in your valuable publication; being conscious however, of the importance of the subject, and the necessity there is for something to be said upon it immediately, I leave it for you to determine whether it comes within the scope of your Transactions, to give it insertion or not.

The mania for Metallic Hot-houses, seems to be spreading very rapidly, and observing that it has found advocates in some late publications, I think that such unreserved praise as it meets with there, from those who cannot be supposed to speak from experience, is only calculated to mislead the public.

If the practice of fourteen years, in Hot-houses of the above description, as well as in Pine-pits of the same, may entitle me to give a fair opinion of the utility of them, I would recommend those who intend erecting such, to pause, and enquire whether the adoption of the plan has any other quality to recommend it, than merely the light and elegant appearance it presents to the eye.

It is affirmed that the extra expense of Metallic Hot-houses is trifling, which I beg leave to deny; there were two Hot-houses erected lately in this neighbourhood, belonging to Sir Clifford Constable, Bart. Tixall Hall; the one of metal, the other wood, in the usual way, of nearly equal dimensions, the latter rather the largest.—I am authorized to state that the expense of the metal house, amounted to double that of the wood one. This extra expense cannot surely be considered as trifling. About ten years ago, there were two pine-pits built in Shugborough Gardens, the rafters, and all but the frame of the sashes of metal, the price of which was 4s.6d. per superficial foot; and I am enabled to state, that if the work had been of wood, it would have been done for 2s. per foot—so much for the trifling extra expense of metallic structures. I next proceed to my experience of the durability and utility of the system in the forcing department.—With regard to the durability of it, I must observe, that the following communication may not be considered as decisive in that respect, as the Houses were not entirely of metal, as is the present system, the bars of the sashes only being of that material; however the builder did not fail to represent at the time, that it would be little short of everlasting.

There were three pine stoves, two peach, and two fig-houses, erected here about twenty-six years ago, the bars of the sashes being of metal. The two peach-houses lasted only sixteen years, two of the pine-stoves eighteen, when it was found necessary, from the shattered condition of the sashes, (the metal-work having given way,) to have them replaced with wooden ones. The remaining stove and fig-houses are still in use, but in so dilapidated a state, that they will not last above four or five years longer, at the utmost. With regard to utility, I am decidedly of opinion that it is no improvement. Although the Hot-houses under my charge were less liable to injury from the excessive heat which entire metal Houses are so subject to, yet in very hot summers I have found considerable inconvenience therefrom. Where the rafters and all are of metal, let not the foliage come in contact with them, if it does, it will inevitably be scorched, which must be very injurious to the fruit. In the summer of 1818, which was very warm, my pine plants in the pits suffered considerably, before I was aware of the injurious effects of the excessive heat in those smaller compartments, it changed the colour of the leaves to a sickly yellow hue, and I have no doubt but that the swelling of the fruit was considerably deteriorated in consequence. The only means I had of preventing such baneful effects in future, was by shading the pits, and keeping the interior flooded with water. If the metal in summer attracts the heat to so hurtful a degree, it is equally attractive of frost in the winter, and it will be found that it is not at all calculated for early forcing.

I hope you will not mistake me so far as to imagine the opposition I feel myself bound to make to this modern invention, is the effect of any

other motive, than a mature conviction of the inutility of it. No man in the profession would more gladly hail any approach to improvement than I would; but when I consider its great expense, together with its inconveniences and injurious effects, I am forced to declare, that it is an obstruction rather than an improvement to that most important branch of Horticulture—the forcing department. I have consulted most of the gardeners within my reach, having Metallic Houses, who are all of my opinion. Indeed, I am surprised that no article has yet appeared from any of them, condemning the system; and can only account for heitr silence by inferring, that they, perhaps, having been smitten by the theory, (as I confess I was myself,) are unwilling to condemn what they had advised their employers to adopt. At the same time that I deny its practical superiority over the old-fashioned wood-constructed House, I am not insensible to its only merit—its light and elegant appearance; and would strongly recommend its adoption in large green-houses, and high-roofed conservatories, where ornament is more consulted. To sum up my opinion of Metallic Hot-houses in a few words;—were I sure of remaining permanently as gardener to Lord Anson, and had the offer of having a Metal Hot-house made, (supposing another was necessary,) I would rather erect a wooden one at my own expense; so firmly am I of opinion, that the latter answers every purpose in the forcing department, with better effect than the former, even upon the most improved plan.

I am, Sir,

Shugborough Gardens,
Feb. 9th, 1827.

Your most obedt. &c.,
WM. MC MURTRIE.

P.S. The above is a copy from a letter that I sent to Joseph Sabine. Esq. Secretary to the London Horticultural Society.

W. MC M,

NOTE.—Many of our Friends, we trust, will come forward on both sides the question: in our September Number we hope to have a paper on the subject, from an old experienced Practical Gardener.

CONDUCTORS.

ARTICLE IV.—*Account of a large Brussels Apricot Tree.* By MR. DEAS, Gardener to his Grace the Duke of Norfolk, Arundel Castle, Sussex.

GENTLEMEN,

I BEG to send you an account of a magnificent Brussels Apricot tree, growing in this garden.

It was planted in February 1772, where it stands, and for two years did not grow above six inches; it is trained against a south aspect flint

wall, and completely covers forty-eight feet long by twenty feet high; the stem, a foot from the surface, measures three feet three inches, it there divides into three leading branches. It is in the greatest health and vigour, and is completely covered with bearing wood, from top to bottom, and from one extremity to the other; although growing in about equal mixtures of black earth, clay, and small chalk, it has not failed of bearing an excellent crop for a great many years.

I last year gathered 1800 very fine ripe fruit from it, besides gathering for tarts and thinning out 5376, making the total number of fruit set on it in one year 7176, or 598 doz. That number I counted myself, for I was anxious to ascertain the exact number.

On the same wall, in the same soil, and on the same sort of stocks, are three Moorpark trees, which die off less or more, every year, and all the other parts of the tree quite healthy, except the part which dies off Can you, or any of your readers account for it?—Is it because the Moorpark is of quicker growth, and requires more nourishment than the Brussels? If so, what is the best sort of stock for working the Moor-park on?

If you think the above worth inserting in the pages of your Register, I shall feel happy in being numbered amongst your correspondents. I should not have sent you an account of this tree, if it had not appeared in the Gardener's Magazine, Vol. V. page 587, incorrectly; and considering that a tree of such magnitude ought to appear what it really is.

Wishing your new Register every success,

I am Gentlemen, &c, &c.

Arundel Castle Gardens,
June 2nd, 1831.

WM DEAS.

ARTICLE V.—*Hints to the Conductors of the Horticultural Register,* By A. J.

GENTLEMEN,

HAVING accidentally just seen one of your Prospectuses, I cannot refrain from expressing my satisfaction, that a Work such as you promise, is on the eve of publication, and I sincerely hope it will meet with all that encouragement and support, which, if it fulfil the promises held out in your announcement, it will so abundantly merit.

Perhaps, Gentlemen, I ought to apologize for troubling you with this letter, particularly as I have nothing new to communicate, but I hope you will accept as an excuse for my intrusion, my best wishes for your success; and also, that you will, (if they seem worth it,) pay some attention to the few following hints.

Your book, Gentlemen, I should consider, is not likely to be confined to Practical Gardening, for I anticipate a much more extended circula-

tion. I expect to see it the monthly companion of our artizans, and to hear its pages read over carefully, and its contents examined in most of the little summer-houses on Mapperley-Hills, or the sides of our ancient forest, for we are here Horticulturists and Floriculturists to a great extent: and our Frame-work-knitters and Twist-hands, when they have completed the labours of the day, adjourn to their hundred yards of land on the outside of the town to superintend the blowing of an auricula or a tulip, to mark the first folding of the leaves of a cabbage, or the gradual growth of a favourite cucumber; each vying with his neighbour in producing the best or largest specimen. Of the latter plant, the cucumber, I will just mention, that the soil here is remarkable for producing the most prolific crops in the open ground, and also, that we are full as much noted for our early radishes, having them in the market long before our neighbours at Derby have any ready to draw. Perhaps an inquiry into the nature of our soil and climate, may at some future time be a welcome communication to your Magazine, at present I shall confine myself to the hints I mentioned.

First,—Would it not be well in your Work, to give every month some general directions for what should be done in a small garden, the ensuing month—that is, in the remainder of the month in which the number appears? not in the long, dry, dog-trot manner of our present books on Gardening, which are calculated for every year, but in a way most congenial to the season, and the weather of the preceding month; as for instance, from the general appearance of the gardens in this present month of June, and the state of the weather towards the latter end, to point out what could most profitably be done in July. This would be a new feature, and I think a useful and interesting one; and if well managed, (of which I have not the least doubt) would tend greatly to extend the circulation of your Work.

Second,—It would be well from time to time, to give a few directions for the laying out of a small tradesman's garden, and for stocking it with such things as will not only be profitable and useful, but ornamental also; not that I anticipate much profit beyond the preservation of health in the cultivation of any garden on a small scale, on the contrary, I care not if every cabbage or cauliflower costs treble the price it might be bought for in the market, but I build on a much greater charm, that of saying, while we hand it to our friends at a Sunday's dinner, "This is my own growing," and consequently every one will agree that it is much better than any that could be bought in the market. To assist the poor stockinger in this kind of culture, will be conferring a benefit upon him, for which he will feel grateful, and like all other benefits, its blessings will fall also upon yourselves.

I think your Prospectus does not mention except cursorily, any-thing of Landscape Gardening. I sincerely hope this will not be lost sight

of; for if there be any one branch of Horticulture which in this reforming age stands in need of *Radical Reform*, it is that of Landscape Gardening. Another time, if this be approved of, I may point out a few of what I conceive to be glaring faults, and leave you and your correspondents to suggest a remedy.

I remain, Gentlemen,

Nottingham, June 9th, 1831. Yours respectfully,

A. J.

ARTICLE VI.—*FLORICULTURE.—On the Cultivation of the Auricula.* By MR. JOHN REVELL, of Pitsmoor, near Sheffield.

GENTLEMEN,

I HAVE long considered the Auricula to be one of our greatest ornaments in the spring, and as much deserving of care and attention as any plant we possess; the richness and variety of its colours have often brought to my recollection those beautiful lines of Thomson, where he says,

——"Who can paint
"Like Nature? Can imagination boast,
"Amid its gay creation, hues like hers?
"Or can it mix them with that matchless skill,
"And lose them in each other, as appears
"In every bud that blows." *Thomson's Seasons.*

In order to bring this plant to any degree of perfection, I have found it necessary, that it be grown in an airy situation, and well sheltered from heavy and continued rains. I know many are in the habit of allowing them after the blooming season, (that is, from the end of May to the end of November,) to stand exposed to all the rain that falls, but this method I by no means approve of, as by such exposure the wet penetrating to the hearts of the plants, of course, rots them, and thereby, as I myself have witnessed, the whole stock perishes.

The plan I would recommend is, that as soon as the blooming season is over, the plants be set in a shady situation and protected from the rain, watering them round the edges of the pots as you may see occasion: also that the offsets which are rooted be taken off and potted in the same compost as the parent plants, giving them the same treatment. The soil I have found them to thrive best in is composed of

Two barrowfulls of fresh yellow-loam,
One ———— of old ants'-nests,
One ———— of rotten horse-dung,
One ———— of river-sand,

mixed well together, and not used until at least two years old.

About the end of May, the plants should be potted in the above compost, the old soil should never be completely shaken from the roots

unless they are decayed; when it will be necessary, in order to get at the decayed part, which when you have done, break it off, for I have always found the blade of a knife very injurious, so much so, that I never saw one plant flourish again where the knife had been used.

When you have ultimately completed potting, look very minutely into the hearts of the plants, for a small caterpillar, that lies concealed in a little web, which you will find by two or three leaves being bound together by it, and which, if it be not destroyed, will entirely consume all the hearts of the plants. Be also careful at all times, not to pull off any leaves before they are dead, for by doing so a wound is made, into which the water finds its way, and thus decays the plant: whenever this decay is perceived, scratch it out with your finger, and put a little tallow in the place to keep out the wet till it heals.

In September, they should be placed in frames to stand through the winter, giving them as much air as is possible.

In the beginning of February they must be top-dressed with the above-mentioned compost, having a little of the dung of sheep and fowls added to it; and with this treatment the plants will begin to show their flower-buds very fine, by the latter end of the month; they must still have all the air that can be given them by day, but closely shut down by night.

About the end of March or beginning of April, when they begin to expand their flowers, they must be particularly protected from rains and the mid-day sun, which may be done by placing boards about five inches square, upon a stick over the pips, as you would shade a carnation, letting the leaves of the plants remain fully exposed to the sun.

When the trusses are formed, if there are more buds than can conveniently bloom, cut out the small and middle ones, only reserving about five, and never more than ten.

If these instructions be attended to, magnificent perfect flowers may be expected; if they are of a green-edged variety, they ought to have a fine, round, yellow tube, with a circular, clear, white eye, the ground colour a dark purple, the edges a fine green, and perfectly level; also as it regards the grey ones, they must be well pounced with farina, and the white must be good and clear.

This is the method I have used, and though simple, may, from my own experience, be adopted with success.

I am, Gentlemen,

Pitsmoor,
June 21st, 1831.

&c., &c.

JOHN REVELL.

Article VII.—*Design for forming Subscription Gardens, in the vicinity of large Commercial Towns.* By Joseph Paxton, F.H.S.

The numerous Provincial Horticultural Societies that have been established, have done much to improve the taste for Horticultural pursuits in those districts; but unfortunately, commercial men are so situated in the centre of large towns, that however desirous they may be to cultivate that taste, they are almost entirely prevented from doing so, by nearly insurmountable obstacles.—If they have a Garden at all, it must necessarily be in some nook or corner, in the outskirts of the town, where they have no other property but the Garden; and the person who is generally employed at considerable expense to manage it, frequently occupies about twice as long in doing the necessary work, as he ought to do, and even then, it is often kept in very indifferent order. Indeed, the proprietors of such Gardens, generally know little how they should be managed, and are therefore more readily imposed upon.—But this is not the worst evil that attends a Garden so situated; for, after all the expense and trouble that has been sustained, it not unfrequently happens, that some depredator steals into the Garden, and carries off nearly the whole year's produce in one night; this is so repeatedly done, and is so discouraging, that it generally prevents such persons from introducing into their Gardens any-thing considered valuable, or that would furnish their tables with little luxuries.

We have been repeatedly told by individuals, that this was the only reason why they were deterred from having a Garden, and that unless some means were devised to prevent the nightly robberies, it would be futile to attempt having one with any degree of satisfaction. It is much to be lamented that such is the fact:—its being so is the reason why we are induced to suggest a plan, which, if adopted, would entirely prevent this species of annoyance, and at the same time would be less expensive, better managed, and give far more security and satisfaction to persons so situated, than it is possible for them to have under the present mode of management. Subjoined is a plan we would recommend for dividing twelve acres and a half of ground into fifty small Gardens, each Garden containing one fourth of an acre. This space would be sufficiently large to produce vegetables and common fruit, for most small families. There would be no difficulty in establishing a Garden of this kind near every large town in the kingdom: and such as Birmingham, Manchester, Sheffield, Liverpool, Leeds, Nottingham, &c., ought to have three or more of them, for the different classes of society; and no town, however small, should be without one or more, as the size of the Garden might entirely depend on the number of persons who wish for little Gardens. In most large towns there are Gas Companies, Water Com-

panies, &c., and we can see no reason why there should not be Garden Companies.

A good way to establish such a Garden, we conceive would be, to have it consist of as many shares as there would be divisions in it; and should any subscriber wish to dispose of his allotment, he could readily do so, either by private contract or public auction. The whole Garden should be enclosed with a wall, on which choice fruits might be grown. The cross divisions would be better planted with dwarf apples, or some other kind of fruit trees; they would form an excellent hedge, and also produce a considerable quantity of fruit. In the centre of these Gardens should be formed, a Botanic or Flower Garden; for if about four acres, in addition to the little Gardens, was devoted to the purpose of holding the most beautiful plants, it would greatly induce persons to become subscribers, for the purpose of having the pleasure to walk in this garden after the toils and anxieties of the day.

Subscribers to this Botanic Garden might be admitted who did not wish to have a share in the little Gardens; this would greatly assist the funds for keeping it in proper order. Schools might also be allowed to walk in this department until a certain hour in the day, by paying a small yearly contribution.

The expense of keeping in order a little Garden so situated, would be according to the inclination of the individual possessing it, for such must have the entire controul of his own compartment; but for the assistance of all who wished for information, it would be necessary to have a first-rate gardener to give all the instruction required, as well as to have the entire management of the ornamental part, and be responsible for the labourers employed by the different subscribers properly attending to their duty; this would be very satisfactory to a proprietor, knowing, that although prevented from attending himself, his Garden would be as well managed as the best private Garden in the kingdom.

The annual expense of keeping the fourth of an acre in good order, and cropping it well, would be nearly as follows, providing the labour was all hired; but most tradesmen have what is called an odd man about their premises, who would, under the superintendance of a practical gardener, be able to do the greater portion of the work, but who, in a Garden now, would be of no use whatever, and others would wish to attend in part to it themselves, and some of course would hire all:—if the latter was the case, the labour at 14s. per week would be,

	£.	*s.*	*d.*
Labour, ...	9	2	0
Rent for ¼ of an acre, Poor-rates, Land Tax, &c.	2	0	0
For keeping up the ornamental part, tools, seeds, and incidental expenses..	5	0	0
Making a total of	16	2	0

In this calculation, the highest rate of expenditure is stated.

Some of the subscribers would like to have a green-house or vinery, attached to their Gardens; this could readily be done, as will be seen by reference to the plan; of course the expense would be considerably augmented.

We have been informed by persons who have had about a quarter of an acre of Garden detached from their dwellings, that the yearly expense has been more than double the sum here stated. One labourer would manage four of the Gardens well, and there would be no difficulty for as many of the subscribers to join and have a man, to whom, if they did not wish to take the trouble of giving the necessary orders, the head gardener would properly direct him for them.

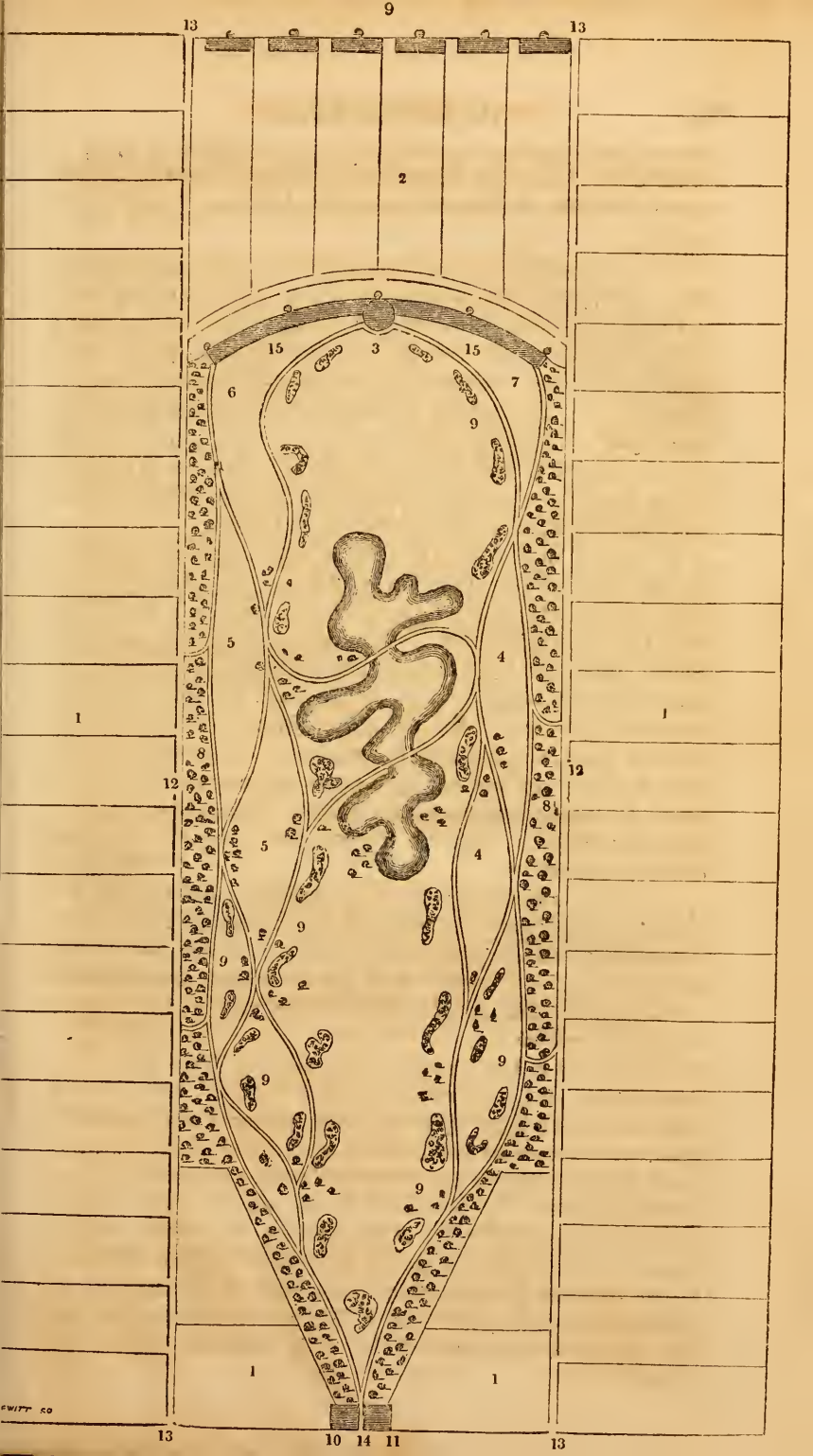
The peculiar advantages of this plan are very obvious. A person living in the centre of a town, could as well have his table supplied with excellent fresh vegetables, with the pleasure of knowing they were the produce of his own Garden, and perfectly secure from nightly robberies, and in addition, have the abilities of a first-rate gardener, to manage it, besides having the pleasure of walking in the ornamental department, with his family, whenever his leisure or inclination suited.

Near large manufacturing towns, we should like to see a considerable number of acres divided into small Gardens, for the industrious labouring mechanics.—For want of some attraction like this, they are often forced to the alehouse to spend their money, whereas, if the same time was occupied in the cultivation of their Gardens, it would be at once a source of healthy and profitable amusement, and also tend, in a great measure, to prevent those dissipations which are too frequent in manufacturing districts. J. P.

Chatsworth, July 12th, 1831.

REFERENCES TO THE PLATE. (9)

1 Little Gardens, about a quarter of an acre each.
2 Gardens, with Greenhouses or Vineries attached.
3 Conservatory, open for all the Subscribers.
4 Tulip Garden.—All the Subscribers who wished to have little beds of Tulips, might be accommodated with ground for the purpose, the size and arrangement of the beds, to depend on the number of persons desirous of such accommodation. The beds might be filled with late-flowering annuals, after the Tulips were taken up.
5 Ranunculus Garden —The same observations will apply to this.
6 Carnations.
7 Pinks.—This, as well as the Carnation Garden, should be divided according to the number of Subscribers who wished to have beds of these flowers.
8 Belt of planting, to prevent the little Gardens being seen from the Ornamental part;—a complete Botanical Collection might be arranged round it.
9 Masses of the most showy and beautiful plants.
10 Gardener's house.
11 House for the use of the Committee, Stores, &c.
12 Walk to the little Gardens, for conveying dung, &c., and otherwise communicating, without going in at the principal entrance.
13 Private doors for the Subscribers to go to and from their Gardens, for Vegetables, Fruit, &c. It would be necessary for each Subscriber to have a key, and be allowed to enter from any stated hour in the morning until a certain hour in the evening, when they should be locked by the Gardener with a master-key.
14 Principal Entrance. 15 Green-Houses.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Article VIII.—*On Labourers' Cottages, recently erected at Thurlby, in Lincolnshire.* By Artus.

Gentlemen,

I know not whether any observations on Cottage Architecture, may, or may not, be agreeable to your plan, but having in the last number of the Gardeners' Magazine, seen a communication signed "Selim," recommending a "reform" in the habitations for labourers, combining comfort or convenience with picturesque beauty, and presenting for the consideration of gentlemen who wish to improve the appearance of their estates, a beautiful but fanciful plan of a double cottage, adapted to some particular situations; I venture to send you a brief account of what I have seen already effected, in the way of improvement, within a few miles of the city of Lincoln.

The place I allude to, is Thurlby, a small village and parish, to the East of the Half-way-houses, on the road from Newark to Lincoln, the property of Sir Edward Ffrench Bromhead, Bart., who resides at the Hall, amidst the blessings of his tenantry and neighbours. When Sir Edward came into possession of the estate, he found it divided into large farms, and let but to two or three tenants, consequently his parish had very few inhabitants. He divided each of these farms, and increased his population. What few labourers were in the village, had only the meanest and most uncomfortable of hovels to reside in, and their state was that of complete degradation; they now begin to feel they are men, and to *enjoy*, rather than *endure*, existence.

On such a subject, Gentlemen, you will agree with me, that it is difficult to say too much. I would willingly descant on the means Sir Edward has taken, to produce so wonderful a change, but it would take up too much of the space of your publication; I will therefore confine myself to that part of it which was suggested by the reading of Selim's observations.

Thurlby, lies in a well-wooded plain, near the West bank of the river Witham, and is naturally a low dirty situation. One part of it, until lately, was a boggy open moor, very similar to some parts of the Fens; this has recently been inclosed, and is now under cultivation. Good roads are made across it to the main-road above-mentioned, and travelling can now be pleasantly performed, where a very few years ago a horse was scarcely able to find a footing. By the side of one of these roads, Sir Edward has erected six double cottages, as habitations for the labourers of the neighbourhood, which though they may not boast so much of the picturesque as Selim seems to require, they contain, what in a moral point of view is far preferable, Content and Comfort.

Each of these Cottages contains two dwellings. In front, betwixt it and the road, (from which it is separated by a green hedge and a deep ditch) is a garden belonging to both, and only divided by a walk down the middle. Behind, is an entire yard to each house, fitted up with a pig-stye and every other convenience. The entrance to each dwelling is from its own yard; and a road is left, closed with a gate, at each end of the garden, by which the yard is entered, and coals and other articles brought in. To each single house is allotted an acre of land, independent of the garden, for the inmates to cultivate as they think proper; thus finding a profitable employment for the labourer's wife, when she has time to spare,—for such children as are fit for labour,—and for the man himself, on a summer evening, after he has finished his daily task at his employer's.

The erection of these Cottages, has not been attended with much expense. They are built of brick, and covered with tiles or thatch; the bricks and tiles, I think, made upon the spot. They are plain buildings, and destitute of all those external ornaments, which, like the crested buttons on a livery suit, proclaim the dependence of the possessor. Yet covered as they are with fruit-trees, shrubs and climbers, they are not void of beauty, though that beauty may be somewhat different from what a fastidious fancy would call the picturesque.

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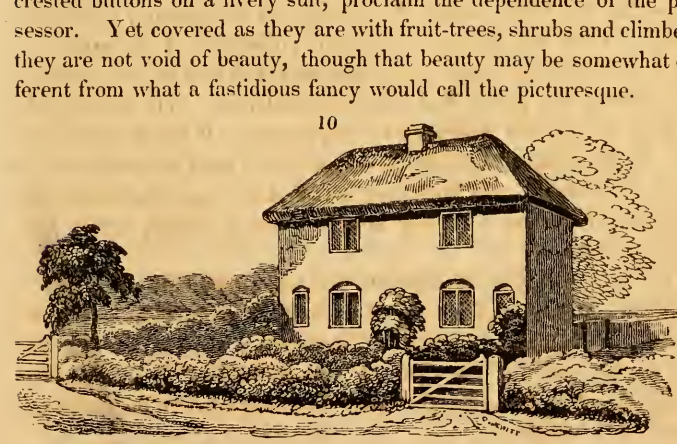


The accompanying sketch, will convey some idea of their appearance, and for some future number, if agreeable, I may have it in my power to procure a correct plan of the interior of each, and of its relative situation in respect to its garden and all its conveniencies.

This, Gentlemen, appears to me, a practical, and a practicable mode of doing good at a cheap rate. It has indeed many advantages, which are too obvious to need pointing out. A number of honest industrious families are placed in a state of comfortable independence, instead of being, as is too frequently the case, a disgrace to their friends, and a burden to their parishes; a tract of land, hitherto useless, is made productive, and consequently of increased value to its owner; and the

face of the country is improved by this substitution of rose-covered cottages, for the wretched, clay-built huts, which for ages have in that neighbourhood been the only tenements for the poor. How forcible is the appeal of such a scene to the philanthropist, and how encouraging to those gentlemen similarly situated, is the Divine command, "Go thou and do likewise!"

I remain,

Gentlemen,

Newark, Notts. }
July 1st 1831. } Yours, &c.

ARTUS.

ARTICLE IX.—*ARBORICULTURE*, No. 2.—*Outline of the Theory of Arboriculture.—Food of Plants.—Analysis of Soils.* By QUERCUS.

GENTLEMEN,

I LATELY took occasion to observe to you, that the important business of raising timber is unaccountably neglected by land proprietors, in each portion of the United Kingdom, but particularly in Ireland; and I also ventured to assert, that so far as my observation extended, gardeners, on whom, in nine cases out of ten, the management of the forest devolves, have not in general, devoted that attention to the subject of Arboriculture, which it is justly entitled to. I am aware that I should unwarrantably offend any experienced gardener, were I to insinuate, that they would experience any difficulty in the formation, or even subsequent treatment of a plantation, in ordinary cases; but it is not enough that he should know how to plant and prune a tree, or thin a plantation, an acquaintance with certain fixed principles is also necessary; and perceiving, short as has been the period since the Horticultural Register made its appearance in this part of the world, that it bids fair to become a favourite with a class of persons, for whose improvement, in every branch of their profession, I am particularly solicitous—I mean young gardeners, including journeymen, apprentices, &c—I shall take the liberty of altering, in some degree, the arrangements I had proposed to myself in these communications; and instead of observations on the management of plantations, shall, at this time offer for their consideration, in as concise a manner as I am able, an Outline of what may be called the Theory of Arboriculture.

They are ever then to bear in mind, that a plant—of course including a tree— is a being, endowed with that mysterious property, to which we apply the term life; that it is organized, *i.e* possessed of an apparatus, by means of which its several functions are exercised; that

light, air, and moisture, are essential to its existence, and that no sooner is life extinct, than the laws of Chemistry, which hitherto were over-ruled by that principle, exert their influence;—it is decomposed, and having passed into its original elements, is fitted for becoming the support of other organized beings.

In these respects plants bear a close analogy to animals; like them too, they are possessed of that inconceivable power, by means of which they are enabled to assimulate, or change into their own substance, a variety of extraneous matter. In common with animals, they have the power of increasing their species; many of them possess spontaneous motion, or irritability.* Indeed, the lowest link in the chain of vegetable beings, approaches so closely to that which holds the same place in the animal kingdom, that a well defined line of demarkation has in vain been sought for.

To discover the real nature of the food of vegetables, has occupied the attention of philosophers for a long period; nor to this day is the problem satisfactorily solved. It would, however, lead me far beyond the limits which I have proposed to myself in this outline, to notice the conflicting opinions of those who have investigated this difficult subject; let it suffice to observe, that the opinion most generally received is, that water, together with carbon, (the base of charcoal,) either in solution, or combined with an acid, in the form of carbonic acid gas, constitute the principal food of vegetables; and that the application of manure, consisting of decaying vegetable and animal matter, to the soil, is the only means within our power, of supplying the plant with the latter of these essential principles.

The earths, which are only finely divided flint, limestone, alumine, (earth resulting from clayslate, and analagous rocks,) and a few others of less common occurrence, do not constitute any portion of the food of plants,—the use of them being merely to afford a medium in which the proper food may be administered; and their fitness for this purpose, depends both on the proportion in which they are combined, and the state of division which they have attained. Thus, a soil composed principally of silex, (earth of flints,) particularly if some portion of it be not in a state of minute division, will not be sufficiently compact to retain for any length of time, a proper degree of moisture. A soil, consisting of nineteen parts out of twenty, of siliceous sand, Sir Humphrey Davy found to be absolutely barren; yet so small a portion of finely divided matter, as one part in twelve, he asserts, is sufficient to adapt it to cultivation. The qualities whereby this sand may be

* Hedysarum Gyrans, Dionia Muscipula, Stylidium Glandulosum, Berberis Vulgaris, Kalmia Glauca, and the common Nettle, and Pelitory of the Wall, are examples familiar to every gardener.

Minerals, observes Linnæus, increase.—Vegetables increase and live,—Animals, increase, and live, and feel.

recognized, are, that it does not effervesce in acids, it is harsh when rubbed between the finger and thumb, and it cuts glass if rubbed against it.

Alumina, (so called as constituting the base of alum,) occurs generally in the form of stiff, retentive clay; without a certain proportion of sand, it is scarcely permeable to water, and consequently, an unfit medium for vegetables; but it does not occur in a state of absolute purity and minute division, and although it frequently requires an additional portion of sand, to render it a proper medium for vegetables, I am not aware of its being in any instance, absolutely barren. The Agricultural character given of this clay, in Conybeare and Phillips's invaluable work on the Geology of England and Wales, is, that "It chokes the plough, and rolls before it, in a broken and muddy state; after rain, it is not slippery, but adheres to the shoes; after drought, it presents cracks nearly a yard in depth, and several inches in breadth. According to Townsend, it is sometimes called wood-growers' land, because, although it is productive of the finest elm, oak, and ash timbers, it requires chalking before it can produce good corn; yet on Epping Forest, Windsor Forest, and much of the New Forest, the oaks are finest where the clay is mixed with sand." It does not effervesce in acids, and when in a state of minute division, is unctuous and impalpable to the touch. It is known by the terms, argillaceous, clay, stiff retentive clay, and till.

Calcareous earth results from limestone or chalk;—in the former case, the soil is always mixed with other ingredients, and is naturally suited to Agricultural purposes; hence the astonishing fertility of many of the Irish counties. In the latter, it is occasionally very indifferent even in England, but on the continent, "according Cuvier and Brongniart, sterility is one of its most decided characters, and Champagne is mentioned, as being, in some cases, absolutely uninhabitable."* It is easily distinguished from the last, by its effervescing in acids. Besides these, there are six earths enumerated by chemists, only one of which, (*Magnesian*) is found in sufficient quantity to modify in any considerable degree, the general nature of the soil, and this only in a few circumscribed districts.

It therefore appears, that pure silica, alumina, or lime, are not capable of supporting healthful vegetation; and, as will appear, from a few examples which I shall now quote, a mixture of these and of other substances, is necessary for that purpose. Bergman, an eminent French chemist, is of opinion, that the most fertile soils will generally be found to consist, as nearly as possible of 4 parts of clay, 3 of sand, 2 of calcareous earth, and 1 of magnesia.

* Conybeare and Phillips's Geology.

A portion of the soil of Sheffield-Place, in Sussex, which was remarkable for producing flourishing oak, was analyzed by Sir Humphrey Davy, and found to consist of 6 parts of sand, and 1 of clay and finely divided matter; 100 parts of it, contained—

Silica,	54 parts.
Alumina,	28 —
Lime,	3 —
Iron,	5 —
Vegetable Matter,	4 —
Moisture,	6 —
	100

An excellent turnip soil, he found to consist of 3 parts in 5, of siliceous sand; the sand being laid aside, 100 parts of the remaining matter consisted of—

Lime,	28 parts.
Silica,	32 —
Alumina,	29 —
Animal and Vegetable Matter, and Water,	11 —
	100

And an excellent soil, for every purpose, from the neighbourhood of Bristol, the analysis of 400 grains of which, is given by Keith, in his Vegetable Physiology, vol. I, page 81, contained,—

Siliceous,	240 grains.
Water,	52 —
Alumine,	48 —
Calcareous Earth,	30 —
Iron,	14 —
Vegetable Matter,	8 —
Magnesia,	2 —
Lost in operation of Analysis,	6 —
	400

These examples, will convey a clearer notion of the qualities necessary to constitute a good soil, than any description. The subject is one equally interesting and important, and I feel that to treat it thus superficially, is a very doubtful mode of rendering it properly understood; possibly however, this imperfect outline may incite to farther inquiry, in which case, I would beg to recommend, the perusal of Sir Humphrey Davy's Agricultural Chemistry; which with Keith's Vegetable Physiology, and Parks's Chemical Catechism, should form a portion of every gardener's lending and private library.

Vegetable Physiology as connected with Arboriculture, will form the subject of my next communication.

I remain, yours, &c.

July 10*th*, 1831. QUERCUS.

PART II.

HORTICULTURAL AND RURAL SUBJECTS.

REVIEWS AND EXTRACTS.

Article I.—*Extracts from Works on Horticulture, and Rural and Domestic Economy.*

1.—Pyrus Malus Brentfordiensis; being a Concise Description of 170 sorts of selected Apples. By Hugh Ronalds, F.H.S. 4to. £4. 4*s.* plain, £5. 5*s.* coloured.

The work before us is beautifully, we may say, splendidly got up; the execution of the plates is so exact, that we might fancy the identical apples were before us, if the delusion was not explained by the paper margins. Great praise is due to Mr. Ronalds for having set an example, which we hope will be followed. If the large nurserymen in the neighbourhood of London, were each of them to publish a work on any one family of fruits, similar to this work of Mr. Ronalds's, persons wishing to make a selection of fruits, would have a guide to choose them by, to please both the eye and the taste. From the continued introduction of new kinds into notice, the difficulty of choosing the best sorts, becomes more and more perplexing, to persons not practically acquainted with the subject. There are few large nurserymen round London, but possess the advantage of publishing on some one kind, except grapes. The only work of merit, that has appeared of late, exclusively on the subject of fruit, is the Pomological Magazine, commenced by Mr. Sabine and Mr. Lindley, and which has been discontinued no doubt, for want of support. We never thought that work would be extensively circulated, however well conducted; because an individual must wait for years, before he could make a selection for planting a new garden; and the price of each plate, together with the descriptions, although excellent, were, notwithstanding, more expensive to the purchaser, than the tree itself could be. What rendered the work most valuable, were the synonymes attached to each description, when required. We consider that to be of immense importance, and much regret Mr. Ronalds has not adopted this method, and added them to his otherwise valuable work. We consider it very important to know that the Ribstone Pippin has three other names: viz. Traver's Apple, Formosa Pippin, and Glory of York; and so on with others. Our reasons are these—we are frequently asked if we have such and such an apple, Formosa Pippin for instance, and which is described as a most excellent fruit:—after purchasing the tree, we wait with considerable anxiety for two or three years, and afterwards it proves to be nothing more than the Ribston Pippin, which, had we known, of course the expense and anxiety would have been spared. We hope, in a second edition, Mr. Ronalds will consider what we have said. We also think it

would be far better to place the name of the fruit directly under each figure.

It will be but a bare compliment for us to express our admiration at the very superior manner in which Miss Ronalds has drawn each fruit on stone. The likenesses are so striking, that we cannot for a moment mistake the fruit represented. We are decidedly of opinion that lithographic prints, look far better for fruits, than either steel or copper engravings: there is a softness about the shades in lithography, which is rarely to be met with in other engravings, and besides, it can be much more reasonably done. The colouring is also excellent, and to persons wishing to plant an orchard, the work before us is a treasure; added to which, Mr. Ronalds has given a list of such apples, as he believes would suit either a small or a large garden,—this is a most excellent feature, and complete as it is, with plain descriptions of each kind, will ever make it a desirable book to all who are able to purchase it. The price, (£5.5*s.* and £4.4*s*) is the only thing that will prevent it from being in the hands of most gardeners; there are 170 sorts figured, it is therefore much cheaper than any work that has hitherto appeared on the subject of fruits.

While we are on this subject, it would be well to mention, that the London Horticultural Society possess more materials for arranging and figuring the whole of the hardy fruits, than any other persons in Europe, but the Society being very poor, and unable to undertake so expensive a concern, without being sure that the work would pay for the trouble and expense incurred; it is therefore, hardly reasonable to expect them to attempt it.

2.—Gardeners' Magazine; Edited by J. C. Loudon, F.L.S. &c., published every two months, price 3*s*.6d.

No. 32, for June, contains,

Page 302.—Art. 15.—*On the Culture of the Cockscomb*, by Mr. John Harrison, Gardener at Syston Park.

In the spring he provides a quantity of turf from a pasture field, pared off about two inches thick, where the soil is a strong rich loam; this is formed into a pile, three feet high, laying the grass-side downwards, covering each layer of turf, one inch thick, with equal quantities of decayed hot-bed manure, fresh droppings of horses, and swine's dung, clear from litter, and well incorporated. In autumn this pile is taken down, and the turf cut in pieces of two inches square, adding to three barrows of this turf, one barrow of oak-leaf, or vegetable mould, and one barrow of sharp sandy bog-earth, which are well mixed together and formed into a shallow ridge, and frequently turned. About the beginning of March a hot-bed is got in readiness by being well worked and fermented.—He then sows his seed very thin, in 48-sized pots, and filled with a compost, consisting of one-third rich loam, one-third leaf mould, and one-sixth sharp sandy bog, broken fine; the pots are plunged in the bed up to the rims, placing under each pot a piece of thin slate, to prevent any rancid steam from entering the bottom of the pots. As soon as the plants appear, they have a little water given to them, raising the pots half way out of the dung, and the next day entirely to the top, giving air to keep the temperature of the frame to about 70 degrees; the following day they are to be removed into the pine stove, for two or three days to harden them previous to potting, placing them near the glass in the day time, and lowering them down at night. These plants are potted in small-sized 60 pots, using the same sort of compost

they were sown in. The bed is well forked up, one foot deep, every four or five days, and watered with water of the same temperature as the heat in the frame, in order to keep the dung in a strong moist heat, the pots being constantly kept plunged up to the rims, until the plants attain their full growth. They require but little water, which is always given over the heads with a fine rose watering-pot. In the middle of the day, when the sun is out, the lights are closed for about a quarter of an hour, and the plants thinly shaded; observing at all times to admit double the quantity of air, for about a quarter of an hour previous to watering. The heads of the plants are kept near the glass, and the temperature of the frame to 75 degrees.

As soon as the plants have rooted sufficiently, and before the roots get matted together, they are put into full sized 60 pots, using the same sort of compost as before, they are to remain in these pots until they have formed their heads, when the strongest plants and best shaped combs are selected, and potted in 48-sized pots, using for the *first time* the prepared compost of turf, &c. After the comb is formed, he never allows the roots of the plants to get entwined, but when they are sufficiently rooted he removes them into 32s, and lastly into 24s, where they complete their growth, and will retain their heads perfect for several months, by receiving a diminished quantity of water, and being removed into the green-house or conservatory.

Page 304.—Art. 16.—*A Mode of growing Balsams to great Perfection*, by Mr. James Reid, Bridgewater Nursery.

The writer informs us, he collects the seed from the finest and most double flowers; he then selects the smallest or middle-sized seeds, and rejects all the large ones, having found that they generally produce plants bearing single and semi-double flowers. About the 20th of February make up a hot-bed of well prepared hot dung about three feet high, for a small single-light frame. After the rankness of the dung has passed off, the frame is to be filled with good rich mould, to within about six inches of the glass; and about the first of March the seeds are sown, covering them about a quarter of an inch. When they are up they should not be allowed to stand nearer to each other than three or four inches, giving them abundance of air when the weather permits, and keeping a good growing heat in the bed. Cover at night with double mats, leaving on a little air when the steam is any way rank. As soon as the seed is sown, he makes up another bed to hold a frame proportionate to the quantity of plants grown.—When the rank steam of this bed is worked off, three or four inches of coal ashes or sand is laid on, for the plants to stand upon when potted, he then pots them in 60-sized pots, which he considers quite large enough for the first potting, taking care to keep them watered and shaded when requisite, as also covering up at night as before; when grown sufficient to remove into larger pots, he makes up a third bed, and places them in this, treating them as before. After the plants have grown to as large a size as the third frame will admit of, they are then finally potted in pots of from ten to twelve inches in diameter at top, and set in the pine stove or green-house for flowering, giving abundance of water in warm weather, twice a day; by this management, Mr. Reid says he has grown them from five, to five and a half feet high, completely feathered down to the pot, and with most beautiful double flowers.

Page 305.—Art. 17.—*Observations on the Culture of American or Bog-Plants, and the Orchideæ, with some Hints on Acclimatising Exotics.* By Mr. Thomas Appleby, Horsforth Hall.

The writer says, "The care of a gentleman's garden in this neighbourhood, devolved upon me some years ago, in which was a large bed of American plants

in nearly a dying state. They consisted of choice Rhododendrons, Azaleas, Kalmias, Andromedas, &c. and had been fine plants, but were then in a most deplorable condition, as it appeared from the want of moisture. The situation of the bed, (over which I had no controul) was peculiarly high and dry, being near some fine old elms, the roots of which penetrated to the bed, and dried up the soil. The compost in which they had been planted, was a kind of real peat or bog-earth, mixed with coarse sand, and was extremely difficult to moisten. The water either stood on the surface and evaporated, or ran off at the side and sank under the grass; so that, although I watered freely every evening, the hot sun on the surface, and the elm roots underneath, rendered all the labour abortive.

"I then set to work, and procured some of what I considered proper soil for them; it is properly termed *moor-earth*, being found on most moors. Like the other kind, it is black; but has this difference, it is thoroughly mixed with fine white sand, so much so as to have a shining appearance, and is more easily pervious to water. With this moor-earth I formed the bed, after removing the old soil, and spread it about six inches thick on the bed. I was aware this was too thin, considering the situation; but I had another substance in view, which I expected would be equivalent to more than another six inches.

"This substance is moss, with it I covered the surface of the bed about two inches thick, and gave a good watering. My expectations were not disappointed; the plants now stood the hottest sun without flagging, and in three or four weeks began to grow freely, notwithstanding the rough operation they had undergone; this work having been done in the height of summer. The Rhododendrons formed their buds in abundance for flowering the following year, and the Azaleas, Daphnes, Kalmias, &c. put on that flourishing appearance, which is the certain token of luxuriant health.

"Wishing to increase some of the more rare species, on laying them down and covering the stems with moss, I soon found that they threw out roots with surprising facility; the stems being covered as high as the moss with those fine white fibres for which this tribe of plants is so remarkable. This I entirely attribute to the cooling qualities of the moss, which being congenial to the plants, and keeping the soil moist, greatly assisted me in that method of increasing them. Many of the shrubs, especially the Rhododendrons, scattered their seed, which came up, and in two years were fit to transplant; so that I should think nurserymen would find moss useful in propagation."

He also tried a few species of *Orchideæ* with the bed covered with moss, which grew very well, throwing up their flower stems fifteen to eighteen inches high. This treatment also suited all the hardy species of *Primula*, especially *P. farinosa*; but this is not all, Mr. Appleby found that where the plants had moss about them, the frost scarcely ever penetrated through it in winter—and in this manner Fuschias, Lobelias, Salvia Indica, the more tender Alpine plants, the Cape bulbs, such as Ixia, Gladiolus, &c., and such plants as are classed as cold frame plants, stood the winter and flourished well in the spring.

Art. 25.—Page 325.—*On the Cultivation of the Fig.* By Mr. W. Pearson, Ormiston Hall.

His trees are situated against a common wall, with a south-east aspect; the length of wall which the three oldest trees cover, is seventy-six feet, by fourteen and a half high, with a cope which projects fifteen inches, and is set at an angle of forty-five degrees or nearly. The border consists of a deep black rich loam, rather light. The kinds are the brown and black Ischia; the former he considers the best fig, for it ripens easier, grows much larger, and is better flavoured than the

black. He has known them to weigh from six to seven and a half ounces each, and seldom to fail of a good crop. Mr. Pearson's manner of treating them is this.—About the middle of November he prunes and nails them, being careful to cut away all those shoots which have reached the top of the wall, on purpose to give those place that are in the rear. By this means a good supply of young wood is kept throughout the whole tree, by laying in the branches thin and regular; when the nailing is finished, he then procures a quantity of spruce fir branches, and covers the trees all over, one branch thick—the foliage of these branches falling off towards spring, and gradually naturalizing the tree to the season; by the 10th of May every leaf has left them, just when the fig begins to put forth its leaves; he then removes the skeleton branches, and gives the trees a complete washing with water, by means of a garden engine, to clear them of all the decayed leaves of the fir which lodge about them. In July, he proceeds to the summer pruning and nailing, cutting away all the shoots that will not be wanted to furnish the tree at the winter nailing; the rest of the young wood he nails close to the wall, exposing the fruit as much as possible to the sun. It is the firm opinion of Mr. Pearson that they cannot be brought to perfection without a very plentiful supply of water to the roots, as he considers them partly aquatic;—soapy water from the wash-house he thinks is preferable.

Art. 26.—Page 327.—*On the Culture of the Pear.* By Mr. B. Saunders, Nurseryman, Jersey.

Mr Saunders believes the common mode of shortening the breast-wood in summer to two or three eyes, occasions fresh shoots and impoverishes the tree to no purpose; he says, a better plan is, either to displace them entirely when young, or (where there is a deficiency of fruit spurs) to break in the month of July, the fore-right shoots nearly through, to within five or six eyes of the bottom, leaving the upper extremity suspended, six or eight weeks. This impedes the communication of the two saps, and prevents a second shoot: the eyes at the base most frequently forming themselves into fruit-bearing spurs, for the following season.

Art. 28.—Page 332.—*On the Hop, its Blight, and Remedy.* By John Murray, Esq. F.S.A., F.L.S., &c.

"The leaf and flower of the hop, (says the writer,) are affected with the honey-dew, under peculiar circumstances; and is a phenomenon standing in some relation to specific changes in the atmosphere." After speaking of the various opinions relative to the causes and effects of this disease, he goes on to say, that "When the hop is struck by the fly, as it is called by hop growers, it will be found, on accurate investigation, to be consecutive on some morbid change in the hop-bine itself, an effect produced by some previous vicissitude in the atmosphere. Perhaps, therefore, the truth will be found to be this.—The plant is blighted, as it is termed, by the wind, or some destructive vicissitude in the atmosphere, and the transudation of the saccharine matter is the consequence of the morbid change thus superinduced. This saccharine secretion becomes the lure to the imago of the insect; here its ova are deposited: these, again, in process of time, become larvæ, that, like the Egyptian locust, devour every green thing. In this view of it, (the writer conceives) the principal thing to be attended to is the prevention of this morbid change, by controlling and modifying the condition of the atmosphere, in all probability the proximate or immediate cause.

"The fact that plants grow most luxuriantly near a lightning conductor, and are there maintained in a healthier condition than elsewhere, proves that the maintenance of the electric current between the earth and the heavens, becomes

an accessary in its luxuriance. Viewing the honey-dew on the leafage of the hop-bine, as the presage of decay and index of disease, and that this disease has been occasioned by some withering blight, consequent on a Meteorological change in the atmosphere, because a new flux of air in its pneumatic relations, which are simply mechanical, could produce no such morbid change; and as this morbific meteorological feature in the atmosphere might certainly be modified or controlled by conducting-wires attached to the hop-poles, in the form of paragrêles; it follows that copper wires so attached, would in all probability, ward off those causes which determine such devastation in hop plantations. The experiment is easy, and the expense trifling, and if carried into practice, the writer seems to have no doubt but the contrast will decide in favour of their universal adoption.

2.—Memoirs of the Caledonian Horticultural Society. Vol. 4, Part II.

Page 478.—Article 56. *On the means of Renovating Plantations of Asparagus, and on the utility of Top-dressings.* By Mr. Daniel Robertson, Walkenshaw. Read September 17th, 1816.

Mr. Robertson says, in the year 1813, he found his asparagus quarter very much exhausted, by reason of the ground being too coarse and poor, and the shoots having been too severely cut in former years. Having a quantity of furnace ashes which had lain for some years, he had them sifted, and mixed with a small portion of vegetable earth, formed from tree leaves; this compost was allowed to lie for about two months, and at the latter end of the month of October he commenced top-dressing, by taking off the old soil to about the depth of from six to nine inches; at least as deep as could be got without injuring the plants. The above compost of leaf-mould and ashes was then laid on, so as to cover the crowns of the plants, about four inches deep. On the approach of winter, the quarter was covered with stable dung, to prevent their being injured; and frequently, during winter, he poured as much of the drainings of the dunghill as could be collected; and by using these means, Mr. Robertson says, the shoots have been the best both in size, quantity, and quality, that he ever beheld.

The top-dressing compost might be thus made:—

One-fourth sandy peat-moss, from the surface of a dry heath.
One-fourth furnace ashes, well sifted.
One-fourth vegetable mould, formed from tree leaves.
One-fourth well-rotted stable dung, with a small portion of quick lime.
the whole well mixed together.

Page 500.—Article 61. *On the kinds of Grape-vine, best suited for Hot-walls, in Scotland.* By Mr. George Shiells, Erskein House Gardens. Read November 2nd, 1827.

The sorts Mr. Shiells considers best, after seven years' experience, are the White Muscadine, and Black Hamburgh, and next to these he prefers the July Black Cluster, and Currant Vines; he also thinks the Frankindale Grape would do well, but has not proved it.

Mr. Shiells applies no fire in the spring, but leaves the Vines un-nailed and projecting from the wall, until the month of May. When the clusters appear, the branches are nailed to the wall, and protected at night by a screen being drawn over them: he applies no fire heat until the beginning of July, when a little is given in the evening; and in wet and cloudy weather continued throughout the day, to protect the flowers, and promote the setting of the fruit.

He screens them during the night, until the latter end of July; the fruit being then all fairly set, the screen is laid aside, until October, when it is again put up at night, to protect them from the frost. The fire is continued until the fruit and wood are ripe, on which depends much of the success of the following year.

Page 559.—Article 68. *On Canker in Fruit-trees, depending on bad Subsoil.* By Mr. Peter Campbell, Gardener at Coalston. Read Dec. 4th, 1828.

It is the opinion of this experienced gardener, that the reason trees canker, is, a stintedness of growth that takes place from a bad subsoil, and the ground not being properly prepared before the fruit trees are planted. An experiment he has tried, proves, he says, to be an effectual cure for that disease, as far as he has hitherto experienced. There were, he proceeds, upwards of seventy espalier fruit trees taken out for the canker, that had entirely given up bearing; and twelve of them had only been about twelve years planted. In January 1824, by examining the trees, he found that most part of the standard and wall-fruit trees as well as the espaliers, were going entirely to ruin by the same disease, and all grown over with moss or lichen, some of it measuring four inches in length. The soil these trees grew in was of a sandy nature, and there appeared in it small particles of clay, of a reddish colour, perhaps about a twentieth part, and also veins of black sand, about eighteen inches below the surface, and the only reason he can assign for these black veins is, that it was formerly a bog, and full of springs or spouts. By examining the roots that went down into these veins of black sand, they were found to differ from the other roots, and some parts were quite swelled and overgrown, compared with the other parts of the same root, so that it had more the appearance of a tuberous than a fibrous root, and the wood itself was very seriously injured in the interior. He instantly proceeded to clear away the soil from the roots with care, so as not to injure them, first to the distance of three feet from the trunk of the trees all round, and afterwards as much under the trunk as could be got out; he cut off the tap roots that went right down, and also all the roots that were diseased, and proceeded to clear away the soil another foot round the tree; a layer of bricks, &c. being laid on the bottom, he then filled up the hole with good mould, mixed with rotten cow-dung, beating in every course below the trunk of the tree with the end of a beater made for that purpose. He then proceeded to prune off the tops of the trees, not leaving a branch or bit of wood that had canker in it on any of the trees. By this treatment, he says, the trees are become quite healthy, and free from any moss or lichen, and without the least appearance of a canker.

Article II.—*Catalogue of British Works on Gardening, Botany, Rural Subjects, &c.*

1.—British Botany. By Robert Sweet, F.L.S. &c. Monthly numbers, 8vo.

To such as are anxious to obtain an acquaintance with British plants, this work will be found a valuable acquisition. The figures and descriptions are so given, that even a superficial observer may soon become familiar with the botanical productions of this country. Upon the whole, we conceive this to be as useful

a publication, as any Mr. Sweet has hitherto introduced into the world; and from the quantity of specimens contained in each number, together with the recollection of their being engraved by so able an artist as Mr. Weddell, will always render it an acceptable companion. Notwithstanding, it is our opinion if the author had placed the name of each specimen under the figure in the plate, it would be far preferable to the mode he has adopted, which renders it necessary to turn over every leaf, in order that the reader may obtain the name required; whereas, if the name had been inserted on the plate, the possessor of the work might at first sight, be acquainted with each plant, although he had not leisure at that time to read the contents of its pages.—This is merely a suggestion, we have no desire to find fault, but just throw out the hint, because we think it would be an improvement to so valuable a work.*

No 1, for June, contains,

Dáphne Mezèreum;—This plant was first mentioned as a native of this country by Miller, who found it plentifully near Andover, in Hampshire; since that, it has been discovered in many other places. Its name is derived from Daphne, a river of Thessaly. *Prímula Farinòsa*, Mealy Bird's-eye Primrose;—Three varieties are figured; one with nearly white flowers, a second with rose-coloured, and a third dark red, The white-flowered is said to be very local and rare, growing in very damp situations; the rose-coloured in sandy loam and peat, and the dark coloured one in peat earth: this latter species is found in wet pastures, and by rivulets, on mountains in the north of England, as well as in Scotland. Its name is derived from primus, (first) from the *P. Acaulis*, and some other species, being amongst the first flowers that bloom in spring. *Helián'themum Serpyllifólium*, Serpyllum leaved Sun-rose;—this beautiful yellow-flowering plant is a native of Somersetshire, and was discovered to be a native of this country by Mr. Sweet. *Saxífraga Oppositifólia*, Opposite-leaved Saxifrage;—this beautiful little Alpine plant is a native of the Alpine rocks and precipices, at the side of the summit of Ingleborough Hill, Yorkshire; Snowden, plentifully; Ben-Lomond, and other Scotch mountains, frequent. It flowers in March and April; and there cannot be a more desirable plant for growing in pots, to decorate rooms or windows; it thrives best in sandy peat soil, and the pots require to be well drained, that the plants may not be injured by too much moisture in winter. It is also a very desirable plant for rock-work; its petals are of a lilac or rose-colour. According to Linnæus, the name is derived from the Latin, and is intended to represent the plants composing this genus, as growing among broken rocks. *Víola Rothomagénsis*, Rouen Pansy or Heart's-ease;—it was lately discovered as a native of Britain by Mr. W. Anderson, Curator of the Chelsea Botanic Gardens, growing in great quantities in the hedges in Kent. The generic name is a Latin word, most probably originating from so many of the flowers of this genus, being of blue or violet colour. *Corydalis Bulbósa*, Solid-rooted Corydalis; (Bulbous Fumitory)—this is a very handsome plant, and well worth cultivation in the flower garden. It varies in colour from a pale blush, to a deep purple, but it has not been observed to differ in anything but colour. It is found at Kendal, and other parts of Westmoreland; also at Bury Hall, Birmingham; at Wickham, Hampshire; in woods, at the Grange, Hampshire: and abundantly in a wood belonging to Richard Bright, Esq. at Crawley House, Hampshire; and Coombe wood, near Wimbleton common. The juice of this herb is strongly recommended by the ancients for the viscera and obstructions of the liver, but at the present it is only used for the cure of various

* Since this went to press, we have heard that the author labours under a severe affliction; we hope some kind friend will be found, to carry on his publications, so that the public may not be deprived of his valuable works, nor he of a competency, should he again recover.

cutaneous diseases. *Cochlearia Dánica*, Danish Scurvy-grass;—this species is found wild on Walney Island, Lancashire; Anglesea; Wells, in Norfolk; Portland Island; Land's End, and many other places. It is a pretty little annual plant, and produces its little snow-white flowers from March to May. The generic name is supposed to be derived from COCHLEAR, (a spoon,) the hollow concave leaves resembling a spoon; or from a Greek word, signifying a shell, some of the leaves being like one of the sides of a bivalve shell. *Anemône Apennina*, Blue Mountain Anemone;—this beautiful blue-flowering species is a native of woods near Harrow; near Lyton Hoe, Bedfordshire; near Berkhampstead, Hertfordshire; very abundant in Lord Spencer's park, near Wimbleton Common, where it was known by Ray and the ancient Botanists. Its generic name is derived from a Greek word signifying wind, the seeds of many of the species being clothed with wool, or feathery, and therefore frequently blown about by the wind.

2.—EDWARDS'S BOTANICAL REGISTER, &c. (new series) By JOHN LINDLEY, F.R.S. &c. Monthly numbers, 8vo. 4s. coloured.

VOL IV, No. 5, FOR JULY, CONTAINS,

Galipèa Odoratíssima, Sweet-scented Galipea; this most fragrant stove plant was sent to the Horticultural Society from Rio Janiero, by the late Sir Henry Chamberlayne. It grows to about the height of two feet, and its stem seems to have no disposition to divide into branches, so that it has not hitherto been increased. It thrives in a mixture of peat and loam, in a pot plunged in a bark-pit. *Kennèdya Inophylla*, Close-headed Kennedya;—this fine species appears to have been raised from New Holland seeds, in the Royal Gardens, at Kew. Mr. Low, nurseryman, received it from Mr. Aiton, about five years ago, under the above name; it very much resembles the *K. Coccinea*, except that the latter is a more slender plant. The deep, pitch-black hairs, with which the calyxes of this species are clothed, give the inflorescence a remarkable appearance, and form an excellent back-ground for the lively red flowers to repose on. It is named after Mr. Kennedy, late partner in the firm of Messrs. Lee and Kennedy, nurserymen, Hammersmith. *Hòvea Purpurea*, Purple Hovea;—a New Holland plant, lately introduced into our gardens. It is a greenhouse shrub, of much beauty, flowering freely, and having a neat, healthy foliage. In the summer it will grow in the open air, but must be removed back into the greenhouse on the approach of frost. It was named after Mr. A. P. Hove, a Polish gentleman, by whom rare plants from the East of Europe and West of Asia, have been introduced to our gardens. It will strike from cuttings, in pure white sand, under a bell-glass, and thrives in a mixture of equal parts of peat and light sandy loam. *Rùbus Spectàbilis*, Showy Bramble;—this plant was figured in Pursh's Flora of North America, and from this figure, great expectations were entertained of it as an ornamental plant. The plants, however, that have hitherto flowered, are by no means so beautiful as they were expected to be. Their petals are of a rich rose-colour, and the foliage of a bright fresh green, but the blossoms are produced too sparingly to cause any striking effect. It grows freely, either in common garden soil or peat, and is very hardy. It strikes readily from cuttings under a hand-glass, treated like those of the China Rose; its name is said by De Thétis to come from the Celtic RUB. (red) *Bèrberis Aquifòlium*, Holly-leaved Berberry;—this plant was originally discovered in north-western America, by Mr. Menzies, and more recently by Mr. Douglas. It is a very ornamental evergreen, perfectly hardy, and will thrive equally well either in peat or common

garden soil. *Bérberis Glumàcea*, Glumaceous Berberry;—This is the *Mahonia Glumacea*, of De Candolle, and was found by Mr. Douglas, in shady pine woods at the mouth of the river Columbia, where it was seen in great abundance. It is very hardy, but cannot bear that the extremity of its stem should be removed. The leaves are remarkable for the deep purple they acquire in the autumn. Its flowers, like the *B. Aquifolium*, are of a bright yellow. Its name is derived from the Arabic *Berbêrys*, which, according to Golius, as quoted by De Thetis, is the name of the fruit. The flowering season is March and April.

3.—Curtis's Botanical Magazine, &c. (new series) Edited by Dr. Hooker. Monthly numbers, 3s.6d. coloured, 3s. plain.

Vol. V, No. 55, for July, contains,

Colúmnea Hirsùta, Hairy Columnia;—this Columnia has been very coarsely figured by Slane, and a representation of the flower is given by Brown, in his History of Jamaica; but although introduced into our stoves by the Marquis of Rockingham, upwards of fifty years ago, it has not before appeared in any of our modern periodical publications. According to Swartz, it inhabits rocks, and grows about the roots of trees, in shady mountain woods, in Jamaica. Its flowers are a bright red, streaked with yellow. *Drósera Binàta*, Forked-leaved Sundew;—a curious little perennial, a native of Van Dieman's Isle; In 1823, it sprung up among some earth, imported from New Holland to the Royal Gardens, at Kew. *Fritillària Leucántha*, White-flowered Fritillary;—this species is a native of the Altaic Mountains, and flowered in the open border of the Botanic Garden, Edinburgh, in the beginning of May. The flowers are of a pale yellowish white, mixed with green. *Anthéricum Plumòsum*;—the seeds of this were brought from Chili, by Mr. Cruikshanks; and together with many others, from that country and Peru, were liberally given to the Botanic Garden at Glasgow. *Pteróstylis Nùtans*;—introduced to the Royal Gardens at Kew, from New Holland, in the year 1826. The colour of the flower is a greenish white. *Pteróctylis Cúrta*;—this species was discovered by Mr. Brown, in the neighbourhood of Port Jackson. *Farsètia Lunariöides*, Lunaria-like Farsetia;—this was introduced from the Greek Archipelago, by Mr. P. Miller, in 1731. The colour of the flower is yellow.

4.—Botanical Cabinet, By Messrs. Loddiges, in 4to. and 8vo. Monthly. 4to. coloured, 5s., 8vo. partly coloured, 2s.6d.

Part 171, for July, contains,

Bérberis Glùmacea;—Figured fol. 1426, in Edwards's Botanical Register, for July. *Erica Plumòsa*;—this pleasing species was introduced from the Cape of Good Hope, about the year 1800. Its rose-coloured flowers are borne the greater part of the year. It strikes freely from cuttings. (See Calendar, page 95) *Erica Serratifólia*;—a native of the Cape of Good Hope, introduced in 1796. Its flowers are yellow, streaked with red. *Anemòne Acutipètala*;—a native of Switzerland, introduced in 1819, by Mr. Schleicher, and flowers with us in April. Its flowers are purple, large and showy, and is perfectly hardy. *Bignònia Grácilis*;—this is supposed to be a native of South America; it climbs rapidly to a great height. It flowers in April, and is very showy, being of a bright yellow colour. *Aubrièlia Purpùrea*;—this is a very pretty, little spring plant. It was introduced in 1821, and is a native of the south of

Europe; flowers plentifully in April, and is perennial and quite hardy. *Camèllia Japónica Róssii*;—this fine red variety, was raised by the late Mr. William Ross, of Stoke Newington. *Pimèlia Diösmæfólia*;—this is a native of New Holland, and is nearly related to *P. Decussata* and *P. Rosea*, between which, it ranks intermediately. *Govènia Supérba*;—this is an elegant plant, and is suspected to be the same with *Maxilaria Superba* of De la Llave. It was received from Mr. Deppe, at Xalapa, in the autumn of 1828. Its bright yellow flowers emit a delicate fragrance. It requires the stove, and should be potted in vegetable earth with a little sand. *Arabis Undulàta*;—this is a native of the south of Europe, and was introduced in 1823, and although it is in some books called an annual, Messrs. Loddiges suppose it to be a perennial. It has very delicate white flowers.

5.—The British Flower Garden. By Robert Sweet, F.L.S. &c. 8vo. Monthly. Coloured 3s. Plain, 2s. 3d.

No. 26, for July, contains,

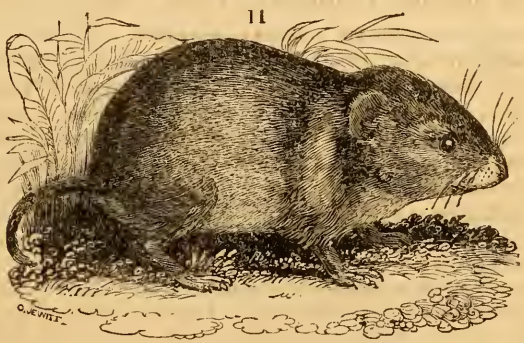
Ajax Cérnuus, Drooping Creamy-White Ajax;—this beautiful plant, has been confused with *Ajax Moschàtus*, by all Botanists, until Mr. Haworth obtained it from Mr. Ellicomb, of Bitton; and on comparing it with Roth's Beitrage, he immediately recognized it to be the same as his *Cernuus*. It is certainly the most distinct and handsome species of the whole genus, and is nearest related to *Narcissus Moschàtus* and *N. Tortuòsus*, particularly the latter with which it agrees precisely in colour, being of a pale yellow. *Tùlipa Oculus Sòlis*, Sun's-eye Tulip;—We are glad, (says the Editor,) to have the opportunity of presenting our readers with the true *Oculus Solis*, which has never been before published in any modern English Publication. The three, figured in the Botanical Register, all belong to *T. Præcox*, of Tenore, which is the one already figured in our Flower Garden, which we received from Tenore himself. The variety given by Mr. Lindley, in the last number of the Botanical Register, (for June, p. 1419) is precisely the same figured in that work, in a former number, Vol. III. t. 304, and both are precisely the same as ours, figured in the first series of our Flower Garden, t. 157; so that the true *Oculus Solis*, has not been figured at all. The Persian *Oculus Solis*, with its gigantic flowers, and hairy instead of woolly bulb, is, without doubt, a very distinct species. *Aquilègia Garnieriàna*, Miss Garnier's Columbine;—this beautiful and splendid hybrid, was raised from seeds in the collection of Miss Garnier, of Wickham, Hants. The seeds were produced from *A Sibirica*; figured at 40 of the new series of the Flower Garden. It was impregnated with the pollen of *A. Vulgaris*. It is quite hardy, succeeds well in the open borders, and nearly equals *A. Sibirica* in beauty. Its colour is a beautiful purple. *Wistèria Frutescens*, American Wisteria;—this beautiful climbing plant, is the original species of *Wisteria*, of Nuttal, who named it "in memory of Casper Wister, M.D., late Professor of Anatomy in the University of Pennsylvania, and for many years President of the American Philosophical Society." This plant is superior in beauty to *W. Chinensis*, to which the flowers have a near resemblance, It is a very free bloomer; strikes readily from cuttings, planted under a hand-glass, with a little heat. The glass, however, must have a little air given it, or they will damp off.

PART III.—NATURAL HISTORY.

ORIGINAL COMMUNICATIONS.

ARTICLE I.—*On the Havock committed by the Short-tailed Field Mouse,* (Mus Arvalis) *in the Plantations of the Forest of Dean.* Communicated by Mr. E. MURPHY.

MR. BILLINGTON, in his work on Planting, published in 1825, gives us an account of the extraordinary havock committed on the young plantations in the Forest of Dean, by the Short-tailed Field Mouse, (*Mus Arvalis,*) [11] and having sought in vain amongst such of the



writers, who have described this animal, as I had an opportunity of consulting, for any observations as to this propensity, am led to believe, that except those who have seen Mr. Billington's book, few have any notion of its powers in this respect.

Mr. B. commences his account of it by informing us, that he had frequently observed great quantities of small oak and ash plants, barked, and bitten off, at about six inches from the ground; these attacks were generally made in situations where the long grass and furze protected the depredators from their natural enemies, the hawks, owls, &c. "requiring, like most other mischief," he observes, "to be done in the dark."

"Before the autumn of 1813," he continues, "the mice had become so numerous, that we could pick up four or five plants, of the larger five year old oaks, on a very small piece of ground, all bitten off, just within the ground, between the roots and the stem; and not only oak and ash, but elm, sycamore, and Spanish chesnut, of which, however, they did not appear to be so fond as of the two former. The hollies which had been cut down, produced abundance of suckers, which were destroyed in thesame manner, and some of them which were as thick as a man's leg, were barked all round, for four or five feet up the stem." The crab-tree, willow, furze, larch, spruce—in a word, every kind of tree, and even grass, particularly cocks-foot grass, seemed equally acceptable to these voracious little creatures; till at

length, "Lord Glenbervie became so alarmed about the final success of raising a forest, that we were instructed to pursue every means we could think of, by cats, dogs, *owls*, poison, traps, &c. We were, rather than not accomplish our object, to cut up all the grass by the roots; no expense was to be an obstacle, even if the cost should be more than the enclosing, paling, and planting—so anxious was his Lordship for the success of the undertaking!"—"Operations were immediately commenced, with traps and baits, of various kinds; with poison, with dogs and cats, but all to no purpose. At length, a person hit upon a simple, and eventually, a very efficacious mode. Having, in digging a hole in the ground some time previous, observed, that some mice, which happened to fall in, could not get out again, the idea of forming similar holes was suggested—he tried it accordingly, and found it to answer."

In short, holes about two feet long and ten inches broad at the top, and somewhat larger every way at the bottom, were made at twenty yards apart, over about 3200 acres of plantation; persons went round early in the morning, to destroy such mice as might be found in the holes. "In this way, besides what the owls, hawks, magpies, and weasels, took out of the holes—and several of these depredators lost their lives in attempting to seize their prey,—30,000 mice were paid for by government; nor were they extirpated until they had destroyed, in four enclosures, amounting only to 1700 acres, the astonishing number of 200,000 five year old oaks, together with an immense number of acorns, and young seedlings."

"It is said by Naturalists," observes Mr. B. "that the beaver will fell trees with his teeth, but I have never seen an account of mice felling oak trees, yet I have seen many trees seven or eight feet high, and an inch and a half in diameter, cut down by them. When examining for the thick part of the root, below where it was bitten off, I could never find any part of it left, so that it is very probable it was eaten by them. I have by me, several trees, so cut down, for the inspection of any person, who may be desirous of witnessing with his own eyes, the wonderful powers of so diminutive a creature as the mouse, in felling trees."

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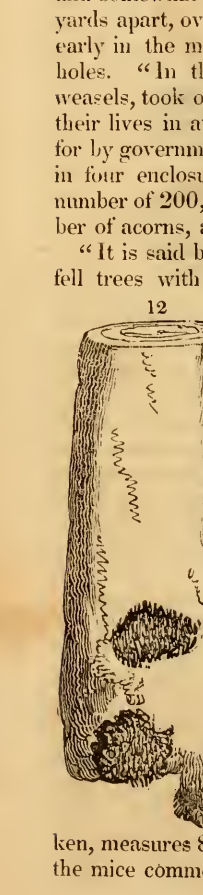


I had before heard that mice occasionally gnawed young ash trees, but I supposed that they did so merely in play perhaps—but the above account appeared so extraordinary, that I wrote to Mr. Billington on the subject, and he was kind enough to forward some specimens of oak which had been cut down; one, that from which the accompanying sketch (12) was taken, measures $8\frac{3}{4}$ inches in circumference at the collar, the place where the mice commenced their attack on it. E. M.

PART IV.

REVIEWS AND EXTRACTS.

1.—Extracts from the GARDENS AND MENAGERIE OF THE ZOOLOGICAL SOCIETY. in 2 vols. 8vo., with Descriptions and Figures of Living Animals in the Society's possession. (resumed)

13

THE RATEL. (*Ratellus Mellivorus.*)

In size, the Ratel is equal to the badger, to which it also bears a resemblance in form. The whole of the upper surface of the body, (which is singularly broad and flat,) comprehending the top of the head and neck, the entire plane of the back, and the root of the tail, is of a dull ash-grey, whiter towards the head, and strongly contrasting with the under parts, including also the muzzle, the contour of the eyes and of the ears, the limbs, and the remainder of the tail, which are throughout perfectly black. The only visible difference which we have been able to detect, between the Asiatic and African animals, consists in this—that the latter is described as possessing a stripe of lighter grey, about an inch in breadth, passing from behind the ears, along each side, and forming the boundary of the two colours. which is entirely wanting in our specimen. The hair all over the body, although tolerably smooth, is remarkably stiff and wiry; and the hide beneath it is excessively tough, and so loose, that Sparrman's statement is scarcely to be regarded as an exaggeration, when he assures us, that if "any body catches hold of him by the hinder part of his neck, he is able to turn round, as it were, in his skin, and bite the arm of the person that seizes him." The claws of the fore feet are extremely long, and although not very strongly curved, of considerable power, being formed especially for digging up the earth—an operation which all the accounts of the animal's manners concur in stating, that it performs with dexterity. Of these claws, the middle three are much longer than the lateral, and the internal one is placed far behind the others; on the hind feet, the claws also, five in number, are

of nearly equal length, but are much shorter, and proportionally, much less powerful, than those of the anterior members; the total length of the animal is about three feet, of which its tail forms more than one-sixth; its height does not exceed ten or twelve inches; and the length of its fore claws, when not worn down by constant use, is about an inch and a half.

With respect to the habits of these animals, we shall give an abstract of Sparrman's version of the relation of the Hottentots and of the Dutch Colonists, which has been adopted by all subsequent writers. The bees, according to our author, furnish the Ratel with his principal, if not his only means of subsistence, These insects are accustomed to take up their abode in holes in the earth, formed by various burrowing quadrupeds, and the Ratel is endowed with peculiar sagacity for discovering their nests, which it undermines with its powerful claws, in order to feast upon the honey contained in them. Aware that sunset is the period at which the bees return to their homes, it chooses that time for making its observations, which are conducted in a very curious manner —Seated upon the ground, with one of its paws raised, so as to shade from its eyes the rays of the declining sun, it peers cautiously on either side of this singular kind of parasol, until it perceives a number of bees flying in the same direction; these it carefully marks and follows in their track, until it has safely lodged them in their nest, which it immediately commences pillaging. But if it should happen, that, contrary to their usual custom, they have built in the hollow of a tree, the Ratel, being unable to climb, and angry at his disappointment, wreaks his vengeance upon the senseless stock, by biting round it; and the Hottentots know well that such marks on the trunk of a tree, are certain indications of a bees' nest being contained within it.

It is added that the Ratel, as well as the native inhabitants of the Cape of Good Hope, is sometimes guided in this search after honey, by a little bird, the *Cuculus Indicator*, or Honey Cuckoo, which it seems, has sagacity enough to know, that both men and beasts are fond of the tempting spoil. This little creature, although incapable of storming a hive in its own person, takes advantage of the propensity in others, who are better fitted for the task, and invites the Hottentot or Ratel to follow it, by a peculiar note which they both equally understand. Having thus secured their attention, it flies slowly on before them, alternately halting for them to come up with it, and then taking another flight; still admonishing them by its warning voice, until it arrives at the spot where the hidden treasure is deposited, then it suddenly ceases to be heard, but remains quietly perched on a tree in the vicinity, waiting for a share of the plunder, which it usually receives as a reward for its interested service.

In such an attack upon an angry swarm, the toughness of the Ratel's hide must be an effectual defence; and it is even stated, that so difficult is it to penetrate its skin, that a pack of dogs which would be sufficient to despatch a moderate sized lion, have sometimes failed in their attack upon so comparatively insignificant an animal. Such is its tenacity of life, that Mr. Barrow states, "it is a species of amusement for the farmers, to run knives through different parts of its body, without being able for a length of time to deprive it of existence." Major Denham however, was informed by the natives of Central Africa, that a single blow on the nose, was sufficient to destroy it almost instantaneously: in the same regions it has obtained credit for so much ferocity, as to be said at certain seasons, to venture singly to attack a man.

2.—British Entomology; by John Curtis, F.L.S. published monthly.

No. 90, for June contains,

Order *Coleoptera*.—Family *Diaperidæ*.—*Diaperis Boleti*. Found in May and June on *Boleti*, growing on trees. Two other species are described. The plant which accompanies it, is *Rhadiola millegrana*, All-seed. Order *Coleoptera*.—Fam. *Helophoridæ*.—*Hydrochus Elongatus*. Found in April and May in ponds and ditches, on aquatic plants, or floating. Two other species are described. The plant is *Potamogeton pectinatum*, Fennel-leaved Pondweed. Order *Lepidoptera*.—Family *Papilionidæ*.—*Pieris crætegi*, Black-veined White Butterfly. Found in June, not very abundant. The caterpillar feeds upon the sloe, hawthorn, gooseberry, and many fruit trees, and does great damage in gardens in the spring. Order *Hymenoptera*.—Family *Apidæ*,—*Sarapoda bimaculata*. Found in the Isle of Wight. Four other species are described. The plant is *Centaurea Scabiosa*, Great Knapweed; on which the insect was caught.

No. 91, for July, contains,

Order *Coleoptera*.—Family *Lepturidæ*.—*Leptura Apicalis*. The larvæ of the Lepturæ live in wood, and the beetles are found in trunks of trees, or upon flowers; the species here figured, is of a shining black colour, clothed with short depressed ochreous hairs, thickly and minutely punctured, having four bars of a bright orange colour across the back, and is accompanied with a figure of the *Scutellaria Minor*, (Lesser Scull-Cap.) Mr. Curtis also names twenty-one species besides. Of the same Order.—Family *Tenebrionidæ*.—*Uloma Fagi*. This group is so similar in economy and structure to the Tenebriones (at least the British ones,) that Mr. Curtis thinks they might be included in one genus; he conceives it is probable that the U. Fagi, U. Cornuto, U. Mauritania, and the U. Leviuscula, have all been introduced into England with corn and flower, from foreign countries, as they are commonly found in or about the bakers' shops in London. It is accompanied with a figure of the *Helleborus Fœtidus*, (Bear's-Foot) Order *Lepidoptera*.—Family *Tortricidæ*,—*Orthotenia Turionella*, Orange and Silver Ribbon Moth. The caterpillars feed on the shoots of the Scotch Pine. Order *Diptera*.—Family *Tipulidæ*.—*Leptomorphus Walkeri*. Of the economy of Leptomorphus Mr. Curtis is ignorant. It was taken in July, on the windows at Arno's Grove, and off a hedge by a wood at Southgate, by Francis Walker, Esq. after whom it is specifically named. The larvæ inhabits *Fungi*: it is accompanied with a specimen of *Jungermannia Epiphylla*.

3.—Magazine of Natural History; Edited by J. C. Loudon, F.L.S., &c: published every two months.

No. 55, for July, contains,

Page337.—Article 7. *On the habits of the Weasel.* By Scolopax Rusticola of Chilwell, near Nottingham.

The writer mentions a statement of the Rev. G. White, in his Natural History of Selborne, where he says, that "Weasles prey on moles, as appears by their being sometimes caught in mole-traps." To illustrate the reverend gentleman's statement, he tells us, that a neighbour of his, who had set a common spring mole-trap in a field which he occupied, and having occasion to go to it, to stop a gap in the hedge, perceived that a mole was taken. He took the trap from the ground,

and allowed the mole to remain suspended in it: in about a quarter of an hour, he perceived a Weasel very actively engaged in striving to get the mole out of the wires which held it. The animal ran up the stick which formed the spring of the trap, and then descended on the captive, which he seized, and tried by wriggling, twisting, and hanging by it, to appropriate it to his own use, but without success. When exhausted with his efforts, he dropt on the ground, when, having taken wind, he ran up the stick again, and renewed his task with redoubled ardour. "My old friend," says the writer, "having observed him try ten or eleven times successively, thought that he deserved the mole, for his trouble and perseverance, and, taking it from the trap, laid it on the ground ready for him, but on being disturbed, he retreated, and would not again make his appearance, while the old man remained." He proceeds, "An instance of the affection of the Weasel for its offspring was related to me by one of our labourers —He was standing in a foot-path, close to a hedge side, when he observed something coming towards him, but till it got close to him he could not be certain what it was: at last he perceived it was a weasel, with a young one in its mouth. The animal was so intent on her burden, that she did not see the man until he kicked at her, when she dropped her young one and retreated into the bottom of the hedge. The man then stood over the helpless young one with a large stick in his hand, not with the intent of harming the old one, but merely to see how she would proceed. She soon peeped out of her covert, and then made several feints to get her charge; but was obliged to run into the hedge, apparently intimidated at the stick, which he flourished and knocked about. At last she summoned up all her resolution for one grand effort; and in spite of the opposition of the man, she, after a great deal of dodging to avoid the stick, which he used every way to keep her off, without hurting her, fairly succeeded in obtaining the object of her solicitude, and bore it off in triumph from between his legs."

Page 210.—Article 12. *On the Jaw and Teeth of a Mammoth, and of some other Fossils, found in a Flint-Quarry, in the neighbourhood of Chatham; being the substance of a Lecture, delivered to the Philosophical and Literary Society of that town, by* Robert Dodd, Esq.

After having given an explanation of the different fossils that had been discovered in that neighbourhood, Mr. Dodd proceeds to show, that "a great revolution or catastrophe has completely altered the face of the earth, in that part." and he adds, "the repetition of the usual phenomena of nature, for a thousand centuries, would not have produced these effects." Excepting volcanic phenomena on a large scale, we know of no existing power, he says, capable of producing such effects. The present Geological appearances, are such as indicate the action of an enormous and sudden power, operating as great and sudden changes The cause, he believes, to be, a power acting from the central regions of the globe, towards its circumference, elevating the strata, and in the focus of its action not only raising, but shattering and loosening them: thus rendering them a prey to the flood, occasioned by the convulsion.

PART V.

MISCELLANEOUS INTELLIGENCE,

ON NATURAL-HISTORY, HORTICULTURE, AND RURAL AFFAIRS.

I.—CHOICE OR BEAUTIFUL PLANTS,

FLOWERING THIS MONTH, IN THE PRINCIPAL NURSERIES NEAR LONDON.

We flatter ourselves that a List of such choice Plants as will be in Flower at the different Nurseries round London, for each month, will not fail to be interesting to every lover of Plants; it will enable Ladies and Gentlemen to know at once, where to go and see any particular Plant in flower; it will also be of immense advantage to Nurserymen, Practical Gardeners, Journeymen Gardeners, &c. Nurserymen will be able to fulfil the orders of their country customers, without the trouble of sending all round the trade before they can procure what they want, and this Notice will also apprize Gardeners where such plants may be seen:—and to Nurserymen and Gardeners residing in the country, such information will be of considerable importance as they will thereby be made acquainted with the flowering of all Choice Plants, in each month of the year, and by comparing them with their own stocks, they may readily judge what additions their collections require. Most Provincial Nurserymen have printed lists of such trees as they mostly cultivate; if they will have such lists printed on the same sized paper as our Magazine, we will bind them one up gratuitously, every year, providing they will pay the carriage of the parcel to London, and allow a trifle to the binders, which they demand for inserting anything extra.

Note.—We have inadvertently omitted soliciting one or two of the principal Nursery-men in the neighbourhood of London, to send similar accounts, but we hope they will favour us with their lists for the next month.

AT MESSRS. ROLLISSON & SONS', TOOTING, SURREY.

STOVE.

Calanthe veratrifolia.
Clivea nobilis.
Dalbergia Barclayana.
Gesneria macrostachya.
Gloxinia Schotzia.
Ixora coccinea.
Magnolia pumila.
Myrtus tomentosa.
Nymphæa cœrulea.
——— odorata.
Pontederia lanceolata.
Sinningia villosa.
——— velutina.
Villarsia lacunosa.

GREEN-HOUSE.

Astelma eximia.
Alstrœmeria Hookeri.
——— pelegrina.
——— psittacina.
——— pulchella.
Boronia alata.
——— denticulata.
——— serrulata.
Chironia frutescens, alba.
Ceanothus azureus.
Cyrtanthus obliquus.
Calceolaria diffusa.
——— Gilleni.
——— Herbertia.
——— micans.
Dracophyllum graeile.
Drimia acuminata.
Dryandra Baxteri.
——— nervosa.
Erica ventriculosa.
—— densa.
—— Juliana.
Erica nolæflora.
—— reflexa, alba.
—— ——— rubra.
—— sanguinolenta.
—— Aitoniana.
—— ampullacea.
—— tricolor.
—— ——— elegans.
—— ——— major.
—— inflata.
—— Irbyana.

Erica Shannoni.
—— princeps.
—— impulsa.
—— gemmæfera.
—— Parmentiera, rosea.
—— Templea.
—— Bandonea.
—— retorta.
—— mutabilis.
—— odorata.
—— blanda.
—— Lawsonia.
—— perspicua.
—— ——— nana
—— metulæflora, bicolor.
—— vestita fulgida.
—— cerinthoides.
—— ——— magna.
—— Bruniades.
—— vestita coccinea.
—— eximia.
—— taxifolia.
—— Jasminiflora.
—— ——— rubra.
—— Ewerana.
—— ——— superba.
—— obcordata, rubra.
—— mammosa.
—— Vernix coccinea.
—— Cubica.
—— —— major.
—— longipedunculata.
—— aggregata.
—— translucens.
—— paniculata, rubra.
—— Coventryana.
—— depressa.
—— hyacinthoides.

Erica viridiflora.
—— tetragona.
—— Savillei.
—— Boiveana.
—— nudiflora.
—— rubens.
—— ventricosa.
—— ——— stellata.
—— ——— superba.
—— ——— coccinea.
—— ——— nana.
—— ——— carnea.
—— ——— hirsuta.
—— Comosa, alba.
—— ——— rubra.
—— villosa.
—— gnaphaloides.
—— thymifolia.
—— squamosa.
—— Humei.
—— hispidula.
Fuchsia macrostaminea.
——— pedunculata.
Grevillea acanthifolia.
Helichrysum humile.
——— formosissimum.
——— rupestre.
——— splendens.
——— proliferum.
——— magnum.
Hibbertia pedunculata.
Kennedia monophylla.
——— longiracemosa.
Lomatia longifolia.
Lophospermum erubescens.
Oxalis Deppii.
——— floribunda.
——— Martii.

Pimelea decussata.
——— glauca.
——— rosea.
Passiflora palmata.
Pelargonium Rollissoni.
——— fragrans.
——— nutans.
——— quercifolium superbum.
——— Charles X.
——— Barclayanum.
——— Burnettianum,
——— conchyliatum.
——— Ycatmannianum
——— Rollisson's.
——— William IV.
——— Queen Adelaide
——— Princss. Augusta.
——— Goweri superbum.
——— calamistratum.
——— glorianum.
——— succulentum.
——— dissimile.
——— Forsterianum.
——— mirabile.
Salvia Grahami.
——- cardinalis.
——- chamædryoides.
Sowerbæa juncea.
Sprengelia incarnata.
Salpiglossis picta.
——— Barclayana.
——— atro-purpurea
Verbena melindres.
Witsenia corymbosa.

HARDY.

Asclepias tuberosa.
Anthyllis Hermanni.
Aster Sibirica.
Campanula pulla
——— glomerata, alba.
Clematis Florida.
——- flora pleno.
Cyclamen Clusii.
Dianthus Fischeri.
Doryenium herbaceum.
Delphinium grandiflorum.
——— giganticum, or ramosum.
Dracocephalum argunense
Escholtzia californica.
Erigeron glabellum.
Eryngium alpinum.
——— ovalæfolium.
Eschallonia rubra.
——— glandulosa.
Gallardia aristata.
Gentiana septemfida.
Geum quellyon.

Glycine sinensis.
Iberis Tenoriana.
Lathyrus californicus.
——- grandiflorus.
Linum perenne, album.
Liatris humilis.
——— sphæroidea.
Linaria alpina.
Lobelia hirsuta.
——— liniaris.
——— erinoides
——— fulgens.
——— —— new variety.
Lonicera flexuosa.
Œnothera speciosa.
——— missouriensis.
——— Fraseri.
Phlox coldryana.
——- procumbens.
——- Shepherdi.
——- paniculata, grandis.
——- undulata Lyoni.
——- excelsa.

Phlox glomerata.
——- Thompsoni.
——- ——— variety.
——- corymbosa.
——- carnea.
——- new French white.
Potentilla Mayiana.
——— Russelliana.
Pentstemon ovatus.
——— diffusum.
——— speciosum.
——— confertum.
——— glandulosum.
——— triphyllum.
——— Schouleri
——— Richardsoni.
Scabiosa caucasica.
Spigelia marylandica.
Tradescantia nivea
——— virginica.
——— ——deeppurp
Trychymene cœrulea.
Veronica latifolia.

Veronica brevifolia.
——— neglecta.
——— taurica.
Rosa microphylla.
—— new superb.
—— Noisétte.
—— ——— cumulata.
—— ——— floribunda.
—— ——— scandens.
—— ——— nitida.
—— ——— Orloffii.
—— ——— principissæ.
—— ——— Vibertii.
—— ——— purpurea.
—— odorata formosissima
—— ——— alba.
—— ——— lutescens.
—— Grevillii.
—— Indica, fragrans.
—— ——— incarnata.
—— ——— rosa alba.
—— ——— rugosa.
Rosa Indica minuta.
—— ——— cerasina.
—— ——— major.
—— ——— minor.
—— Lawranceana.
—— ——— flore pleno.
—— ——— rubro pleno.

GARDEN ROSES,
STANDARDS AND DWARFS,
The following are selected, as being excellent kinds.

Azami.
Pengale, Isle de Bourbon.
Brown's Superb.
Cramiosa Maculata.
Creralis.
Crimson perpetual.
Darius.
Grande pivoine.
George the Fourth.
Globe White-Hip.
Guerrin.
Kaolin.
Lucrêce.
La bien noir.
Light-Blush Provins.
Mosseuse de la Flêche.
Margined Hip.
Navarino.
Noisette Grandiflora.
Neapolitan.
Pourpre.
Regent bifère.
Sabella.
Scris.
Striped Unique.
Tricolor.
Tourterelle.
Tresarin.
Venus Mère.
Valentine.
Wax.

NEW GERMAN STOCKS.
40 sorts, beautifully in flower

AT MESSRS. MALCOLM & CO'S., KENSINGTON.

STOVE.

Ardisia creminata.
Begonia, species.
Cyrilla formosa.
Gesneria bulbosa.
Gloxinia, species.
Hibiscus rosea.
——— sinensis.
Justicia alba.
——— speciosa.
Lantana odorata.
Melastoma, species.
Malbrancus mollis.
——— arboreus.
Nymphæa odorata.
Nymphæa cœrulea.
Phillanthus grandifolius.
Pitcairnia, species.
Passiflora atala.
——— quadrangularis.
——— princeps.

GREEN-HOUSE,

Calceolaria, species.
Erica, species.
Banksia latifolia.
Calothamnus, species.
Melaleuca, species.
Pimelia, species.
Fuchsia, species.
Kalosanthus coccinea.
Lophospermum scandens.
Callistachys lanceolata.
Relhania pungens.
Bækia virgata.
Agathea Cœlestes.
Helichrysum apiculatum.
Phonocoma prolifera.
Lechenaultia formosa.
Agapanthus, fol. variegata
Dais cotinifolia.
Maurandia Barclayana.

HARDY.

Bigonia radicans.
——— ——— superba.
——— capreolata.
Magnolia grandiflora.
Clematis florida.
——— grandiflora.
——— Viticella.
——— ——— variety.
——— Viorna.
——— crispa.
Catalpa syringæfolia.
Passiflora cœrulea.
——— ——— racemosa.
Ceanothus americanus.
Itea Virginica.
Rose du Roi.
—— Quatre Laison.
—— Grand Val.
—— Belle de Monge.
Symphorea racemosa.
Hibiscus Syriacus.
——— ——— varieties.
Lilium amœnum.
Dahlias.
Tigridias.
Penstemons.
Salpaglosses.
Lobelias.

AT MESSRS. RONALDS & SON'S, BRENTFORD.

HARDY.

Ferraria conchiflora, (hybrid variety)
Sida maleoides.
Œnothera splendens.
——— rosea, alba.
Argemone mexicana.
——— grandiflora.
Potentilla coccinea.
Catananche cœrulea.
Digitalis grandiflora.
Gillea pulchella.
Penstemon speciosum.
——— Richardii.
——— triphyllum.
——— ovatum.
——— glandulosum.
Roses, Striped Unique.
——- Tricolor.
——- Duc de Bourdeaux
——- George the Fourth.
——- Globe Hip.
——- Scarlet Hip.
——- Rosa ruga.
——- Peony-Flowered.

II.—NATURALIST'S CALENDAR.

UNDER this title we intend from month to month, to point out to the young Naturalist, the best time for securing specimens and observing the habits of the objects of his study, and also to give such directions for preserving and arranging them, as will best facilitate his pursuits. Another month we hope to be able to be more copious—at present our limits compel us to be brief.

AUGUST.

BOTANY.

BOTANY—to adopt the words of Professor Lindley, in his preface to the "*Introduction to the Natural System*" "is a most extensive science, involving one hundred thousand gradations of structure, with myriads of minor modifications, and extending over half the organic world." In a science of such vast extent, it is not expected that the young gardener should be able to make great proficiency; but utter ignorance on the subject, which is but too common even amongst gardeners, who in other respects, possess a perfect knowledge of their business, is quite inexcusable. He should, at least obtain an intimate acquaintance with the principles of the Linnæan Classification, and should endeavour to entertain accurate notions of the Natural System also. Above all things, he should make himself familiar with the plants generally cultivated in the gardens of the wealthy, and as far as possible, with the indigenous plants. With this view, he should sieze every leisure moment for augmenting his HORTUS SICCUS, in the formation of which the following few simple rules may be useful. The specimens collected should be in full flower, and if possible, should include both buds and seeds, the roots also in some cases are necessary. These are then to be carefully spread out on blotting paper taking care not to alter the natural appearance of the plants: one or two of the flowers or leaves, on which depend the generic or specific distinctions should be more particularly expanded. Over this, lay five or six sheets more of blotting-paper, and then another plant, till they are all spread; on this lay a smooth board, and place on it a weight—perhaps a stone or a stone and a half, which may be increased as the plants dry. This must be varied according to the nature of the plant under pressure, the more succulent requiring much less weight at first, than those with hard stems. The plants should be taken out once a day and the papers dried and made hot before the fire, after which they are to be placed as before, and this treatment continued until they are perfectly dry. Each specimen should then be fastened down on the inside of a sheet of demy or post paper, and the Systematic and English name, the place where found, and the date, written on the outside of the sheet. The Systematic name should also be written at the foot of the specimen. These may afterwards be tied up in bundles, each containing one of the Linnæan Classes, or an Order of the Natural System.*

In this month the earliest of the autumnal flowers begin to make their appearance. Many of the natural order *Umbelliferæ* or Umbelliferous plants are now in flower, as *Daucus Maritima*, Sea Carrot; *Anethum Fœniculum*, Fennel; *Pimpinella Saxifraga*, Burnet Saxifrage; *Sium Nodiflorum*, Water Parsnip, a

*The most suitable books for a student in Native Botany, are Macgillivray's Condensed Edition of Withering's Botanical Arrangement, (12mo. 10*s.*) on the Linnæan System, (which should be studied first) and Professor Lindley's Synopsis of the British Flora, (12mo, 10*s.*6*d.*) on the Natural System:—both are excellent little works, though neither embrace the Cryptogamous plants, or Cellulares.

poisonous plant, growing in ditches, and often mistaken for Watercress, from which however it may be distinguished by its narrower and more acute leaflets, and at this time of the year it is easily discriminated by its umbelliferous flowers; *Cicuta Virosa*, Water Hemlock; and *Œnanthe Fistulosa*, Water Dropwort, both poisonous; &c. In gathering specimens of this order, it is particularly necessary to select such as are in seed as well as in flower, as on the seed the characters of the genera chiefly depend. The greater part of the *Compositæ* or Compound Flowers are now to be found, as *Achillea Millifolium*, Yarrow, useful for stopping bleeding; *Bidens Tripartita*, Burr Marygold; *Artemesia Absinthium*, Wormwood; *Apargia Autumnalis;* various species of Hawkweed, (*Hieraceum,*) Thistles, (*Cnicus & Carduus*) &c. which are too numerous to be mentioned, as they include almost the whole of the order. It is necessary in this case also, to gather such plants as are most advanced, as the seed-down forms an important part of their character. Several species of Mint, (*Mentha*) *Verbascum Lychnitis*, White Mullein; and *V. Virgata*, Large-flowered Mullein; various species of Campanula, &c. are now in flower; and the Botanist will find full employment during the whole of the month in collecting and drying his specimens.

ENTOMOLOGY.

Mr. Stephens enumerates in his catalogue of British Insects, the astonishing number of ten thousand and twelve species, of these 1838 belong to the order *Lepidoptera*, (Butterflies and Moths) Did the Entomologist, therefore possess the eyes of Argus and the hands of Briareus, he would find ample occupation for them, in collecting and preserving the insects which at every step offer themselves to his attention—every place teems with these interesting creatures,—they will be found in water, under stones, in woods, roads, lanes, fields, in flowers, on the trunks and under the leaves of trees, on banks, on walls, in sandy places, &c. &c. We have the pleasure of being acquainted with many young gardeners whose industry has been rewarded by excellent collections of insects, and although we should not wish to see them pursue this fascinating study, to the neglect of their more important avocations, still, as a species of relaxation, we think an hour of an evening, now and then, is well and pleasingly bestowed by setting and arranging the insects which may have fallen in their way in the course of the day. The collector should furnish himself with pins of various sizes, and with small boxes lined with cork. *Lepidopterons* insects may be killed instantaneously, by a pinch with the finger and thumb, on the under side of the body at the breast. *Neuropterœ*, (the Dragon-Fly, for instance) are the most difficult to kill, without spoiling the specimen.* We confess that the cruelty necessarily practised, in making a collection of insects, abstracts much from the pleasure of the pursuit; but the Dragon-Fly alone, destroys more insects in an evening, than a hundred of the most zealous Entomologists, The collection should be preserved in air-tight cases, lined with cork; and a piece of camphor, inclosed in a bit of white leather, perforated with a pin, should be placed in each corner of the case.

Insects in this month are very numerous, turn which way one will, our path is beset with millions of living creatures. Flying Ants, (*Formica*) appear,

* The best method of killing these, the Coleoptera, (beetles, &c.) and indeed all kinds of insects, including Lepidoptera, is to have a cylindrical tin box, about 3 or 4 inches long, perfectly water-tight, with a close-fitting lid:—place the insect in the box, close the lid, and immerse the box, about half its length in *boiling* water, for a minute or two, taking care that no water gets to the lid. This will be found the quickest and most effectual mode, and it does not injure the insects. They may be taken out and fixed in proper positions, immediately.

Bees kill their drones. The swallow-tailed Butterfly (*Papilio Machaon*) appears. The Whame or Burrell-fly lays its eggs on Horses. Black-eyed Marble, Peacock, Grand Admiral, Orange-tip, Tortoise-shell, and Blue Argus Butterflies appear; the Elephant Hawk Moth, and many other species. Beetles are numerous—as are the Dragon Flies. The House Fly has scarcely begun to be numerous in the house. The Harvest Bug (*Acarus Ricinus*) the common Gnat and Musquito are very troublesome at the fore part of the month. *Stomoxys Calcytrans*, which much resembles the House-fly, is now a great torment to cattle. The nest of the Mason Bee, may occasionally be seen sticking to a wall, like a patch of mud. The *Cicindella* may be met with in great quantities on dry banks. The Caterpillar of the *Phalæna Wavaria* will, if not closely looked after, attack the Gooseberry trees. Also that of the *P. Grossularia* will begin to strip the currant trees of their foliage. The *P. Sercitella* will in this as well as in the last month, introduce themselves into clothes boxes, and deposit their eggs, which will now be very numerous and troublesome. The Crane-fly (*Tipula*) are now very numerous. The *T. Oleracea* feeds on the roots of cabbage. The Wheat-fly, (*T. Tritice*) lays its eggs in a single ear of wheat, and would soon be very destructive, were it not for its numerous natural enemies.

ORNITHOLOGY.

Under this head we intend to give short notices of the arrival and departure of the migratory birds, and such other particulars of the habits of other species as may be interesting; and we would recommend to our readers, the study of the manners and habits of birds, rather than the making collections of specimens. In order, however, that they may be able to preserve properly such as may fall in their way, we intend in a future number to give easy directions for the preserving these and other objects of Natural History.

Many of the summer birds of passage, as the Swift, *Hirundo Apus*; the Wheat-ear, *Sylvia Œnanthe*; the Night-jar, *Caprimulgus Europœus*; &c. begin to depart and others which still remain with us have become silent. This renders it difficult to tell the exact time of their departure, and we should feel happy in receiving communications from our correspondents on this subject. The Turtle Dove, *Columba Turtur*; departs. The Stone Curlew, *Charadrius Œdicnemus* begins to congregate previous to its departure. Their shrill note may now be heard in the night in Norfolk and the southern counties. Young Swallows and Martins begin to congregate.

METEOROLOGY.

Barometer.—Mean height 29,891 inches. Highest 30,260. Lowest 29, 356.
Thermometer.—Mean temperature, 61,6 degrees. Highest 82. Lowest 41.
Rain.—Mean quantity, 1,153 inches.
Evaporation —Mean quantity, 3,327 inches.

III.—QUERIES, ANSWERS, REMARKS, &c.

BISHOP'S DWARF PEA.—I beg to call your attention to this precious article; it was first named in the Gardener's Magazine, some years since, and was then held up to be most valuable, as an early, productive, and fine-flavoured pea. I myself was induced to give 10s. for half a pint. The first season I made every excuse for its failure, judging it might be from my own neglect in the management of it. The second year I waited with almost breathless anxiety, for the coming pea-season, laughing in my sleeve at the assiduous care with which my neighbour was nursing his Early Frames, for it had for some years been a subject of competition between us, which should gather the first dish. He had never heard of Bishop's Dwarf, (by the way I wish I never had,) and I hugged myself with the idea, that I should ere long surprise him with the sight of my Dwarfs being so much earlier than his; but conceive my mortification on seeing my neighbour's early frames ready nearly a fortnight before mine. The year following I tried them again with as little success, and I find on enquiry, that they are generally a fortnight behind, instead of that time before the Early Frames; besides they are good for little when ready, at least, I think them but third rate peas at best. Now, what I complain most of, is the disappointment a person feels, who, after having heard an article eulogized to the skies, and purchasing it, proves it when cultivated, to be good for nothing. The Tottenham Park Vine might be classed as one of this species of imposition. A little advice here, perhaps, would not be amiss as to how you recommend articles to your Subscribers; you are practical men, and therefore will be considered competent to give a proper opinion upon any article when you have seen it. Now what I would advise is, that you never recommend inferior articles, merely because they are new, to sorts, which, although old, are far superior. Some people run away with the notion, that because a thing is new, it must of necessity be good—I myself have paid dearly for such folly, and therefore caution others that they may avoid the same path.

Holloway, July 13th. J. SIMPSON.

We were almost as much disappointed with the Bishop's Dwarf Pea, as our Correspondent; (we consider it more adapted to field culture than a garden.) and more so, if possible, with the Tottenham Park Grape. We hope such circumstances of unmerited praise will rarely occur again.—CONDUCTORS.

CURIOUS BIRD.—A few miles from Chesterfield, I observed a curious bird; it appeared about the size and colour of a Black-bird, except its throat and neck, which were pure white, and its cry was very similar to the Curlew.—Can any of your correspondents inform me what is its name?

April 28th, 1831. ☞

GOOSEBERRIES.—Gentlemen, Will you, or any of your Correspondents, furnish me with a list of such Gooseberries, as are considered best worth cultivating, and if possible, say where they may be procured. The space of ground I want to plant, is about four square poles. I am more particular about having well-flavoured kinds, and such as will prolong the season as much as possible, rather than the large Show berries, that have but one quality, namely size.

J. B., *July 12th*

Most likely some of our Correspondents will answer the enquiry satisfactorily;—if not, we will endeavour to do so, before the time for planting comes on.—COND.

Advertisement for a Gardener's Situation.—We particularly call the attention of any gentleman wanting a good Gardener, to the Advertisement on our cover. We have known the advertiser a considerable time, and can speak with confidence of his abilities.

We may perhaps be excused for offering a few hints on the manner of Gardeners advertising for situations. We think it essential for the person advertising, to state explicitly where he last lived, and how long; and also as many previous situations as he may think necessary. This will inform a gentleman what may be expected from engaging him, and will completely distinguish him from one of those jobbing men who brew, bake, milk, and (as the phraseology goes) "have no objection to take care of a horse and gig." This method will prevent much future dissatisfaction, as a judgment of the applicant's abilities may be easily formed from the situations he had heretofore held. Such is the plan we would recommend, and we feel confident that it would be soon more approved of, than the dog-trot method of applying to A.B. &c. which, by giving an air of mystery to the announcement, leaves an opening for sinister interpretations. Conductors.

IV.—COLLECTIONS AND RECOLLECTIONS.

NATURAL HISTORY.

Zoological Society.—The most sanguine wishes of the founders of this establishment must be more than realized; its rate, in progress and advancement in prosperity, is rapid beyond the most flattering anticipation. At the annual meeting, held at the usual time (the beginning of last month,) in the Theatre of the Royal Institution, a most gratifying report was read, from which we select the few following brief, but volume-speaking particulars—"For the year 1827 the receipts were but £4,079; for the last year, 1830, they came to £15,806, and, all expenses paid, there remains in the hands of the treasurer, a balance in favour of the Society, amounting to £776 6*s.* 10*d* The number of visitors to the garden, during the last year, was 224,745, and to the museum 14,323. The number of members too, or fellows, (including many ladies,) belonging to the Society, has increased very considerably within the year: they reckon 1814 at present. And in conclusion, we may add another pleasing circumstance,—Lord Stanley has been elected the new President, to succeed the Marquis of Landsdown, resigned.

RURAL AFFAIRS.

To Exterminate Docks and Dandelions. The Dandelion is a most troublesome weed, in grass-plats and gravel walks.—To eradicate them thoroughly from pleasure grounds or pastures, cut them off below the surface with a knife, and fill the hole with salt.

To Destroy Thistles, Fern, and Coltsfoot. "Having once a pasture field" says a correspondent in the Country Times, "that seemed one entire bed of common Thistles, and having occasion to carry manure across it, to another field, I observed all the Thistles completely killed, wherever the carts went; I therefore set to, and rolled the whole field with a cast-iron roller, once in the latter end of May; and twice in the beginning of June. The field has been free from Thistles ever since. The expense was only 3s. per acre. Fern and Coltsfoot I have exterminated in the same way.

HORTICULTURE.

Charcoal Dust.—A writer in the "Gardener's Magazine" asserts, that six years' experience has convinced him that charcoal dust is a remedy for grubs and mouldiness in onions; and he has repeatedly proved, that it effectually prevents the clubbing in the roots of cabbages and cauliflowers.

WEEDS.—The annoyance of grass or weeds springing up between the stones of pavements, and in gravel walks, &c. may be got rid of for years, by watering with a solution of lime and sulphur in boiling water.

CHINESE GARDENERS have a wonderful passion for reducing their flowering shrubs, and even the forest trees, to a dwarfish size. Cedars and pines may be seen more than forty years old, and yet not above two feet in height, while the trunks, branches, and leaves are well proportioned.

RUSSET IN APPLES.—Mr. John Williams, C.M.H S. in a paper recently published in the Transactions of the Hort. Soc. of London, attributes the cause of Apples becoming russet, to the alternating temperature, light, shade, dryness, and moisture, which many times occur in the course of the day, when July or August is showery. Continued rain, preceded and followed by a cloudy day, does not seem to produce the same effect, but the sudden intense light which commonly succeeds a shower, at the time the fruit is wet, injures the skin, and occasions small cracks, like the net-work upon the melon.

HORTICULTURAL RARITIES.

STRAWBERRY.—A Strawberry, measuring full seven inches in circumference, was on Sunday last, gathered from the garden of Mr. W. Clinton, of Prospect-Place, Torrington.—*Exeter Gazette.*

POLYANTHUS.—A rare and beautiful specimen of this plant, was lately gathered in the garden of Mr. Twiston, of Denbigh, having 154 full grown and perfect flowers on a single stem.

V.—HORTICULTURAL AND FLORICULTURAL SOCIETIES.

LONDON HORTICULTURAL SOCIETY.

HORTICULTURAL FETE.—We were wrong, in stating that 600 tickets less were issued at the late Fête than at that which took place two years ago,—we have since understood that 300 was about the deficiency. We are also glad to hear that practical gardeners were allowed to see the exhibition, on the morning of the Fête. We were certainly informed to the contrary at the time.—The reason of our noticing this is, that we are always ready to correct any statement that has appeared incorrectly in the Horticultural Register; it is particularly satisfactory in this case, as we are happy to learn that the managers of the Fête had no intention of excluding practical gardeners from the exhibition of Fruits. Another error we would notice: in the same report, is the insertion as relates to the fruit, of the word *sold* instead of *bought*.——CONDUCTORS.

CAMBRIDGE HORTICULTURAL SOCIETY.

THIS Society held its June Show on Wednesday, June 22nd, at the Red Lion Inn, Petty Cury; Mr. Mitchell's splendid new room was used for the occasion. The fruits were of the best quality, and the flowers were as good as the state of the season would allow. The Ranunculuses were rather beyond the point of perfection. The tables were set out with some beautiful plants and bouquets. The doors opened at two, and shortly afterwards the chairman (the Rev. R. Lascelles,) announced the following award of the judges:—

Strawberries, (best lb for flavour.) Prize—Mr. Brewer.
Ditto, (best lb containing fewest in number.) Prize, (34 to the lb.) Keen's Seedling—Colonel Pemberton.
Cherries, (best plate.) Prize, May Duke—Colonel Pemberton.
Melon, (not less than one and a half lb) Prize, Early Golden Cantaloupe—Mr. Dall.
Ranunculuses.—(12 best, 1 of a sort) Prize Medal,—Prince Galitzin, Jaune de Pompadour, Beroth, Cedo Nulli, L'Acajou, Germanicus, Nomius, Bouquet, Sans-pareil, Adrian, Hercules Nomius, Robert Burns.——Mr. Twitchett.
Ditto, (6 best, one of a sort,) Prize,—Feu de Fontenay, Cedo Nulli, Nomius, Comble de Richesse, Venus, Victonneaux—Mr. Challis.
Ranunculus.—Prize—Mr. F. Finch.
Seedling Ditto.—Bailey's Princess Victoria—Mr. Bailey.
Pinks,—(9 best, 1 of a sort.) First Prize—Medal—Belle Alliance, Beau Suwarrow, Knight's Lady Acland, Borrott's Conquerer, Davey's Eclipse, Clarke's Smolensko, Harefield Beauty, Bexley Hero, Little Surprise—Mr. Cantling.
Second Prize—Adelaide, Hopkins' No.2, Bow's Lustre, Keen's Wellington, Style's Hero, Banbury Hero, Ambrose's Lady Hill, Borrett's Conqueror, Seedling—Mr. Rispher.

Pinks.—(4 best, one of a sort) First Prize—Harefield Beauty, Biggleswade Beauty, Booth's Wellington, Sharpe's Seedling—Mr. Prior.
Second Prize—Borrett's Conqueror, Barnard's Bexley Hero, La Belle Alliance, Harefield Beauty—Mr. Haylock.
Pink—Prize—Bray's Invincible—Mr. Haylock.
Seedling Ditto—Prize—Mr. Ripsher.
Roses—(6 best.) First Prize—Seedling, Pomponore Blanc, African Black, Blanch Superb, White, Nouvelle Piroine, Gasse Violette—Mr. Widnall.
Second Prize—Double Yellow, George the Fourth, White Provence, Blush Scarlet Moss, two unknown—Rev. R. Lascelles.
Rose—Prize—Shaleuse Provence—Mr. Gimson.

COTTAGER'S PRIZES.

Potatoes—(1lb of new)—James Tuck, Windmill Cottage, Harston.
Roses—(3 of different sorts) George the Fourth, Moss Rose, Unknown—Edward Dowse, Ickleton.

The next show was announced for Friday, the 22nd of July, when Cottager's Prizes will be given for the best Carnation, Balsam, ½ lb of Currants, ditto of Gooseberries, 50 French Beans, and Nosegay, to be cut from the cottagers's own garden only. A vote of thanks to the Chairman was passed unanimously, after the business of the day was over.

CAMBRIDGE FLORISTS' SOCIETY.

THE Florists' Society held their Ranunculus and Pink Shows, at the Hoop Hotel, on Tuesday June 21st. There were upwards of 400 blooms sent in for competition.

DEVON AND EXETER BOTANICAL AND HORTICULTURAL SOCIETY.

AT the Monthly Committee Meeting of this Society, yesterday, at their room, 263 High-Street in this city, there were exhibited from the gardens of Mr. Johnes, Hill's-Court, beautiful specimens of the Alstroemeria Tricolor, Pinnele Decussata, Lilium Longiflorum, and Gloxinia Caulescens; and from the gardens of Messrs. Dymond and Co, a rich display of Pelargoniums, amongst which were the following varieties:—P. Illustratum, Nutans, Gloriamm or Queen of Portugal, Betsy, Compactum, Laxiflorium, Princess Augusta, Herione, Conchyllatum, Colleyanum, &c., together with a specimen of Thunbergia Alata, some part of Messrs. Dymond's display finding a purchaser in the room.—EXETER FLYING POST.

HULL BOTANICAL GARDEN.

THE Annual General Meeting of the Proprietors of this Garden was held at the Kingstone Hotel on Wednesday, May the 11th—Col. Althorpe, the President in the chair. In the first instance, the attention of the Meeting which was much larger than usual, was called to the statement of the accounts, and such explanations were given as satisfied every person present that great economy had been used, and the finances were in a most favourable state. A long list of donations to the Garden was then read, and thanks voted to the donors. The other resolutions were carried and a committee chosen for the ensuing year. W. English Esq. of Denmark Hill, has presented to the Botanic Garden nine varieties of the Ixia, brought from the Cape of Good Hope, by Mr. Webb, a friend of his.

MANCHESTER BOTANICAL AND HORTICULTURAL SOCIETY.

THE Second Exhibition of this Society, for the present season, was held at the Royal-Exchange Dining-Room, on Monday, July 18th. The display of Fruits and Vegetables was excellent, particularly the Grapes, some of the bunches weighing several pounds each, all beautifully swelled and richly coloured. Amongst the Vegetables, our attention was also directed to some fine Celery, the size of which at so early a season, far exceeded anything of the kind we ever before witnessed.—We hope some of our Manchester friends will not fail to favor us with an article on its cultivation.

The manner of placing the Fruit for exhibition, was the best we have ever seen;—each sort was placed together distinctly, commencing with Pines, then Grapes, &c. by this plan a comparison of their respective merits was at once easily made.

None but Subscribers and their families were admitted, until a certain hour in the afternoon, when the public was allowed to enter by paying a small remuneration. We understand, the Society intends to have its next Exhibition at the Garden, which is, considering the little time it has been commenced, in an amazing state of forwardness.——CONDUCTORS.

MANCHESTER FLORAL AND HORTICULTURAL SOCIETY.

(FREE TO ALL ENGLAND.)

THE second meeting of this Society for the present season, was held on Monday the 23rd of May in the Albion Bazaar. The meeting was intended principally for the exhibition of tulips. Of these there was a numerous assemblage; but, unfortunately for several of the principal growers, the day of exhibition was fixed at too late a period to allow of their producing many of their best flowers in a state of perfection; numbers of those produced were considerably overblown; and many others, we understand, were entirely withheld, from the same cause. Notwithstanding this disadvantage, the show was fully equal, and was considered by several judges, to be superior to that of any former meeting; the feathered bizarres in particular were decidedly entitled to this praise; and the feathered roses were scarcely, if at all, inferior to them. The

admiration of all present was excited to a very high degree, by a most extraordinary tulip, of the feathered bybloemen species, grown by Mr. G. Bowley, in the neighbourhood of Nottingham, which was pronounced by every connoisseur who had an opportunity of inspecting it, to be, without exception, the *most nearly perfect* flower they had ever beheld. It was therefore regarded as a most *rare and singular curiosity*, and was viewed with feelings almost of veneration by many of those whose acquirements enabled them thoroughly to appreciate its beauties. —*Manchester Courier, May 28th*, 1831.—Each petal of the flower measured in circumference $10\frac{3}{4}$ inches, and was maliciously cut in pieces, by some grower at the Manchester Meeting, to prevent its being shown again.—*Nottingham Review, July 1st*, 1831.

NORWICH HORTICULTURAL SOCIETIES.

MONTHLY EXHIBITION OF FLOWERS.—The activity, skill and success, of Mr. Geo. Thurtell, as an Horticulturist, are perpetually putting forth fresh claims upon the regard of the now very numerous lovers of this useful science. He has this year given to inspection a monthly exhibition of flowers and each succeeding show appears to improve upon the former. At his show of Ranunculuses there were no less than about 1600 specimens, arranged and displayed to the highest advantage, in phials; the choicest of the flowers being placed at the top of the table. For delicacy, beauty, and variety, we cannot conceive a more exquisite collection. In the centre of the table stood a noble variety of the Fuchsia in full bearing; and some excellent Strawberries.

THE PERENNIAL KIDNEY BEAN exhibited by Mr. Lindley lately at the Horticultural Meeting at Norwich, was the well known Scarlet Runner, (Phaseolus Multiflorus.) Johnson, in his edition of Gerarde, 1633, says it was introduced into this country by John Tradescant. It was figured by Cornutus, in his Canad Plant. page 184, 185, printed at Paris in 1635. The plants exhibited were some from seed, sown in April, 1830; these were taken up in November, and preserved in some dry mould in the cellar through the winter, and planted out again the 7th of April last. The roots were then perfectly sound, as well as the stems; from both of which, at time of their exhibition, they had pushed vigorous young shoots, of from 6 to 9 inches in length. Others, of which these formed a part, are now growing luxuriantly, twining round the stakes, and will soon produce a second year's crop.

NOTTINGHAM FLORIST AND HORTICULTURAL SOCIETY.

THIS Society held its third Exhibition on Wednesday, June 15th, when there was a fine show of Geraniums and Green-house Plants, from the gardens of Robert Padley Esq. Miss Longden, Mr. Green, Mr. Frittingham, &c. and Vegetables and Fruit from those of Lord Ranclife, Ichabod Wright Esq. T. Barber Esq. Rev. E. Thoroton, Dr. Storer, Mr. Green, &c.—A number of Prizes were awarded. The Florists' Flowers at the Exhibition, were principally Pinks and Ranunculuses, amongst which were the following:—

Ranunculuses, (the best 8, 1 of a kind) First Prize,—1 Naxara, 2 Virgoleuse, 3 Prince Galatzin, 4 L' Arbrisseau, 5 Peter the Great, 6 Massula, 7 White Mountain, 8 Op Van Romania.—gained by Mr Gascoigne.

Ditto, Second Prize,—1 Naxara, 2 Purple Duchess, 3 Thompson's Seedling, 4 L' Arbrisseau, 5 Beauty Flora, 6 Phindres, 7 Bell's White, 8 Rhododendron.—gained by the Rev. E. L. Thoroton.

Pinks.—1 Lee's Adelaide. 2 Lee's Superior. 3 Lee's Suwarrow. 4 Lee's Bow's Marianne. 5 Galtou's George IV. 6 Bow's Lustre.—all gained by Mr. Lee.

IV.—MONTHLY HORTICULTURAL CALENDAR.

FOR AUGUST.

FRUIT DEPARTMENT.

Peach and Nectarine Trees, must again be looked carefully over, and all superfluous and fore-right branches taken off, taking care to let the fruit be well exposed to the sun; if the weather should prove dry any length of time, it will be necessary to water them at the roots, except when the fruit is ripening.

Budding, when not done last month, may be finished in the beginning of this, or at least as long as the bark will rise well; it will be necessary to examine those buds that were put in last month, and loose any of the bandages that require it.

Figs, are now beginning to ripen, therefore cut away the fore-right shoots, and nail the others in at full length, exposing the Fruit as much as you can without stripping the leaves. see Page 71.

Currants, against walls, &c., should now be matted in fine weather, when the fruit is dry, in order to preserve them to a late time of the year.

Strawberry Beds, in late situations, now in bearing, should the weather prove dry, ought to be watered. It is now a good time to plant out new beds, and if sufficient are not potted for forcing, some of the early sorts, such as Grove-end, Scarlet, Roseberry, &c., may still be done, but it is far better never to be later than July.

Diseases and Insects. The trees have not hitherto suffered from the Mildew, on account of the fine weather, but should it appear, wash the trees with sulphur and water, by means of a garden engine; should the *red spider*, (acarus) be troublesome, use the same as for the Mildew; or clear water, often applied, will have the desired effect. The *Earwig*, (Forficula Auricularia) are not very numerous around us, but when they attack the fruit, place lengths of bean stalks in the trees, in which they will shelter, and if they are blown out every morning, and killed, you will speedily reduce their numbers. Should the *Woodlouse*, (Oniscus Assellus) be prevalent on the walls; to eradicate them, see extract from Gardener's Magazine, inserted in our Register for July, page 16.

FLOWER DEPARTMENT.

Carnation Layers will in general now be pretty well rooted, pot them in 32 sized pots in good rich mould, placing three or four in a pot; if sufficient plants have not been obtained, they may still be propagated with success.

Auricula and Polyanthus Seeds, now sown, generally succeed better than in the spring; young seedlings also may be pricked out in a shady border.

Bulbous-Rooted Plants, such as Crown Imperials, Martagon Lilies &c., may now be transplanted, which should be done after the leaves are decayed, before they make fresh fibres; also the seeds of Bulbous plants may now be sown

Biennial and Perennial Seedlings, such as Sweet Williams, Wall-flowers, Stocks, &c., should now be planted out in beds, to transplant in the spring, it would be well to choose cloudy weather for the purpose.

Mignonette, should now be sown in pots to stand through the winter, in frames; the mould selected for the purpose, should be maiden soil, light, sandy, and free from dung.

Dahlia Cuttings, may still be put in with success, where sufficient has not been struck,

Brompton and Ten Week Stocks should now be sown, the latter to shelter in the frames through the winter, and flower early in the spring

Pink pipings may still be put in, where a sufficient quantity has not been propagated.

Herbaceous Plants, of many kinds, should now be propagated, by parting the roots, such as Gentiana, Lychnis, Campanula, Primula, Helleborus, &c.

Erica cuttings, when not done before, may be put in.—Carefully take off the extreme ends, at about an inch or less, and put them in a pot of fine house or Calais sand; after watering, let them remain three hours or more, afterwards cover them tightly down with a bell-glass, setting them in a moderate dry warmth, and water them occasionally, shading them constantly from the sun.

Diosmas, and many other green-house plants, with delicate foliage, may now be struck by cuttings, in a similar manner to those of the *Erica*.

VEGETABLE DEPARTMENT.

Celery, planted in July, will require earthing up in the beginning of this month; be careful to choose fine weather, when the plants are dry; also plant out more to come in early in the spring.

Turnips, should be sown in the first week, for a main crop, to come in at the end of Autumn, and about twice more in the course of the month for a succession.

Radishes should be sown about three times in the month for successive autumn crops.

Lettuce plants, of a good size must be planted out and kept well watered, when the weather is dry, or they will be liable to run to seed; also sow about the 1st and 3rd weeks to come in for autumn and winter use

Endive, may now be planted out for a full crop, in rows one foot apart, and about eight inches in the rows from plant to plant; and sow a little more seed for a late spring crop.

Carrots, sown at the beginning and middle of the month will be fit for drawing young in the spring.

Onions; where young ones are wanted, a few of the Stratzburg might be sown in the beginning, to use from November to May; also about the 20th sow a full crop of the Welsh.

Spinach, for the main crop, to stand the winter, must be sown from the beginning to the middle of the month.

Cabbage seed, sown about the first week, will come in for autumn and winter; and about the middle of the month sow the Battersea, Yorkshire, and Sugar-loaf, for spring. Take advantage of every opportunity to finish planting out Savoys, Brocoli, Borecole, Brussels Sprouts, &c.

Cauliflower seed should be sown about the middle and latter end of the month to stand through the winter in frames, &c. Those sown in June, now planted out, will, if the weather proves favourable, continue in use from the beginning of October to December.

Herbs fit for cutting must be gathered in dry days.

Shallots and Garlic, if the stems indicate the roots are full grown, take them up on a dry day.

Insects. The chief depredators are the *Caterpillar* of the common *Large Cabbage Butterfly*, (Pontia Brassica) which must be picked off the Cabbage plants; and the *Slug*, (Limax Agrestis) which may be destroyed by quick-lime being thrown upon them when discovered, or laying it round the roots of the plants they infect, will in a great measure prevent their depredations.

G. Jewitt, Printer, Duffield, near Derby.

THE

HORTICULTURAL REGISTER.

September 1st, 1831.

PART I.—HORTICULTURE, &c.

ORIGINAL COMMUNICATIONS.

ARTICLE I.—*Some Comparative Remarks on Wood and Metal Hot-house Roofs.* By JOSEPH THOMPSON, Sen. C.M.H.S. Gardener to His Grace the Duke of Portland, Welbeck, Notts.

GENTLEMEN,

I see in your Prospectus, and what is now published in the Horticultural Register, that you intend to give plans for Hot-houses, with such information thereon, as will be useful in the erection thereof. The minutiæ of such work is very much wanted by young gardeners and others.

Agreeable to your request and my promise, I now send you some comparative remarks on Metallic Roofs and Sashes, and those of Wood. We read, in that useful work "*The Gardener's Magazine*," some conflicting observations on the merits and demerits of metal structures, for Horticultural purposes; it having fallen to my lot to have had not only the erecting, but the planting and attending various kinds of hot-houses, for more than 45 years, I beg to offer a little practical advice on this subject.

Soon after I came to this place, (1801) the metallic mania broke out and spread rapidly, and my worthy friend, Mr. Walter Nichol, (not the author of that name, but his nephew) then gardener at Shipley Hall, caught the metallic fever, and he being a man justly noted for his professional talents, smittled many gentlemen and gardeners who took his advice in erecting hot-houses, some of which I went a considerable distance to see, and was struck with the incongruity of compound sashes, with wood mortices and metal tenons. In 1804 Mr. Nichol and the patentee called upon me with patterns of sash-bars, a printed list of

prices, and some very pretty drawings of hot-houses recently built with patent sashes. I had to make 66 new sashes at that time, but I told the patentee that I could not think of giving £1 18s. 6d. at Birmingham, for that which I could have made for £1 3s. 6d. at home; even if the per centage fee was doubled; and as to their everlasting durability, I conceived it was quite impossible that wood mortices and metal tenons could last twenty years—which was the case, those sashes which I went to see had to be changed in less time than those named by Mr. M^{c} Murtrie, who may well advise gentlemen to pause and reflect before they erect such things in a *Fruit-forcing* garden.

As to the more recent invention of hot-houses with rafters and sashes all of metal, whether copper, cast-iron, or cast-steel, the well known powers of all kinds of metal as conductors of heat and cold, and their susceptibility of both, as regards their expanding and contracting powers, are so great, that if they do not cram the walls down by expansion, nor receive fractures by contraction, they certainly are improper materials for exciting vegetation, particularly early in the season.

The following practical case will bear upon the point in question:—I have seen a cast-iron pine-stove, with the metal so much contracted in the winter months, that the interstices were obliged to be stuffed with moss and wool, and even then the hoar-frost has appeared in some places in the inside of the roof, and the gardener assured me, that in hot weather the expansion was so great, that it was very difficult to move the sashes for ventilation, and the conducting powers of the metal rendered a continual watching necessary, to regulate the temperature.

It is now frequent for retired tradesmen to have gardens, and to build small Hot-houses. I know an instance of one who wished to have a few grapes and keep a few plants for amusement; he took bad advice and built one of those gay, expensive, kickshaw things, with an idea to eclipse a more frugal neighbour, who had a wood hot-house, but he soon found out that it was a mistake; the money was gone, and the produce never came, under the management of the gentleman and his man-of-all-works. I could give names, &c., but that would be adding insult to disappointment,—a caution to other gentlemen is here intended. In cases of this kind, the hot-house of some intelligent nurseryman often presents a tolerably good pattern; there is generally economy and usefulness combined. Sometimes cases occur where such erections can be attached to the library or drawing-room—a good plan and paper on this is given in the "*Gardener's Magazine*," vol. VI. page 664.

When it is intended to build a hot-house, there generally is some particular specified purpose in view, such as grapes, peaches, pine-apples, or botanical plants, more or less hardy, &c.; those considerations ought to rule not only the form and dimensions of the house, but the pitch of the roof, which is a most essential point as regards early or

late forcing, as well as the durability thereof, whether the roof be of metal or wood; and practical men can generally foresee and provide for ultimate success in such buildings, either on a large or small scale, but mechanical patentees are more likely to produce novelty to the eye, than useful economical hot-houses for use in a fruit garden.

Where large ornamental conservatories are wanted, the Baileys of London, or the Birmingham manufacturers, would certainly produce a more light and elegant effect, than the dark, heavy, barnlike buildings made by the ornamental architects of former times.

Hot-house roofs, wholly of metal, are of too recent a date to say anything positive on the number of years they will last; but wood roofs and sashes have been in use long enough to show that we ought to be satisfied with them on the score of durability. I now give the age and condition of some hot-houses of long standing.

A pine-stove, 105 feet long, all the roof of deal wood, has been in constant use 57 years, it has had some repairs lately, and there does not appear the least doubt but it will last 57 years longer. This house has a flattish pitch, the angle of inclination being only 26 degrees.

A vinery and peach-house, upwards of 200 feet long, the rafters of oak and sashes of deal, has been in constant use 110 years; they have had a new front-wall-plate, and other repairs, and no person can say when it will be worn out; the sashes have not a rotten tenon nor broken bar in them. This roof has a sharper pitch, the angle being 45 degrees.

Other cases of durability in wood hot-house roofs of intermediate age and angles of altitude are in abundance, but the above two cases are sufficient to show what we may expect from cheap wood roofs—the durability of dear metal ones remains to be proved.

I am, Gentlemen,

Yours, &c. &c.

Welbeck, Aug. 6th, 1831. J. Thompson.

Article II.—*Account of a Remarkable Large Espalier Apple Tree, growing at Doveridge, the seat of the Right Hon. Lord Waterpark.* Communicated by Mr. Thomas Dovey, Gardener there.

Gentlemen,

If you think the following account of a remarkable large espalier Apple-tree, worth inserting in your new Magazine, it is entirely at your service. The sort is well known in this neighbourhood by the name of the *Doveridge Nonsuch*, and from what I know of it, and the information I have been able to obtain of it from others, I find it has been

planted upwards of 43 years. The length from one extremity to the other, is ninety-nine feet, and it increases annually from two to three feet. Since I have had the management of it, (which is eight years,) it has grown in length twenty feet; it is not more than six feet in height, and the circumference of the stem about four feet. It is an enormous bearer, and an excellent fruit, but more adapted for the kitchen than for eating, as it grows to a large size. Another very remarkable feature, which I must not omit, is, that on one side of the tree, three branches invariably bear fruit only on alternate seasons; so that the branch bearing the present year, will next season be destitute of fruit, and in the same manner, the branches bearing next year, will rest the year following.

I am, Gentlemen,

Doveridge Gardens,
July 9th, 1831.

Yours, &c.
THOS. DOVEY.

P.S. I have been induced to send you the above account, in order that some of your Physiological Correspondents may, through the medium of your Magazine, enable us to ascertain the cause of so extraordinary a phenomenon.

ARTICLE III.—*An account of Heating a Pinery and Pine-Pit, at Sir Edward Dodsworth's, Bart., Newland-Park, near Wakefield.* By MR. JOHN LISTER, Gardener there.

GENTLEMEN,

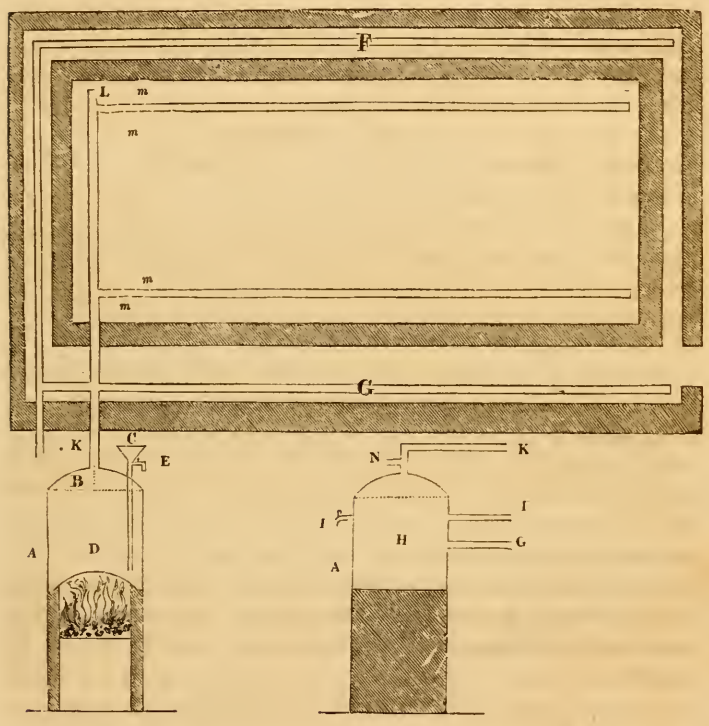
AFTER perusing the first number of your Horticultural Register, with very great pleasure, I sit down to attend to your wishes, (and my duty) as expressed in your introductory remarks, and having very recently, made some alterations in the mode of heating a Pinery and Pit, at this place, which fully answers my expectations, I herewith send you a description and plan of the improvement.

My object, in the alterations I have made, was with a view to dispense with bark or leaves as a medium of heating the pit for pine plants, and at the same time to heat the house with hot water. In consequence of the form of the house, (which had been erected a number of years) I was not able to fix the hot-water pipes in those situations in the house, which I desired; I shall therefore in the following detail, give a description for heating the pit, according to the plan I have adopted, and for heating the house as I should have wished, had the form of the house admitted of it.

The boiler, A, [Fig. 14] is two feet square to the angles, with a top rising five inches in the centre, as B; that part of the boiler above the

square, is for the purpose of containing steam. C, is a brass funnel, fixed to a pipe that reaches about six inches from the bottom of the boiler, as D, so that in feeding the boiler, no heat escapes at the time; E, is a large sized ale-tap, fixed to the neck of the feeding pipe, close under the funnel, in order to confine any heat or steam that might escape, so that it is only opened for the time the boiler is feeding.

14



The hot-water pipes, F, G, are four inches in diameter; the top pipe, F, is fixed seven inches below the top square of the boiler, as H; at the face of the boiler, in the back-shed, I have a small ale tap fixed exactly opposite to the centre of the pipe F, as at I, in order to ascertain when the boiler is sufficiently full; so that when the top pipe, F, is half full of water, the water begins to drop from the tap, I, which is the desired quantity; for if the pipe was to be filled, it would not act so beneficially. These pipes go round the house at four inches from the walls, and return into the boiler agreeably to the regular mode of conducting hot-water pipes, The top pipe is fixed nearly level, but he lower one falls to the boiler, about one inch per yard, in order to give force to the returning water.

To the top of the boiler, I have a metal pipe two inches in diameter, as K, which reaches to the further side of the pine-pit, as L; at the side of the pipe, next the pit, I have two openings, to which lead pipes of an inch diameter are fixed very securely,—these are placed about a foot from the front and back walls, and reach to the end of the pit, the ends are closed up. The pipes are perforated on each side, with holes about an eighth of an inch in diameter, as at *m*, the holes are, at the commencement, (reckoning from the end next the boiler) twelve inches apart, diminishing half an inch from hole to hole, to the end of each pipe. The length of the pit inside, is 24 feet; breadth, 10 feet. When the steam is not wanted, it escapes as at N.

The pipes are laid upon stones or bricks, raised a few inches from the bottom of the pit; but previously to placing the pipes, I had the bottom of the pit made of a considerable slope to one corner, so that by having a drain, I readily take away all the condensed water. The pit, inside, is built on what is usually termed the pigeon-hole plan, (allowing a small space between the ends of the bricks) the space being about an inch between every brick, this admits the steam to circulate freely, thoughout the pit.

When the pit is walled up to a few inches of its required height, I leave less distance in the spaces between the bricks, so that the bricks nearly touch at the surface; this is to prevent too great a quantity of steam escaping into the pit. The pit is filled so high as only to allow for a few inches deep of birch twigs being placed on the brick surface, and then as much bark or leaves as will allow the pots to be plunged the required depth, the quantity of materials heated in the pit being so great, and being confined, retains its heat for some weeks, so that very little trouble is required in heating the pit, and when the steam is turned on for heating, it only requires it for three or four hours at the utmost.

I am, gentlemen,

Yours, &c.

July 20th, 1831. JOHN LISTER.

ARTICLE IV.—*On the Cultivation of the Pelargonium, as practised at the Right Honorable the Earl of Egremont's, Petworth-House, Sussex.* By MR. GEORGE HARRISON, Under-Gardener there.

GENTLEMEN,

WITH very great pleasure and interest, I have perused the first number of your Horticultural Register, and now take up my pen to detail the mode of treatment I pursue with that beautiful genus,

Pelargonium; and upon your reception of the paper, (should it meet with your approval) I shall be glad of its insertion in your work.

At this place, we have a very extensive collection of the finer sorts: and the peculiarity of their growth and blooming, have been much admired and approved of, having a succession of blooming plants all the year.

In August, cuttings are taken off the old plants, choosing such as have the young wood tolerably perfected; they are cut off about six inches long, and close under a joint, and each cutting is put into a small pot, two inches wide, by two inches and a half deep. The pots are filled with a compost, consisting of

One half of Vegetable-Mould,
One half of Decayed Leaves,
One third of Peat,
One sixth of fine White Sand.

Previous to filling the pots, the compost is well mixed together. The cuttings are inserted by making a hole in the centre, and after placing them in, the hole is filled up with white sand; the soil is then pressed close to each cutting, and they are watered,—they are then plunged in a hot-bed frame, no air is admitted for several days, but they are shaded when required. As soon as the cuttings push, air is admitted freely. In four or five weeks, these cuttings are removed into larger pots, about five inches wide, by six deep, the same kind of compost is used as before; the plants are then placed in a cool frame, or removed into the green-house, where they will come into bloom early in March following.

About the end of September, another succession of cuttings is put in, and treated as the others were; but when the plants are about ten inches high, the ends of the shoots are pinched off,—this causes them to push a number of lateral branches, and makes the plants bushy, These flower early in May.

Early in January, a third stock of cuttings is put in, these are also stopped at ten inches high. The plants are kept in a cool and airy situation, from the first of May to July, and are then taken into the houses to bloom; which they will do, to the end of September.

In March, a fourth lot of cuttings is put in, these after being stopped, will push shoots, which when they have got six inches long are also stopped. These plants are kept in a cool, airy situation, from the end of May to September, and are then taken into the houses, and will bloom to December or later.

The plants are frequently syringed with a mixture of soap-suds and tobacco-water, which keeps them perfectly clean from insects of any kind. I frequently water the plants, at the roots, with strong manure water and soap-suds.

Plants treated in this manner, always appear healthy and vigorous, and the blossoms are much finer than are produced upon old plants, that have been cut down and treated in the usual manner.

All my spare old plants are finally turned out into the open borders, and flower admirably; and from being so very dwarf and bushy, they are very suitable for the purpose.

I am, Gentlemen, &c.

July 6th, 1831. GEORGE HARRISON.

ARTICLE V.—*On the Cultivation of the Tulip.* By MR. JOHN REVELL, of Pitsmoor, near Sheffield.

GENTLEMEN,

As my article on the culture of the Auricula, seems to have met with your approbation, and found a place in the pages of your Magazine, I again lay before you a few remarks on the Culture of the Tulip, which, if you think worth insertion, are entirely at your service.

I may perhaps be excused if I digress a little from the subject in question, and commence the present paper with a short account of the cultivation of that flower, from the time of its introduction into this country. It is considered to be a native of the Levant, and is very common in Syria and Persia, and according to Gesner, was brought to Europe in 1559, and was cultivated in England by James Garnett, as early as 1577. Towards the middle of the seventeenth century, it became an object of particular interest in the Netherlands—nay, to such a height had the passion for fine Tulips arrived in 1637, that at a public auction, which took place at Alkmaar, in Holland, 120 Tulip-roots were sold for no less a sum than £7875, and one sort alone, called the Viceroy, cost the purchaser £190. The taste for Tulips in England appears to have arrived at its climax about the end of the seventeenth and beginning of the eighteenth centuries, after which time the study of Botany began to gain ground, and in a few years had obtained the complete ascendancy. The Tulip, however, still continued to be cultivated to a great extent, both in Holland and England, by the amateur florists, and to this day, like the Auricula and some other flowers, it is held by them in great estimation, so much so, that a noted modern writer on these subjects, remarks, that a moderate collection of choice bulbs cannot be purchased for a sum much less than £1000 at the usual prices

Tulips are divided by florists into three Classes. viz: 1st. *Bybloemens*, such as have a white ground, variegated with purple, the edges well feathered, the leaflets of the perianthemum erect, and the whole forming a well shaped cup;—as Bienfait, Washington, Incomparable, Baguet, &c. 2nd. *Bizarres*, having a yellow ground, variegated with scarlet, purple,

rose, or velvet, well feathered round the edge;—as Catafalque, Trafalgar, Duc de Savoie, &c. And 3rd. *Roses*, with white ground, variegated with rose-colour, scarlet, or crimson.

When it is wished to propagate by seed, for new varieties, the best method is to select such as have good strong stems, with well formed cups, and the most perfect flowers, such as Trafalgar, Incomparable, Bienfait, Surpasse, Catafalque, Walworth, &c. The plants thus selected for seed, should always be exposed to the weather, as shading will prevent the seed coming to proper perfection; it must be allowed to remain on the stems till the seed vessels open, then cut it off with about six inches of the stem, and lay it to dry. The best time to sow these seeds is in October. Get some shallow pans or boxes, and fill them with light sandy loam, making an even surface to receive the seeds, which must be covered about half an inch deep with light soil mixed with about one third of rotten horse-dung. They will not appear until about the middle of March, the following year; and as the tops will again be dead by the beginning of June, it is necessary for them to remain in the boxes, without being disturbed, for two years;—as they are, in general, five or six years from the time of sowing, before they flower. After the second year, they will require taking up, and planting in good new soil, every season.

The situation of the beds for full-grown flowering bulbs, should always be in an open, airy, part of the garden; the common soil must be taken out the full dimensions of the bed, to the depth of about eighteen inches, and the place filled up with good sandy loam, from an old pasture, (which should be dug at least four months before it is used) mixed with a small portion of well rotted two-year-old horse-dung. The bed must be raised three inches above the paths, at the outsides, and four inches, at least, in the middle of the bed; this convexity will render it more capable of casting off the water, when exposed at any time to heavy rain. The bed being thus formed, the next thing to proceed to, is planting; the best time for doing this, is in the beginning of November,—plant the bulbs about five inches from each other in the rows, and the same distance from row to row, being careful to put in each hole a little fine river sand, before you introduce the bulb; this will not only be of great service to the roots, but will also greatly prevent their being attacked by the grub and wire-worm. The depth they must be planted, is about four inches.

After being planted, they will require but little attention until the latter end of February, when most of them will appear above-ground; they must then be carefully examined, and if either the leaves or bulbs are injured by the canker, the part affected must be carefully taken off, choosing a fine dry day for the purpose, and if the wounded part be left exposed to the sun and air, it will presently heal. When the flower-

buds make their appearance, great care must be taken to shelter them from hail-storms, heavy rains, or frosts; this may be done, by round pieces of board, about 12 inches in diameter, having a stick passed through the centre of each board. These being stuck in the bed, by the side of the bulb, will form a cap over the top of the flower-bud, which can be raised higher at pleasure. This method, I have found far preferable to covering the bed with either hoops and mats, or awning, until the flowers are much more advanced; for I have proved by experience, that either of the latter means are apt to draw up the stems so weak, as to render them almost incapable of bearing the cups, and at the same time so weakening to the bulb, that it will be at least a year or two, before you are able to produce a good bloom again.

As soon as the colours of the flowers begin to show themselves, it is necessary to cover the bed with an awning, as their exposure to either sun or rain would cause the colours to run and mix, and by this means, spoil the beauty of the flowers; but as soon as the flowers begin to fall, the sheet must be again removed, and all seed-pods broken off, which will greatly strengthen the bulbs. They must be allowed to remain until the upper part of the stem becomes dry and withered, and the foliage wears a yellow hue; as soon as this is observed, commence taking them up. Lay them on boards under cover, in a dry, airy situation, and let them remain until the following season for planting.

I am, Gentlemen,

Yours, &c.

Pitsmoor, July 25th, 1831. JOHN REVELL.

ARTICLE VI—*Description of the Botanic and Horticultural Garden, Manchester.* Communicated by MR. WILLIAM MOWBRAY, F.H.S., the Curator.

GENTLEMEN,

MOST willingly I comply with your wishes, in sending a Plan of the garden under my superintendence, for insertion in the next number of the Horticultural Register; and I shall be happy at all times, (when in my power) to cast in my mite to assist a work, which will doubtless prove of great utility in promoting the interests of English Horticulture. I the more readily do this, at the present moment, as I know many persons are expecting to see an account of our garden in some one of the forthcoming periodicals.

On examination of the Plan, it will perhaps appear that the walks and some of the divisions, do not look so well as could have been de-

sired: but as our rule was to preserve as much as possible the natural undulations of the ground, a person on the spot will comprehend the reason why we have so disposed them. It is now only two years since we commenced the ground work, the walls were begun a month earlier. Most of the land required draining, by which means a good supply of water for the aquarium was obtained. This water enters the aquarium at the east end, and passing by the front of the rock-work, it flows the length of the garden.

On trenching the fruit-garden, much of the subsoil was removed, the level being very irregular; this was a sharp sand, and gravel being very scarce, it was used to fill up the walks. In clearing out the ditches and removing the old hedges, much good soil was preserved;—this, with vegetable matter from the marl-pits, and good loam from the site of the aquarium, furnished an excellent compost for the fruit-garden.

The dell, which has one part of the rock-work, was formed by taking out sand for the bricklayers, which was found to be excellent for the purpose.

The other dell, which has the principal rock-work, was formed by excavating to receive the overflow water. It will be perceived by the Plan, that we have a considerable quantity of grass-plat; this of course will be diminished in time, as more clumps are required for the arboretum, and many choice arboretum plants will be put out singly on the grass, as our means of shelter increase. At the commencement, many good plants of common shrubs were given us, most of which form belts and clumps for shelter, (as marked, No. 13 in the Plan,) and are put in by the mixed way of planting; but they are so mixed, that at the proper time for thinning, groups can be left for the principal species of the same genera to remain.

Mr. Loudon, in his last number of the Gardener's Magazine, speaking of our small plants, says, that "they are composed of one common mixture throughout the garden." In this particular we must beg leave to observe there is a mistake; a great many groups are planted with the common trees of their own genera, as the Chesnut, Fir, Pine, Alder, Ash, Acacia, Sorbus, Pyrus, &c. Many shrubs and trees have no plants near them, but those of their own family, as the Rhus, Ribes, Spirea, Berberis, Ilex, the collection of Salix, Cistus, with the whole order of Caprifoliæ, &c., &c., while such as the Ulmus, Tilia, Acer, Fagus, Betula, &c. are principally nursed with common kinds of their own genera. A few plants of other sorts, which we had at the time of planting, were here introduced, but were not intended to remain.

Our collection of annuals has been extensive; most of them were sown or planted in masses, which should have been sufficient to convince Mr. Loudon, that we prefer, and had adopted, this method of arrangement, previous to his visit to the garden.

I remain, Gentlemen,

Your humble servant,

Manchester, August 8th, 1831. WM. MOWBRAY.

REFERENCES TO THE PLAN.

1—Entrance Gates, Lodges, &c.
The building on the right, has a room for the Committee, and apartments for the Porter, &c.
The building on the left, is the residence of the Curator.

2—A Mound, near 10 feet, planted mostly with evergreens.

3—Gravel Walks, 10 feet in width.

4—Ditto ditto 15 feet in width.

5—Line for Houses, the range to be 320 feet.
Division *a*, is completed. Stove, Greenhouse, and Corridor.
b, is building,
c, is left for a spacious centre house.

6—Yards for Manure, Compost, Pots, &c.

7—Cart-Road into ditto. A little sunk to the road level.

8—Walled Garden, of two acres, for Fruit-Trees, choice Vegetables, Pits for Horticultural purposes, &c. with Flued Wall to the South, and Border for Peaches, &c.

9—Private Garden, for experimental purposes.

10—Quarters of Herbaceous Plants, arranged according to the Linnean classification.

11—The Materia Medica.

12—Rosary.

13—Belts and Clumps for shelter:—plants mixed, &c.

14—Pinus, in collection, sandy soil. The small plants are Scotch, Spruce and Larch.

15—The Arboretum. Plants mostly according to the Natural Orders.

16—Peat Borders, with American Plants.

17—Beds of Willows.

18—Grass; with the soil prepared for any choice Arboretum Plants.

19—For Greenhouse and Alpine Plants in summer.

20—Rock-Work.

21—The Aquarium; with Brook emptying itself into a Bog.

22—The Bog.

23—Rustic Bridge.

24—Wall for Creepers, &c. and Border for Annuals.

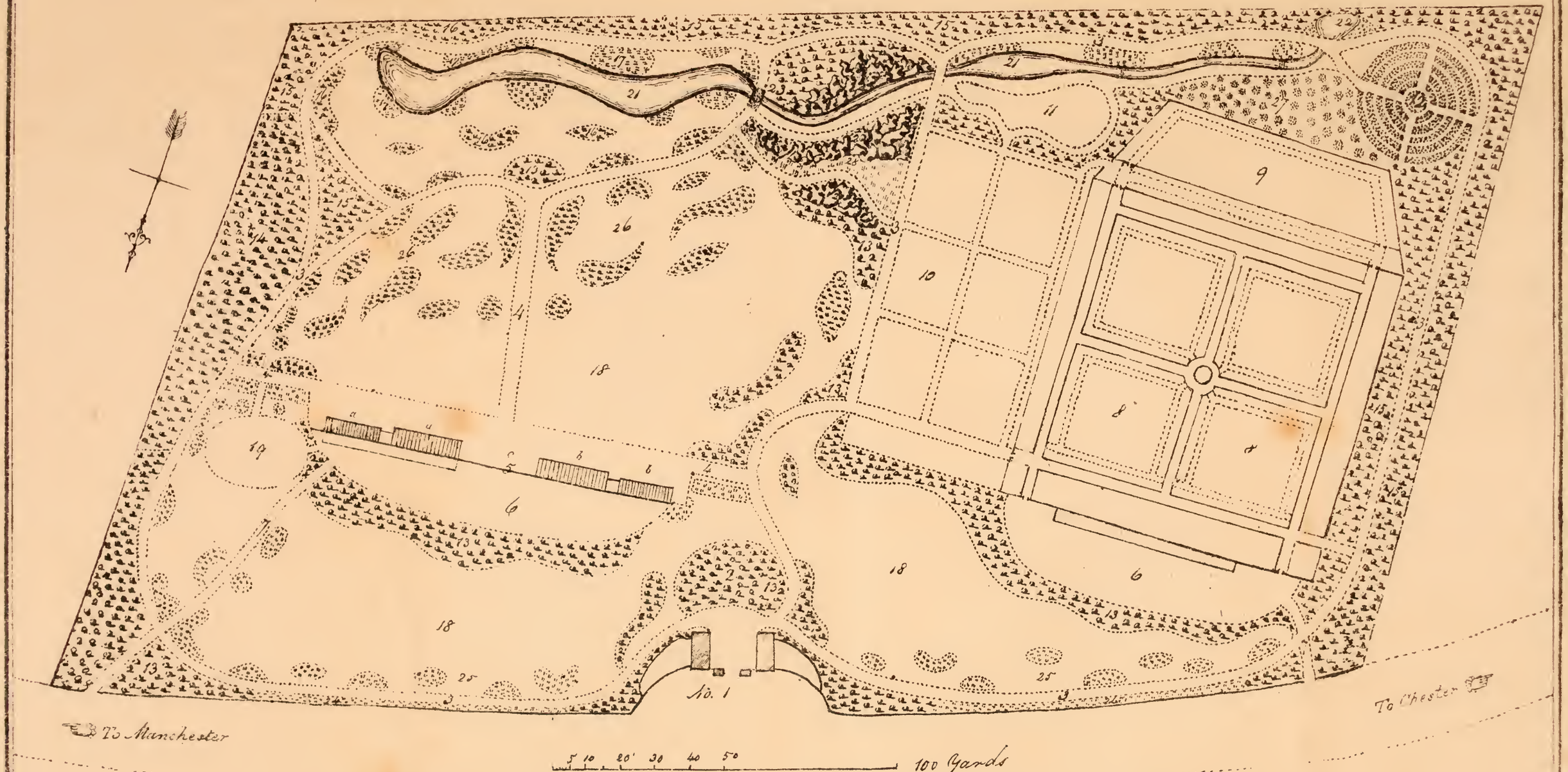
25—Clumps for the Tender and Dwarf Shrubs.

26—Ditto for the stronger-growing Shrubs,

27—Agricultural Grasses.

28—Ferns; growing among old decayed roots, &c.

The Walks in the Fruit Garden are 8 feet wide.
Ditto, in the Herbaceous Ground, 5 feet.



PLAN of the GARDEN of the BOTANICAL and HORTICULTURAL SOCIETY of MANCHESTER.

NOTE.—The rapid progress of Horticulture within these few years, is strongly marked by this splendid garden. The gentlemen of Manchester may well be proud of their Horticultural productions, backed as they now are, with the best arranged Horticultural gardens in the kingdom. The first admirable feature which struck us on entering it, was the absence of hedges. Nothing, in our opinion, so completely spoils the effect of a public garden, as these unsightly objects; it gives us the idea of a pinfold, or Smithfield Market, rather than the quiet habitation of plants. One or two little divisions, quite out of sight, may be necessary for particular purposes, but to chop and cut ground up, in the form of so many paddocks, is to us an intolerable nuisance, and we trust the time is arrived, when Horticultural taste will remove all these obstructions, both in public and private gardens, except, as we before said, particular purposes may render it necessary. We have only time to notice the excellent manner in which the entrance is contrived, and the elegant effect of the houses. The rock-work is in the best possible taste; we might fancy ourselves roaming in some of the lovely valleys of Derbyshire, with the rivers Wye, Derwent, or Dove, rippling at our feet. The situation of the garden is admirably chosen for the purpose; the range of houses have a full command of an extensive tract of rich level country, terminating with a view of the Derbyshire and Staffordshire hills. The situation Mr. Mowbray has chosen for the kitchen garden, as well as the disposition of the arboretum, water, &c., do him the greatest credit. Indeed we have no hesitation in saying, that it is by far the best laid out garden, at present extant. The Garden, we believe, contains about seventeen acres.

CONDUCTORS.

PART II.

HORTICULTURAL AND RURAL SUBJECTS.

REVIEWS AND EXTRACTS.

ARTICLE I.—*Reviews and Extracts from Works on Horticulture, and Rural and Domestic Economy.*

1.—A GUIDE TO THE ORCHARD AND KITCHEN GARDEN. By GEORGE LINDLEY, C.M.H.S. Edited by JOHN LINDLEY, F.R.S. &c. 1 vol. 8vo. 16*s.* boards.

THIS far exceeds our expectations; for after the numerous works that have been already written on these subjects, we certainly were not prepared to see anything very original; but in this we are most agreeably disappointed. Mr. George Lindley, it should be understood, has long been practically acquainted with fruits.—Indeed those who possess his work, and have any pretensions to a knowledge of the subject, will not need to be informed that the whole of the descriptions both of the fruits and vegetables, are handled in a masterly style. One of its most valuable features is, having the synonymes attached to both fruits and vegetables, when required.* On that account alone, independent of the directions for propagation, it is rendered truly valuable. The work is, what it professes to be, "A Guide to the Fruit and Kitchen Garden" and on the whole contains perhaps less errors than almost any work on the subject we ever met with. It gives, not only excellent descriptions of each kind, but what is of infinitely more value, a selection for planting a small garden, with such sorts as Mr. Lindley considers would best suit the different parts of the kingdom. He has not attempted to give any detailed accounts for the operation of work either in the fruit or kitchen garden, and we think he has shown his good sense by omitting them, as the greater part of such details must necessarily be extracted from other works, and this would have taken away a great portion of the feature of originality which it now possesses; for no person considers Mr. G. Lindley to be a practical gardener, but all who are acquainted with him, are satisfied of his knowledge as a practical nurseryman, and consider him eminently qualified for the task he has undertaken.

We think, however, he has made some few little mistakes, in some of the sorts of fruits recommended for the North, and in a few other things also, which we shall notice in their proper places. At present, we shall confine our observations to the Introduction, the most of which we intend to extract, in order to show what may be expected from a work where the subjects are introduced in so copious and intelligent a manner. It is unquestionably the very best we ever saw penned to preface any work on Gardening, and contains some sound and valuable reasoning on the Theory of Cultivating Fruits, &c.

* If Mr. Ronald's work, reviewed in our last number, page 68, had contained these synonymes, it would, as we then hinted, have been a most excellent feature. The descriptions given by Mr. Lindley are so clear and explicit, that any person possessing the fruit by name, might readily read its characters from his work; but there exists considerable difficulty when the fruits are unknown, to distinguish them from each other without a plate, however minutely described.—CONDUCTORS.

"In all books upon gardening, a great variety of modes of operating are comprehended, each of which has, it may be supposed, its own peculiar merit, under particular circumstances. In several, the very same mode is repeatedly recommended, with slight variations of phraseology, in speaking of different subjects; and it has at last become a common complaint, among those who seek for information from books upon Horticultural subjects, that they can find plenty of rules of action, but very few reasons.

"No greater boon could be bestowed upon the gardening world, than to reduce all Horticultural operations to their first principles, and to lay bare the naked causes why in one case one mode of procedure is advisable, and another in another. But there are few persons who are competent to this task; it requires a combination of great physiological knowledge, with a perfect acquaintance with the common manipulation of the gardener's art, and much experience in all the little accidents which are scarcely appreciable by the most observing cultivator, with which the mere man of science can necessarily have no acquaintance, but upon which the success of a gardener's operations often mainly depend; which are to the cultivator, signs as certain of the issue of his experiments, as to the mariner are the almost invisible changes in the appearance of the heavens, by which the weather is prognosticated.

"Deeply impressed with a persuasion of the justice of the foregoing observations, and sincerely regretting that there should be no present expectation of such a task being undertaken by any one fully competent to it, the editor of this work ventures to throw himself upon the indulgence of the public in attempting, not to carry into effect such a plan himself, but to sketch out, in regard to the fruit-garden, what he thinks the method should be upon which a more competent person would do well to proceed.

"All our fruits, without exception, have been so much ameliorated by one circumstance or another, that they no longer bear any resemblance, in respect of quality, to their original. Who, for instance, would recognize the wild parent of the Coe's or Green-Gage Plum, in the savage Sloe; or that of the Ribston and Golden-Pippin Apples, in the worthless acid Crab? Or what resemblance can now be traced, between the delicious Beurré Pears, whose flesh is so succulent, rich, and melting, and that hard, stony, astringent fruit, which even birds and animals refuse to eat? Yet these are undoubted cases of improvement, resulting from time and skill, patiently and constantly in action. The constant dropping of water will not more surely wear away the hardest stone, than will the reason of man in time compel all nature to become subservient to his wants or his wishes. But it would be of little service to mankind, that the quality of any fruit should be improved, unless we found some efficient and certain mode of multiplying the individuals when obtained. Hence there are two great considerations to which it is, above all things, necessary that the attention of the cultivator should be directed, viz:—AMELIORATION and PROPAGATION.

"*Amelioration*, consists either in acquiring new and improved varieties of fruit, or in increasing their good qualities when acquired.—It will be as well to consider these two subjects separately.

"By what means the first tendency to change their nature, was given to domesticated plants, we are entirely ignorant. It is probable, that it was originally due to accident, and also that it was still mere chance which continued to operate down to very modern times.

"Philosophers are unacquainted with the reason why there should be any tendency to variation from the characters first stamped on any species by nature; but all know that this tendency does exist, and to a most remarkable degree, in many

species. There is in all beings a disposition to deviate from their original nature, when cultivated, or even in a wild state; but this disposition is so strong in some, as to render them particularly well adapted to become subject to domestication; as for instance, the dog, the pigeon, and the barn-yard fowl, are cases in which this tendency is most strongly marked in animals; and domesticated fruits are a parallel case in the vegetable world.

"Without then, vainly endeavouring to discover the first cause of this disposition to form varieties, let us take it as a naked fact, that the disposition exists. Cultivators increase this disposition chiefly in two ways;—either by constantly selecting the finest existing varieties for seed, or by intermixing the pollen and stigma of two varieties, for the purpose of procuring something of an intermediate nature. The ancients were unacquainted with either of these practices, and consequently, their gardens contained few things which would now be deemed worthy of cultivation. The power of obtaining cross-bred varieties at pleasure, has only existed since the discovery of sexes in plants; but as it exerts a most extensive influence over alterations in the vegetable kingdom, it may be considered the most important controling power that we possess.

"In *sowing seeds* for the purpose of procuring improved varieties, care should be had, not only that the seeds be taken from the finest existing kinds, but also that the most handsome, the largest, and the most perfectly ripened specimens, should be those that supply the seed.

"A seedling plant will always partake, more or less, of the character of its parent, (the qualities of which are concentrated in the embryo,) when it has arrived at full maturity. How this concentration takes place, we are as ignorant, as why certain constitutional peculiarities, are in men transferred from father to son, and from generation to generation: but we know that it does take place. Now if the general qualities of a given variety are concentrated in the embryo under any circumstances, it is reasonable to suppose that they will be most especially concentrated in a seed taken from that part of a tree in which its peculiar good qualities reside in the highest degree. For instance, in the fruit of an apple growing upon a north wall, there is a smaller formation of sugar, than in the same variety growing upon a south wall; and it can be easily understood that the seed of that fruit which is itself least capable of forming saccharine secretions, will acquire from its parent a less power of the same nature, than if it had been formed within a fruit, in which the saccharine principle was abundant. It should therefore be always an object with a gardener, in selecting a variety to become the parent of a new sort, to stimulate that variety by every means in his power, to produce the largest and most fully-ripened fruit that it is capable of bearing. The importance of doing this is well known in regard to melons and cucumbers, and also in preserving fugitive varieties of flowers; but it is not generally practiced in raising fruit-trees."

The information here given, should be attentively considered by every gardener, who wishes to excel in raising valuable varieties of fruit. A few additional observations of our own, we conceive, would not be improperly introduced here. In the selection of sorts for producing new and improved varieties, great attention must be paid. All the apples raised from seed at Clydesdale, in Scotland, are peculiarly acid, and all kinds raised in Normandy, are sweet. This is easily accounted for, by the respective situations in which they are matured. Now, although it is necessary to ripen such fruits as are designed to be the parents of a new progeny, it would be far from proper to choose both parents of the same degree of flavour, or similarity of appearance. A good Normandy apple impregnated with one from Clydesdale, would be far more

likely to produce a valuable variety, than if both sorts were selected from one place; if a large apple is desired moderately sweet, select two large apples for the purpose, the one as sweet as possible, the other acid. If a small variety is required, resort to two small ones for that purpose; but in all other respects let dissimilarity be an invariable guide, both in flavour, habit, &c.

"The *power of procuring intermediate varieties*, by the intermixture of the pollen and stigma of two different parents is, however, that which most deserves consideration. We all know that hybrid plants are constantly produced in every garden, and that improvements of the most remarkable kind, are yearly occurring in consequence. Experiments are, however, it may be supposed, sometimes made without the operator being exactly aware, either of the precise nature of the action, to which he is trusting for success, or of the limits within which his experiments should be confined.

"Cross-fertilization is effected, as every one knows, by the action of the pollen of one plant upon the stigma of another. The nature of this action is highly curious. Pollen consists of extremely minute hollow balls or bodies; their cavity is filled with fluid, in which swim particles, of a figure varying from spherical to oblong, and having an apparently spontaneous motion. The stigma is composed of very lax tissue, the intercellular passages of which have a greater diameter than the moving particles of the pollen.

"When a grain of pollen comes in contact with the stigma, it bursts and discharges its contents among the lax tissue upon which it has fallen. The moving particles descend through the tissue of the style, until one or more of them, finds its way, by routes specially destined by nature for this service, into a little opening in the integuments of the ovulum, or young seed. Once deposited there, the particle swells, increases gradually in size, separates into radicle and cotyledons, and finally becomes the embryo—that part which is to give birth, when the seed is sown, to a new individual.

"Such being the mode in which the pollen influences the stigma, and subsequently the seed, a practical consequence of great importance necessarily follows, viz. that in all cases of cross-fertilization, the new variety will take chiefly after its poliniferous, or male parent; and that at the same time it will acquire some of the constitutional peculiarities of its mother.* Thus the male parent of the Downton Strawberry, was the Old Black, the female, a kind of Scarlet; in Coe's Golden-drop Plum, the father was the Yellow Magnum Bonum, the mother the Green Gage; and in the Elton Cherry, the White Heart was the male parent, and the Graffion the female.

"The limits within which experiments of this kind must be confined are, however, narrow. It seems that cross-fertilization will not take place at all, or very rarely, between different species, unless these species are nearly related to each other; and that the offspring of the two distinct species, is itself sterile, or if it possesses the power of multiplying itself by seed, its progeny returns back to the state of one or other of its parents. Hence it seldom or never has happened, that domesticated fruits have had such an origin. We have no varieties raised between the Apple and the Pear, or the Quince and the latter, or the Plum and Cherry, or the Gooseberry and Currant. On the other hand, new varieties, obtained by the intermixture of two pre-existing varieties, are not less prolific, but, on the contrary, often more so, than either of their parents; witness the numerous sorts of Flemish Pears, which have been raised by cross-fertilization

* In early crosses between distinct species, this is particularly manifest; but in those of varieties long domesticated, it is less apparent: the distinctions between the parents themselves being less fixed, and less clearly marked.

from bad bearers, within the last 20 years, and which are the most prolific fruit-trees with which gardeners are acquainted: witness also, Mr. Knight's Cherries, raised between the May Duke and the Graffion; and the Coe's Plum, already mentioned.

"It is, therefore, to the intermixture of the most valuable existing varieties of fruit, that gardeners should trust for the amelioration of their stock. By this operation, the Pears that are in eating in the spring, have been rendered as delicious and as fertile, as those of the autumn; and there is no apparent reason why those very early but worthless sorts, such as the Muscat Robert, which usher in the season of Pears, should not be brought to a similar state of perfection.

"There is no kind of fruit, however delicious, that may not be deteriorated, or however worthless, that may not be ameliorated, by particular modes of management; so that after a given variety shall have been created, its merits may still be either elicited or destroyed by the cultivator.

(TO BE CONTINUED.)

2.—GARDENER'S MAGAZINE; Edited by J. C. LOUDON, F.L.S. &c. Published every two months, price 3*s*.6*d*.

No. 33, FOR AUGUST.

THIS number contains little useful information, 36 of its pages are filled with an account of the "General Results of a Gardening Tour, made by the Conductor, last May and June," which are of no general interest; however we will extract—

Page 456.—Article 10.—*On the Culture and Propagation of the Erythrina Crista Galli, Erythrina Laurifolia, and Chrysanthemum Sinense.* By MR. J. ELLES, Palace Gardens, Armagh.

As soon as the plants of the *Erythrina* have done flowering, (or even plants that have not flowered at all, but have ripened their wood tolerably well, will answer the same purpose,) cut them down, and make as many cuttings of the stems, as there are buds, preserving, if possible, the leaf, or rather the three leaves, to each bud, and if the buds are opposite each other, as is sometimes the case, the stem may be split, if near the bottom, where the wood is hard and well ripened; for this part of the stem will root, even without the assistance of the foliage. Indeed Mr. Elles has found that the top and bottom, that is, the hardest and softest parts of the stem, root more readily than that which is in an intermediate state; but the ripest wood is best. Having prepared the cuttings, plant them separately in small pots, with the eye or bud just below the surface of the mould, which should be light and sandy, the piece of the stem which forms the cutting being laid flat; then immediately place them under a hand light, on a strong bottom heat, so that the heat under the glass may range from 75 to 80 degrees Fahrenheit, shading regularly when the sun is likely to scorch them, or dry up the moisture; for they should be kept constantly well watered. In three weeks they will be rooted, when they may be gradually hardened, till they will bear a shady part of the stove. Thus, from every single stem, no less than from 20 to 30 plants may be annually raised; and if the flowering plants are forced, so as to make them flower twice a year, double that number may be obtained.

To obtain very dwarf plants of the *Chrysanthemum Sinense*, he has occasionally practised the following method:—On the 1st of August, the points of the strongest shoots were taken off at a joint, about three or four inches in length; not a leaf

was removed except the bottom one, from the part which was to be inserted in the mould. The cuttings were then immediately planted in small pots, and placed under a hand-light, upon a gentle bottom heat. Here they were well watered and shaded, and rooted in less than three weeks; afterwards gradually hardened till they could bear any exposure; then being shifted into larger pots, they were again placed on a gentle bottom heat, without any protection from glass, or otherwise, until they showed flower. By this method perfectly dwarf plants, of from 6 to 10 inches high, may be flowered in great beauty and perfection.

3.—Transactions of the London Horticultural Society. (Second Series,) Vol. I., Part I.

This part is rich in information, and among a number of interesting articles, are several besides what we have given, by Mr. Knight, which are well worthy the attention of every reader, and of which we would have given an abridgment, had the limits of our present number permitted it.

An Account of a method of obtaining very Early Crops of Green Peas. By Thomas Andrew Knight, Esq, F.R.S., &c. President. Read May 18th, 1830.

Mr. Knight having a heap of oak leaves unemployed, which had been collected for the purpose of making hot-beds, for melons, had them formed into a bed in the middle of January, into which pots of about 9 inches in diameter, were placed, at the distance of about one foot from centre to centre. In each of these pots a couple of dozen Peas were put in a circular row, and around them was planted a row of slender twigs, a foot above the surface of the mould. In the middle of March they had become 14 inches high, and nearly in contact with the glass roof, which had been previously raised a little. They were then transferred to the open border, leaving an interval of 9 inches between each pot of plants; some manure was given, and numerous sticks were employed to afford them some degree of shelter. This removal did not appear to injure them in any degree, and in the end of March many of their blossoms were so far advanced, that they shed their pollen. On the second of April, a very severe frost occurred, with a considerable fall of snow, which however, did not seriously injure them, although in a high and cold situation; and on the 26th of April, some of the pods were about an inch and a half long, and were at least three weeks earlier than any Mr. Knight had ever been previously able to raise.

Article II.—*Extracts from Works on Gardening, Botany, Rural Subjects, &c.*

1.—Edwards's Botanical Register, &c. (New Series) By John Lindley, F.R.S. &c. Monthly numbers, 8vo. 4*s.* coloured.

No. 6, for August,

Contains, as this publication usually does, a most interesting selection of specimens; the figures are so accurately delineated, and coloured with such nicety, and the descriptions so clear and comprehensive, that the work can never fail, while so conducted, to elicit praise, as it must give to every observer, correct ideas of the plants themselves. The first plate given this month,

is an interesting, slender, green-house, plant, the *Hóvea Lanceolàta*, var. *linearis*, Linear-leaved lanceolate Hovea;—it is a native of New Holland, from whence it was introduced some years ago; it differs from the true *Hóvea Lanceolàta*, only in the narrowness of its leaves, the flowers grow in pairs, from the axillæ of the leaves, and are of a violet-purple colour, with darker coloured wings. *Maxillària Tétragòna*, Four-cornered Maxillaria; this species is deficient in beauty, the flowers being of a greenish yellow colour, but remarkable for its rich fragrance, which much resembles fresh violets; it is a native of Rio Janiero, from whence it was imported by the Horticultural Society. *Sálvia Foliòsa*, Leafy Mexican Sage;—a native of Mexico, where seeds were collected by Mr. Graham; it is a hardy annual, flowering in August and September, the colour of the flower is bluish purple. *Bánksia Quércifolia*, Oak-leaved Banksia;—this shrub is a native of Lewin's Land, in New Holland, whence it is said to have been introduced in 1805; it appears to flower very rarely; the heads of the flowers are on short stalks, and about three inches in length, the segments of the calyx are remarkably reflexed, and each elongated into a slender, subulate, brown point, which is what Mr. Brown calls being aristate, covered with hairs of the same nature as those upon the rest of the calyx, except that they are shorter. *Cheiránthus Mutábilis*, Changeable Wall-flower;—a beautiful half-shrubby plant, a native of Teneriffe; it requires the protection of a green-house in winter, and may be propagated by cuttings of the young wood, struck in heat, under a bell-glass; the colour of the flower when it opens is pale lilac, which gradually alters to purple. *Ranúnculus Créticus*, var. *Macrophyllus*;—it was introduced so long ago as the year 1658, and cultivated in the Botanic Garden at Oxford, but seems latterly to have been entirely lost; the specimen from which the editor's drawing was taken, was found in Teneriffe or the neighbouring islands, by P. B. Webb, Esq. it requires the protection of a frame in winter; the colour of the flower is yellow. *Eulóphia Mackaiána*, Mr. Mackay's Eulophia;—this most lovely species is, of all the Orchideous tribe, one of the most deserving cultivation; it thrives well in pots filled with moss or rotten wood, and is easily increased by separating the pseudo-bulbs with a few roots attached to them; it is a native of Brazil, whence it appears to have been introduced by Mr. Mackay, of the Dublin College Botanic Garden; the flowers are less perishable than those of many of the Orchis tribe; their sepals and petals are greenish, spotted with irregular blotches of brownish purple; the labellum is a bright blue, deeply stained with darker lines, and has at its base a remarkable fleshy, elevated, lunate, transverse ridge. *Cássia Herbertiána*, Mr. Herbert's Cassia;—a native of Barbadoes, whence seeds were received by the Hon. and Rev. William Herbert; it requires the heat of a stove, where it forms a shrub, about eight or nine feet high. (The plate for this was given in the number for July, fol. 1422.) The colour of the flower is yellow.

2.—Curtis's Botanical Magazine, &c. (New Series) Edited by Dr. Hooker. Monthly numbers, 3*s*.6*d*. coloured, 3*s*. plain.

No. 56, for August,

Contains a variety of specimens, which, though not of so ornamental a nature as those contained in the Botanical Register, have, nevertheless, many interesting accounts attached to them, and upon the whole, the present number, we think no way inferior to those preceding. It commences with *Xanthóchymus Dúlcis*, Sweet-fruited Xanthochymus;—the plant from which the

specimen was figured, is in the noble collection of Mrs. Beaumont, Bretton Hall, and is about ten feet high, and loaded with no less than two hundred flowers and young fruit, which latter have every prospect of coming to perfection; the seeds had been transmitted to Mrs. Beaumont by Dr. Wallich, from the Calcutta Botanic Garden, where it was introduced by Dr. Roxburgh, from the Molucca Islands, as a supposed species of *Mangosteen*; the flowers are a yellowish white, and the fruit appears to be palateable and good. *Olea Undulàta*, Wavy-leaved Fragrant Cape Olive;—this is a native of the Cape of Good Hope, where it appears to form a tree, yielding a wood so hard, that the Dutch colonists, according to Mr. Burchell, call it *Yzerhout*, (or Iron-wood) which they esteem for making the poles of their waggons; it is a very desirable green-house plant. The flowers are numerous, white, small, and exceedingly fragrant. Some Botanists are of opinion that this is only a variety of *Olea Capénsis*, (figured in Bot. Reg. fol. 613,) but the leaves are less rigid, longer, and much more accuminated at both extremities, and the flowers smaller. *Melocáctus Communis*, Greater Turk's Cap Melon Thistle;—this is the *Cáctus Melocáctus* of Linnæus, and many other Botanists, and is a curious plant, growing to about the height of twelve or fifteen inches; ovate, (egg-shaped) in form, and cut into from twelve to twenty deep furrows, and as many rather acute angles; on the top of this leafless stem, is a cylindrical crown, not half the breadth of the stem, and from three to five inches high, on the top of this crown, there are produced small red, fleshy, cylindrical flowers. It has been often imported from the island of St. Kitt's, to the Glasgow Botanic Garden, by Captain Mac Arthur; it grows in dry and barren places, and is very impatient of moisture. *Aphanóchilus Blándus*, Mild Aphanochilus;—this plant was first introduced by Dr. Wallich, into the Botanic Garden of Calcutta, in the year 1819, from seeds sent from Nepal, under the name of Nutchoo, by the Hon. Edward Gardiner; from thence Dr. Wallich sent seeds to the Royal Gardens at Kew; it has no particular beauty, its flowers being very diminutive. *Arracàcia Esculénta*, Eatable Arracacha;—this plant has very few external attractions, but what it wants in outward charms, is amply compensated by the utility of its roots, which in certain parts of South America, are no less esteemed than the potato is amongst us; it is propagated by planting pieces of the root, in a similar manner to the potato; the colour of the root is white yellow or purple, but all the varieties have the same quality; the editor gives a very interesting account of its properties and uses. *Arbutus Mucronàta*, Sharp-pointed Arbutus;—this plant is stated by Forster to be a native of the Straits of Magellan; Mr. Mackay received seeds from Mr. Anderson; the flowers are white, with a slight tinge of rose-colour. *Calceolària Angustifòlia* Narrow-flowered Slipper-Wort;—this interesting plant was raised from seed, communicated from Lima, by Mr. Cruickshanks; the flowers are of a yellow colour, and ornamental.

3.—The British Flower Garden. By Robert Sweet, F.L.S. &c. 8vo. Monthly. Coloured 3s. Plain 2s.3d.

The number for this Month contains,

As usual, four beautiful specimens. We are glad to see that it is nothing inferior to those that have preceded it; the engraved figures are generally selected with good taste, and the descriptions attached, excellent. The engravings are *Œnothèra Anisolòba*, Unequal-lobed Evening Primrose;—this plant is a great acquisition to

showy border flowers, it being one of the most elegant of the species of *Œnothèra*. Its flowers are large, and of a white colour, it is a native of Chiloe, from whence seeds were sent to Mr. Page, by Lieutenant Barlow, in 1828. *Androsàce Carinàta*, Keeled-leaved Androsace;—this elegant little plant is a native of North America, on the rocky mountains, where it was first discovered by Dr. James, and since by Dr. Drummond, who collected seeds of it, a part of which was presented by him to the Royal Botanical Garden at Edinburgh, in 1828, under the name of *Androsàce Chamæjásme*, which it very much resembles; the flowers are white, yellow at the mouth, and very sweet scented. *Habránthus Rôseus*, Rose-coloured Habranthus;—this is an elegant, bulbous-rooted plant, a native of Chiloe, whence bulbs were sent by Lieutenant Barlow, to Mr. Page, Nurseryman, Southampton, in whose garden it flowered last June; the flowers are campanulate, spreading, of a beautiful rose-colour, slightly striped with darker lines; the bulbs will require covering with a little litter, during winter, to protect them from the frost. *Adenóphora Stylôsa*, Long-styled Adenophora;—this species is a native of Siberia, and appears to have been cultivated at the Paris Gardens about the year 1782, under the name of *Campanula Liliifolia*, from which, however, it evidently differs. It does not appear to have been introduced into the English gardens, until about 1818 or 1819. It is of easy culture, being perfectly hardy. The flowers are of a pale blue, small, campanulate, scarcely half the size of *A. Liliifolia*; it is propagated by dividing the root in the spring, or by seeds, which ripen in abundance.

4.—Botanical Cabinet, By Messrs. Loddiges. Monthly numbers. 4to. coloured, *5s.*, 8vo. partly coloured, *2s.6d.*

This little work we have always found interesting; its 10 neatly-engraved specimens, contained in each part, with their descriptions, although not on so extensive a scale as the Botanical Register and Botanical Magazine, yet convey to the mind of the reader, much necessary information. The present Part maintains, and continues to establish its character, as a useful publication; and the 8vo. Part we would particularly recommend to the notice of every young gardener, where the sum of two shillings and sixpence a month could be readily spared, as the figures being but partly coloured, the improvement that would be derived from finishing the colouring, would more than compensate for the expense. We however submit that if it were a little more copious in its letter-press, it would be much improved.

Part 172, for August, contains

Pultenæa Mucronàta;—a handsome dwarf shrubby greenhouse plant, bearing bright yellow flowers; a native of New Holland, lately introduced into this country. It increases with difficulty, by cuttings. *Ruéllia Sabiniàna*;—an elegant stove plant, with light purple flowers; it is a native of the Pundian Mountain, in Northern India. It was named by Dr. Wallich, in compliment to Joseph Sabine, Esq. It will increase readily by cuttings, and thrives in light loam. *Euphórbia Splendéns;*—this beautiful species is a native of Madagascar, discovered in the province Emirne, by Professor Bojer,. It requires the stove, and is increased by cuttings. The colour of the flower is a rich scarlet. *Andrómeda Polifôlia Grandiflòra;*—this pleasing little hardy plant, is a native of Russia, and is the variety figured in Flora Rossica, pl. 71, B. It thrives in peat and loam, and is increased by layers, or by separation. Its flowers are a delicate white, with shades of rich rose colour. *Cattlèya Guttàta;*—this beautiful fragrant stove plant, is a native of Brazil; and appears to succeed pretty well in a pot of vegetable mould. (it is figured in the Botanical

Register, for May, fol. 1406) *Erica Vestita Blanda;*—this is a fine variety of the *E. Vestita*, its flowers are a beautiful rose colour, and its foliage resembles the *E. Vestita Coccinea*. *Erica Tenuiflora;*—this is a one of the fine heaths, which were collected about the years 1801-2, by Mr. Nevin, for George Hibbert, Esq. Its flowers are a delicate light yellow, and very fragrant. *Berberis Aquifolium;*—this plant is figured in Edwards's Bot. Reg., fol. 1425; the flowers are bright yellow. It may be increased by cuttings and layers, and thrives in peat and loam. *Calathea Longibracteata;*—a stove plant, a native of Rio Janiero, and was sent to the Horticultural Society, in 1824, by Mr. Douglas. The flowers are rose-colour tinted with purple. It grows in sand and peat. *Schiveréckia Podolica;*—this is a pretty little perennial plant, with delicate white flowers. It thrives in light loam, and is increased by separating the roots.

THE BOTANIC GARDEN, &c. By B. MAUND, F.L.S. Monthly. Small 4to. 1*s*. Large paper, 1*s*.6*d*.

OF the utility of this little work, we can have no doubt; its price places it within the reach of such young gardeners, as are unable to purchase the more expensive publications. The greatest means of diffusing useful knowledge, is placing such knowledge within general reach. We are happy Mr. Maund has adopted this plan; his small-sized numbers, containing four neat coloured engravings, with the habit, culture, &c. attached, for the small price of one shilling per month, must eventually greatly extend its circulation, and we have no hesitation in pronouncing, that, in our judgment, it is calculated to be of real benefit, and worthy of being generally recommended.

No. 79, FOR JULY, CONTAINS,

Azalea Calendulacea, Marygold-like Azalea;—a native of North America, growing to about the height of four feet, and was introduced in 1806. The generic name is from the Greek AZALEOS, (dry.) a term chosen as descriptive of the indigenous situation of the plant, to which it was first applied. *Calendulacea* was probably adopted merely in allusion to the yellow colour of the variety first introduced. *Rudbéckia Hirta*, Hairy Rudbeckia;—this genus was named by Linnæus, in honour of one of the Professors of Botany at Upsal, named Rudbeck. It is a native of North America, grows to the height of eighteen inches, and was introduced in 1714. The colour of the flowers is a bright yellow. *Campánula Pyramidalis*, Pyramidal Bell-flower;—this is a well known plant; its tall pyramid of blue flowers, has been long considered one of the greatest ornaments of our conservatories. It is a native of Carniola, and was cultivated as early as 1596; its generic name is derived from the Latin, CAMPANA (a bell,) from the shape of the flowers. *Penstèmon Rôseus*, Rose-coloured Penstemon;—this plant was introduced in 1825, from Mexico. Its generic name is derived from the Greek, PENTE STEMON, (five stamens.) The Class *Didynamia*, comprises plants whose flowers have two long and two short stamens; therefore the fifth stamen, or more properly, the rudiments of one, found in this genus, is somewhat anomalous.

No. 80, FOR AUGUST, CONTAINS.

Soldanélla Alpina, Alpine Soldanella;—this plant is a native of Switzerland, and has been cultivated in this country ever since 1656: it is a neat, blue-flowering, Alpine plant; its generic name is said to be derived from the Greek SOLOS, (a plate of metal,) or SOLIDUS, (the name of an ancient gold coin, of the value of

about twelve shillings.) The plant referred to by the ancients under this appellation, was that which is at present known as the *Calystegia Soldanella*, or Sea-bear-bind. The size and shape of the leaves, gave rise to the application of the name. *Anemône Nemorôsa*, Double Wood Anemone;—the Single Wood Anemone is indigenous to most parts of Europe, but the double variety is the nursling of the Florist. It is occasionally found with numerous small spots on the under surface of its leaves, and sometimes, though less frequently, on its petals also; this has been ascertained to be a species of fungus. Its generic name is derived from the Greek ANEMOS, signifying wind. *Phlôx Crassifôlia*, Thick-leaved Phlox;—this plant, it is believed, was first received into the garden of the Rt. Hon. the Earl of Shrewsbury, at Alton Abbey, from Philadelphia; together with another called *Longiflóra*, a late-flowering species, in the year 1827. Its flowers are a beautiful rich rose-colour, and equal, if they do not surpass, any of the other species in beauty. *Horminum Pyrenâicum*, Pyrenean Horminum.;—this handsome, blue-flowering plant, is of compact growth, never becoming intrusive, nor requiring much attention. It thrives on a south border, in a good loamy soil; it is increased by parting the roots and by seed.

6.—FLORA AND POMONA. By C. Mc.INTOSH, C.M.H.S., &c. 8vo. coloured, 1*s*.8*d*.

THIS little Work is far from being without interest; both Fruits and Flowers are drawn and engraved with great accuracy, and the synonyms and descriptions render it deserving attention.

PART 21, FOR JULY, CONTAINS,

The Grove-end Scarlet Strawberry, which is often cultivated under the name of Atkinson's Scarlet, and is the Early Scarlet of some market gardeners. It is ascertained to have originated in the garden of Wm. Atkinson, Esq., of Grove-end, Paddington, in the year 1820. The plant approaches in habit, to the Roseberry, but differs in the greater length of its fruit stalks, which elevate the fruit. It merits a place in any garden, being an excellent forcing and preserving fruit. The best sorts for forcing, Mr. Mc.Intosh considers to be the Old Scarlet, Roseberry, Grove-end Scarlet, Bostock, and Keen's Seedling. *Old Brompton Plum*, this is "Kirke's Plum," of the Pomological Magazine, No. 3, and Horticultural Society's Fruit Catalogue. The origin or history of this plum, is involved in obscurity, and like that of many other fruits, opens a wide field for conjecture. Mr. Joseph Kirke, of Old Brompton, gives the following history of its discovery by him. Passing in the neighbourhood of the Royal Exchange one day, about twelve years ago, he observed a basket of plums in a fruiterer's window, which struck him as being peculiarly fine; curiosity induced him to purchase a few of them, which he found to be excellent, and upon more minute investigation, found that they were of a kind entirely unknown to him. He applied to the fruiterer for its name, and where it might be procured; but could only obtain the information that it was sent from the country, by a gardener, who had procured it from another person, who supposed it to be an introduced tree, but from what country, or at what period, he could give no information. The colour of the fruit is a fine purple, and is covered with a rich azure bloom, which does not easily rub off: in flavour it is next to the Green-Gage.

On Preserving Fruits.—Mr. Mc.Intosh refers to an article in the Gardener's Magazine, for June, page 368, on Domestic Economy, where a correspondent says that "Fruits of all sorts may be dried and kept a year or two, without losing their

flavour, by wiping them dry, and putting them in a cool brick oven; and occasionally, while drying, grating a little sugar over them." And in the same work, another correspondent says, "Dry them, and pack them in a jar with common salt, putting a layer of salt, an inch or two thick, over them, and preserving the jar from moisture."

Veratrum Album, White Hellebore;—the roots being extremely poisonous, the Editor conceives that a strong decoction of them might be applied, with a syringe, upon trees infested with insects, with very good effect; as he says, the root powdered and sprinkled on the leaves, has been used with considerable success. *Stoneless Plum*;—this is egg-shaped, and of a dark purple colour; it forms, says the Editor, a singular and pleasant addition to our desserts, in its perfect state; and when preserved, either dried, or in the same way as the Green-Gage, either whole or as a jam, is an excellent addition to our winter stock of preserves. The trees may be procured under the name of the Stoneless Plum, from Mr. Kirke, Old Brompton, London, The Editor concludes the number, by recommending Peaches to be enveloped in a thin coat of wool, not sufficient to prevent the sun from penetrating to ripen them, and by this means, he says, they may be effectually secured from wasps, &c.

PART 22, FOR AUGUST, CONTAINS

Rôsa Bánksia, var. *Lùtea*, Lady Banks's Yellow Rose;—the species, of which this is said to be a variety, was introduced from China, in 1807. The present variety was introduced by Mr. John Dampier Parks, in 1824, for the Horticultural Society; it is figured by Mr. Lindley, in the Botanical Register, fol. 1105. It does well in any good garden mould, if planted against a wall, and will readily increase from cuttings. *Ammóbium Alátum*;—this plant is not common in our gardens; it is a great addition to the plants vulgarly called everlastings, few of which are hardy. In a warm, dry, sheltered border, this plant succeeds very well, and in the most severe weather, a little decayed tan or sawdust laid over the roots, and about two inches up the stem, will securely protect it. Seeds should be, if possible, procured, as it is apt to be eaten over with slugs, and is not very successfully increased by dividing the roots; it is a native of New Holland, was introduced in 1822, and thrives in peat and loam.

To discover the Acid or Alkaline quality of Plants.—Deep-blue paper being moistened with the juice of the plant, will, if an acid, become red; if an alkali, green. A vegetable blue will, in general, turn red with acid, (indigo being soluble in acid, as are also the roots of Dog's-Mercury, (*Mercurialis Perennis*,) which, by exposure to the air, will frequently become a brilliant blue, with some exceptions;) hence we observe a deep colour developed in vegetables in which an acid continually acts, as in the leaves of sorrel, vine, and some others, particularly towards the latter stages of their growth.

Love-Apple, (Solanum Lycopersicum) *a Substitute for Hops.*—We are assured, says Mr. Mc.Intosh, that the leaves and stalks of this plant have been successfully used at Sydney, in New Holland, to communicate the bitter principle to beer, made from Indian Corn, properly malted. If this should be found correct, he adds, we see no reason why it should not have a similar effect on beer, manufactured from barley.

Successful method of increasing the Sweet-scented China Rose, its varieties, and other Roses of similar habits.—Mr. Mc.Intosh proposes, (what has long been practised by the gardeners in this part of the country) to take the cuttings off after the flowering-season, and plant them in rich light soil, under a hand-glass, in a cool shady situation. When plants of a larger size are required, the process of budding them on stocks of the wild roses is to be preferred.

Acacia Pubescens.—A plant of this elegant species has produced seed, in a conservatory under his care.

PART III——NATURAL HISTORY.

ORIGINAL COMMUNICATIONS.

ARTICLE I.—*Popular Errors with regard to Blight.* By JAMES RENNIE, A.M. Professor of Natural History, King's College, London.

GENTLEMEN,

THERE are few words of more vague import, or less understood, than *Blight*, which is popularly referred to some mysterious state of the air or winds, which may not only produce inflammation of the face and eyes, but is confidently believed to have the power of generating millions of insects, or at the very least, carrying them about, no one knows whence or wherefore; though it would be equally correct to suppose this same blighting wind or air, capable of generating or carrying about, a flock of sparrows or a herd of black cattle. This blight has been described by some, to wear the appearance of a haze or blue mist, or a sultry, purplish, or orange tinge in the air; while others promulgate certain fancies, equally unfounded and absurd, about its containing and depositing honey-dew, or being caused by electricity. That these notions are not confined to the vulgar and uneducated, is proved, by their having found their way into works of respectability and talent. In a work for example, just published, and distinguished for considerable ability, though full of fanciful theory, I find the following singular passage. In "those singular collapsions and accumulations called a *blight*, which cause them to become opaque and visible to the eye, the air itself becomes for miles suddenly filled with myriads of animalculæ, unseen before, and *unproduced by parents of the same sort*, which must, out of certain of these elements, first radiant and next gaseous, liquid and solid, collapsing and condensing, *suddenly and spontaneously have been formed.*"*

Were this a mere theoretical fancy, unconnected with practice, we might leave it to be admired by the theorists without remark; but as it is not so, I shall briefly show the errors into which it leads. As far as insects are concerned, I am quite certain that all accounts of *Blight*, similar to the preceding, are sheer nonsense; though there can be no doubt that cold winds, easterly or northerly, will produce inflammation

* Hope's Origin and Prospects of Man, Vol. 1, page 189.

of the eyes, and shrivelling and browning of the leaves of trees and hedges, as sultry, thundery weather may sometimes effect. Insects being proved by extensive, minute, and accurate experiments, from the time of Redi downwards, to be invariably hatched from eggs laid by parents similar to themselves, it is utterly impossible they can be generated by any state of the air. It is no less impossible, though it has been asserted, that the eggs of insects are floated about by blighting winds; for insects, with few exceptions, not only glue their eggs upon the leaves and other substances where they are deposited, but even were the glue dissolved, and the eggs detached, they are far too heavy to float in the air, or be carried away by the winds.

Here then, is the practical error; and a gardener or a farmer who believes in the mysterious power of blighting winds to generate insects, concludes, that it is as hopeless for him to endeavour to prevent the increase of these insects, as to try to chain the winds supposed to produce them. Whereas, the fact is, that these insects are all hatched from eggs which have been laid the preceding autumn, or early in the spring or summer; and if he had been on the look out for these eggs, he might probably have discovered a considerable portion of them, minute though they be, and by destroying them, have thereby saved his crops from depredation.

The sudden appearance all at once, of so many insects, which gives some plausibility to the popular errors respecting Blight, arises from the eggs being all hatched at once, or at least within a few days.

In consequence of their minuteness and the peculiar places where they are concealed, it is difficult and often impossible to discover the eggs of optrides; but it is comparatively easy to find the eggs of leaf rolling caterpillars, of which the rose one is poetically celebrated, as the "worm i'the bud," and those which commit such ravages on oaks and currant trees, are readily found in little, whitish-grey, round patches, about the breadth of a finger nail, or a card-wafer, firmly glued to the bark. If these be cut off during the winter, no blighting wind will be able to generate a single insect of that species, any more than to create a brood of chickens without eggs.

If you deem the foregoing remarks on an important subject, of any importance, they are much at your service.

I am, &c.

Lee, Kent, July 7th, 1831. JAMES RENNIE.

PART IV.

REVIEWS AND EXTRACTS.

I.—On The Utility of the Knowledge of Nature, by E. W. Brayley, Esq. 8vo.

The following Extract, on the Ravages of Insects, which has been kindly furnished by the author, appears to be of uncommon interest, to all persons connected with Horticulture, and we therefore strongly recommend it to the perusal of our readers. The Work itself, from the enlarged view it takes of Nature, promises to be of the greatest utility to the admirers of her wonderful operations.

"Almost all timber-eating insects are comprised in three orders;—viz. *Coleoptera*, or beetles; *Lepidoptera*, or moths, butterflies, &c., and *Hymenoptera*, or bees, wasps, &c. All these, in their youngest state, after leaving the egg, are worms, or larvæ, and it is while they are in this stage of their life that they commit the direct injury to the trees, either by gnawing off the bark, or by devouring the wood. The communication of the disease to other trees is periodical; for when the worms or larvæ, just mentioned, arrive at their perfect or winged state—become butterflies, or beetles, or wasps, &c., the mischief *directly* committed by them is comparatively trifling, and generally results, in fact, not so much from their voracity, as to their attempts to extricate themselves, and to arrive at the external air; or from their endeavours to commit their eggs to a proper *nidus*, or situation, and surrounding materials, proper for the vivification and support of the larvæ to be hatched from them. But as the insects are now winged, and are capable of depositing myriads of eggs,—the germs of so many devouring larvæ, the disease is thus dispersed throughout the neighbourhood of the tree originally infected.

"From this general view of the subject, let us proceed to notice some of the ravages which insects have committed upon timber-trees.

"The Pine forests of Germany have at various times, sustained enormous injury from the attacks of a small beetle, belonging to the genus *Bostrichus*, and named by naturalists, the *Bostrichus Typographus*, or Printer Bostrichus, on account of a fancied resemblance between the paths which it erodes in the trees, and rows of letters. This insect, in its preparatory or larvæ state, feeds upon the soft inner bark only of the trees; but it attacks this important part in such vast numbers, no fewer than *eighty thousand* larvæ being sometimes found in one tree, that it is very far more noxious than any of those insects which bore into the wood itself; and such is its tenacity of life, that though the bark be battered, and the tree plunged into water, or exposed to a freezing temperature by being laid upon the ice or snow, it remains alive and unhurt. The leaves of the trees infested by it, first become yellow, the trees themselves then die at the top, and soon perish entirely. The ravages of this insect have long been known in Germany, under the name of *Worm trockness*, (decay caused by worms;) and in the old liturgies of that country, the Divine interposition to check its ravages is formally besought; it being

mentioned in them under its vulgar appellation of "the Turk," a name bestowed upon it, probably, in allusion to the devastations which had before been committed in Hungary, and the adjacent eastern countries of Europe, by the Mahommedan conquerors of Constantinople: the application of that name to this species of decay is a circumstance which in itself sufficiently evinces the extent of its ravages, and the apprehensions entertained of them.

"This pest was particularly prevalent, and caused incalculable mischief, about the year 1665. In the beginning of the last century it again showed itself, in the Hartz forests—it re-appeared in 1757, redoubled its injuries in 1769, again appeared in 1780, and was neglected, and in three years afterwards had destroyed whole forests; the number of individual trees destroyed by it in the Hartz alone, being calculated at a million and a half. The inhabitants of this extensive range of country, were thus threatened with a total suspension of their mining and metallurgic operations, for want of fuel, and consequently with ruin itself, entirely dependent, as they were, upon those branches of the useful arts. At this period, these *Bostrichi*, when arrived at their perfect state, in the form of winged beetles, migrated in swarms, like bees, into Suabia and Franconia, there to commit similar ravages. At length, after these repeated injuries, the powers of nature interfered to mitigate the evil, which want of scientific knowledge, (as we shall presently show,) had allowed to gain so alarming a head. Between 1784 and 1789, in consequence of a succession of cold and moist seasons, the numbers of this scourge were sensibly diminished. It appeared again, however, in 1790, and so late as 1796, there was great reason to fear for the few Fir trees that were left.

"We will now turn our attention to another insect belonging to the same natural family as the *Bostrichus Typographus*, the ravages of which were nearly producing similar, though less extensive effects in our own country, until checked by the results of scientific knowledge.

"Of the evil which we have just reviewed as affecting the forests of Germany, St. James's Park, and Hyde Park, in London, from about 1820 to 1824, presented many examples. The elm trees in both of these "Lungs of London," as they have not unaptly been termed, and particularly in St. James's Park, were rapidly disappearing. In spring, the leaves were seen to sprout out from the venerable trunks, in all the luxuriance of vegetation, when of a sudden they were blasted, as if by lightning; the bark fell from the stem, and long ere winter, the finest trees perhaps in the Park were fit only for fire-wood. Whole rows thus disappeared, and were rapidly disappearing in the Mall and the Birdcage-walk, threatening entirely to destroy the antiquated appearance of the Park, associated with the recollection of times gone past.

"As the persons who had the charge of the trees were entirely ignorant of the true cause of the mischief, and as it was clear that the trees died in consequence of being completely stripped of their bark, rewards were at first offered for the discovery of the delinquents who so mischievously barked them; but these were offered in vain. It was observed, however,—and the observation claims some credit for its ingenuity,—that no more of the tree was barked from the ground, than what was easily within the reach of a soldier's bayonet; and this was sufficient to throw suspicion on some unfortunate recruits, of whom more than one was arrested, without producing any diminution of the evil. In vain too were persons employed to sit up during whole nights, watching for the enemy; the bark continued to be found every morning at the roots of the trees; and the park-keepers, after all their trouble, could only conclude, "that the bark fell off in consequence of something being placed on the trunks in the day-time." About

the same period, the Elms in the Grove at Camberwell, near London,—a place consecrated in the memory of many persons, by having been the residence of the late philanthropist, Dr. Lettsom—were observed to be undergoing a similar process of destruction; and the proprietors being equally ignorant of its cause, as in the instances I have just mentioned, the injury was ascribed to the effects of gas, escaped from the pipes for lighting the road, which had just been laid down; and legal proceedings were actually commenced for the removal of this nuisance, against the Gas Company which had undertaken the supply.

"Entomologists, it is true, had long been aware that the operations of insects were the cause of all this mischief; unfortunately however, they were not believed until the disease had reached that pitch, which threatened to make remedy hopeless. It was evident to those acquainted with the subject, that unless decisive measures were soon taken to resist the progress of the contagion, it was to be expected that not only every tree of this species in the Parks would be destroyed, but that the evil would be disseminated throughout the vicinity of the metropolis, to several plantations on the north of which, it had already extended.

"In this state of things, Mr. William Sharp Macleay, an eminent Naturalist, profoundly acquainted with the history of Insects, was requested by Lord Sydney, the Ranger of the Parks, to draw up a report on the state of the Elm-trees in them, for the purpose of referring it to the Lords of the Treasury.

"In this Report, Mr. Macleay shows that all the havoc had been committed by a species of Beetle, belonging to the same natural family as that which destroyed the Pines in Germany; and not more than one-sixth of an inch in length, called the *Hylesinus Destructor*, or Destroyer Hylesius.

"It appears further from the Report, and from other authentic sources, that from the middle of March to September, but principally about the end of May and the commencement of June, this insect, distinguished by its polished black head and thorax, the head thickly covered with hair, and its brown wing cases, may be seen in numbers, running over the trunks of the Elms. This is the animal in its perfect state. It may be seen also, entering into holes, with which the bark appears perforated as though with a gimlet; it insinuates itself into the holes, or into the crevices of the bark, for the purpose of depositing its eggs. On stripping off a piece of the loose bark, we may easily at any season understand how the barking of the trees is effected by these minute animals; for the surface of the wood thus exposed, presents to the view innumerable impressions, or excavations, each consisting of a comparatively wide middle trench, with others much narrower, extending from it at right angles, but in a parallel direction to each other.

"The middle or body of this singular impression, is the passage which has been formed between the bark and the wood, or rather within the thickness, to a certain extent, of both, by the female insect, depositing her eggs, on each side, in her course, until she is exhausted of them, when she dies, and may accordingly generally be found at the extremity of the channel; the deposition of her eggs being to her, as to most other winged insects, the immediate forerunner of death. From this tubular path, however, the larvæ which are hatched from these eggs, deposited very close to each other, in the shape of little white worms or grubs, destitute of legs, proceed nearly at right angles, eating their way in smaller tubes parallel to each other, which lying close together, serve effectually to separate the bark from the tree. The larvæ remains feeding in the tree, generally in this situation throughout the winter. During that season, the sap of the tree being down, the bark adheres less firmly, the grubs work with greater facility, and the mischief is consequently augmented. About the commencement of spring, they assume the Pupa or Nymph state—that condition or stage of their metamorphosis

which in butterflies we are accustomed to call the *Chrysalis* (from its golden colour in many of those insects); and before the end of spring, the bark of an infected tree begins to appear as if all its crevices were full of a very fine sawdust. —The last change of the insect takes place; and being now winged, it endeavours to arrive at the external air, for the purpose of laying its eggs in other trees. Each hole, which now appears as if made with a gimlet, marks the exit of a perfect insect. In the first instance the voracity of the larvæ, and in the second, the endeavours of the perfect insects to liberate themselves from the wood, particularly when such attempts are made by almost incalculable numbers, soon occasion the bark to fall in large pieces. The consequence is, that the new leaves only make their appearance to wither, and the tree perishes.

"Now it is evident from these facts, that the tremendous ravages of these insects,—these small beetles which thus render themselves more formidable to mankind, than the strongest and most ferocious beasts of prey, might have been prevented, and the evil repressed at its commencement, had the possessors or inspectors of the trees been acquainted with the *Natural History* of the insects; and it is this knowledge alone which could have enabled them effectually to have done so.

"We have found that in their perfect state—as winged beetles, the insects are the most formidable, having attained the power of propagating the disease from one tree to many others. But it is also from an accurate knowledge of them whilst in this state, that we can alone derive any hope of being able to counteract the mischief they occasion.

"The first thing indeed, to be done, in all such cases, is to ascertain the species of perfect insect which occasions the disease. The experienced naturalist, from an examination in this respect of the worm or larvæ which he finds devouring the timber, is able not only to ascertain the *Order* and the *Family*, but often the *Genus*, and even the *Species* of winged insects which have produced it. Thus, in the present case, an Entomologist, by certain characters he would see in the larvæ, the nature of which his scientific knowledge would point out to him, would be able to determine, in the first instance, that the larvæ belonged to the Order *Coleoptera* or Beetles; by others that it belonged to the Family of Beetles, called *Ptinidæ*, from that which possesses their characters in the greatest perfection being called a *Ptinus*. By other circumstances he would ascertain that it must be referred to that Genus of *Ptinidæ* which bears the name of *Hylesinus*; and lastly, from still more minute examination, he would find it to be the species *Hylesinus Destructor*, so named from its powers of destruction which we have already examined.

"Having thus determined the species, or even the genus only, of the insect, it becomes an easy matter to the Entomologist to know the season of its appearance. None of the timber-eating insects, his general knowledge of these animals informs him, remain alive in their perfect or winged state, throughout the year, and they rarely remain so for more than eight weeks. He finds, therefore, that we may easily ascertain the exact time for cutting down those trees which are so much injured by the larvæ as to preclude all hope of saving them; for it would obviously be the height of imprudence not to seize the only opportunity of preventing the annual dispersion of the disease, by destroying the brood of larvæ whilst yet in the trees As soon as the metamorphosis has taken place,—as soon asthe winged insect has made its appearance,—the mischief for the ensuing year is done. Time is thus lost, more trees are inevitably destroyed, and, what is an evil of far greater magnitude, the future eradication of the disease is rendered much more difficult.

"Accordingly, from a knowledge of the subject, acquired, virtually, by an investigation of this kind, Mr. Macleay recommended that the trees in the Parks should be inspected twice every year, first in the summer, when the perfect insect is on the wing; and secondly in winter, when those trees which were much infected, he recommended to be cut down and burnt with the larvæ in them, or at least fumigated so as to destroy the larvæ; for to rest content with having cut down the trees without destroying the larvæ, or even removing the trunks from the vicinity of the sound wood, would be, he observed, in reality, to do no good at all. The time hitherto selected for cutting down the dead Elms in the Parks had been just after all the mischief for the season had been effected; and when all these nurseries of *Hylesini* had sent forth their inhabitants to the air, for the injury of such trees as might have remained free from infection. With respect to the less infected trees, when the branches were diseased, Mr. Macleay recommended them to be lopt off and burnt; and for those with the trunks infected, he recommended a coating of tar mixed with train oil, to be applied to them in March.

"These recommendations were adopted, or similar means employed, and the remaining trees were happily preserved; and there can be no doubt, that, had the possessors of the Hartz, been, in the first instance, acquainted with the true cause of the disease, those forests might in like manner have been saved."

2.—Edinburgh Philosophical Journal. By Robert Jameson, Regius Professor of Natural History, Lecturer on Mineralogy, &c. Quarterly. 8vo. 7*s.*6*d.*

(*concluded from page* 41.)

The Number for April, contains

Outline of a Plan for combining Machinery with the Manual Printing-Press, by John Clerk Maxwell, Esq. of Middlebie, (with a plate)—Account of a Platina Lamp, by George Merryweather, Esq. of Whitby.—Observations on the Fossil Trees, of Van Dieman's Land, by William Nichol, Esq. Lecturer on Natural Philosophy,—Account of the discovery of Bone Caves, in Wellington Valley, about 210 miles west from Sidney, in New-Holland, by Dr. Lang.—Additional information, illustrative of the Natural History of the Australian Bone Caves, and Osseous Breccia, by Dr. Lang.—Descriptions of New or Rare Plants, which have lately flowered in the neighbourhood of Edinburgh, and chiefly in the Royal Botanic Garden; by Dr. Graham, Professor of Botany, in the University of Edinburgh.—Celestial Phenomena, from April 1 to July 1, 1831; calculated for the Meridian of Edinburgh, Mean Time, by Mr. George Innes, Astronomical Calculator, Aberdeen.

Proceedings of the Wernerian Natural History Society.—Papers Read.—Jan. 22nd, 1831. By Mr. John James Audobon, an account of the White-Headed Eagle of America, (*Aquila leucocephala*) and exhibited an engraving of the bird.—By the Rev. D. Scott, an Essay on the Selavim or Quails of the Bible.—And by the Secretary, a Letter giving a description of the Soil &c., at the Settlement of Swan-River, by a Settler, which is not very inviting to Emigrants. Feb. 5th, by the Secretary, an account by the Rev. Lansdown Guildford, of a new species of Indian Moth, (called *Atticus Wilsonii*, in honour of Mr. James Wilson, a distinguished Entomologist) with a coloured drawing of both sexes.—Professor Jameson made a communication on Flints found in Bamffshire, by Mr. J. Christie; and then read an Essay on the form of Noah's

Ark.—By the Rev. D. Scott, on the Alabaster of the Ancients. Feb. 19th, by the Secretary, an Essay by Mr. Robert Stevenson, on the Beacon-Lights of remote antiquity; and a paper from Dr. Alexander Murray, on the influence of Rocks on the nature of the Vegetation that covers them.—Mr. Audubon communicated an interesting and graphic description of a Flood of the Mississippi. March 5th, by Dr. Turnbull Cristie, on the occurrence of Hail Storms, within the Torrid Zone.—By the Rev D. Scott, an Essay on the Zebi, of the Bible, which he proved to be the Mountain Gazelle, and not the Roe, as in our authorised translation.—By Professor Jameson, on the nature of the weather in the Isle of Man, from 1824 to 1830; and also a Meteorological Register, kept at Kinfauns-Castle.—The Professor then laid on the table a copy of a return to an Address of the House of Commons, relating to sums of Money granted for Mineralogical Purposes in Scotland.—He also communicated a notice in regard to the Structure of certain Fossil-Woods, from Van Dieman's Land.

SCIENTIFIC INTELLIGENCE.—

Thunder Storms in France.—The Count de Triston, has made observations for the last sixteen years, and he says, Thunder Storms are attracted by forests. When one arrives at a forest, if it be obliquely, it glides along it; if directly, or if the forest be narrow, it is turned from its direction; if the forest be broad, the tempest may be totally arrested. A Thunder-cloud, which is arrested by a forest, exhausts itself along it; or if it passes over, is greatly weakened. When a large river or valley is nearly parallel to the course of a thunder-storm, the latter follows its direction; but the approach of a wood, or the somewhat abrupt turn of the river or valley, makes it pass off. Twenty-one thunder-storms, whose course has been distinctly traced, have extended from N.N.W. to S.S.W. No destructive thunder-storm has come from any other point of the horizon.

Sudden Agitation of the Sea.—His Majesty's ship Hotspur, in 1813, whilst cruising in the Bay of Biscay, under easy sail, with moderate weather, was in a moment nearly overwhelmed by three successive seas, The quarter-deck bulwarks were carried away, one gun washed overboard, the wheel unshipped, several men lost, and the ship rendered unmanageable, and in imminent danger of foundering. Immediately after, all appeared calm as if nothing had happened; and it was the opinion of those who witnessed this, that it was occasioned by a momentary and very partial agitation of the sea.

Aurora Borealis, at Paris.—This interesting phœnomenon was observed on the 7th of January, to cause a great variation of the magnetic needle.

Gold Mines in the Uralian Mountains.—The produce of the Ural Mines, in 1827, amounted to £651,420, and in 1828, to £672,416. Gold is also found in the Rhine, but in very small quantities.

Lightning Tubes.—In the vicinity of the old castle, at Remstein, near Blenhenburg, there have been found this summer, (1830) very firm and long vitreous tubes, (Blitzröhren). From a branch in the upper part, 2 branches go off, some of which are 10 feet long, and from these proceed 3 smaller ones.

Temperature of Mines in Cornwall,—At Ting-tang Copper Mine, in the parish of Gwennap, 178 fathoms deep, thewater, two months ago, was at the temperature of 82 deg. At Huel Vor tin mine, near Helston, 209 fathom deep, water 79 degrees. Poldice copper mine, in the parish of Gwennap, the water at 196 fathom deep, has been found at upwards of 100 degrees,

Volcano in New-Zealand.—The Volcano is in a small island, distant 20 or 30 miles from the centre of the main-land of New Zealand. When last visited, it

presented a frightful display of flame and smoke. At the foot of the hill, in which the Volcano is situated, there is a lake of sulphur, and all round the lake the ground is incrusted with sulphur. The natives say the Volcano runs under the sea, and bursts out again in the interior of New Zealand, about 20 miles from the shore, in a district, where there is a large hot lake, in which they cook their provisions.

Map of the Puy de Dome.—A map of this mountain, in twelve sheets, is now in preparation, by Bussy of Paris.

Diamond in the Coal Formation.—The Diamond is said to have been found in the Coal formation, of India.

Splendid Specimen of Megatherium.—A perfect skeleton of the Megatherium, has been discovered, 126 miles south of Beunos Ayres.

Slates of Tarentaise.—All the slates, conglomerates, and sandstones, of the Tarentaise, formerly considered as Transition, are now arranged with the Oolite, or Jura formation.

Decrepitating Common Salt. Condensation of Gas in it.—M. Dumas has examined and described a very curious effect, which occurred when some rock-salt, obtained from the mine of Wieliczka, in Poland, and given to him by M. Boué, was put into water. It decrepitated as it dissolved in the water, and gradually emitted a sensible portion of gas. The bubbles of gas were sensibly larger when the decrepitations were stronger, and the latter frequently made the glass tremble. When the experiment was made in perfect darkness, no light was disengaged.

Interesting Discovery of Fossil Animals.—There has lately been sent to the Jardin des Plants, a collection of Fossil Bones, from the lacrustine deposits of Argenton, (Indre) consisting of five or six species of *Lophiodon*, from the size of a large rabbit to that of a horse; also, species of the genus *Anthrocotherium*, of the *Trionyx*, and *Crocodile*. Indre, is in the centre of France.

Dr. Turnbull Christie, who has been appointed to examine the Geology of the Presidency of Madras, by the India Company, has left Edinburg for our Eastern Empire. He travels through France and Italy, embarks for Alexandria,—from thence visits the Holy Land, Mount Sinai, &c.—sails down the Red Sea, for Bombay, and from thence by sea or land to Madras, He takes with him a painter, for the purposes of Zoology, Comparative Anatomy, Botany, and Geology, and a complete set of instruments for ascertaining the nature of the meteorological and hydrographical phenomena that may present themselves to his attention.

New President of the Geological Society.—Roderic Impey Murchison, Esq. has been unanimously chosen President of the Geological Society of London.

Recent Formation of Zeolite.—The formation of Zeolite, through the action of atmospheric water on Dolerite, seems still to be going on. It is observed forming in hollows of a conglomerate, in which Zeolite plays the part of calcareous sinter.

New Metal Discovered.—Mr. Dulong, read on the 7th of last February, to the French Institute, a letter from Berzelius, which announces the discovery of a new simple substance; Mr. Lestrom, director of the mines of Fahlun, in Dalecarlia, has given it the name of Vanadium.

Four-spined Stickleback.—A variety of this fish, (*Gasterosteus aculeatus*) with four spines on its back, was discovered in a pond in the meadows, by Mr. John Stark, in September, 1830.

Crystals in Living Vegetables.—Mr. Turpin has discovered, in the cellular tissue of an old trunk of the *Cereus Peruvianus*, in the Garden of Plants at

Paris, where it had been growing 130 years, an immense quantity of agglo merations of crystals of oxalate of lime.

Himala Ornithology.—The principle features in the Ornithology of the Himala, are the brilliancy of the plumage of the Gallinæ; the size and power of the Accipitres; and the almost infinite number of the Pies.

Native country of Maize or Indian Corn.—Maize is supposed to be of American origin. In favour of this opinion is the fact, that it was found in a state of cultivation, in every place where the first navigators landed; and that, immediately after the discovery of America, it spread rapidly in the old world.

3.—British Entomology: by John Curtis, F.L.S. Published Monthly, 4*s.*6*d.* coloured.

No. 92, for August.

This present number is full of interest, and contains much useful information for the Entomologist.—

Adimonia Quadrimaculata,—(Order *Coleoptera*, Family *Gulerucidæ*.)—Mr. Curtis believes this fine species was first discovered by Miss Hill, near Richmond; it was afterwards taken by the late Mr. Scales, at Halougate in Norfolk, and Mr. Curtis, in company with Mr. Dale, took it at Whittlesea-Mere. It inhabits Rushes and other aquatic plants, in ditches, from the end of June to the middle of July. The plant is *Allium Ursinum*, Ramsons Garlic.

Dasypoda Swammerdamella,—(Order *Hymenoptera*, Family *Andrenidæ*.)—These handsome insects approach, in form, very near to some of the *Andrenæ*, but they are easily distinguished from them, by having only two submarginal cells. The sexes differ so widely, that they have been described under various names. Mr. Curtis believes it is never met with in the North of England. Captain Bloomer has sent specimens of it from Devonshire; and many years since, Mr. Kirby used to find it at Barham, in Suffolk, on the flowers of the Ragwort. It is accompanied in the plate, with a flower of the Coltsfoot. *Tussilago Farfara*.

Chelaria Rhomboidella, Lobster-Claw'd Moth.—(Order *Lepidoptera*, Family *Tineidæ*.)—Remarkable as this little moth is, scarcely anything is known of its economy; the caterpillar and pupa do not appear to be described or figured; and it is simply stated, by Linnæus and Fambricius, that the imago lives in woods. Mr. Donovan, who believed it to be a nondescript, says it was taken in the vicinity of Feversham, Kent. It is, however, by no means a rare insect; Mr. Curtis has found it in Norfolk, and in the neighbourhood of London, (he thinks, generally in gardens) towards the end of August;—and Mr. Dale, meets with it in similar situations, in Dorsetshire. Its colour is a dirty ochre. The plant is *Daphne Laureola*, Spurge Laurel.

Alydus Calcaratus,—(Order *Hemiptera*, Family *Corvidæ*.)—This curious insect is not common with us; it inhabits heathy places, and flies well in the heat of the sun. The plant that accompanies it in the plate, is the *Jasione Montana*, Mountain Jasione, or Sheep's Scabious.

PART V.

MISCELLANEOUS INTELLIGENCE,

ON NATURAL HISTORY, HORTICULTURE, AND RURAL AFFAIRS.

I.—QUERIES, ANSWERS, REMARKS, &c.

In consequence of our observing some remarks made in the Gardener's Magazine, for August, relative to Chatsworth Gardens, we feel ourselves called on to give an answer to some of the statements there made, not with a view to enter into a controversy with the Editor, on the subject, but to put the public in possession of our reasons for not erecting Metallic Hot-houses, nor using hot water in the heating of the new ones constructed of wood; and likewise, to show that we are anxiously alive to every real improvement.

In doing this, it will be unnecessary to refer to the visionary schemes which Mr. Loudon has suggested, for levelling the beautiful hanging ground at the north front of the house, which would take the labour of some years to accomplish; or of turning the course of the river Derwent, to obtain a waterfall of 100 feet, which in fact, already exists, by the water falling over the same rock that Mr. Loudon recommends, more than the very height he proposes, into a resevoir to supply the other fountains;—this, Mr. Loudon might have known, had he given himself time for observation: and he would also have seen, that we have a sufficient power of water, to produce as much appearance as the Derwent itself, whenever we think proper.

"The water-works," he remarks, "though good in themselves, are scattered about the grounds in such a way, that, while they interfere every-where with the natural beauties of the place, they no-where combine in forming one grand artificial effect. They want concentration. The improvements now going on," he adds, "will probably remedy most of these evils. The house is being extended in length; there is an opportunity of concentrating the water-works in the only situation fit for them, on the west front; and the approach may be made by a bridge across the river, directly on this front, to arrive at the house on a level. All, or almost all, the artificial water-works, we would form on this west front."

Now, had we the arrangement of the water-works to make anew, we certainly should not place them exactly as they now are; but what person of judgment would think of placing them in the west-front flower-garden,—we were not a little astonished that Mr. Loudon should, for a moment, harbour such an idea. This west-front garden is no less than *thirty feet immediately below the level of the living rooms;* and to view the water-works from thence, or from the garden above, would be the same as going on to the top of a house to see a fountain playing in the street directly underneath. The water-works already there, are condemned by every person of taste; and his Grace the Duke of Devonshire has caused them to be altered several times, but even now they are far from having a good effect. Besides, the garden is too narrow to allow of any kind of extensive water-works, as no person could set a foot into it, if the slightest breeze was perceptible.

Our notions of water, are these:—all lakes, rivers, or standing waters, should be on the lowest part of the ground; and all water-works should be above, or on a level with, the eye, but certainly, never below it. The idea too, of bringing the bridge directly in front of the house, shows very bad judgment; why, taste had so far advanced a century ago, as to cause the bridge to be taken away from the very situation where Mr. Loudon has recommended it to be put up. A public bridge directly in front, and within 150 yards of the principal part of the house, would be found a complete nuisance.

A person might almost conjecture, that Mr. Loudon came with a pre-determination to find fault, if not, it must be because he did not give himself the time to consider before he wrote his ideas of what he terms improvements; this latter, we are willing to hope is the case. Indeed what correct ideas could any person give for improving the grounds of so extensive a place as Chatsworth, unless he spent a day or two; the bearings of each part could not made apparent by merely going a few yards round about the house, which was the case with Mr. Loudon, but who, by the way, never entered it, to see the place from the living-rooms, the most proper of all others, when any improvements are contemplated.

His time, too, was so limited in his visit to the kitchen-garden, (at most only half-an-hour) that his observations must there also, be very superficial, for during this time, he had to look through nearly 30 Hot-houses and Pits, besides 12 acres of kitchen garden. We were unfortunately from home at the time, and are very sorry that it so occurred; as it is, we can only do ourselves the pleasure of imagining we are accompanying Mr. Loudon through the principal part; in which ramble, he is at full liberty to question us as closely as he thinks fit.

QUESTION.—Your kitchen garden appears extensive; how many acres does it contain?

ANSWER.—Twelve.

Q.—How many men have you for keeping it in order?

A.—No stated number; having a variety of other work, besides the gardens, I move them about as circumstances require, and according to the work necessary to be done in each department, at the proper season: sometimes there are as many as 20, and at other times not more than 3 or 4.

Q.—I perceive that you have a range of pits here; how are they heated?

A.—Two of them with hot water, and two with fire-flues.

Q.—How do you like hot water, in comparison to fire-flues?

A.—So far as my experience has led me to draw any conclusions, I will answer your question,—When hot water was first noticed in the Horticultural Transactions, I was almost in raptures with the idea, and as soon as possible I set about heating those two pits you now see with it, and although it was thought the pipes then put in, (a double return,) would be more than sufficient for the purpose of heating the pits, independent of two large cisterns full of hot water, to my astonishment, on the approach of severe weather, we had considerable difficulty to keep out the frost, and in the severe storm, 2 years since, our pine plants were so much injured, that they nearly all started prematurely into fruit, in the spring. You are aware that water evaporates into steam at 212 degrees Fahrenheit and, consequently, the pipes cannot be heated to a greater degree. The difficulty in hot water is, that while, in a severe frosty night, the external atmosphere is continually lowering, you cannot keep increasing the hot water to counteract its effects, without putting up nearly double the quantity of pipes that would be necessary under ordinary circumstances, when, with a well con-

structed flue, you could advance to any degree that might be required. Our houses are so contrived, that we have full command of the internal air, without in the least distressing the flues in the most severe weather, and my foreman has repeatedly told me, that the only fire requiring attention, more than once in the evening, is that attached to the hot water pits. I have offered him a man to assist him, but he has always refused, saying, he had no cause to visit the fires more than once in the evening, except in very severe weather. There are flues in the garden, erected before I came to Chatsworth, that almost burn one end of the house, while the other is nearly cold; but these I do not now use for early forcing, and therefore, have not altered them. All the flues I have built, give out the heat in so uniform a manner, that there is no difference between one end of the house and the other, and by the plan of having an open canal of water at the front of the flues, to give out moisture, according to the heat required, not the greatest action of the flues, can in the least injure vegetation; being a self-actor, it evaporates more or less, as the decrease or increase of fire becomes necessary. And on entering the house, after a severe frosty night, not the slightest unpleasantness is perceptible. This canal is made of block-tin, and when properly painted, will last a great number of years. Allow me to add, also, that the expense of putting up the hot water apparatus, for these two pits, cost £50, while the two pits adjoining, of exactly the same size in every respect, cost altogether, including their erection, only £63!!

Q.—Do you think there is no saving then in fuel, by heating a house with hot water, if there are pipes sufficient for the purpose?

A.—Most certainly not; and it is only deluding the public by informing them that there is. If you could show me 50 gallons of water heated with a candle, I should believe it; the fact is, a certain quantity of fire can only heat a given quantity of materials, providing the article heated, does not ignite or ferment; and as the article gives out its heat, according to the situation in which it is placed, it must, necessarily, have a supply adequate to the co-operation, if it is to maintain a uniform degree of heat; for instance:—a pipe, filled with boiling water, passed through a heated oven, would require but little fire to keep it boiling; while the same pipe, passed through a barrel of ice, would require a much greater quantity. It is precisely the same with a hot-house—there must be a supply of fuel equal to the demand, in whatever way it is applied; and by husbanding the heat, as we can do, in the chamber beneath, not the smallest portion of it is lost from the flues. Having satisfactorily, I hope, answered your queries about the pits, we will, if you please, walk up and look at the new range of houses.

Q.—I perceive these houses are constructed of wood:—I must confess, that after the experience of the wooden houses and smoke flues at Chiswick, I am rather surprised to see you erect them here?

A.—I hope, sir, you are not comparing these houses with those at Chiswick. Examine them, and you will be convinced the comparison is absurd. Do you not perceive that these houses admit as much of the morning and afternoon sun, as though they were constructed of metal; do you not also see by the manner in which the sash-bars and rafters are made, that strength, durability, and lightness, are combined to a greater degree, than you ever saw in a range of houses composed of wood before. Had you been a practical man, it would have been impossible for you to have entered this range, without being at once struck with what I have explained.

Q.—Are all the houses in this range heated with fire-flues?

A.—They are, having a similar canal of water in the front, to those I explained

to you at the pits, I have put this canal here, in order to counteract any evil effects that might occur from the flues being accidentally over-heated, and also to give out a regular moisture in proportion to the fire used; which it does to so great a nicety, that the leaves of plants, instead of being exhausted, (as is generally the case,) after a severe frost, have a healthy dew-drop hanging upon them. When the fruit is ripening, or moisture is not necessary, the water in the canal is discontinued.

Q.—How much might this range of houses cost?

A.—I will inform you. When I first contemplated erecting this range, I was desirous to know how much they would cost if erected of *metal*, having some notion of constructing them of it. I accordingly sent a plan to Birmingham and another to Sheffield, desiring to be furnished with estimates for the purpose. That from Birmingham was £1800, and the other from Sheffield, £1850. This appeared to me an enormous sum; I therefore set about calculating how much it would cost if made of wood, under my own eye; and what do you imagine was the result? Why, I completed the whole range, including masonry, which was omitted in the metal estimates, for less than £500!!!

After this explanation, I hope, Sir, you will never advance one word more as to comparison in the expense between wood and metal. Had I erected a hot-water apparatus, £200 more would have been necessary. To put up much of this in large Gardens, similar to Chatsworth, (even allowing it to be the best mode of heating) would be the height of extravagance, as numbers of our forcing houses, are not heated artificially, above six weeks or two months in the year; and even some not so much as that, and then requiring but little fire. Now to have hot-water in such houses as these, also in greenhouses, when, in some seasons, not a fortnight's fire is necessary, would, as before stated, be the height of extravagance; the money necessary to buy a hot-water apparatus for such a purpose, would supply the house with fuel for twenty years.

Q.—Do you think these houses will last as long as if they were constructed of metal?

A.—It is impossible for me to give you a decided answer to that inquiry; but from what I have seen of both, I will give you my opinion.—These houses are constructed of the best materials, and from the impossibility of water ever being able to penetrate the sash-bars, there is every reason to believe they will keep good for a century, or more, if properly attended to. Metal is so recent an invention, that I am not able to say how long a well painted house might last; but when they are the least neglected, I have observed them speedily perish: for instance,—the wrought-iron houses at Ilam Hall, are fast going to decay, although they have been built only thirteen years; they are so much corroded as to be irrecoverably lost, and this has arisen from a trifling neglect in painting. You called there on your tour, I believe, and most likely noticed what I have stated.

Q.—Of what materials then, would you construct large ornamental houses for plants, such as those at Syon, Bretton Hall, &c.

A.—Metal certainly, but on no account, if possible to be avoided, would I place them directly south, but it will take up too much of your time now, to go a length into this subject; sometime when you call again, and have more leisure I will give you my opinion further on that point.

Q.—Your forcing houses are not large, if they were, you must have had stronger rafters, which would have darkened the houses considerably.

A.—In that case I should have used cast-iron rafters; let me here inform you that if iron of any description, receive two good coats of red lead all over, be-

fore being painted, it will be years before it casts the paint, or shows any corrosive spot through it.

Q.—Do you mean then to discontinue hot-water for forcing?

A.—By no means; I have some alterations at present going on for improving it if possible; all I want is, for it to stand on its own merits, and for all persons who give their opinions, to speak from experience. As far as I have experienced, the plan has not answered my expectations. I am wedded to no system, nor bigoted with my own opinion; any improvement I always hail, but I shall never like to pay half-a-crown for growing a pound of grapes, when I could have grown the same pound for one shilling.

Q.—I shall occasionally call on you to see how your improvements are proceeding.

A.—I shall be very happy to see you at at all times, but before you go, allow me offer you a little friendly advice respecting your calls at private gardens. Pray what business is it, or what benefit will the public derive, from knowing that this or that garden is kept above or below the economic point. Not one gardener in a thousand would have his garden in bad order, had he sufficient assistance afforded him. It is really too bad, that, because a gentleman does not think proper to spend as much money on his garden as his neighbour, it is to be published to his discredit all over the kingdom, and cause his gardener to be thought ill of, who has no opportnity of remedying it. If in your travels you were to give gardeners private advice, as to what you consider would improve their places, or publish only such as are real improvements, you would then be doing them a kindness; but to publish a parcel of idle stories,* is only calculated to do them serious injury, and not unfrequently has been the means of their being discharged from their situations, when their employers have been disposed to pay the least attention to such tales. Besides, any person seeing a place only as you do, for a walk round, and that perhaps, but once in your life, how can such a person be competent to speak to its praise or dispraise, from such a transient visit? To see how a garden is managed, it ought to be visited every month, at least. When you call, perhaps it may be a wet day, or the gardener may have some alterations to make, that require all his strength to accomplish, during which time his garden may be a little deranged: all these are calculated to give unfavourable impressions to a superficial observer, who a month afterwards would have quite a different opinion. I hope you will continue to criticise public gardens, this is quite a different affair; but in England, every man's house being his castle, whether he chooses to live upon salt and water, or ornament his window with a bouquet of cabbages, no one, we conceive, has any business with it, providing no person receives injury by his so doing. I have only one favour to ask of you, that is,—did you not say to the young man who accompanied you round, that Chatsworth was altogether the finest place you had ever seen in your travels? How then is it "that Chatsworth is so unsatisfactory a place"?

J.P.

Gentlemen,

I congratulate you on having originated a new monthly production, which, if we may judge by the present number, is likely to be very acceptable to all the friends and lovers of Gardening.

I have been much struck by the paper, by Mr. Stafford, on the cultivation of Vines in pots; and as I have a hot-house, which I purpose to employ partly in

* Why need the public be informed that Stowe is disgraced with the worst kitchen garden in the kingdom; or that at Alton Towers, the late Earl of Shrewsbury spent a great sum of money foolishly; supposing it true that he had done so, he produced something to please himself, which we conceive is the aim of every one so doing. Also the notice of Mr. Lunn is very objectionable; we are not ignorant of the cause why it appeared.

that way, I should feel extremely obliged by the result of Mr. S's experience, in answer to the following questions. If they are rather minute, they will not be deemed less acceptable, by those who, like myself, are in search of information.

1.—At what age does he introduce the vines into the house?

2.—How does he treat them previously, so as to bring them forward for forcing?

3.—Will they do in a hot-house? or does he recommend the open air?

4.—Does he shift his bearing plants every year?

5.—What length of rod, or how many buds does he leave on a plant?

6.—What are the names of the sorts called in page 8, "naturally prolific," which he recommends?

7.—Would not the Vines do better if planted outside the back wall, for the rafters?

8.—Does he use liquid manure?

An answer to these inquiries in your next, if possible, will oblige,

Worcester, July 24th, 1831. VIGORNIENSIS.

BLACK HAMBRO' VINES. I have a number of Black Hambro' Vines, that every year produce abundance of very fine, excellent flavoured fruit, but in many of the bunches it is usual to see several berries marked or blotched with light brown spots or lines. I have tried to find out the cause and remedy for it, but have hitherto failed. I will thank any of the readers of your Register to point them out to me.

Lewes, Sussex, July 6th, 1831. A SUBSCRIBER

INSECTS ON THE GARDEN BEAN.—Can any of the readers of the Register inform me what is the easiest mode of destroying the black insect, infesting the Common Bean. In the neighbourhood of London, the chief part of the crops, are this year destroyed by the insect in question. I have just been informed, that pinching off the tops of the Beans, tolerably early in their growth, prevents it; but not having an opportunity of trying it this season, I shall be glad to be informed if this has been found effectual elsewhere.

July 10th, 1831. W. S.

PROPOSED GARDEN IN REGENT'S PARK.—Gentlemen,—I am much pleased with the new number of your Publication, and will recommend it where I can. If you abstain from mixing other subjects in with Gardening, you will succeed.

Let me strongly recommend a Show Garden of a few acres, in the Regent's Park, where conservatories, and hot-houses, heated or glazed on new principles may be seen, and new flowers exhibited. The principal walk should be paved, because the conservatories will draw people in all weather, when grass or gravel would be uncomfortable; as in showery weather early in the spring, or after frost in winter. I would also recommend the conservatories to be paved with large bricks, having a running pattern of ivy, in dark colour on them; this would give a very rich and warm look, much like mosaic, and it would be new.—A library, hortus siccus, &c. may be attached. Premiums should be offered for the best productions of Grapes, *Figs*, *Melons*, and Pines, from the 1st of December to the 1st of July.

Particular attention should be paid to the improvements of the Alpine Strawberry, endeavouring to obtain a mixture of the old Carolina and continuing that delicious fruit fromthe 1st of September to Christmas.

Give premiums for the introduction of any new fruit into our hot-houses, such as the Mungostan, &c. The object should be, that a small hot-house should supply the table with fruit, every day in the year. How do the Russians manage their winter gardens where they have so very little sun? and what do they produce?

Pray what is the mode of managing the Iris Pavonia? I do not succeed and can get no blossom.*

Might a conservatory answer the purpose, with a roof so constructed, that a less quantity of glass would be required, and that better secured from the effects of hail? For instance something of this kind; all the perpendicular parts to be glass, the other to be covered with slate. It seems to me that very little light would be intercepted, and drip and damp be entirely prevented. The advantage would be, the great height to which it might be carried; enabling us to walk under groves of Palm-trees, 70 feet high, and flights of Fire-flies from Naples and Rome, giving quite a foreign aspect to the whole. Fine wire-net coverings for the open sashes, would confine these beautiful insects to the house, and give the opportunity of naturalizing them. The Alps and Appenines would naturally prevent their approach to us. Ponds may be formed in the conservatories, heated to any degree required, by the water returning to the Boiler, in which Nymphæas and other water plants may be raised, surrounded by gold and silver fishes.—The Gardens should be open to any one of the Trade on paying half the subscription of other persons, to exhibit new flowers, or new contrivances of any kind. Much in this way may be done.

B. S.

Experimental Garden.—Gentlemen, I hail with every good wish, your new Publication. Confine yourselves to useful subjects, giving your opinions and observations on them in a manly, open, and dignified manner, and you must succeed.

If, to your Publication, you could join a Garden of an acre, in the Regent's Park, where new plants, trees, and shrubs might be seen; and green-houses, and forcing frames, particularly Melon and Cucumber frames, heated by hot-water, might be exhibited—it would be a great help, indeed, to it. It would be necessary to fence the borders and flower-beds in a Garden, open to all on paying a shilling; and this may be done by wire fences, four feet high, and too fine to admit the hand. The same in the conservatories. The Zoological Gardens will tell what might annually be recieved.

A list of all new flowers introduced into our garden, in the last ten years, with descriptions and mode of cultivating would be a desirable thing: and at the end of each Volume of the Horticultural Register, a list of the new flowers and plants, introduced last year would carry on the same in a pleasing manner.

N. B.

* B.S. may expect an answer to his Queries next month. We suppose he means the Tigridia Pavonia, instead of "Iris Pavonia." Conductors.

II.—NOTICES AND ANTICIPATIONS.

CALCEOLARIA. Mr. Sheppard, Curator of the Botanic Garden, Liverpool, has raised some beautiful hybrid Calceolarias, from the *C. Herbertiana*, and *C. Arachnoida*. The flowers of one of them, are as dark coloured as the *Potentilla Atrosanguinea*. We also observed another, which we think still more beautiful; it had a clear yellow ground, slightly tinged in one particular place, with dark crimson spots; several of them were very handsome, but none equal to those we mentioned, unquestionably they are the most charming varieties we ever saw. The New Botanic Garden is going on rapidly, Mr. Sheppard kindly explained to us all his ideas for the arrangement, and from what we were then able to judge from the plan, it appeared likely to form the most splendid and complete Botanic Garden in the kingdom. CONDUCTORS.

NEW POTENTILLA—I wish to bring under the notice of your readers a new variety of this beautiful family, being a seedling of last year, raised by me. The calyx, corolla, and general appearance is that of *P. Nepalensis*, except that the colour of the foliage is a lighter green; but instead of the petals being rose-coloured, as in *P. Nepalensis*, they are a clear white, with a bright scarlet blotch, and darker veins at the base of each. If this variety should be deemed worthy the consideration of Florists, I will give it a name at some future time.

St James's Gardens, Doncaster, July 20th, 1831. S. APPLEBY.

III.—COLLECTIONS AND RECOLLECTIONS.

NATURAL HISTORY.

SURREY ZOOLOGICAL GARDENS.—The spot selected for these gardens, at Manor-house, Walworth, is about fifteen acres in extent, and is adorned with stately trees. There are about three acres of water, in which there are islands beautifully wooded. A neat circular building has been constructed for the animals. Round it there will be a conservatory, filled with choice exotics. In different parts of the garden there are huts erecting, which will afford shelter in bad weather, for animals which are not to be confined. In addition to the lake, there are several smaller pieces of water, for foreign wild fowls of the rarest kind. Zebras and alpacas are already seen grazing in different directions; and altogether the gardens have the appearance of an animated Tivoli.

RURAL AFFAIRS.

USES OF THE BRAMBLE.—This shrub, which we are in the habit of despising, possesses several advantages which deserve attention. Its roots, when dried in the shade, cut into small fragments, and taken in the shape of a weak infusion, form one of the best specifics against an obstinate cough. Its long branches can in cases of need be used for cords; and its fruit produces an excellent wine; the mode of making which, is as follows.—Five measures of the ripe fruit, with one of honey, and six of water, are taken and boiled; the froth is skimmed off, the fire removed, and the mixture after having been passed through a linen cloth, is left to ferment. It is then boiled again, and allowed to ferment in suitable casks. In Provence, Blackberries are used to give a deep colour to particular wines.

HORTICULTURE.

TEA PLANT.—The Chinese green tea plant (*camellia viridis*,) has been successfully planted by Mr. Rootsey, of Bristol, in a part of Breconshire, near the source of the Usk, about a thousand feet above the level of the sea, and higher than the limits of the native woods, consisting of alder and birch. It endured the winter, and was not affected by the frost of the 7th of May? and it has now made several vigorous shoots.

IV.—CHOICE OR BEAUTIFUL PLANTS,

FLOWERING THIS MONTH, IN THE PRINCIPAL NURSERIES ROUND LONDON.

AT MESSRS. LOWE & CO'S, UPPER-CLAPTON.

HOT HOUSE.

Ardisia colorata.
——— crenata.
——— littoralis.
——— Solanacea
Begonia argyrostigma.
——— diversiflora.
——— semperflorens.
Bletia altum
——— Woodfordii.
Combretum purpureum.
Gesneria odorata.
——— rutila.
——— villosa.
Gloxinia alba.
——— candida.
——— coalescens.
——— hirsuta.
——— maculata
——— speciosa
Hamellia patens.
Hedyotis campanuliflo.
Hibiscus rosa-sinensis; (in sorts.)
Jasminum Sambac.
——— ——fl.pleno.
——— Zylanicum.
Justicia calytricha.
——— coccinea.
——— picta.
——— speciosa.
Phycella ignea.
——— —— glauca.
Plumbago rosea.
Sinningia Helleri.
——— Lindli
——— villosa.
Turnera elegans.

GREEN HOUSE.

Alstrœmeria hirtella.
——— Mexicana.
——— solici'olia.
Asclepias angustiflora.
Boronia denticulata.
Calceolaria angustiflora
——— arborea, (new, from Chiloe)
——— ascendens.
——— bicolor.
——— Gilliana.
——— Mecans,
——— purpurea.
——— Phyrsoidea.
——— Youngii, &c.
Chironia trivernia.
——— jasminoides.
Chorizema nana.
——— rhombea.
Crowea saligna.
Erica alata.
——— assurgens.
——— Barbata.
——— Bowieana.
——— Cerinthoides.
——— Cruenta.
——— Cubica minor.
——— Damascina.
——— densa.
——— Grandinosa.
——— incarnata.
——— Irbyana. &c.
Fuchsia adolphina.
——— arboricens.
Fuchsia coccinea
——— gracilis.
——— microphylla
——— macrostemon.
——— tenella.
——— thymifolia.
——— virgata,
——— species nova, fr. Mexico.
——— — Port Antonio
——— — — Famine.
Gnidea aurea.
Grevillea linearis.
——— sericea.
Jasminum gracile.
Isotoma axilaris.
Lavatera angustifolia.
Lechenaultia formosa.
Lophospermum erubescens.
Oxalis aracacha.
——— Deppii.
——— floribunda.
——— undulata.
Pimelia linifolia.
——— decussata.
——— —— longifolia.
Polygala heisteria.
——— micrantha.
Plumbago capensis.
Ruellia ciliata.
Scottia dentata.
——— trapeziformis.

HARDY.

Aconitum, in sorts.
Aster, ditto.
Betonica, ditto,
Campanula, ditto.
Corcopsis, ditto.
Doodia villosa.
Delphinium grandiflor.
Erigeron, various sorts.
Galardia bicolor.
——— aristata.
——— Richardsoni.
Gentiana, various kinds
Geranium, ditto.
Liatris, ditto.
Linaria, from Madras.
Lobelia cardinalis.
Lobelia syphilitica.
——— campanuliflora.
——— cœrulea,
——— coronopifolia.
——— fulgens.
——— minuta.
——— rhizophyta.
——— tyanthinea, new
Lobelia unidentata.
Œnothera, in sorts.
Penstemon, ditto.
Phlox, ditto.
Rudbeckia, ditto.
Statice, ditto.

AT MR. JAMES COLVILLE'S, KING'S-ROAD, CHELSEA.

HOT HOUSE.

Thunbergia alata.
——— ungulata.
——— fragrans.
——— coccinea.
——— capensis.
Ipomœa insignis.
Verbena mutabilis.
Billbergia Zebrina.
Crinum amabile.
Hedyotus campanuliflora
Geissoenmia longiflora
Crossandra undulifiora.
Cuphea Melvilla.
Justicia carnea.
——— picta.
Ardisia colorata.
——— littoralis.
——— solanacea.
——— pyramidalis.
Hamellia ventricosa.
Lagerstrœmia indica.
Petrea volubilis.
Combretum purpureum
Duranta ellisia.
Gesneria rutella.

GREEN HOUSE.

Erica cubica.
——— Eweriana.
——— palustris.
——— mutabilis.
——— Astonia.
——— mammosa.
——— cerinthoides.
——— taxifolia.
Erica Bowieana.
——— Irbyana.
Isotoma axiliaris
Gnidia simplex.
——— imberbis.
Chironia jasminiflora.
Boronia denticulata.
Polygala mixta.
Polygala histeria.
——— gracilis.
Stenochilus glabra.
——— maculata.
Struthiola imbricata.
Pimelia decussata.
Ceanothus cœrulea.
Reaumuria hypericoides.
Grevillea acanthifolia.
Correa pulchella.
Tristania nereifolia
Jasminum acuminatum

V.—HORTICULTURAL AND FLORICULTURAL SOCIETIES.

EVESHAM HORTICULTURAL SOCIETY.

THE Fourth Meeting of the Vale of Evesham Horticultural Society, was held at the Town-hall, Evesham, on Thursday, July 21st. The specimens of Carnations, Picotees, and other flowers, were very numerous, and of the first quality; embracing nearly all the known varieties in the kingdom, and in excellent bloom. The show of Fruit, also, was very large; so much so, that the tables literally groaned under the weight of Pines, Melons, Grapes, Peaches, Gooseberries, and other fruits, of the most excellent flavour, and in the highest perfection, the merits of which were amply discussed after the Show, at the Northwich-Arms, where a large party of the Members of the Society, partook of a very excellent dinner, provided by Mr. Mayfield, at which Edward Rudge, Esq. the president, presided. The next Show was fixed for August 18th.

LANCASTER FLORAL AND HORTICULTURAL SOCIETY.

PINK AND RANUNCULUS SHOW.—This Show was held in the Boys' National School, on the Green Area, on Wednesday, June 22nd. The Flowers exhibited were of an unusual fine order, and in great perfection. There were some very fine Strawberries, Cherries, Red Currants, &c. exhibited. The day being exceedingly fine, a great number of ladies and gentlemen attended, more so than on any former occasion. The beautiful science of Horticulture, seems to be every year more and more patronized and studied, and to receive a greater share of public attention, of which we can unequivocally say, that it is well deserving.

LYNN HORTICULTURAL SOCIETY.

THE First Show was held at the New-Room, over the Market, on Thursday, July 7th. The specimens exhibited were very numerous, and augured well for the future prospects of the Society. The room was tastefully decorated, and the arrangement of the exhibition well calculated to produce effect. Several prizes were awarded,—some of them to cottagers.

NEWCASTLE AND DURHAM BOTANICAL & HORTICULTURAL SOCIETY.

AT a general Meeting of this Society, held at Mr Dodsworth's the Queen's Head Inn, Newcastle, on Friday, June 3rd, the Show of flowers, fruits, and vegetables was excellent. The number of prizes adjudged on the occasion, were, three golden, seven silver, and one bronze medals.

Also at a district Meeting of the above Society, held at the Queen's Head Inn, Durham, on the Tuesday following, a number more prizes were awarded The meeting was very interesting, and promises to be extensive y useful.

NORTHAMPTONSHIRE UNITED HORTICULTURAL SOCIETY.

ON Thursday, June 23rd, a Show Meeting of this Society was held at the Assembly-Room, George Inn, Northampton. Some fine specimens of hot-house plants and shrubs, Grapes and Strawberries were exhibited. A brace of Cucumbers, each above 19 inches long, attracted particular attention. The Show of flowers was beautiful. The company, although not so numerous as on the last occasion, was particularly select.

NORWICH HORTICULTURAL SOCIETY.

THE same crowded attendance, and the same delight appeared to attend the last Show of this Society, as have at any other time honoured and rewarded its contributors. The tables were loaded with fruits, flowers, and vegetables. The company upon the whole, was more numerous than heretofore, and the hall was literally thronged till its close.

SAFFRON WALDEN HORTICULTURAL SOCIETY

THE Society held its summer Meeting on Tuesday, June 21st. The exhibition of fruits and flowers was more than ordinarily interesting, and the company expressed themselves much gratified with the show. A liberal distribution of prizes was made, including those for Cottagers. The prize given by the Noble President, Lord Braybrook, was awarded to Mr. Charles Baron, for Strawberries.

SHEFFIELD HORTICULTURAL SOCIETY.

THE Third Exhibition of this Society, took place at the Music-Hall, on Wednesday, August 3rd, when there was a most brilliant display of Dahlias, and other Flowers. We also observed some excellent Fruits and Vegetables; indeed, the display throughout, was superior to any that has preceded it. The room was visited by the first families in the neighbourhood; and we feel satisfied from the distinguished patronage afforded, that this valuable and useful Society, will shortly rank among the first of the kind in the kingdom.

THE WEST HERTS. FLOWER SHOW.

WAS held at the Bell Inn, St. Albans, on Wednesday, June 22nd. Any person of the county to shew; the flowers to have been in their possession three months. There was a very numerous attendance of florists, and several very valuable prizes were awarded.

VI.—NATURALIST'S CALENDAR.

FOR SEPTEMBER.

BOTANY.

THIS is the first month of Autumn, and we are reminded of it in every direction. The trees have now put on their gay and splendid liveries; Fungi abound; and in the gardens, the Michaelmas-Daisy is in full bloom; in short, every thing tells us that Summer is departed.

The plants in flower this month, are, *Colchicum autumnale*, Meadow Saffron; a powerful, but somewhat uncertain and dangerous remedy for Gout, and some other disorders. The flowers appear at this time of year, (and sometimes in August) entirely destitute of leaves, and when they wither, the plant is no more seen till the Spring, when the leaves and seed vessels make their appearance: as soon as the seed is ripe, the leaves die away, and the plant is again lost till the time of flowering in Autumn. Specimens should therefore be gathered in various parts of the year. It is found chiefly in flat meadows, but is rather a local plant. It grows plentifully between Duffield and Derby; Maltby, Yorkshire; and various places in the North and West of England. *Cuscuta europæa*, Dodder;—a small parasitical plant, found on the stems of Nettles, &c. *Parnassia palustris*, Grass of Parnassus;—a beautiful plant, remarkable for the singular conformation of its nectary. It is found in bogs, and on the tops of mountains, as Masson, Matlock-Bath, and on most of the limestone hills about Buxton.

Gentiana amarella, Autumnal Gentian; *Gentiana campestris*, Field Gentian; *Geranium sanguineum*, Bloody Crane-bill; *Scilla autumnalis*, Autumnal Squill; *Dianthus deltoides*, Maiden Pink; *Genista pilosa*, Hairy Greenweed; *Ulex nanus*, Dwarf Furze; *Hypericum barbatum*, Bearded St. John's-Wort; in dry or mountainous pastures.

Salicornia herbacea, Common Jointed Glasswort, or Marsh Samphire; *Erodium maritimum*, Sea Stork's-Bill; *Althæa officinalis*, Marsh Mallow; *Chara nidifica*, Proliferous Stone-Wort; *Ruppia maritima*, Sea Tassel Grass; *Erythræa pulchella*, Dwarf Branched Centaury; *Œnothera biennis*, Common Evening Primrose; *Silene maritima*, Sea Catchfly; *Alyssum maritimum*, Sweet Alyssum; *Chrysocoma Linosyris*, Flax-leaved Goldilocks; *Aster Tripolium*, Sea Starwort; on the sea-coast, and in salt marshes.

Lobelia urens, Stinging Lobelia; *Senecio lividus*, Green-scaled Groundsel; on dry heaths.

Polygonum hydropiper, Biting Persicaria; *P. minus*, Small Persicaria; *Mentha pulegium*, Pennyroyal; *Inula pulicaria*, Small Fleawort; *Ceratophyllum demersum*, Common Hornweed; *C. submersum*, Unarmed Hornweed; *Bidens cernua*, Nodding Burr-Marigold; in moist places, ditches, and ponds

Neottia spiralis, Ladies' Traces; *Crocus sativus*, Saffron; in pastures. *Oxalis corniculata*, Yellow Wood-Sorrel; *Chenopodium murale*, Nettle-Leaved Goosefoot; *C. botryoides*, Clustered Goosefoot; in waste grounds.

Many of the Ferns are now in fruit, as *Polypodium vulgare; Woodsia ilvensis; Cystea fragilis; Asplenium Trichomanes, Ruta-muraria, alternifolium, septentrionale, Adiantum-nigrum, lanceolatum*, and *fontanum; Pteris crispa; Adiantum Capillus-veneris;* these are found on rocks, walls, and shady banks, and in woods, &c.

"*Fungi*. must be considered as an appendage and ornament of Autumn, they are not generally in healthy spendour till fostered by the evening dews and damps of September, and in this season, no part of the vegetable world can exceed them in elegance of form, and gentleness of fabrication; but these fragile children of the earth are beauties of an hour,

"Transient as the morning dew,
"They glitter and exhale,

and must be viewed before advancing age changes all their features."* They may now be found on decaying branches and plants of all kinds, in woods, pastures, indeed in all situations and on almost all substances; they are always interesting, frequently exquisitely beautiful, and many of them present the most singular objects for the Microscope. Many of the species may be preserved by covering them with clean and finely sifted sand, and drying them in a stove or oven, of a moderate heat.

Many kinds of Sea-weed, (*Fucus, Conferva, &c.*) will be best found after the storms, which take place about the Equinox, as those which grow in deep water will frequently be thrown on shore. These are easily preserved; the larger kinds merely requiring to be rinsed in fresh water, and hung up to dry, and then wrapped up in brown paper. The smaller and more delicate kinds should be floated in a vessel of water, and the paper they are intended to be fixed on gently slid under them, it should then be gradually raised so as to let the water run off, and leave the plant entirely spread on the paper. They will in general adhere sufficiently to the paper, without gum, or any further trouble, and need only be left to dry,

ENTOMOLOGY.

THE author of the "Journal of a Naturalist," recommends Prussic Acid as the quickest, and therefore the best, method of killing insects. He says, "A crow-quill must be shaped into a point, like a rather long pen; this point dipped into Prussic Acid, and an incision made with it immediately beneath the head, into the middle of the shoulders of the creature, so as to admit the fluid into the body of the insect. Immediately after this, in every instance in which I have tried it, a privation of sensation appears to take place, the corporeal action of the creature ceasing, a feeble tremulous motion of the antennæ, being alone perceptible; and these parts seem to be the last fortress that is abandoned by sensation, as they are the primary principle of sensibility, when life is perfect; extinction of animation ensues, not a mere suspension, but an annihilation of every power, muscular and vital."

* "Journal of a Naturalist," an amusing and instructive work, in which will be found much interesting information, on this and most other branches of Natural History.

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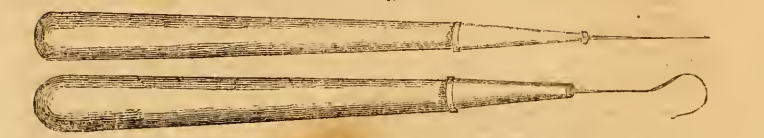
In fixing Butterflies, Moths, &c. in the cabinet, after they have been fastened down, by means of a pin run through the thorax, the wings on one side should be expanded, and a narrow strip of card laid over them, which should be fastened down at both ends by pins, so as to retain the wings in their position, the other side must then be treated in the same way (fig. 16) the legs and antennæ must then be placed properly, and the insect left for a few days to dry, when the cards may be removed, and the wings will afterwards remain as they were fixed. In these operations, a small needle and hook, (fig. 17) ecured in wood handles, will be useful.

17



In the larger Moths, it will be necessary to remove the viscera, by means of the hook, and to fill up the body with cotton-wool moistened with the following mixture:—

Corrosive Sublimate, ... 1 drachm,
Rectified Spirit of Wine, ... 1 ounce.

This should also be applied, by means of a hair pencil, to the under parts of the insects, (which should afterwards be left a short time to dry) before they are finally fixed in the cabinet; in order to prevent their destruction by minute insects, such as *Ptinus fur*, and *Acarus destructor*, which would soon destroy a whole collection.

The caterpillars of the Death's-Head Hawk-Moth, *Acherontia atropos*, may be found occasionally, feeding on the potato, at night, though they are concealed in the day, beneath the under leaves or in the soil. They are remarkable for their size, being sometimes found five inches long, and are furnished with horns and tail. They should be placed in a flower-pot filled with mould, and covered with gauze-net, as they undergo their transformation in the earth.

The Painted-Lady Butterfly, *Vanessa cardui;* and the Red Admirable, *V. atalanta;* may frequently be seen on decaying fruit on walls. The Copper Butterfly, *Lycæna phlæas;* the Brimstone Butterfly, *Gonepteryx rhamni;* the Saffron Butterfly, *Colias hyale;* and some other kinds may also still be occasionally met with.

The webs of the Gossamer Spider, *Aranea obtectrix*, the manner of producing which, has been the subject of so much curious disquisition, and controversy may now be seen, particularly on a fine morning, after a fog, covering the fields, hedges, bushes, and pathways, in all directions, and appearing like strings of small pearls.

ORNITHOLOGY.

Most of the summer birds of passage now leave us, as the Wryneck, *Yunx torquilla*; the Red-start, *Sylvia Phœnicurus*; the Blackcap, *Sylvia atricapilla*; the White-throat, *Sylvia cinerea*; Winchat *Sylvia rubetra*; the Swallow, *Hirundo rustica*; the Spotted Flycatcher, *Muscicapa grisola*; and the Common Sandpiper, *Tringa hypoleucos*; this pretty bird frequents the banks of rivers, and finds its food in the sand; it is seen either singly or in small flocks, and its shrill whistle may frequently be heard at night. It arrives about the beginning of April, and leaves about the end of September.

The winter birds are now beginning to arrive so that in this month may be seen at the same time, the Swallow, which may be called the emblem of summer, and the Fieldfare, which may be considered as that of winter. Woodcocks, *Scolopax rusticola*, make their appearance; also several species of Wild-geese and Ducks. The Crossbill, *Loxia curvirostra*; remarkable for its bright colours, (red and bright yellow,) and for the singular structure of its bill is occasionally seen at the end of this month, or beginning of October, in flocks, feeding upon the berries of the Quicken, *Sorbus aucuparia*, and other seeds and fruits.

The young Redbreasts now attain their full colour.

METEOROLOGY.

The temperature of the atmosphere is much reduced, though there is frequently some beautiful weather this month, Equinoctial gales and storms may be expected about the end, and the changes in the Barometer are great and sudden.

BAROMETER.—Mean height, 29,931 inches. Highest, 30,410.—Lowest, 29,410 inches.
THERMOMETER.—Mean temperature, 57,8 degrees. Highest 76 degrees.—Lowest 36 degrees
RAIN.—Mean quantity, 2,193 inches.
EVAPORATION.—2,620 inches. O.J.

VII.—MONTHLY HORTICULTURAL CALENDAR.

FOR SEPTEMBER.

THE general characteristic of the weather, during the month of August, was fine, with but few clouds, except now and then a fine shower of rain, attended with considerable thunder and vivid lightning. Most of the fruits of the earth are come, and others are fast advancing to perfection. The mean point of the Thermometer, has been about 73 Fahrenheit, Highest 86. Lowest 60.

FRUIT DEPARTMENT.

Peach and Nectarine Trees, will require but little doing at them this month, if attended to in the last; any loose or fore-right branches, however, that project from the wall, must be taken off, or laid in, as found necessary, that the fruit be not too much shaded from the sun, or the flavour and colour will be in a great measure destroyed.

Morella Cherries must be netted to preserve them from birds.

Figs will now be ripe; allow no irregular shoots to remain, but treat them as recommended last month.

New Strawberry Beds may still be made, where sufficient were not planted last month; choose moist or cloudy weather for the purpose.

Wall and Espalier Trees of every description, must be kept neat and free from superfluous wood; as well ripened fruit never need be expected, where the trees are kept in a slovenly state.

Buds put in last month and July, will require examining, and the bandages loosening when necessary.

Diseases and Insects The mildew is rather prevalent about us, and in some cases the *red spider*, (acarus) may be numerous. As the fruit is now generally becoming ripe, it would not be proper to wash them with sulphur and water, as directed last month, until the fruit is gathered, but a little sulphur may be dusted on the leaves, when it is found indispensible. Earwigs and Woodlice as last month. Wasps and large blue Flies are added to the number of depredators this month. They may be destroyed by hanging bottles on different parts of the wall, half filled with vinegar and water, or beer, mixed with honey or sugar. The Thrips, too, will probably attack the Melon or Cucumber plants, in the frames; when this is discovered, fumigate them with tobacco, in the same manner as for Apples.

Fruit-trees. Apricots, Plums, Peaches, and most other fruits, ripen very early this season; on this account, prepare ground, without any delay, for planting fruit-trees, by the latter end of this month, or the beginning of October, which if the wood be pretty ripe, as it may be, is the best time in the whole year to plant most trees, for they establish themselves before the severe weather takes place. By attending to this, not only is the life of the tree more likely to be preserved, but nearly a year is gained in its growth.

FLOWER DEPARTMENT.

Carnation Layers, potted out last month, must remain in the open air, and receive gentle waterings, if required, on dry days.

Auricula Seeds, as also those of Tulip, Ranunculus, Anemone, &c., may now be sown in boxes of fine light mould.

Beds should now be prepared for Tulips, (see page 104 of our Register); also for Hyacinths, Anemones, and Narcissus, which do best in a sandy soil, mixed with vegetable mould and very rotten dung.

Mignonette may still be sown to stand through the winter, in frames; but it is better never to be later than August.

Brompton and Ten Week Stocks, that were sown last month, will require pricking out in pots to be protected in the frames; and if sufficient were not sown, it will be necessary to get them in as early in the month as possible.

Single Camellias should now be budded; take off the bud from any choice sort required, with a small portion of the wood attached to the eye, instead of stripping it quite naked, the usual method, and insert them as you would those of a rose.

Erica Cuttings, Diosmas, and many other delicate greenhouse plants, may still be put in, (see Calendar for August.)

Pink Pipings, put in last month, should, if properly struck, be transplanted in beds, to be removed early in the spring, into the flower-borders.

Rose-trees. This is the best season for striking cuttings of all the varieties of China Roses, plant them on a shady border, in a mixture of peat or vegetable mould, or pure sand, and cover them down tight with a hand-glass.

Herbaceous plants, must still be propagated by parting the roots.

VEGETABLE DEPARTMENT.

Celery must be earthed up, as it advances in growth.

Spinach may still be sown in the beginning of the month, but it is far better never to be later than the middle of August.

Lettuce Plants, should be planted out for a succession, and seed sown about 3 times before the 20th, to preserve in frames and warm borders throughout the winter.

Cabbage Plants, of the Battersea and Early York sorts, should be planted early in the month, on good ground, about six inches apart in the rows, and one foot from row to row, to use as Coleworts from November, also those from seeds sown last month, will many of them be ready to prick out in beds, to plant early in the spring.

Carrot Seed may yet be sown, for young ones in the spring.

Cauliflower Plants, from seed sown last month, will some of them be fit to prick out. Choose some rich light ground for the purpose, and plant them about four inches apart.

Endive may be planted out two or three times in the month.

Mushroom-Beds should now be generally made; be careful in spawning, the beds are not too hot; it must be remembered, spawn will bear no greater heat than from 55 to 60 degrees Fahrenheit.

Radishes for a late crop, may be sown about the beginning and middle of the month.

Onions must be taken up in fine weather, and spread on a floor or flue, in an airy situation, in order to dry them.

Normandy or Curled Cress, should now be sown, if not done before.

G. Jewitt, Printer, Duffield, near Derby.

THE

HORTICULTURAL REGISTER.

October 1st, 1831.

PART I.—HORTICULTURE, &c.

ORIGINAL COMMUNICATIONS.

ARTICLE I.—*On the Culture of the Dahlia.* By JOSEPH HARRISON, Gardener to the Rt. Hon. Lord Wharncliffe, and one of the Conductors of this Magazine.

THE Dahlia is certainly one of the most splendid plants in creation;—for whether the brilliancy and variety of colours in the flowers, the extent of its varieties, the duration of its blooming, or its majestic appearance when in perfection, be considered, it stands in each particular unrivalled, and merits a situation in every garden, from the palace to the cottage; and it is an additional recommendation, that it is easy of propagation and cultivation.

The best mode of treatment practised with the Dahlia, has repeatedly been requested through the medium of publications; and although I am not vain enough to think the method I pursue is the best in operation, yet, having been so successful as to flower the plants to the satisfaction of hundreds of persons who have viewed them, I venture, in a plain and brief manner, to give a detail of my practice; in doing which, I shall state the mode I have adopted in raising a number of handsome seedlings, as well as the subsequent culture.

New varieties are raised from seed, and with a view to raise the best and particular kinds, I have recourse to artificial impregnation. With a small pointed camel's-hair pencil, I take the farina from one flower to another. If I have a handsome compact flower, that I am desirous of improving in colour or size, I have recourse for farina from one of the colour or form I desire; as it is very nearly to be calculated what a mixture of any two sorts will produce. The flowers I intend to impregnate upon, I cover with a fine gauze bag, a day or two before the florets expand. When the first and second tier of florets are expanded, I then

impregnate them, and retain the gauze bag over them for a week longer, I mark by a small tally, the flower I have operated upon. In collecting the seed in autumn, I only gather the two tiers; the seeds from the outside tiers are always the finest, and ripen the best. The use of the bag, is to prevent any impregnation from bees. When any flower is simi-double, I uniformly take them away; so that I neither take farina from them, or save them for seed.

The seed is sown about the first of February, and placed in a hot-bed frame; when sufficiently strong for transplanting, the plants are removed into small pots, one in each pot, and kept in a green-house or cool frame. At the end of May, they are turned out entire, into a deep and rich soil. These flower abundantly by the end of July, and by being forwarded as stated, the roots become perfected by the autumn, so as to keep plump, through the winter.

The method I pursue with old roots, is, to place them upon a moderate hot-bed, or in a mushroom-house, that has a little heat. I just cover the roots with some fine sifted rotten tanners bark; in this they speedily push roots. I usually do this about the first week in February, which I consider quite early enough, as my plants get to two or three feet high by the period for planting in the open border. I have seen some persons push the roots as early as the beginning of January, but in consequence of such being deprived of sufficient air, which could not safely be given at so early a season, they were generally drawn up weakly, and seldom bloomed well.

When the roots have pushed shoots about four or six inches long, I take them out of the bark; such roots as can be divided, now most readily do so. If any of the roots push more shoots than one, and I wish to increase the sort, I cut off each shoot, close to the old root; these I insert in pots, filled with fine light sandy soil, placing them round the sides of the pots, and put them in a hot-bed frame, or, I set them off upon a hot-bed, covered with four inches of suitable soil; in either case they will strike root in six or eight days. In cutting off the shoots close to the old roots, I find they strike much much more freely than if cut crossways under a joint, in the upper part of the shoot; although there is a possibility of their striking under that mode of treatment. When the cuttings have pushed roots, I pot each into a separate pot. The soil I use for potting my Dahlias in, is a light rich one. When the Dahlias are potted, whether old roots or cuttings, I place them in a peach-house or vinery, till they push to eight or ten inches long, when I have them removed to a very airy situation in the garden, and where I can have them protected if required.

As soon as I judge danger from frost is over, which is seldom before the end of May, I turn the plants out entire, planting them in sheltered sunny situations.

The soil of my borders is a strong loam, eighteen inches deep. I manure the border well every spring, before planting, and at the same time add about an equal part of good fresh soil. In this they flower most profusely, particularly the plants raised from cuttings;—these do not grow so vigorous as the plants with old roots, but they flower far more abundant and compact.

The plan of training the plants to a fence, appears to me to be the best mode of securing them, for when tied up to stakes, the wind frequently twists the plants and destroys their tops, but the other mode secures them against all winds, and exhibits the flowers to the greatest advantage; three or four stakes placed angularly round the plant, and the plant tied to them, also answers the purpose.

When the blooming season is near its close, I lay about four inches thick of rotten bark or leaf soil, over the roots and for two feet round the stem of each plant; this is done to prevent the crown of the plant being damaged by sharp and sudden frosts. I have seen many Dahlias that were exposed, have the crowns so injured by sudden frost, as not to push at all the following spring, although the remainder of the root was sound.

When I take up my roots, I do it on a dry windy day, if possible, shaking off the soil carefully, so as not to twist the roots. I have them removed to an airy situation in a shed, or mushroom-house; there placed singly over the floor or shelves, till the soil remaining on the roots is dry. When perfectly dry, I lay them on shelves, secure from damp or frost, and cover them with dry sifted tan, manure from a mushroom-bed, or some material of this kind; in this way, they will keep perfectly sound and fresh. Care must be taken, that whatever is used for covering with, be completely dry.

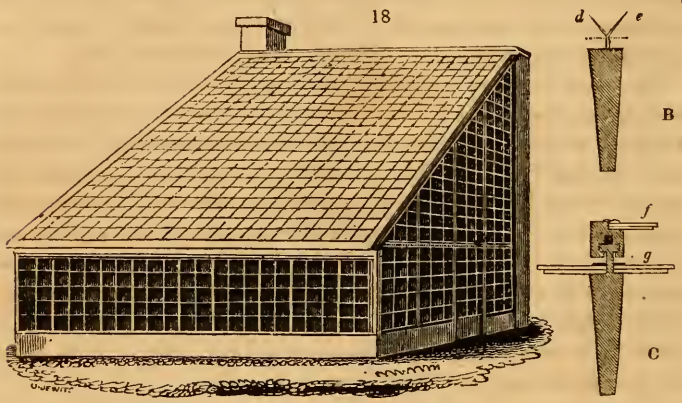
JOSEPH HARRISON.

ARTICLE II.—*On Glazing for Hot-House Roofs, &c.* By MR. SAUL, Pomological-Garden, near Lancaster.

GENTLEMEN,

IN your first number you request the attention of practical men, to the subject of hot-house roofs, &c., and I am inclined to think, that great advantage might be derived from your Horticultural Register, if conducted in a similar manner to the Mechanic's Magazine, by the Gardeners coming forward, and giving the different modes and improvements, that occur to them during the different seasons, which would be the means of inducing others, in different parts of the country, to follow their example, by publishing their own plans and opinions, on the same subject.

I have, with this view, sent you my ideas on hot-house glazing, which you will see, differs very materially from that given in page 10, of your Register. You did not there inform us, what sort of putty was used in glazing on Harrison and Curtis's principle, for I am afraid the common putty, as used here, would not answer, because I think it would be liable to crack between the joints of the glass, and the water of course would find its way into the house; and as it is well known that rafters, &c. laid with putty, are apt to decay, my plan is to completely protect the joints. By a slight inspection of the drawing, (18) it will be found to



have a light appearance. Fig. B, is a section of the rafters; *d e*, is a thin piece of metal, which runs betwixt every joint on the sash-bars, with the upper part divided, so that it will turn over each joint about a quarter of an inch. The glass is bedded in putty, on the top of the sash-bars, and a little white-lead is put under *d e*, and when turned down it is rendered completely waterproof. Fig. C. is intended to show the plan of the slides on the roof for giving air,—*f*, is the top of the slide; *g*, the top of the roof. By this plan, the slide can never be blown off by the wind; and the appearance of the whole is light, because there is no projection of wood above the glass.

Yours, &c.

July 9th, 1831. M. Saul.

P.S. I should like you to review the one hundred and seventy sorts of Apples, published in the Pyrus Malus Brentfordiensis; giving the size, name, and colour, and when in use; as the price places it out of the reach of the amateur gardener.*

* By a reference to the Cover, our correspondent will observe that the Descriptions, &c. of Apples, will shortly appear.—Conductors.

Article III.—*Comparative Remarks on Wood and Metal Hot-House Roofs.* By Mr. J. Cur, Worcester.

Gentlemen,

From the very favourable reception Mr. Mc.Murtrie's letter on Metallic Hot-houses, seems to have met with, I know not whether the following remarks on the subject, will be admissible in your publication; but being conscious of the importance of the subject, and of the necessity there is for something to be said on behalf of metallic hot-houses, when professional men undertake to ridicule those structures, I beg leave to offer my opinions on this interesting topic.

For many years in my youth, I was accustomed to no other kind of hot-houses than those built of wood; but on becoming gardener to a gentleman who was about erecting six houses and two pits, I advised him to use metal, as I considered it to be best, but having a great deal of wood by him, he preferred building with that material. The builder he employed erected three houses and one pit, with the wood, when he and my employer disagreed, and a builder from Birmingham, was sent for, who erected the other three houses and pit, of metal; and as I have had the care of all of them for the last twelve years, I hope I shall be excused, if, from the experience I have had, I venture to give my opinion on their relative merits.

I could never see much difference in the crops of these two kinds of houses, except that the grapes in the wood ones seldom set so well as those in the metal ones, which I considered to be occasioned by the rafters and sash-bars being obliged to be made so much thicker in wood than in metal, thereby shading the bloom, and causing an impediment to its setting, for the more light the bloom has, the better it will set. The metal houses, in this particular, have a decided superiority over wood ones.

The chief objection urged against metal, is the attraction of heat,—this is mere nonsense; for if the metal is kept well painted, it attracts no more heat than wood; this I proved, by taking a piece of metal and a piece of wood, both well painted, and placing them against a south wall, two feet asunder; I examined them every half-hour, and could not perceive that the metal heated one degree faster than the wood. I also put them both into equal quantities of water, and one heated it just as much as the other. So much for the attraction of heat, which Mr. Mc.Murtrie says, injured his pines, when they came in contact with the rafters. My pines in the wood pit, are often much injured by the shade of the rafters, they making it so much darker than the metal one.

The best method I can propose for the erection of hot-houses, is, to have the rafters and the piers in front, (if any are wanted) of cast-metal; the sash-frames of the best oak, which should be perfectly dry, and have been felled at least two years; and the ribs of wrought-iron. Houses erected in this manner, will stand much longer than they generally do in the regular way of building

The houses I have the care of, have been erected twelve years, and no one can see that the metal ones are at all the worse for wear, but the wood ones are in some places fractured.

I remain, Gentlemen,

Yours, &c.

Worcester, Aug. 12*th*, 1831. J. Cur.

Article IV.—*On Preserving Plants from Snails, Slugs, &c. by means of the "Bygrave Plant-Preserver."* By A Practical Gardener.

Gentlemen,

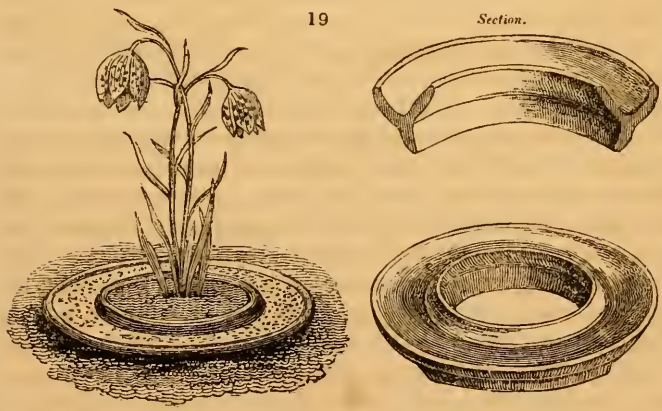
Numerous are the modes practised with a view to the extirpation of those pests of the garden,—slugs and snails, and for preserving plants from their ravages. But we nevertheless find that all the means hitherto adopted, or recommended for this purpose, are far from being as successful as could be desired.

No doubt, newly burnt lime reduced to powder, and dusted through a coarse cloth over dug land, in the dusk of the evening, will kill any of these creatures that come in immediate contact with it; but vast numbers will escape, by being under ground, or accidentally protected by leaves or any other covering; and besides, the effect of the lime is not lasting, for the slightest shower, or heavy dews, or even being exposed to the air, deprives it of its caustic and destructive properties. Watering with lime-water, is also liable to fail, from the same causes, and is, besides, if incautiously used, apt to injure, and sometimes altogether destroy, vegetation. Sir Humphrey Davy, in his Elements of Agricultural Chemistry, (page 317) says, "Quicklime, in its pure state, whether in powder, or dissolved in water, is injurious to plants. I have, in several instances, killed grass by watering with lime-water."

Sifted coal-ashes, from an iron-foundry, smithy, or gasometer, strewed over the parterre, are of use for the time, because they abound in minute sharp particles, which the slug or snail cannot crawl over,

owing to the extreme delicacy of that part of their bodies upon which they move. Sawdust, examined through a microscope, presents to the eye, innumerable acute points, and hence, when strewed round plants, is, on the same principle as coal-ashes, useful in protecting them. But the efficiency of both these, will be destroyed by their being washed beneath the surface by heavy rains. The dry hulls of oats have also been employed with partial success; these cling to, and completely envelope, any of this class of depredators, that attempt to move over them: but after rain, they likewise afford no protection.

So much for my experience of the popular remedies for the evils adverted to. I have now, however, unfeigned pleasure in making known, through your useful publication, to the lovers of gardening, that Miss Bygrave, the ingenious and amiable daughter of Captain Bygrave, of Albany Barracks in this island, has invented an article, (fig. 19) for the preservation of plants from the attacks of slugs,



snails, &c. which, to her credit, proves at once, neat, simple, cheap, and most completely efficacious. The model was made first in paste-board, and afterwards in clay, and sent to the potteries at Fareham, where, a few days ago, it was copied and manufactured in several sizes, one of which accompanies this note. I need only add, that it is intended to be placed round the plants, nearly even with the surface of the soil; and then having the hollow part filled with salt, it forms a little fortress, surrounded with a ditch, which it would be instant death to the most valiant of the snail tribe, who should dare to assault it.

I trust, Gentlemen, that in the next number of your Register, you will accompany the notice of this useful invention, with an engraving;

and in compliment to the young lady, who has the merit of originating these useful articles, I take the liberty of naming them in plain English, "the Bygrave Plant Preservers."*

I am, Gentlemen,

A Subscriber to the Horticultural Register, and

A Practical Gardener.

Newport, Isle of Wight, Aug. 15th, 1831.

P.S. "The Bygrave Plant Preservers" are manufactured at Mr. Stare's Potteries, Fareham, Hampshire. I believe the retail price for a small number is about 3d. each, but I apprehend that a large quantity might be purchased at a rate not exceeding half that sum.

Article V.—*Remarks on the Erection of Labourers' Cottages.* By A Bricklayers' Labourer.

Gentlemen,

The subject of improving the dwellings of the labouring classes, and of bettering the condition of the poor, has been ably treated on by many learned literary, and political, gentlemen; and, indeed, there are few persons who have witnessed the miserable and wretched habitations of that large and useful body of the community, (many of them, in some parts of North-Britain and Ireland, being little better than those of the darker ages, when men lived in the caverns and dens of the rocks) that do not feel greatly interested in the subject in question. It is, however, particularly gratifying, to see by the various communications to the different periodicals, that in many parts of the country, labourers have the happiness to live under proprietors who have thinking minds and benevolent dispositions; nevertheless, there is still a great, very great scope for improvement: many places have undergone no change whatever towards improvement, notwithstanding the great deal that has been written on that subject, and the many examples set them by their neighbours.

It is to lay before the landed proprietor, the means of bettering his dependents—of uniting utility and comfort with the picturesque—and of erecting a cottage without the expense of an architect's fees, that the subjoined drawings are sent. Before describing them, it may be necessary here to remark, that I am a great lover of the picturesque; and I abominably abhor, those plain, flat, and unseemly cottages, which, to use the words of a foreigner, in his observations on London, "resemble so many holes in a brick wall." Nor do I agree with your correspondent "Artus," (page 63,) that the external ornaments of a cottage "like the

* A valuable improvement. The young lady deserves the best thanks of Horticulturists for the invention.—Conductors.

crested buttons of a livery-suit, proclaim the dependence of the possessor," but rather consider it to "*proclaim*" the taste of the proprietor.

It is a lamentable fact, and a very great proof of the want of good taste, that very frequently we see plain and uncouth cottages erected, when the same materials, judiciously arranged, with the same, or a very little more, expence, would have raised a cottage equally commodious, and one that would, by its external arrangements, excite a degree of interest in the passing stranger.

We may have a pretty just idea of a man's political opinions, by a knowledge of the opinions of those he chiefly associates with,—of his religious opinions, by a perusal of his library, &c.,—of his domestic happiness, by seeing him at his own fire-side,—but we can have no better criterion for the lauded proprietor's taste, than by viewing the various cottages on his estates. Besides, there ought to be a national pride implanted in every individual who intends building a cottage, that he will keep pace with the march of improvement, and produce something, that is more useful, neat, and simplified, than he has heretofore seen: and further, this manner of proceeding will not only show the good taste of the proprietor, but also, his good and benevolent disposition. A neat cottage and small garden, is doubtless, calculated to have great effect upon the morals of the labourer; it will induce him to forsake the society of those who spend one-fifth of their time over a pipe and pot, at the ale-house, and haste to delve his little yard, and train the honeysuckle round his rustic door.

The design here given, is for two dwellings united; this being much preferable to single houses, by the advantage of a near neighbour, in case of sickness, &c. One of the houses is a little larger than the other, and is intended, for a man and wife with a family, where a bed may be placed in the recess in the kitchen; and if the family were large, a bed might be put up in the large closet under the stairs. The other house is intended for a man and wife, without a family. In each house, *a* is the entrance; *b*, kitchen; *c*, washhouse; *d*, closet under stairs; *g*, privy; *h*, pigstye;—bed-rooms above.

This house may be built of stone, or brick, plastered outside, having a straw roof; the washhouses, &c. are lean-to's; the chimney stalks may be ornamented with plaster or cement; the windows may have wooden mullions, painted like stone. I have seen windows of this sort, made to turn round on a pivot and socket at the centre, which is very useful for airing the apartments. This cottage is adapted, in fact, for almost any situation; but every dwelling ought to be raised a little above the grounds which surround it, and well drained underneath. I have shown a pigstye to each house, as I consider that a pig is a thing that every labourer should be provided with; and every peasant's wife should find time to attend to one, or perhaps two, that herself and family may reap

the benefit of it at a Sunday's dinner, when butcher's meat is sold at a very high rate, and little money to purchase it. Bee-hives, are things I should much like to see the labourer in possession of; and for this reason, I have marked the letter *i*, where they may be placed.

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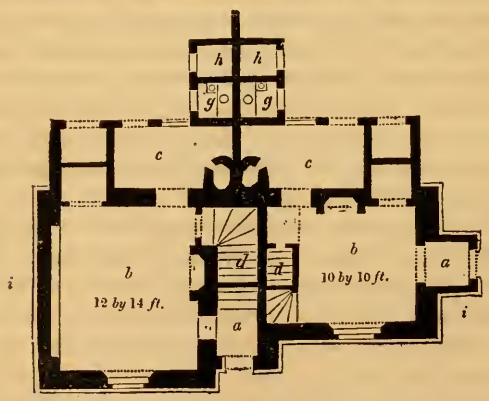


This design might be executed by a skillful workman, without the assistance of any other drawings, than the accompanying ones; and here I cannot help remarking that your correspondent "Artus," might have contented himself with explaining the improvements in the labourer's houses at "Thurlby," without furnishing us with a perspective view of a cottage, which we can make no use of without a plan. 'Tis true, he promises to furnish us with the plans in a subsequent number. He should have reserved the elevation till then. A perspective view is very good, when it is merely intended to show the picturesque effect of any scene of landscape gardening; but when it is held out as a model for instruction, the plan is indispensably necessary.

Should you think this worthy of insertion, I shall probably send you a design or two, for some forthcoming number. In the mean time, I beg your readers will overlook my plain style of writing, which I have no doubt but they will, when they learn that

I am, Gentlemen,

Yours, &c.

London, August 15th, 1831. A BRICKLAYERS' LABOURER.

ARTICLE VI.—*On the Formation of Orchards.* By THE AUTHOR OF THE DOMESTIC GARDENER'S MANUAL, a Member of the London Horticultural Society.

GENTLEMEN,

ON perusing the first number of your periodical,—to which I heartily wish the success it certainly promises to merit;—I met with a paper from No. 19, of the British Farmer's Magazine, "*On Orcharding, as a means of increasing the produce of small farms, by Mr. Reid.*" This paper attracted my attention, and I perused it repeatedly. It appears to contain matter highly interesting, as adducing facts, many of which, my experience convinces me, are well ascertained. My object then, in addressing you, is not to controvert the opinions of this writer, but to add weight to his observations, by furnishing such additional facts, as may tend to promote a system of culture, which, whether it be considered individually, or nationally, can scarcely fail to prove a source of wealth and prosperity.

I shall, in the first place, notice the trees named by Mr. Reid, and then add a few hints on the mode of planting which promises to lead to certain and permanent fertility. The trees mentioned, are 240 in number per acre, and they consist of, the Hawthornden 120; Keswick Codling, Nonsuch, Fearne's Pippin, French Crab, Ribstone Pippin, and Scarlet Nonpareil, of each 20 trees. It should appear that the writer intends to recommend the adoption of dwarfs or half-standards, because he observes that, "The Hawthornden, the Keswick Codlin, and the Nonsuch, should be *half-standards*, or such as form their heads about three feet from the ground, because the weight of fruit is apt to bend the branches so low, that it is necessary, if *dwarfs*, to cut the healthful bearing wood away, to keep them from the ground." In respect to the *quality of the trees* mentioned, I have not as yet had much experience of that of the *Hawthornden*, but am aware that, in Berkshire at least, it is considered to be the *tree-of-trees* and as it were, the *sine-qua-non*. But of the *Keswick Codling*, I can attest from my own knowledge, that small trees whose stems are scarcely eight inches in height, and that of the branches barely six feet, will produce such a

profusion of fruit, that it becomes needful to secure each bearing branch to a strong stake, in order to prevent its being broken off, or bent down to the level of the soil. Two such trees, I had growing in a flower-border of a garden, in Kent, that were loaded with, at least, 300 fine apples.

The Keswick Codling is a beautiful fruit, oblong in shape, and of a yellowish tinge when mellow; it ripens early,—so does the Hawthornden; but the former is so prolific as a bearer, and so excellent in the quality of its fruit, that, I cannot but recommend, in selecting the trees of an orchard, that the number planted be equal to that of the Hawthornden. Of *Fearne's Pippin,** I meet with no description. The *Nonsuch,* is doubtless a good apple, but not very valuable as a keeper. In the latter quality, the *French Crab* exceeds all others: and therefore should be admitted into every collection. The *Ribston Pippin,* is described in Loudon's Encyclopædia of Gardening, as "a hardy, free-growing tree, universally admired, thriving in all situations and climates,—one of the best of British apples." This apple possesses, unquestionably, very admirable qualities, particularly at, and soon after, the period of ripening; but it ultimately becomes vapid and flavorless; and in the spring, can scarcely be recommended as retaining any claim to notice, other than that of its handsome appearance; it is also, by some, considered to be but a shy bearer. The *Scarlet Nonpareil,* is a fine apple, bears pretty well, and keeps till March. But of all the apples I am acquainted with, none surpasses the *Winter Pearmain;* it keeps well till May, and retains a rich flavor, and a fine juicy texture. The *Norfolk Beaufin,* merits particular attention, as it is the fruit from which that delicate article of the dessert, termed "Biffen," is prepared. The tree is described in Loudon's Catalogue, as being "hardy, a great bearer," and the fruit, as "above the middle size, firm and savoury, ripe about Christmas, and keeps till August."

The varieties of the Apple then, which I would mention as peculiarly eligible to those whose object it is to render the orchard a source of remuneration, are,—the *Keswick Codling,* and *Hawthornden,* as profuse and early bearers;—an equal number of each of these. The *Ribston Pippin,* as particularly estimable for its flavour and texture till Christmas; and also, for the high price it usually commands. The *Winter Pearmain,* for durability, and excellence of flavor in the spring.

* It is figured and described in the "Pomological Magazine," t. 67; in "Pyrus Malus Brentfordiensis," page 23; and it is also described by Mr. George Lindley, in his "Guide to the Orchard and Kitchen Garden," in the following terms,—"*Fruit,* middle sized, round, and flattened. *Eye,* large, shallow, with scarce any appearance of plaiting. *Stalk,* short, deeply inserted. *Skin,* deep-red on the exposed side, with numerous white dots; on the shaded side, greenish-yellow, partially tinged with brownish-red. *Flesh,* whitish, firm, very juicy, rich and pleasant. A Dessert Apple from November to March. This very handsome and excellent apple, has been known in the London nurseries but a few years. It makes a handsome tree, is very hardy, and an abundant bearer. It highly deserves an extended cultivation." This description, it appears, is extracted from the Horticultural Transactions, vol. I, page 67, and vol. II, page 103.——CONDUCTORS.

The *Norfolk Beaufin*, as one of the best kitchen and preserve apples; and the *French Crab*, for its extraordinary durability, and therefore one of the most useful of apples, for culinary purposes.

In *planting an orchard*, I agree with the writer, that the soil must be duly prepared, but to effect this due preparation, I go much further than he does, at least if one may judge from the extract given in the Horticultural Register.

Those of your readers who may possess "The Domestic Gardener's Manual,"* will not be at a loss to ascertain what I deem to be the essential requisites for insuring permanent fruitfulness, since in addition to many incidental remarks interspersed through the work, I have entered somewhat at large upon the subject of orchard planting, in the fourth part of the first section of October. To the directions there given, for the arrangement of orchards for espalier and dwarf-standard trees, I have added others, for the cultivation of the soil between the rows of trees, corresponding with a plan of general productive economy.

I do not make any quotation from the work itself, but may be pardoned, if I trespass so far upon your limits, as to furnish the details of the actual preparation and planting of a small piece of land, about a quarter of an acre in extent; in order to prove how much may be done by the members of a family, when a parent, and his sons,—though these be but little boys,—devote mind and strength to the effecting of great, and even heavy, operations.

The piece of land was a grass paddock, of an irregular, and somewhat triangular figure, and required to be deeply trenched all over. In order to effect this, the surface was set out in strips or lifts, of the average breadth of four yards and a half. Each trench was marked two feet wide, and the work of trenching was performed as described in the Gardener's Manual, *so as to retain the upper stratum of earth at the top.* This method of trenching, Mr. Cobbett claims as his own, exclusively; and as far as my reading and observations extend, I must avow, that I have never met with anything that has tended to impugn the justice of his claim. To avoid prolixity, I shall simply describe the mode by which the first trench was excavated and filled up.

The whole piece was covered with inferior grass and clover, but the upper soil was an excellent, mellow, sandy loam, a quality calculated to promote the developement of the young fibrous roots; the second spit was good, but more adhesive in its texture; the third, approached to the nature of red brick-earth; under that, there was either chalky marl, or a strong adhesive soil, abounding with flints.

The turf of the trenches was paired off, to the thickness of two or three inches; the upper stratum of soil was dug out to the depth of nine or ten inches, and removed to the end of the lift; the second

* An excellent Work, containing a fund of valuable information ——CONDUCTORS.

and third spits were then taken out, and deposited by the side of the first: thus, a trench was clear to the full depth of two feet. The bottom was then dug and turned, and upon this loosened sub-stratum, the turf was placed in an inverted position, the grass downwards, and the roots uppermost; and upon this inverted turf, common salt, to the extent of at least one pound per trench, was sprinkled: thus, a store of vegetable manure was provided at the depth of nearly two feet beneath the surface of the soil. A second trench was then prepared in the same way, its turf reserved, and its upper earth removed and placed by the heaps from the first trench. The intermediate and subsoil of the second trench, were now dug out, and transferred to the first trench; and finally—the turf being pared off a third trench, its upper soil was *thrown over* the now empty second trench, upon the soil already within the first; and thus, that trench was completed. The surface earth was left as rough as possible, that it might be ameliorated by the air and frost.

Many of the trees, however, were planted in November, 1830, and others in February and March, 1831. They were all maiden-trees, with the exception of six Dredge's Beauty of Wilts, which were two years from the graft; and have taken well to the soil, producing sound and vigorous spring and summer shoots. The trees are 56 in number, and planted at the average distances of 12 feet from row to row, and 10 or 12 feet apart in the rows, as indicated by the breadth and figure of the ground. The soil within the rows, is planted with early and winter potatoes (by a peculiar process) which by the vigor and growth of the haulm, promise to yield most redundant crops.

Something remains to be said of the *selection and management of the trees.* These should be maiden plants—that is, one year's growth from the graft, in order, first, that the roots may adapt themselves at as early a period as possible, to the soil in which they are to remain; and second, that the pruner may be enabled to give his trees the form he intends them to assume, without difficulty, or the risk of straining their branches.

The *seasons of planting,* ought to be limited either to the last two weeks of September, or at latest, the first week of October;—or to be deferred till about the middle of March; and the earth should be in a rather moist, but easily pulverised condition. Some persons believe that fibres are protruded in autumn; and therefore, that so much time is gained. If the plan of very early planting be adopted, while the leaves retain a certain degree of vital energy, I do not positively assert that a few fibrous roots may not be emitted; but I am satisfied that trees planted in November, (as mine were of necessity) produce no fibres,—for I had occasion to remove several of those planted in 1830, to other situations, in the last spring, and in no one instance

could I detect the slightest appearance of newly developed rootlets. One fact I was enabled to ascertain, namely, that trees so removed and re-planted, pushed as early as those which were received from the nursery, in the spring, and planted with the least possible delay.

The orchard recommended by Mr. Reid, is to be one of dwarfs and half-standards; and he directs that the trees be cut down "about half the head." If the planting be done in the spring, the heading-down ought to be performed immediately, or as soon as the buds begin to swell; but in autumn planting, it will be prudent to defer the operation till the spring.

And now, I would impress the fact, that as *every bud* and *every leaf*, is a vital organ,—as the leaves, in particular, are the laboratories of all the specific fluids and perfected juices,—the instruments by, and upon which, light acts, and effects most important electro-chemical changes,—it follows of necessity, that to prune or lop, is to do anything but strengthen the tree. On this point, not to enlarge, I beg to refer the reader to what has been said at paragraph 716, of the Gardener's Manual; and by Mr. Withers of Holt, in his argumentative Letters to Sir Walter Scott, and to Sir Henry Steuart. I only would urge the planter, *never wholly to remove a shoot*, after it has first pushed in the spring; but, in the case of preparing for half-standards, to train upright, and to preserve entire the best leading shoot; then, about the middle of June, to prune, just above a bud, the side shoots, to about half their length; and if those shoots push again, to pinch off the secondary shoots to about one half their length, and so to leave the trees during the following winter.

In the ensuing spring, just before the buds break, the tier of shortened shoots, may be carefully cut down to the stem, but not so low as to injure its bark: it would be much better to cut them off with a very sharp knife close to the level of the bark, and then to gouge out the wood of the shoot to the depth nearly of the bark of the stem,—for by these means, the unsightly appearance of a projecting piece of dead wood is prevented, and the bark would speedily be observed rolling over the wound, and in a short time, to close it.

If dwarf trees are to be formed, four diverging shoots may be selected, and the middle one, if such there be, curtailed in June, to one half, and subsequently treated according to the foregoing directions. As the reader might acquire some useful ideas by re-perusing the article, page 21 of your first number, extracted from the "Quarterly Journal of Agriculture," I beg leave to refer him to it.

I am, Gentlemen,

Your obedient servant,

July 28th, 1831. G. I. T.

PART II.

HORTICULTURAL AND RURAL SUBJECTS.

REVIEWS AND EXTRACTS.

Article I.—*Reviews of, and Extracts from, Works on Gardening, and Rural and Domestic Economy.*

1.—A Guide to the Orchard and Kitchen Garden. By George Lindley, C.M.H.S. Edited by John Lindley, F.R.S. &c. 1 vol. 8vo. 16*s.* boards.

(*Concluded from page* 114)

"Some fruits of excellent quality are bad bearers: this defect is remedied by a variety of different methods, such as, 1st, *by ringing the bark*; 2nd, *by bending branches downwards*; 3rd, *by training*; and 4th, *by the use of different kinds of stocks*. All these practises are intended to produce exactly the same effect, by different ways. Physiologists know, that whatever tends to cause a rapid diffusion of the sap and secretions of any plant, causes also the formation of leaf-buds instead of flower buds; and that whatever, on the contrary, tends to cause an accumulation of sap and secretions, has the effect of producing flower-buds in abundance. In *ringing* fruit-trees, a cylinder of bark is cut from the branch, by which means the return of the elaborated juices from the leaves, down the bark, is cut off; and all that would have been expended below the annular incision, is confined to the branch above it; this produces an accumulation of proper juice, and flower-buds or fertility are the results. But there is a defect in this practice, to which want of success, in many cases, is no doubt to be attributed. Although the returning fluid is found to accumulate above the annular incision, yet the ascending sap flows along the alburnum, into the buds, with nearly as much rapidity as ever; so that the accumulation is but imperfectly produced.

"On this account the 2nd practice, of *bending branches downwards*, is found to be attended with more certain consequences. The effect of turning the branches of a tree from their natural position, to a pendulous or a horizontal one is, to impede both the ascent and the descent of the fluids, in a gradual but certain manner. The tissue of which branches are composed, is certainly permeable to fluids, in every direction; and there can be no doubt that the vital action of the vessels of a plant, is performed both in a natural and an inverted position. So long as that erect direction of the branches which is natural to them, is exactly maintained, the flow of their fluids being subject to no interruptions, will take place in the freest possible manner; but the moment this natural direction is deviated from, the vessels become more or less compressed, their action is impeded, and finally, if the inversion is perfect, it becomes so slow, that an accumulation of the proper juices necessarily takes place through every part of the system.

"One of the objects of *training*, is, to produce the same effect. Branches are bent, more or less, from their naturally erect position. Their motion, in conse-

quence of the action of the winds upon them, which is known to facilitate the movements of the fluids, is totally destroyed; and hence arises the accumulation of proper juice, which is necessary to their fertility,

"Nor is the *influence of the stock*, of an essentially different nature. In proportion as the scion and the stock approach each other closely in constitution, the less effect is produced by the latter; and on the contrary, in proportion to the constitutional difference between the stock and the scion, is the effect of the former important.

"If we consider upon what principle the *flavour of particular fruits may be improved*, we shall find that it is entirely due to the increased action of the vital functions of leaves. When the sap is first communicated by the stem to the leaves, it has experienced but few chemical changes, since it first entered the roots. As soon, however, as it enters the leaves, it becomes altered in a variety of ways, by the combined action of air, light, and evaporation; for which purposes the leaf is admirably adapted by its anatomical structure. Thus altered in the leaves, it ceases to be what we call sap, but becomes the proper juice; or, in other words, acquires the peculiar character of the final secretions of the individual for which it is formed. Discharged by the leaves into the bark, it is thence conveyed by myriads of channels of cellular substance, throughout the whole system. From these secretions, of whatever nature they may be, the fruit has the power of attracting such portions as are necessary for its maturation. Hence it follows, that the more we can increase the peculiar secretions of the plant, the higher will become the quality of the fruit; and that, on the other hand, the less the plant is in condition to form those secretions, the less will be the quality of the fruit.

"The next subject of consideration, is, *the mode of multiplying* improved varieties of fruit, so as to continue the progeny, exactly the same qualities as existed in the parent. Unless we have the power of doing this readily, the advantages of procuring improved varieties, would be very much circumscribed, and the art of Horticulture, in this respect, would be one of the greatest uncertainties. The usual mode of increasing plants,—that mode which has been more especially provided by nature,—is by seeds; but while seeds increase the species without error, the peculiarities of varieties, can rarely be perpetuated in the same manner. A plant is, really, an animated body, composed of an infinite multitude of systems of life; all, indeed, united into a whole, but each having an independent existence, These systems of life, are buds, each having a power of emitting descending fibres, in the form of roots, and also of ascending, in the form of stem. The first of these buds is the embryo; the others are subsequently formed on the stem, emitted by the embryo.

"*Propagation* is effected by the arts of *increasing by eyes*, *striking from cuttings*, *laying*, *budding*, and *grafting*.

"*Increasing by eyes*, is the simplest of all these methods: it consists in nothing but extracting a single system of life, or a bud, from a given plant, placing it in due heat and moisture, and surrounding it with fitting food, and thus causing it to grow as a solitary individual, instead of as one of the community to which it originally belonged.

"*Striking from cuttings*, is a slight modification of the last method. Instead of taking a single bud, a stem, containing two, three, or more buds, is placed in circumstances fitted for the maintenance of its life. In this case, the chances of success are increased by the additional number of buds which are the subject of experiment.

"*Laying*, is nothing but striking from cuttings, that are still allowed to maintain their connexion with the mother plant, by means of a portion, at least, of their stem."

Vines however, struck from eyes, we have always found far preferable, at all times, to layers, either for planting on the border or for vineries; they in the end produce much better and more durable plants. Cut an old vine, near the bottom, that has been raised from layers, and one that was raised from cuttings, and the difference will at once be manifest. In that raised from a layer, the same bad, spongy pith will be discernable, as when it was planted, which will be found to be of a dusky, brown colour: examine the one raised from cuttings, and it will be seen that the pith is small, and the wood sound and solid. The less pith there is in all fruit-trees, the longer they will continue sound and resist the severe weather, and produce more valuable fruit. Hence it is, that all young, free-growing, fruit trees, are better, and last longer when removed two or three times. This is particularly apparent in Peach, Nectarine, and Apricot-trees, particularly the former, and it is quite a mistaken notion, that so much time is gained in planting layers, instead of cuttings.

"*Budding and grafting*, are operations that equally depend for their success upon the property that buds possess, of shooting roots downwards, and stems upwards; but in these practices, the roots strike between the bark and wood of the stock, instead of into the earth, and form new layers of wood, instead of subterranean fibres. The success of such practices, however, depends upon other causes than those which influence the growth of cuttings. It is necessary that an adhesion should take place between the scion and the stock, so that when the descending fibres of the buds shall have fixed themselves upon the wood of the stock, they may not be liable to subsequent separation. No one can have studied the economy of the vegetable kingdom, without having remarked that there is a strong tendency to cohesion, in bodies parts, that are placed in contact with each other. Two stems are tied together for some purpose; when the ligature is removed they are found to have grown into one. Two cucumbers, accidentally placed side by side, or two apples growing in contact with each other, form double cucumbers or double apples; and most of the nominal modifications of the leaves, floral envelopes, or fertilizing organs, are due to various degrees of cohesion, in contiguous parts. This cohesion will be always found to take place in the cellular tissue only, and never in the vascular tissue.

"*Budding* differs from grafting, in this—that a portion of a stem is not made to strike root on another stem, but that, on the contrary, a bud, deprived of all trace of the woody part of a stem, is introduced beneath the bark of the stock, and there induced to strike root. In this operation, no care is requisite in securing the exact contact of similar parts, and a free chance for the transmission of the roots of the bud between the bark and the wood, of the stock; for, from the very nature of the operation of budding, this must of necessity be ensured. Transplanting, is, perhaps, that operation in which the greatest difficulty is generally found to exist, and in which the causes of success or failure, are often the least understood. Volumes have been written upon the subject, and the whole range of vegetable physiology has been called in aid of the explanation of the theory; yet I am much mistaken if it cannot be proved to depend exclusively upon the two following circumstances: 1st,—the preservation of the spongioles of the roots: and, 2nd,—the prevention of excessive evaporation. It is well known that plants feed upon fluid contained in the soil, and that their roots are the mouths through which the food is conveyed into their body. But the absorption of fluid does not take place either by all the surface of their roots, nor even of their fibres, but only by the extremities of the latter, consisting of bundles of vessels, surrounded by cellular tissue, in a very lax, spongy state, whence those extremities are called spongioles. That it is only through the spongioles, that absorption to any amount takes place,

is easily shown, by growing a plant in water, and alternately preventing the action of the spongioles, when languor and a cessation of vital action comes on; and preventing the action of the general surface of the roots, leaving the spongioles at liberty, when the vital energies are immediately renewed.

"These spongioles are exceedingly delicate in their organization; and a very slight degree of violence destroys them. It is scarcely possible to remove the soil from the roots, without injuring them in some degree; and if transplantation is effected violently or carelessly, they are in a great measure destroyed. Wherever the roots are cut through, the new fibres which are emitted (provided a plant is in perfect health,) in short tufts, and each terminated by a spongiole, are much more easily taken out of the ground without injury, than if they were longer, and more scattered among the soil. When destroyed, the spongioles are often speedily replaced, particularly in orchard trees, provided a slight degree of growth continues to be maintained. This is one of the reasons why trees removed in October, succeed better than if transplanted at any other time. The growth of a tree at that season is not quite over; and the first impulse of nature, when the tree finds itself in a new situation, is to create new mouths by which to feed, when the season for growing again returns. Evaporation takes place in plants to an inconceivable degree, in certain circumstances. It is known by the experiments of Dr. Hales, that a Sun-flower plant will lose as much as 1lb 14oz. by perspiration, in twelve hours; and that in general, 'in equal surfaces and equal times, a man would perspire $\frac{1}{50}$, the plant $\frac{1}{1653}$, or as 50 : 15;' and that, taking all things into account, a Sun-flower perspires 17 times more than a man. The same most accurate observer found that a Cabbage perspired in twelve hours, 1lb 9oz.; a Paradise Stock in a pot, 11 ounces; and a Lemon Plant, 8 oz. Guettard states that he found Cernus Mascula perspire twice its own weight in a day; and Mr. Knight has remarked a Vine in a hot day, losing moisture with such rapidity, that a glass placed under one of its leaves was speedily covered with dew, and in half an hour the perspiration was running off the glass. In damp or wet weather this evaporation is least; in hot dry weather, it is greatest. This loss has all to be supplied by the moisture introduced into the system by spongioles; and hence, if the spongioles are destroyed, and evaporation takes place before they can be replaced, a plant must necessarily die. This is the reason why deciduous trees cannot be transplanted when in leaf; it is impossible to remove them without injuring their spongioles, and it is equally impossible to hinder the evaporation by their leaves; but if they are kept in pots, it matters not at what season their removal takes place, because, as their spongioles are then uninjured, even excessive evaporation would be made good by their action. It is well known that certain evergreens, such as Hollies, Laurels, &c., can be transplanted in almost all months; this arises from their perspiration being much less copious than in deciduous trees; wherefore the spongioles have less difficulty in supplying the loss occasioned by it; yet, even evergreens cannot be removed in the hottest months in the year, because then, the action of such spongioles as may be saved in the operation, would not be sufficient to supply the waste caused by evaporation."

From this most valuable introductory article, it will be seen that our statement was incorrect, with regard to *Mr. Lindley's Lecture*, published in our first number; this Introduction appears to contain the very subject of those Lectures. We are not always able to confide on the accuracy of every statement that reaches us; but where any error does appear, we shall always feel happy to correct it.

The Work next commences with excellent descriptions of Apples, followed by Apricots, Cherries, &c. The descriptions are most accurately given, and

the remarks on propagation, &c. generally good. On the cultivation of the Moor-Park Apricot, Mr. Lindley has the following very judicious remarks.—

"*The Moor-Park Apricot*, in some situations, is apt to be affected by the canker in different parts of the tree; thereby occasioning a partial loss of its limbs. When this takes place in old trees, it is too late to apply a remedy; but its occurrence may be prevented by taking up the young tree, after it has been trained three or four years, cutting off close those roots which have a perpendicular direction, and spreading out the others horizontally, and replanting it again; taking care that the part where it had been budded, be kept six or eight inches above the surface of the ground. If this be carefully performed, without shaking the mould off the roots, the progress of the tree will be but little impeded by the operation. At the end of three years more, this should be repeated in the same manner, after which it will rarely happen that any of those local injuries will take place"

These observations may not only be applied to the Moor-park Apricot, but are calculated to benefit all other descriptions of fruit-trees, that are not in a weakly condition.

Mr. Lindley, we observe, recommends, "copious watering at the roots" of the Persian Melon:—now, we have cultivated them ever since their introduction, but were always careful to treat them exactly opposite to these directions, by giving them as little water at the roots as possible. Indeed the best flavoured Persian Melon we ever tasted, never had a drop of water given at the roots, from the time of planting. We use a strong clayey loam, and cover the bed with sand, which prevents the soil becoming dry. Cuttings are preferable, under all circumstances, either for Cucumbers or Melons.

Mr. Lindley has evidently never visited the Highlands of Scotland, or he would never have thought of recommending what sorts of Peaches, and Nectarines, would best thrive there on the open wall. We also think he has been too copious in his kinds of Apples recommended for that district. However, these are but minor points, and perhaps hardly worth notice, as, taking it on the whole, the work is extremely valuable to all persons who possess small or large gardens; and we can safely recommend it to the attention of the public.

2.—Gardener's Magazine; Edited by J. C. Loudon, F.L.S. &c. Published every two months, price 3*s*.6*d*.

No. 33, for August, contains

Page 461.—Art. 13.—*On a Method of Growing the Melon.* by Mr. John Lovell, Brecon.

The method Mr. Lovel has adopted of growing the melon, is;—1st, well bedding and firmly rooting the plants, to support a good crop of fruit; and 2nd, in early setting, and preserving the first fruit, and forcing the whole of the plants luxuriantly, through the whole of the period necessary for their maturity.

To effect this, he prepares his bed with dung, well watered and fermented, or tan, not wishing to have so strong a heat as for cucumbers. The seed is sown in pots, in which the plants are to remain until they are turned into the hills, leaving only three plants in each pot. They are placed on the dung, in order to start them, as soon as the bed is made up, unless there should be another bed in use at the same time. As soon as the second rough leaf appears, a hill of good loam and turf, mixed with a sixth part of rotten dung,

which is not to be sifted, is put under each light. If this is dry, it is to be well watered, and the hills are trodden firmly, making a hole in the centre of each, and turning out a pot of plants, with the ball entire, into each hole. Should the weather be very warm, they are watered over the head abundantly; and in the space of a fortnight, they will have grown to four or five joints each. They are then stopped down to three joints. By this time the heat of the bed will have become reduced, mound up the plants, well treading in, and watering as you proceed. The above stopping will cause them to push strong horizontal shoots from the three eyes that are left, and they will seldom fail showing fruit at the first joint; you may rely, at least, on two out of three of these fruit setting. Before the plant comes into blossom, the bed must be covered an inch and a half thick with dry sand, or with soil if sand cannot be obtained, and the bed must not be watered for at least three weeks. All shoots that appear, except the three above-mentioned, must be removed. In pruning, great care must be taken, never to stop the three shoots that bear fruit; nor yet, the lateral ones produced from the same joint as the fruit,—these lateral shoots will show fruit, which must be preserved till the other is swelling, and then taken off. All laterals that spring from the main shoot, must be stopped to one joint and leaf only.

3.—The Garden; or Familiar Instructions for the Laying-out and Management of a Flower Garden. Illustrated with engravings on wood and steel. 3*s.*6*d.* plain, 4*s.*6*d.* coloured.

This little volume forms the sixth of a series, called, the "*Little Library*" which, when completed, will contain a fund of information, in the various branches of useful knowledge, on which it proposes to treat. "The Garden" is complete in itself, and being rich in practical information on Floriculture, is, we conceive, calculated to be a useful little work to young persons. We would recommend all ladies to purchase it for their children, who delight in Floricultural pursuits, Each letter is clear and comprehensive; the engravings are executed in a masterly style; and the book is very neatly got up; and although the volume is very small, if we take the above into consideration, we cannot consider it dear.

4.—Transactions of the London Horticultural Society. (Second Series,) Vol. I., Part I.

We mentioned last month that this Part was rich in information; two papers are particularly so, because they allude to two important fruits, *Pines* and *Apricots*. The former is taken up by Mr. Munro, Head-Gardener to the Society, who has given ample proof of his competency to the task he has undertaken. The information he has afforded is of the highest importance to gardeners, and others, who cultivate this fruit, and will, we feel assured, be perused by them with considerable interest. The *Apricots* are treated on by Mr. R. Thompson, Under Gardener in the fruit department, in a manner that does him credit. If we had had room this number, we would have condensed one or both of these papers, and inserted them for the information of those who are not in possession of the Society's Transactions; but as we are much pressed with matter, we shall content ourselves this time, by merely extracting the following communication.—

On the Destruction of Snails. In a Letter to the Secretary, from Mr. James Corbett, of Newhouse, Leintwardain. Read September 15th, 1829.

Mr. Corbett, discovered, that, by sprinkling quick-lime lightly over the beds, and adjoining alleys and walks, about ten o'clock at night, after a wet and very dewy evening, he usually found a large number of snails, some of them exceedingly small, dead on the following morning; but some always escaped, and these he supposed to be of another species, which did not leave their hiding places so early in the evening as the others. He therefore tried the effect of sprinkling the lime over the same beds and walks about three o'clock in the morning; and by these means, in a short time, Mr. Corbett found that snails of every kind ceased to trouble him, where before they were very abundant and destructive. The lime used should be fresh burned; and after repeated trials of this method, it has never been known to fail.

5.—Transactions of the Caledonian Horticultural Society

Postscript to Dr. William Howison's Paper on the Culinary Vegetables of the Russian Empire. Communicated by Mr. Howison, and read June 7th, 1827.

Russian Cucumber.—The following receipt for salting cucumbers, I received from John Booker, Esq., British Vice-Consul, at Cronstadt, and its accuracy may be depended on. Wash the cucumbers clean, put them into a keg, pour a pickle of salt and water upon them, till the keg is full. The general quantity of salt is about four ounces and a half to each gallon of water. The universal seasoning is dill-tops, before the seeds are ripe, with black currant and oak leaves. People of more refined taste, add some garlic, horse-radish, and even sweet herbs; but the last very seldom. The keg must be hermetically secured, to exclude the air, and must not be too large, as the sooner used, after being opened, the finer are the cucumbers.

Russian Method of Preserving Culinary Vegetables through the Winter.—Cabbages are preserved in the gardens, (set close together to save room,) by building a roof over them, of old boards, covering them with old dung off the hot-beds, or the cleaning of the gardens; and then shovelling over the whole, the earth from the adjacent beds. If the ground is dry, and it is possible to dig downwards, the house, if so I may call it, will be warmer; but the best situation is the brow of a hillock. Two tubes or chimnies, are adapted, to let out the confined air, when it thaws, or towards spring. Leeks, celery—in short, all similar vegetables may be preserved in the same way. The chimney must be stuffed up when it freezes. An arrangement of this kind would do well in some of the northern parts of Scotland, where there is plenty of whin, broom, or heather, to make a covering, and where the frosts are never remarkably severe.

The following is the mode of preserving French-beans, parsley, celery-leaves, and spinage, through the winter. Gather the leaves or beans without washing them, and put into a barrel without a head, alternate layers of vegetables and salt. Then put a board upon the vegetables, and a weight upon the board, which will now be covered with the juice of the vegetables. When wanted for use, take out the quantity required, and wash it carefully, retaining the board and weight. The best weight is a clean water-worn stone, tolerably heavy. The watery juice towards the board excludes the action of the air, and prevents putrefaction. Parsley, celery, and spinage leaves, carefully dried, and kept from moisture, are excellent for soups, &c.

6.—Flora and Pomona. By C. McIntosh, C.M.H.S., &c. 8vo. coloured, 1*s.*8*d.*

Is not the least in interest, among the monthly periodicals; however we think there is one little fault, relative to the date, which might easily be remedied.—As it is published monthly, we consider it would be much better if the month was specified on the cover, as it would prevent the confusion, which at present exists, from subscribers not knowing which was the last number published.

Part 23, for September, contains

Kirk's Scarlet Nonpareil Apple.—After much enquiry with regard to its history, (says the editor,) we can only learn, and for which we are indebted to the kindness of Mr. Joseph Kirk, of Brompton, whose name we conceive will be considered good authority, that he has cultivated it for above twenty years; and that he first received it from Mr. Grinwood, the predecessor of Messrs. Malcolms, the present judicious proprietors of the Kensington Nursery; and that he believes it was cultivated in the latter nursery, long before that period. It is recorded in the Encyclopedia of Gardening, page 691, and in other works, as having originated from seed, in the garden of a small public-house at Esher, a village in Surry, about the year 1720, whence it is probable it was received into the Kensington Nursery.

Downton Strawberry.—Cultivated under the names of Knight's Strawberry, Knight's Seedling, and Downton Seedling. It was exhibited for the first time in 1819, before the Horticultural Society. It is now acknowledged as an excellent bearer, and being naturally a late fruit, that is, seldom ripening until the principal strawberry season is nearly finished, continuing to produce blossoms and fruit, for a considerable time and when fully ripe, is of an excellent flavour.

On the Cultivation of Gooseberries.—To obtain fruit of the largest size, young and vigorous plants are chosen, and these should be planted in rich soil, and in a favorable situation, they prosper best in a humid atmosphere; hence the Lancashire and Scotch gardeners excel all others, the climate being more favourable than in the southern parts of the island. The best cultivators of this fruit practise watering in dry weather, and partially shading from the sun in the hottest part of the day, after the fruit has attained to something about half its size.

On stopping Vines from Bleeding.—Let the part bleeding be forced into a sound potato; for if any of the skin of the potato has been rubbed off, the sap of the vine will find a way to escape, and the vine will continue to bleed; but if the potato be free from any bruise, it stops the vine from bleeding. This information was communicated to the editor of the Gardener's Magazine, by Mr. Saul, of the Pomological Gardens, Lancaster.

Article II.—*Reviews of, and Extracts from, Works on Botany, &c.*

1.—Edwards's Botanical Register, &c. (New Series) By John Lindley, F.R.S. &c. Monthly numbers, 8vo. 4*s.* coloured.

In our last number, we stated, that we considered this publication was well worthy of an extended circulation. The Editor, it is true, has advantages which but few possess, of selecting specimens of rare and beautiful plants;—by which means the work always contains many interesting specimens.

No. 7, for September, contains

Mirbèlia Baxteri, Baxter's Mirbelia.—This is a plant of considerable beauty, well adapted for a trellis in the green-house, it is in flower about nine months in the year; was raised from New-Holland seed, received from Mr. Baxter, and is named in honour of M. C. F. Brisseau-Mirbel!. *Lupìnus Sabiniànus*, Yellow Perennial Lupine.—From the north-west of America, where it was discovered by Mr. Douglas. *Pæònia Albiflòra*, var. *Pottsii*, Potts's Chinese Pæony.—It is of a rich crimson colour; is a native of China; and was introduced in 1822. *Pyrus Bollwylleriàna*, the Bollwyller Pear.—It grows in the woods round the town of Bollwyller, in Alsace, where it was first noticed by J. Bawhir; it bears small orange-coloured fruit, of no value, except as it adds to the beauty of the plant. *Rose Clare.*—This deep rich crimson variety, was sent from Italy, with several other varieties of Roses, by the gentleman whose name it bears. *Pimèlia Intermèdia.*—A neat green-house shrub, with white flowers; a native of King-George's-Sound, in New-Holland, where it was discovered in 1824, by Mr. William Baxter. It succeeds well in a mixture of light sandy loam and peat; and increases rapidly by cuttings *Crócus Vérnus*, var. *pictus*, Painted Vernal Crocus. *Acàcia Leprósa*, Leprous Acacia.—A greenhouse shrub, a native of New-Holland; introduced two or three years ago, by Mr. Tate; it forms a handsome, and very upright shrub, bearing a profusion of pale yellow flowers.

2.—Curtis's Botanical Magazine, &c. (New Series) Edited by Dr. Hooker. Monthly numbers, 3*s.*6*d.* coloured, 3*s.* plain.

This Work contains much interesting information, but we conceive it would be an addition to its value, if the names of the plants figured, were accented; the young Botanist would then have no cause to refer to any other Work, for the pronunciation, which at present, he is obliged to do.

No. 57, for September, contains

Anòna Squamòsa, Undulated Custard Apple, Sugar Apple, Sweet Sop.—It is supposed to be a native of Asia; the fruit resembles the pine-apple. Brown says, "it is pretty much esteemed by many of the fair sex, though seldom served-up at table." *Tournefòrtia Heliotropioìdes*, Heliotrope-like Tournefortia.—It very much resembles the *Heliotrópium Peruviànum*, but its flowers are devoid of fragrance. It is a native of Buenos-Ayres, and was introduced by the Rev. Mr. Lansburght; it was named in honour of Tournefort, one of the greatest Botanists of France. *Trillium Díscolor*, Green-flowered Trillium.—It was introduced to the Botanic Garden, Glasgow, by Dr. Wray, from Augusta, in Georgia. Its flowers are a pale greenish yellow, and exhale a smell resembling the American Allspice; it grows freely in peat and loam. *Brassavòla Elegans*, Elegant Brassavola.—This beautiful and interesting orchideous plant, is a native of Antigua, it there grows upon stones and lofty rocks; its flowers are rose-coloured, marked with purple. *Houstònea Longifòlia*, Long-leaved Houstonia.—This plant is supposed to have been introduced into this country from the Blue-Mountains of North America, by Mr. Blair; the flowers are of a pale purple colour, *Palàvia Rhombifòlia*, Rhomb-leaved Palavia.—This is a very pretty plant; and if it will bear cultivation in the open border as an annual, promises soon to become general. The seeds were received from Mr. Cruikshanks, in the spring of 1830, having been collected by that gentleman, near Lima. Its flowers are rose-coloured. *Asplènium Nidus*, Bird's-Nest Spleenwort.—This fern, in its native country seems to be a parasite on the

trunks of trees. It is to be found in the peninsula of India, and islands of the Indian Seas, extending to those of the Pacific Ocean. Linnæus says, "The root fixes itself upon the lofty trees, whence the leaves rise erect, and arrange themselves in a circle, like an umbel, in the hollow centre of which, birds are frequently accustomed to build their nests," from which circumstance its specific name is derived.

3.—The British Flower Garden. By Robert Sweet, F.L.S. 8vo. Monthly. Coloured, 3s. Plain, 2s. 3d.

No. 28, for September, contains,

As will be seen, a fine figure of the *Ribes Sanguíneum*, Red-flowered Currant. (Which we would particularly recommend to be purchased by every person who possesses an ornamental garden; as well as the *Salpiglossis Barclayana*, which although more difficult to keep, is, nevertheless, a most beautiful plant, that well deserves every attention it may require.)—This species of currant is inferior in elegance to no hardy shrub we possess. Early in spring, it is clothed with innumerable pendulous racemes of purplish red flowers. It was introduced by Mr. Douglas, in October, 1826; it is as hardy as the common currant. *Soldanélla Alpìna*, Alpine Soldanella.—This is an old inhabitant of our gardens, having been introduced about the middle of the sixteenth century; it is a beautiful little plant, native of the Alps of Europe; it will not live in the open border, but must be grown in a pot, in a mixture of loam, peat, and sand, taking care the pot is well drained. *Ornithógalum Fimbriàtum*.—It is an elegant species, native of Tauria, in groves and on the edges of woods; the flowers are white. *Salpiglóssis Barclayàna*, Mr. Barclay's Salpiglossis.—This elegant plant is a hybrid, between *S. Picta* and *S. Purpurea*, raised from the seeds of the former, by Mr. Cameron, formerly gardener to the late Robert Barclay, Esq.; the flowers are of a bright brown colour, on a yellow ground, becoming darker by age.—If the seeds are sown on a hot-bed in spring, and the plants planted out in the open border, about the end of April or the beginning of May, they will be in full flower in July; or if the plants are protected during winter, they will flower early in spring.

4.—The Florist's Guide. By Robert Sweet, F.L.S., &c. 8vo Monthly. Coloured, 3s. Plain, 2s.

Every Amateur who could spare 3s. per month, should possess this work, as it contains many useful directions for management, as well as a figure of every new flower, that is worthy of notice. The drawings and colouring are excellent.

No. 49, for September, contains

Rose Galatea Tulip, *Tùlipa Gesneriàna*, var. *Ròsea*.—This is a most beautiful Tulip, and was in the collection of Mr. Pile, Cambridge Road, who has now given up the cultivation of Tulips altogether. Florists are recommended to see that their bulbs are well dried and cleaned before they are put away in boxes for planting, in November; as any dampness will prove injurious. The soil of the bed in which they are intended to be planted should be provided, turned, and sweetened, during the summer. Solon Picotee, *Diánthus Caryophyllus*, var. *Germánicus*. This is one of the curious varieties which the French florists call "Œillets Allemands, or Fleurs de fantasie." The flower called Prince George of Cambridge, is recommended as one of the finest and newest Picotees that has lately come under observation. Adrian Ranunculus, *Ranunculus Asiáticus*, var. *Adriànus*.—The flowers are a beautiful yellow colour, tinged with green towards

the base. The editor recommends the roots of Ranunculuses to be taken up at, or before the end of July.—Let the dirt be carefully rubbed off with the fingers, within a day or two after, while the claws are in a pliant state; dry them in an airy, but shady room, for if exposed to the sun they are apt to shrivel. When dried, put them in paper bags, and keep them in a dry part of the house. Lawrance's La Joie Tulip, *Tulipa Gesneriàna* var. *Lætifica*.—This very delicately marked Bybloemen Tulip was raised from seed, by the late William Clark, Esq., of Croydon; and was sent, with several other breeders, to his friend Mr. Lawrance, of Hampton, under whose care and cultivation, it first broke into its variegated state.

5.—Botanical Cabinet, By Messrs. Loddiges. Monthly numbers. 4to. coloured, 5*s*., 8vo. partly coloured, 2*s*.6*d*

Part 173, for September, contains

A very good selection, and some of them new. To those who have a stove, we particularly recommend the *Gesnéria Bulbosa*, as a very handsome addition to the plants. We should consider it a very great improvement to this little work, if the names were accented; that the young botanist may, when he possesses it, have a complete work, without having to refer to another for accentuation. *Ibèris Tenoriàna*,—This is a native of Naples, and was introduced about the year 1822. It is named in compliment to Professor Tenore; its flowers are a delicate white; it will bear our winters, may be increased by parting the roots, and thrives in light loam. *Phlóx Procúmbens*.—This beautiful plant has been lately brought into cultivation; it is perennial and quite hardy; its flowers are rose-coloured, tinted with purple; is increased by parting the roots, and thrives in light loam. *Grevíllea Sulphùrea*—A native of New South Wales, raised from seeds, by Messrs. Loddiges, in 1826. It requires the protection of the Green-house, and its interesting yellow flowers appear in May; it thrives in sandy peat soil, and is increased by cuttings. *Gesnèria Bulbôsa*.—This handsome stove plant was brought from Rio Janeiro, by Mr. F. Warre; it bears abundance of fine red flowers, and may be increased by cuttings, thriving in loam and peat. *Andrómeda Polifòlia revolùta*.—This, as is well known, is perfectly hardy, being a native of the north of Europe; it thrives in peat and loam. *Prímula Pusílla*.—A very delicate plant, bearing white flowers, bordered with rose-colour or purple; a native of Canada; it thrives in a pot of peat and loam-earth, and requires shelter in the frame in winter. *Erica Patersòni*.—This elegant plant was introduced from the Cape of Good Hope, in 1791; its bright, gold-coloured blossoms are very magnificent. *Erica Regérminans*.—This was introduced from the Cape of Good Hope in 1791; and is well known in our Green-houses. *Pyrus Spectábilis*.—This is a most beautiful hardy tree, a native of China, introduced by Dr. Fothergill. *Begònia Dipétala*.—This is a native of Bombay, and was raised at the Edinburgh Botanic Garden, in 1828, it requires the stove, and thrives in light loamy soil; it is increased by cuttings.

PART III.—NATURAL HISTORY.

ORIGINAL COMMUNICATIONS.

ARTICLE I.—*Ideas on forming a New Garden, in the neighbourhood of London, for the collective purposes of the Zoological, Horticultural, and Medico-Botanic Societies.* By JOSEPH PAXTON, F.H.S., Gardener and Forester to His Grace the Duke of Devonshire, and one of the Conductors of this Magazine.

THE chief reason of our calling the attention of the public to this subject, at the present time, is from the announcement of the new Zoological Garden, now forming on the Surrey side of London.

Six years ago, not a Zoological Society existed in this kingdom, but now, it appears, there are to be two in the vicinity of the metropolis; and in the country, one or two more are in agitation:—this is as it should be, in such towns as Liverpool, Manchester, &c. and we feel decided pleasure in the prospect of any means that tend to the improvement of Science; we cannot, however, help observing, that we fear Science will derive but little real benefit from the establishment of another Zoological Garden, near London. The projectors will excuse our remarks,—but if their assiduous and very valuable exertions, had been united to those of the original Society, a Garden might have been formed, far surpassing any thing of the kind ever yet established.

The income of the Regent's-Park Society, may have spoken volumes in favour of the new establishment, but a little consideration will convince the latter, that they must necessarily labour under many difficulties, in the way of public support. Most of the nobility, and many scientific men, lend their aid to the Regent's-Park Society; and the distance that the new projected Garden, will be from the fashionable circles of the West end, will make it probable that its main support will be derived from individuals residing in the immediate neighbourhood; this being the case, the limits of its funds, we fear, will be so contracted, as to prevent it ever becoming of sufficient interest to answer the ends originally intended by its projectors. But supposing our conjectures to be ill-founded, and the new Society does meet with support and patronage from the higher circles;—Will not such division of patronage and support, greatly injure the interests of both Societies? Instead of promoting Science, will not these steps, in the end, be the means of retarding its progress? Before

many years are elapsed, is it not probable, that it will plunge both Societies in a complication of unnecessary difficulties? And, will not having two Societies of the same kind, in the end, defeat the very purposes they intended to espouse? If these questions were left for us to answer, we should certainly decide in the affirmative;—we however, as we said before, hail with every good wish, any attempt to promote the different branches of Science in our own country, and we consider those to be its real friends who assiduously labour, in the face of difficulties, to establish a Society for its promotion, similar to the valuable projectors of the Surrey Garden.—We wish them every good success, but we must say again, that we much regret their labours and their funds were not added to those of the original Society, in order to form a new Garden, on the north-west side of London, on a much larger scale, to contain a most extensive collection of everything that could be introduced into this country. This, we are satisfied, would be far preferable to that of having two small Gardens, containing the same kind of things, and neither of them capable of extending their limits.

Within the last thirty years, various institutions have been formed, for the advancement of Science, in this country.—The Horticultural, Zoological, and Medico-Botanical Societies, are amongst the leading ones, for the encouragement of those particular branches of Science to which they are devoted.

This country has long been justly upbraided for its tardiness in establishing places of natural enjoyment, on plans similar to those of a neighbouring nation; but from the unparrelled success of the Zoological Society, it is evident, that it was not for want of taste, or public spirit for support, but merely for want of being set about by some qualified body of men. Five years only have elapsed, since the Zoological Society was established, and their income last year, was upwards of £16000! The expense of keeping so many beasts, birds, &c. though necessarily great, must, we should think, be trifling, in comparison with this enormous revenue.

The Garden was soon found too small, for conveniently holding all the different things that were continually pouring in from all quarters to increase the collection, and consequently, a very considerable expense has been incurred, in partially enlarging it,—however, it strikes us, that even now, it will soon be found incapable of containing all that will be ultimately wanted, and to say the best of it, if finished according to the present plan, it will be but a puny affair, without any arrangement or connexion whatever. When the Society was first established, no doubt its managers fancied the extent of ground would be sufficient, but the success they have met with, renders it necessary that something on a more magnificent scale, must in the end, be undertaken.

In order to put a stop to the idea of another establishment being necessary in the neighbourhood of London;—what we would recommend,

is, that the Horticultural, Zoological, and Medico-Botanic, Societies, be incorporated together, and form an entirely new Garden, for their collective purposes; the advantages that would arise from having a Garden for the three Societies, are many. The same ground that would be occupied with a collection of birds, beasts, &c. might just as well contain a Botanical collection, the plants could be used for the experimental purposes of the Horticultural and Medico-Botanic Societies, and would, at the same time, greatly ornament the Garden, and excite the public interest. The paramount idea, however, is expense; a little consideration will convince any person, that the augmentation of cost would be very trifling more, to keep up a Garden that would contain collections for the three Societies, than it now does for either the Horticultural or Zoological, separately.

We have subjoined a rough plan how such a Garden might be formed, to contain specimens of every genus in the creation, We would divide it into four parts, as will be seen by a reference to the plan; and adapt one to each of the different Quarters of the Globe, making those Quarters largest, that contain the most extensive collections;—these Quarters might be again divided into the different States they contain, and thus, in connexion with Zoology and Botany, would be given a practical acquaintance with Geography.

Tha quantity of ground necessary for such a purpose, would be about fifty acres; twelve of which might be devoted to water,—this would not only be useful for water plants, fish, aquatic fowls, &c. but would also greatly enhance the beauty of the Garden, as well as considerably reduce the expense of labour and other contingencies. To occupy the same space with flowers, shrubs, or any Arboriculture, would take away the airiness and general effect, and would be too far to be minutely examined from the walks, without going on the grass for the purpose, which is at all times objectionable in a public garden.

Four ranges of hot-houses might be erected, and adapted to contain specimens from each Quarter of the Globe;—these could be so arranged that plants, beasts, birds, and even insects, from each hemisphere, might be placed according to their natural affinities to each other. Each range of houses should be made about 100 yards long, and spacious; with as many specimens of plants planted in the ground, as would be practicable;—insects could be kept in close wired cages with glass doors, so as to be distinctly seen;—portions of the houses, in different places, could be encircled with fine wire, for birds that required artificial heat;—and the whole range of the back-wall might be so contrived, as to contain beasts of every description, that could not bear the climate in the open air; with shutters made to slide up and down, so as to intercept the view whenever it was necessary. No partitions would be requisite in the range, as it is well known to every practical gardener, that a hot-

house 50 feet long, heated by flues, has sometimes as much as 10 degrees difference of temperature, between the extreme ends. Steam would be the most proper mode of heating, as it could be adapted to particular purposes, much better than either hot-water or fire-flues.

The centre, containing about five acres, would do well for domesticated animals, each Quarter of the Globe, having its share allotted to it. A curved iron-fence a little above the surface of the water, would be a complete barrier, for a partition.

The space allotted for the Kitchen-Garden, about four acres, would be almost more than sufficient for any experimental purposes that might be required.

On each division devoted to the different Quarters of the Globe, on either side of the outer walk, could be put masses of the most beautiful plants that were natives of their respective Quarters. Little huts, similar to those in the present Zoological Garden, should be arranged all along on each side of the circular walk; also temples, pagodas, well-regulated refreshment rooms, &c. All the beasts, birds, insects, &c. that were natives of America, should come into the division designed for America, and so on, in every other Quarter;—a similar plan should also be adopted with regard to the plants. The right-hand side of the outer walk would be sufficient room to contain a complete Natural Arrangement of herbaceous plants, and hardy trees and shrubs, there would be abundance of room given for each of the larger orders; thus bringing together, within the reach of a walk, not quite two miles in extent, specimens of all the productions of the known world; and to heighten the effect, natives from the different parts of the Globe should attend in their respective places, in order to answer any casual inquiries, the visitors might think fit to put to them in their route round the garden.

All the beasts, birds, &c. should have both their English and scientific names attached to them, with as much of their history as could be condensed in a small space. By such a plan as this, every person who visited the Garden, would see the whole without going over the same ground two or three times, as is the case in every large public garden, we ever saw, and even then, carrying away but a feeble and confused impression both of its contents and arrangements. But here, it would be impossible, for any person, however ignorant of the place, to mistake the road, and he would, without the assistance of a conductor, see all that the place contained.

In recommending a Garden to be made something like this plan, we have several other considerations in view, but perhaps it would be well to observe here, that strongly as we recommend this plan for a public garden for the metropolis, we by no means think, that such a one would answer for a private residence, or a provincial Horticultural Garden: indeed, there is scarcely a comparison between them, for what would

be proper in one, would be quite the reverse in the other. In a private residence, diversity of walks and drives, when properly arranged, constitutes one of its greatest ornaments; when the same thing, in a Metropolitan Garden, would be the very worst thing that could be done. For this reason, in a private residence, the owner is delighted with a variety of walks, drives, &c. as much diversified as possible, in order that he may not always be in the same path; but the same individual, in a public garden, dislikes it because of its many intricacies, and the constant confusion it creates. Neither, as we before said, would it be proper to have public gardens on this plan, near large provincial towns; as such gardens are not large, and are mostly visited by persons living near the place, and who are generally well acquainted with its arrangements, and are also in the habit of constantly visiting it. But a public garden in the neighbourhood of London, would be rarely or ever visited by the same individual above once or twice in the course of the year, and in some cases not so often; for which reason, the easiest and most straightforward arrangement would undoubtedly give the greatest satisfaction.

We are fully satisfied, that such a Garden, as the one we propose, might be kept in high order, with nothing more than the present revenue of the Zoological Society. And as the Horticultural Society, is now in a feeble state, we cannot see how that very useful Society is to be carried on, if something of the sort be not resorted to; for the numerous provincial Horticultural Societies, established in almost all the populous districts in the kingdom, and some of them little inferior to the parent Society itself, must undoubtedly take away a very considerable share of patronage and support, which the London Society used to enjoy.—For a gentleman living in the neighbourhood of a provincial Society, from local interest and other causes, naturally becomes a Subscriber, and to belong to the London Society also, becomes rather too severe a tax upon his finances.

One of the advantages that would arise from such a Garden as we have pointed out, is the support it would meet with, from country visitors to the metropolis;—they would consider it as necessary to see the Garden, as the most attractive sight in London. The money taken from these country visitors alone, would go very far towards defraying the Society's expenses, to say nothing of Subscribers, London and foreign visitors, &c. &c.

The Council of such a united Society, might consist of twenty-four individuals, eight from each Society; those in the interests of the three respective pursuits, to sit separately, for the advancement of their different Sciences,—but in pecuniary affairs and general arrangement, they should always be incorporated and act together.

Three pounds, would be quite enough to be paid yearly, by each Fellow, which should give him the same privilege as that granted by the present Zoological Society, viz.—to give tickets to his acquaintances, to see the Gardens, on payment of one shilling each. This would always keep the place highly respectable, and be an inducement to gentlemen in all parts of the kingdom, to become Subscribers; as it would, undoubtedly, give them great pleasure to have it in their power to give a ticket of introduction, to any of their friends.

We think, too, some improvement might be made with regard to the privileges of Subscribers. Each Subscriber should enter himself to pay yearly, £1, £2, £3, £4 or £5, as suited his inclination:—and the Subscriber of £1, should have the same privileges as the Subscriber of £5, except one, viz.—for every pound he paid, he should have 20 tickets of admission for his friends By this pre-eminent privilege being given to the highest Subscribers, many would be induced to become Subscribers of £4 or £5, who would otherwise have subscribed but £1, and would be one means of increasing the number of them.

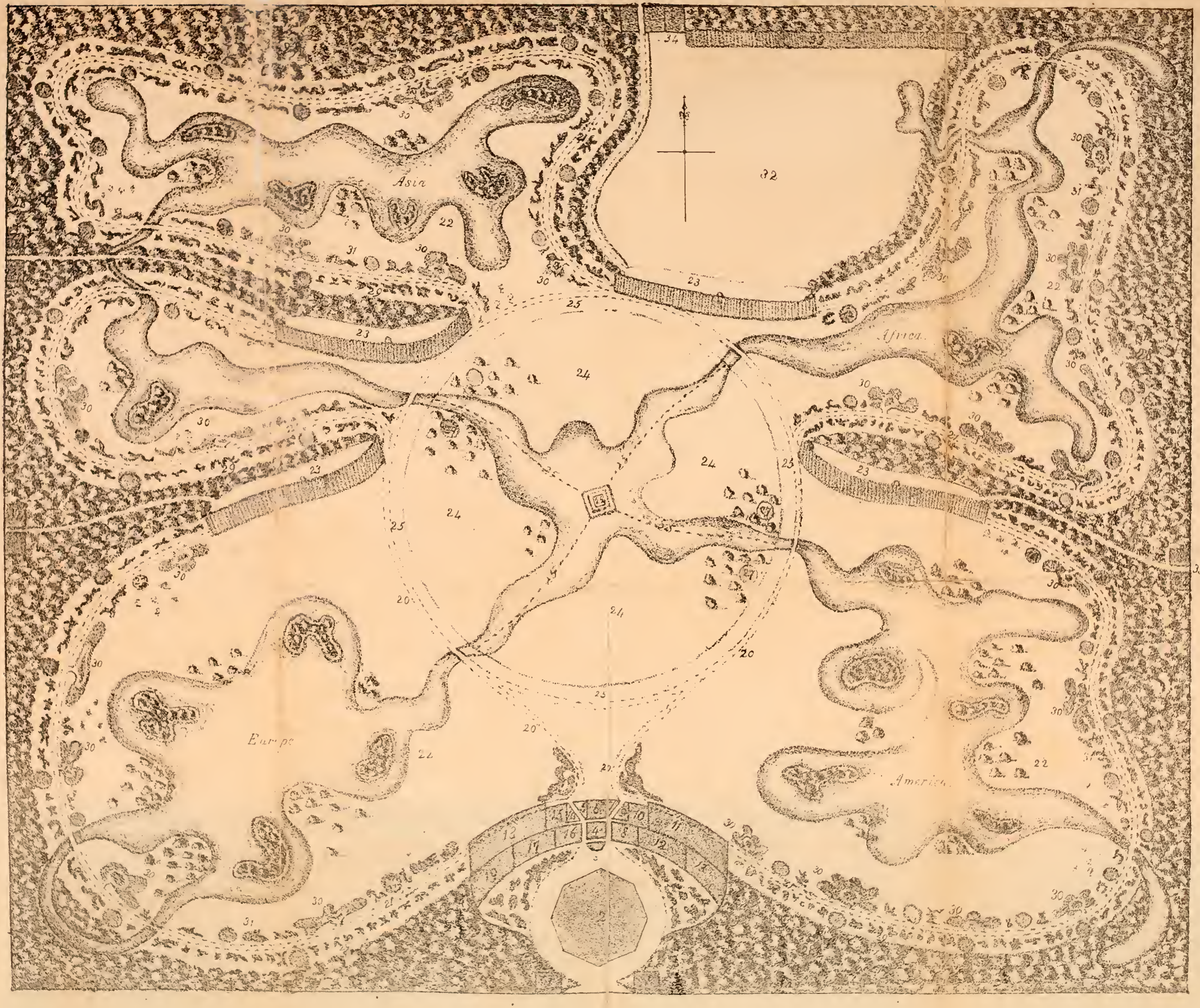
In recommending a plan like the present, to the especial attention of the Societies in question, we have no other motive in view, than a desire to see all their scientific objects carried into effect, and at the same time, see them accomplish something worthy of a great nation.

J, P.

REFERENCES TO THE PLAN.

1.—Entrance Lodges.
2.—Large open Shed, for holding about thirty carriages, in case of rain.
3.—Room for the person to take money, tickets, &c., and who would give cheques for viewing the Garden.
4.—To hold cloaks, great coats, umbrellas, &c.
5 —Ante-room to the Medico-Botanic Council-Room.
6.—Medico-Botanic Council-Room.
7.—Room to receive the Cheques.
8.—House for the Librarian of the Zoolgical Depatment; he should also have charge of the Zoological Museum.
9.—Ante-room to the Zoological Council-Room.
10.—Library for the Zoological Department.
11.—Museum for the Zoological Department.
12.—House for the Librarian of the Zoological Department.
13.—House for the Head Keeper of the Beasts.
14.—Ante-Room to the Horticultural Council-Room.
15.—Council-Room of the Horticultural Department.
16.—Library for the Horticultural and Medico-Botanic Department.

PLAN OF A PROPOSED NATIONAL GARDEN, BY JOSEPH PAXTON, F.H.S.



17.—House for a Librarian, who should have charge both of the Horticultural and Medico-Botanic Libraries, and also, have the care of the Museum.

18.—Museum for the Horticultural and Medico-Botanic Societies.

19.—House for the Curator of the Garden Department.

20.—Walks to enable persons connected with the Establishment, to go readily from one place to another; invalids, and others, who wished only to have a transient view of the Garden, might take this rout; and also all such persons as were fatigued on going partly round the general route, might be allowed to cross to the entrance.

21.—General route for Visitors. The right of the Walk would contain a complete Arboricultural and Herbaceous collection of Plants, arranged according to the Jussieuean or Natural System of Botany. This side, as well as the left, might have Huts, for keeping Beasts, Birds, Insects, &c. well regulated Refreshment Rooms, and Summer Houses. The left of the walk, would contain a Linnæan, or Artificial Arrangement of Plants, and masses of the most beautiful Flowers, natives of the respective Quarters in which they were put, could be dispersed regularly on the side of the Walk, and some of the more beautiful Hardy Trees on the Grass; also Huts, as on the other side, and little divisions on the edges of the water, for Aquatic Fowls and such Animals as would require to be kept near water. Insects could be kept in fine wire cages with glass doors, and could be fed on such plants as they are most fond of.

22.—To represent the Four Quarters of the World; these might be again divided into States, and those Animals, Plants, &c., that are peculiar to such States, could be put into the division assigned to them. By doing this, it would not only be pleasing to walk through the Garden, to see the beauties it contained, but it would also be an easy and delightful way of becoming acquainted practically, with Geography, as well as Zoology and Botany.

23.—Ranges of Houses: one of these to be devoted to each Quarter of the Globe, to hold such Zoological and Botanical Collections, as will not bear the open air of this country.

24.—Divisions, to contain such Animals from each Quarter of the World, as would be friendly and live together.

25.—Iron Fences for dividing the Quarters of the Globe, to keep the Animals, from the rest of the Garden, and from each other.

26.—Grand Fountain. This might be built sixty feet high; the water to fall down over wheels; these wheels, by being attached to machinery could be made to play innumerable little Fountains about the Temple This would also supply the whole Garden with water; but if any diffienlty should be found, by the surface of the ground not being level, supplies could be laid on in the highest parts of the Garden, and might communicate with the lowest by little Cascades, &c.

27.—Huts, for Animals, Birds, &c., &c. Also Summer-Houses and Refreshment Rooms.

28.—Natural Arrangement of Arboriculture.

29.—Natural Arrangement of Herbaceous Plants.

30.—Artificial Arrangement of Plants.

31.—Clumps of fine Specimens of Plants and Flowers.

32.—Kitchen Garden.

33.—Range of Hot-houses, for Horticultural Experiments.

34.—Houses for the Under Gardeners, and Under Keepers to live in.

35.—Roads to the Houses, &c. to bring and take away such things as are needful.

Article II.—*Successful Method of Destroying the House Sparrow.* By Mr. Stafford, Gardener to R. Arkwright, Esq., Willersley-Castle, near Cromford, Derbyshire.

Gentlemen,

I shall feel much obliged by your giving this an early insertion in your useful publication, as I consider that the subject will be more likely to be noticed at this season of the year, than at any other, on account of the devastation made by the Sparrows, both in fields and gardens, particularly about the beginning of autumn.

About twenty-six years ago, I went to live at Swinfin house, near Lichfield; it was surrounded by a rookery, containing many thousand nests, under which, the Sparrows built their nests, or rather formed habitations amongst the inequalities of the small wood which formed the foundations of the rooks' nests. Such were the numbers of the Sparrows, that I soon found both from reports, and by my own experience, that nothing upon which they feed escaped destruction.

I mentioned to a relation of mine, the havoc which these birds made on my crops of peas, particularly when in a green state and fit for the table; and he recommended me to make use of the following method for their extirpation.—Take a flat earthen dish, (a flower-pot-feeder will do) in this, put a quantity of soaked bread, and place it on the garden wall, or in some place where no domestic fowl will be likely to find it; by paying attention to keeping a supply, the Sparrows will attend quite regularly to be fed; then about the sixth or eighth day, mix a small quantity of *white arsenic* with the bread,—this, as well as their other food, should be given early in a morning, and before night its effects will be visible both on the old and young ones. The first time I tried it, every part of the garden and buildings, exhibited its power, in the number of dead and dying birds, and before three days had elapsed, their destruction was so complete, that I could scarce hear one about the premises. My curiosity, led me to examine the ground under the rooks' nests, which I found thickly strewed with the young Sparrows, which had been thrown out of the nests as soon as life had become extinct.

This method I practised for the five years I was with the Swinfin family, and always with the same success; I likewise recommended many farmers to try its effects, who all found it to exceed their expectations. A neighbouring clergyman applied to me, one morning, for a little of the mixture, and before the evening he desired me to go and witness the destruction it had made.

I have since, felt warranted in recommending it whenever I had an opportunity. And, after 25 years experience, I feel anxious to com-

municate it to the public, well knowing, that in many instances, the loss occasioned by these birds is more than equal to the tythe of the crop, and I think that most practical men who have made observations on the corn fields at the time of harvest, will be of the same opinion. If the whole of a parish were to put the above plan into operation, in the month of June, I make no doubt that almost every bird might be destroyed. And when we take into consideration, the great sums paid annually, in some parishes, to persons who undertake to destroy these birds, I think the method here explained, will be found not only the best, but likewise the cheapest.

Small as these birds appear, their consumption of grain in the fields, both in seed time and harvest, is very great; they, very often, taking almost every grain all round the field, to the breadth of eight or ten feet, and frequently to as many yards: and their destruction of the roofs of thatched buildings, is perceptible to every one.

It is no trifling loss to a corn-grower, to lose the quantity of grain these birds consume in the corn-stacks and farm yard;—I am of opinion that each bird will eat as much as its own weight, of corn, daily. Now, I have known as many as 3000, caught in a single day on one farm, with a net;—suppose we allow two ounces for the average weight of each bird, the consumption daily, would be about ten bushels of corn. It may be said, that if these birds did not eat the loose corn, it would in a great measure be lost, but this could not be the case if a sufficient quantity of fowls were kept.

As this, will probably fall into the hands of many persons who may have experienced as much of their mischievous effects on garden crops, &c. as I have done, I hope to hear of the practice I now recommend, being well tried, jointly in each parish.

I remain, Gentlemen,

Yours, respectfully,

Willersley, August 22nd, 1831. GEORGE STAFFORD.

ARTCLE III.—*On the Gaultheria Shallon, as a valuable food for Bees.* By DR. BEVAN, Author of the "Treatise on the Honey Bee."

GENTLEMEN,

IN your number, now before me, of the Horticultural Register, I observe a notice of the GAULTHERIA SHALLON. As a correspondent of Mr. Knight, the President of the Horticultural Society, I have several times received communications from him, respecting that

shrub, more particularly in relation to its value as affording food for bees. As his observations may not be unacceptable to you, I shall extract them from his letters.

"I have obtained a shrub, from the west coast of North America, the blossoms of which contain more honey, and I think of finer quality, than I have observed in any other, The blossoms are very similar to those of the Arbutus, a species to which the plant above mentioned, the Gaultheria Shallon, is very nearly allied; and the trees are a good deal similar in form and stature, though I think the Gaultheria Shallon, rather more nearly resembles a Laurustinus. Each flower appears to me, to contain as much honey in five drops, as the boney-bee usually carries home at once. The plant is supposed to be perfectly hardy, and is to be propagated by slips and by seed, to any extent, without trouble. It grows under the shade of trees, in North America, and will probably bear a good deal of shade in our climate. It is a very ornamental plant, which I shall be happy to put you in possession of; and it bears a fruit, very similar in form to a wim-berry or bilberry, which it resembles in colour, but is as large as a middle-sized grape; and Mr. David Douglas, who brought it home, to the Horticultural Society, assured me, that it is very sweet and palatable. He himself at one time, lived wholly upon it, for three days and a half."

In a subsequent letter, which accompanied one of the above plants, Mr. Knight informs me, that it does not thrive with him, under any mode of culture, though patient of cold. I have not, myself, been long in possession of it, and can therefore say nothing respecting it, from my own observation.

Wishing every success, to your interesting and useful periodical,

I am, Gentlemen,

Yours, respectfully,

Ferry-Side, near Carmarthen,
July 13th, 1831.

Edward Bevan.

PART IV.—NATURAL HISTORY.

REVIEWS AND EXTRACTS.

1.—Montagu's Ornithological Dictionary of British Birds. By James Rennie, A.M., A.L.S., Professor of Natural History in the London University. 8vo. £1. 1*s*.

So far as we have seen of this Work, it appears one of considerable merit, it contains the fullest and most pleasing accounts of our British Birds, that has hitherto appeared;—the Editor has described their characters, habits, &c. with great minuteness and accuracy; but as we have taken only a cursory view, we forbear to say anything further this month, as we certainly cannot find space to insert our views and opinions, in so copious a manner as such a work deserves. We shall only, therefore, extract the following account of the Butcher-Bird, (*Lanius excubitor*,) and reserve our remarks for a future number.

"The Great Cinereous Shrike, or Butcher-Bird, is rather a scarce bird in England. It is said to breed in some of our mountainous situations, coming in May, and departing in September. However this may be in general, the only two which came under our inspection were both males; one was killed on the fifteenth, and the other on the twenty-second of November, in Wiltshire.

"By most of the British Ornithologists, says Selby, it is mentioned as arriving in the spring, and departing in the autumn; which would imply that it breeds in this country, and is a regular periodical visitant. From this view of its habits I must be permitted to dissent; all the specimens that have come under my observation, have been killed in the months of November, December, and January, nor have I ever heard of an individual during the summer months. It is a solitary bird, being most frequently found single, though I have more than once met with a male and female together.

"This bird is sometimes trained for catching small birds in Russia. It is said to kill rats and mice, and is valued in some countries for that property. When it has killed its prey, which consists of small birds, insects, and the smaller class of animals, it does not tear it like the hawk, but fixes it to a thorn, and then tears it to pieces with its bill. Selby thus describes the singular manner in which this bird devours its prey. 'It had just killed a hedge-sparrow, (*Accentor modularis*,) the skin of which, still attached to the thorn, is now in my possession; after killing the bird, it hovered for a short time with the prey in its bill, over the hedge, apparently occupied in selecting a thorn fit for the purpose; upon disturbing it, and advancing to the spot, I found the *accentor* firmly fixed by the tendon of the wing to the selected twig.' When confined in a cage, this bird still evinces the same propensity for fixing its food, and if a sharp-pointed thorn or stick is not left for that purpose, it will invariably fasten it to the wires, before commencing its repast. Selby found in the stomach of one of these birds, the remains of a mouse; and Montagu found in another, those of a shrew, (*Sorex arenarius*, Linn.)

"'I could never observe,' says Mr. Knapp, 'that this bird destroyed others smaller than itself, or even fed upon flesh. I have hung up dead young birds, and even parts of them, near their nests; but never found that they were touched by

the Shrike. Yet it appears that it must be a butcher too; and that the name '*Lanius*,' bestowed upon it by Gesner, two hundred and fifty years ago, was not lightly given. My neighbour's gamekeeper kills it as a bird of prey; and tells me he has known it draw weak young pheasants through the bars of the breeding coops; and others have informed me, they have caught them when banqueting on the carcass of some little bird they had captured. All small birds have an antipathy to the Shrike, betray anger, and utter the moan of danger, when it approaches their nests. I have often heard this signal of distress, and, cautiously approaching to learn the cause, have frequently found that this Butcher-bird occasioned it. They will mob, attack, and drive it away, as they do the owl, as if fully acquainted with its plundering propensities. Linnæus attached to it the trivial epithet '*excubitor*, a sentinel; a very apposite appellation, as this bird seldom conceals itself in a bush, but sits perched upon some upper spray, in an open situation, heedful of danger, or watching for its prey.'

"Audubon informs us that, 'when pouncing upon its prey, this bird seizes it with the bill first, (if *insectivorous*,) then secures it under its feet to eat it. When coming on a bird or mouse, which it has pursued for some distance, it settles its feet at the moment it strikes with its bill the cranium of the object pursued. I have seen a bird of this kind in America, he adds, carried to a considerable distance by a Carolina dove, fastened to the back and head of the dove with beak and feet. Although the toes are slender, and the claws comparatively weak, their press is powerful; and the bite it inflicts with the bill, can draw blood from a robust man's hand.

"The flight is interrupted, being performed by jerks; and when perched, the tail is in constant motion. Its voice is capable of much variation, and it possesses the power of imitating the notes of many of the smaller birds, which it is said to use for the purpose of decoying them to their own destruction. Its favourite haunts are wooded and inclosed situations. It is extremely courageous, attacking birds much its superior in size; and will not allow a hawk, crow, or magpie, to approach its haunts with impunity. Its legs and talons are slender and weak, and are never used in tearing up its prey; this is effected by the bill, which is thick, and furnished with very powerful muscles; and in this respect it strikingly differs from the rapacious order."

2.—Edinburgh Philosophical Journal, By Robert Jameson, Regius Professor of Natural History, Lecturer on Mineralogy, &c. Quarterly. 8vo. 7*s*.6*d*.

The Number for July, contains

Page 181, An Article.—*On the Geological Age of Reptiles.* By Gideon Mantell, Esq. F.R.S., &c.

Among the numerous interesting facts which the researches of modern Geologists have brought to light, there is none more extraordinary and imposing, than the discovery that there was a period, when the earth was peopled by oviparous quadrupeds of a most appalling magnitude; and that reptiles were the Lords of the creation, before the existence of the human race. These creatures of the ancient world, many of which from their extraordinary size and form, rival the fabled monsters of antiquity, existed in immense numbers, and in latitudes now too cold for the habitation of modern oviparous quadrupeds. Their remains occur in strata, far more ancient than those which contain the reliquiæ of the viviparous animals; and are found in marine, as well as in fresh water deposits. Some, from their organization, have been evidently fitted to live in the sea only; while others were

terrestrial, and many were inhabitants of the lakes and rivers. The animal and vegetable remains with which the fossil bones are associated, belong also to a very different order of things, from that in which the modern oviparous quadrupeds are placed; and we are compelled to conclude, that the condition of the earth, at the period it was peopled by reptiles, must have been very different from its present state; and that it probably was then unfit for the habitation of animals of a more perfect organization. It is moreover, interesting to remark, that some of these ancient and lost races are, as it were, the types of the existing orders, and genera; and that in the pigmy Monitor and Iguana of modern times, we perceive striking resemblances to the colossal Megalosaurus and Iguanodon of the ancient world. It is also worthy of observation, that, as in the present epoch, the herbivorous quadrupeds are those of the greatest magnitude, so, at the period when reptiles were the principal inhabitants of our planet, the herbivorous were those of the most gigantic proportions. The geological period when the existence of reptiles commenced, must, according to the present state of our knowledge, be placed immediately after the formation of the coal measures; the remains of Monitors having been found in the bituminous state of Thuringia; and those of a crocodile, in the gypseous red sandstone of England; but it is not till we arrive at the Lias, that the remains of reptiles occur in any considerable quantity. At that period the earth must have teemed with oviparous quadrupeds, and the Enaliosauri, or those which inhabited the sea, appear to have been equally numerous with those of the land and rivers. The prodigious quantity of the remains of these animals, which has, within a comparatively short period, been found in England alone, is truly astonishing; and if to these, we add the immense numbers that have been discovered in France, Germany, &c., and reflect, that for one individual found in a fossil state, thousands must have been devoured and decomposed; and that even of those that are fossilized, the number that comes under the notice of the naturalist, must be trifling compared with the quantities unobserved or destroyed by the labourers, we shall have a faint idea of the myriads of "creeping things" which inhabited the ancient world.

3.—Magazine of Natural History; Edited by J. C. Loudon, F.L.S. &c. Published every two months, price *3s.6d.*

No. 21, for August.

Has much interesting information, but our limits, this month, prevent us from making any Extracts, except the following:—

A Forerunner of Foul Weather.—It may be a useful piece of information for Agriculturists, or those concerned in getting in their crops, on the approaching season, to describe the appearance of a small cloud, which, from its rapid formation and disappearance, is likely to escape the observation of most persons, but which, from my own experience, I have found a very faithful forewarner of foul weather. It appears mostly in the mild weather of spring, summer, and autumn, when its warning token becomes most acceptable. I will endeavour to describe it in the best manner I can:—It is a small, delicately soft, thin, white, curved cloud, formed suddenly on the summit of those fine heaped clouds, termed *cumuli*, which often prevail in warm weather, and appear to tower up to a prodigious height. It is necessary to keep a watchful eye upon the summit of the *cumulus*, when this little film which I term the "storm-cap" appears; it lies closely over the rounded summit, like a silken web: in a very few seconds it will disappear; sinking, I suppose into the *cumulus*; but in a little time, and when heavy, foul weather threatens, the

film again appears, disappearing as shortly as before. Last summer, this "storm-cap" was often to be seen, and how much foul weather succeeded I well remember. So confident do I feel in this little warning cloud, that I should entertain no fear of foretelling in this my letter, the threatening weather within 24 to 48 hours, and invite the editor to testify the reality by a note.

4.—The Honey Bee. By E. Bevan, M.D. 12mo. 9s.*

Comparative advantages of Wooden Boxes and Straw Hives.—Most of the writers who have instituted a comparison between hives and boxes, have decided in favour of the former. But it is to be recollected that when forming this decision, these writers have always had in their minds, an out-door apiary, for which situation, on account of their exposure to the variations of temperature, and the alternation of draught and moisture, straw hives possess advantages over wooden boxes:—they are not so soon affected by a hot and dry, or by a moist atmosphere; they do not part so much with their heat, in winter, nor admit so much in summer; straw being, in the language of the chemists, a bad conductor of heat. Being much cheaper than any others, straw hives are of course chosen by the cottagers. Upon the storifying system, and with the advantage of a bee-house, I think wooden boxes have a great superiority over straw hives; they are more firm and steady; better suited for observing the operations of the bee, through the glass windows in the back and sides, and less liable to harbour moths, spiders, and other insects. They permit the combs, at the period of deprivation, to be more easily seperated from the sides and tops, and if well made, have a much neater appearance than straw hives.

5.—British Entomology; By John Curtis, F.L.S. Monthly numbers. 8vo. 4*s.*6*d.* coloured.

No. 93, for September, Contains,

Luperus Brassicæ.—Order *Coleoptera*, Family *Galeracidæ*.—It is found from the middle of June to the middle of August, on furze. The plant is *Orchis Morio*, (Meadow Orchis.) Of the same Order and Family, *Galeruca Viburni*. It is found from June to the middle of August, in sandy places, and in dry woods; it is also said to be found upon the Guelder Rose (*Viburnum Opulus.*) The plant is *Veronica Scrpyllifolia*, (Smooth Speedwell.) *Trochilium Bembeciforme*, the Lunar Hornet Moth, and *Trochilium Apiforme*, the Hornet Moth.—Order *Lepidoptera*, Family *Spingidiæ*.—"The larvæ of the former feeds on the wood of the Sallow, (*Salix Capræa,*) in the heart of which it spins itself up in November, but does not change to a pupa till May following. The fly comes out in the middle of July."—Lewin. The larvæ of the latter, feed under the bark of poplar and aspen trees, near the bottom; changed to pupæ in April, the fly appears in June. The plant is *Cerastium Viscosum*, (Narrow-leaved Mouse-Ear.) *Hylæus Dilatatus.*—Order *Hymenoptera*, Family *Andrenidæ*.—This insect is black, and rather shining; it is found at the end of June. The plant is *Reseda Luteola*, (Weld or Wold.)

* This interesting little volume was published in 1827, which excludes it from our Reviews; however, it will be but doing justice to the valuable labours of the scientific and intelligent author, Dr. Bevan, to state, that we find it full of important information relative to the *Natural History*, *Phisiology*, and *Management*, of Bees; and we are satisfied he has spared no pains to render it a work well calculated for a guide to every admirer of those interesting creatures.—Conductors.

PART V.

MISCELLANEOUS INTELLIGENCE,

ON NATURAL HISTORY, HORTICULTURE, AND RURAL AFFAIRS

I.—QUERIES, ANSWERS, REMARKS, &c.

VINES IN POTS.—Gentlemen, I beg leave to make a few remarks on some of the Articles contained in the 1st Number of your Horticultural Register. 1st—Does Mr. Stafford intend the floor of the pit to be level throughout, and the flues to be raised from that level; or is it intended that the floor shall be on a level with the top of the horizontal flue (No. I. Page 7, *a*) there being no paving shown between the flue last mentioned, and the section, (*a* 2,) leaves the matter in doubt? What is the utility of the compartment (*n*,) and the disadvantage of the top (*g*) being level instead of being sloped; the small holes in the back wall, (*aa*,) require explanation; how are they connected with the horizontal flues? (*f*) called the furnace, I presume means the stove.

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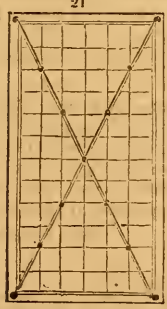


Harrison and Curtis's New Mode of Glazing.—This mode of Glazing, will, I predict, not be found to answer, when the framing at the angles gives way, which it will do sooner or later, from the shrinking of the wood, or decay. The edges of the squares of glass will be found to bear upon each other, and will fly; to delay this evil, I would recommend the use of diagonal bars of copper or iron, one fourth of an inch thick, and half-an-inch wide, inserted flush with the tops of the bars and rabbet of the outer frame and screwed down to them,—as in figure 21.

On Changing the Colour of the Flowers of the Hydrangea Hortensis.—It is probable that the water used to moisten the soil and sheep's-dung, is a Chalybeate; Rusticus will probably enquire, and let us know the result.

On Neglect of Forest Planting in Great Britain.—It is evident Quercus is not acquainted with the legal difficulties that interpose between the desire to plant, and the right to plant; and then comes the grand question,—the profit of planting. Has he ever known an instance of five pound per cent interest and the capital got back at compound interest for planting? Is land worth the expense of planting, fencing, taking care of, and paying rates and taxes, Parliamentary and Parochial, that is of less value for Agricultural purposes, than ten shillings an acre? Of course I mean land in severalty. Clear answers to these questions would speak volumes for and against planting.

On retarding the blooming season of Roses.—Mr. Haywood says the Rose bushes are to remain untouched till the *buds* have pushed half-an-inch long; the shoots are then to be shortened *below* where the buds have pushed.—Will you have the goodness to explain this subject?

High-Holborn, July 14th, 1831. J. D.

ANSWER TO VIGORNIENSIS.—Gentlemen, in answer to the Queries of Vigorniensis in your last number, I beg to say,

1st.—I take a plant in March, raised the preceding year, head it down, and put it in one of the pots I recommended.

2nd,— This plant is placed upon the front flue of the vinery, and the strongest shoot selected, which is trained to the length of five feet betwixt the Vines on the rafters and every attention is paid to give the leaves an opportunity of expanding

and presenting their proper surface to the light; I allow the side shoots to grow, occasionally stopping them through the season; when the wood is ripe, the plants are exposed to the open air, until the season for introducing them into the house again.

3.—The pots are placed under the garden wall; and the shoots nailed up to it, they are protected from frosts by a little long litter being laid over the pots.

4.—I never re-pot a plant so long as it is inclined to produce a crop of fruit; when it fails, I cut it down, reducing the root to a ball of about nine inches diameter; it is then put deep into the same pot again, and treated as before mentioned for the young plant.

5.—The number of buds will be regulated by the treatment, in a great degree; if plenty of air and light is admitted as I before recommended, the shoots will of course make less progress, and a greater number of buds will be produced in a given length. I have observed from eighteen to twenty-four buds in the length of five feet.

6.—The kinds I term "naturally prolific" are the Black and White Cluster, the Black and White Muscadine, the Large and Small Sweetwater, the White, Red, and Grizley Frontignac, the Black Hambro', the Black Constantia, the Black Ellison, and the Parsley-leaved Grape.

7.—The Vines supplying the rafters are planted in the border, outside, in front of the house. This is to be recommended, as they are no doubt very much benefitted by the warmth from the chamber under the pit heating a portion of the border.

8.—I never use liquid manure, except in a diluted state, and this but seldom. I pay particular attention to the supply of pure water twice a day, and never allow this to be the work of two persons.

Willersley, Sept. 3, 1831. GEO. STAFFORD.

LINDLEY'S GUIDE TO THE ORCHARD AND KITCHEN GARDEN.—Pray what does Mr. Lindley mean by recommending different kinds of Grapes to be grown in Vineries, situate in the North and South of England. I have attended to them in both situations for a number of years, and was never wise enough to know that the same kind of Grapes grown in a Vinery in the South, would not do precisely as well in the North. I should be extremely obliged to Mr. Lindley to state his reasons why they will not. THOS. BLAND.

Carlisle, Sept. 8th.

BIENNIALS & PERENNIALS.—Would not all biennials become perennials? When the seeds of biennials are sown in spring, they do not always bloom the same year, and at the conclusion of the season, the plant of one summer has produced a branch or branches, which will live through the winter, and flower the following spring or summer, and then it dies. However, during the second summer (in June or July) the plant besides producing flowers, sends forth several shoots, such as the whole plant was the preceding summer. Now if you continue to layer, or raise by slips or cuttings, minding only to take branches of the present year's growth, they will not fail to make plants such as their parent was the year before, which consisted only of a one year's shoot and root, so that the branches produced upon a second year's plant (if rooted) will just live through the winter, as well as the one year seedling did through the first winter; so by propagation all biennials may become perennials.

Doncaster, Aug. 18, 1831. S. APPLEBY.

BUDDING CHINA ROSES.—Gentlemen, under the head "Flower Department" in the first number of your Register, you mentioned it was time for "budding all sorts of roses except China and its varieties." I shall feel obliged, if you will inform me when the proper time is for budding them. Yours, &c.

AN AMATEUR OF ROSES.

ANSWER.—The best time for budding the varieties of the China Rose is in the month of April, or at least as early as the bark will rise freely. Take off the bud formed the preceding year, with a small portion of the wood attached to it,

as recommeded for Camellias; they will grow freely if properly inserted and well bound with bass, with greater certainty at this season, than at the usual one in July. CONDUCTORS.

TIGRIDIA PAVONIA.—We beg to inform our correspondent B. S. that the only difficulty attending the culture of this plant, is, its bulbs not being sufficiently ripe when taken up in the autumn. By this means they are apt to rot; but if, with great care, they are preserved till spring, they become so exhausted by the means used to keep them, that when planted, the flowers, if any are produced, are extremely weak. To remedy this, plant them in a light soil, and warm situation, being careful never to put them deep enough in the ground to cover the crown; if this be attended to, and they are taken up as soon as the tops decay in the autumn, before they are saturated with wet, and carefully preserved dry through the winter, they will flower very freely.

For the winter management of Russian Gardens, we refer him to the Transactions of the Caledonian Horticultural Society, inserted in our Register, Page 166. CONDUCTORS.

PROPOSED GARDEN IN REGENT'S PARK.—We should be happy to see a repository similar to that suggested by our two correspondents; but we doubt whether it would answer so as to remunerate for the trouble. The Horticultural Gardens, would be the most proper place for Horticultural implements, &c. to be shown, if its distance from London was not so great. COND.

ADVERTISEMENT FOR A GARDENER'S SITUATION.,—Any Nobleman or Gentleman, in want of an experienced Gardener, will find Mr. Haythorn, a very suitable person. And Mr. Flood, although his experience is not so matured, yet from the very excellent character given to us by his employers, we believe to be well deserving of notice. CONDUCTORS.

II.—NOTICES AND ANTICIPATIONS.

NEW CATALOGUE OF PLANTS.—It will be seen by a reference to an advertisement, that the 12th edition of DON'S HORTUS CANTABRIGIENSIS; or an Accented Catalogue of Indigenous and Exotic Plants, cultivated in the Cambridge Botanic Garden, is in preparation, by Mr. George Sinclair, F.L.S. &c. who is illustrating it with numerous engravings of the Botanical characters of each class and order. And judging from the experience, and former productions, of the Editor, we are led to expect from his hands, a work that will do honour to the Botanical world. CONDUCTORS.

PETUNIA NYCTAGINIFLORA.—Gentlemen, permit me to testify my sense of the value of the Horticultural Register, and to beg through its pages to recommend to more general cultivation, the *Petunia Nyctaginiflora;* a perennial, producing from June to October, abundance of beautiful white flowers; requiring but little protection in the winter; and easily propagated by cuttings under a hand-glass. As a plant for *London* balconies it is most desirable. I have one at this moment, which has for the last six weeks been constantly flowering; and when mixed with Mignonette or Geraniums, its pure white flowers are seen to much advantage.

A READER OF THE HORTICULTURAL REGISTER.

Piccadily, August 5th, 1831.

CULTIVATION OF MUSHROOMS.—Our Readers will perceive by a reference to an advertisement in our last number, that Mr. Callow is preparing a practical work on the Cultivation of Mushrooms. From his long experience we have no doubt it will be found well deserving public notice, and we sincerely hope he will meet with sufficient subscribers to answer his expectations. COND.

III.—HORTICULTURAL AND FLORICULTURAL SOCIETIES.

LONDON HORTICULTURAL SOCIETY.

THE September meetings of this Society, took place on the 6th and 20th of the month, and the display of Fruit and Flowers was of so fine a character as to render the exhibitions the best of the year. The first Meeting was distinguished not only for the excellent fruit which graced the table, but for the magnificent collections of Dahlias exhibited in competition for the Medal offered on this day for the best assortment. Amongst the fruit which attracted the greatest notice, was a Hoosainee Melon from T. A. Knight, Esq. Black Hamburgh and Muscadine Grapes from Mr. Hughes, gardener at Norman Court, White Ischia and large purple Figs, and a Melon of Gargen, form Sir. C. Sullivan, Bart. and Black Tripoli Grapes from Lord Bexley, all of which fully deserved the high enconiums they received. Mr. Langelier of Jersey, communicated some specimens of a new Pear, called the Beurré d' Amalis, which he stated would bear well as an open standard. The Judges appointed to decide on the merits of the Dahlias, awarded the large Silver Medal to Mr. Joseph Wells, and recommended that Banksian Medals should be given to Mr. C. Brown and Mr. Thomas Wells. At the 2nd meeting, the exhibitions of Grapes were the most prominent, and we observed some very good specimens of the Black Hamburgh, Black Prince, and White Nice. The Peaches were also particularly well grown, especially those from the garden of the Society. These accompanied by a Cephalonian Melon, Pears, a seedling Pine Apple, of Oldakers, and a collection of flowers contributed to increase the effect.

MANCHESTER HORTICULTURAL SOCIETY.

THIS Society held its fourth and last meeting for this season, in the Riding School, Lower Mosley-street. The day being favourable the attendance was very numerous. The show of *Ericas*, was very excellent, and the beautiful little plant *E. tricolor major* was, as anticipated, placed first; its blooms were large and healthy, and its form altogether good; it belongs to Mr. Bow, who had eight other prizes awarded him for Ericas. A *Fuchsia conica*, belonging to Mr. William Garnett, gained the first prize of the greenhouse plants: it was a fine plant standing about eight feet high; it had, however, been much injured in the carriage, and had lost many of its flowers, or else it would have been more beautiful; two others were exhibited along with it, which were very splendid. Mr. R. Petter took the first prize for hardy shrubs. The first prize in the stove plants was awarded to Mr Garnett, for a *Gloriosa superba*, of which there were three exhibited. The season flowers or those which particularly fell in at this meeting, were carnations and dahlias. The former were very numerous and beautiful, particularly the purple and the scarlet flake; the piccotees we did not so much admire. The double dahlia (a class of flowers much cultivated of late, and which, by their rich colours, and splendid appearance, well compensate for the trouble), made a rather prominent show; they were not numerous, but very rich. The single dahlias, a few of which were brought, looked plain and humble beside their conspicuous neighbours. A basket of flowers to which the first prize was awarded, contributed by the Earl of Wilton, was the best we ever remember to have seen. The bright and contrasted colours of the flowers, together with the taste exercised in the arrangement, rendered it very striking. The fruit tables, generally, were well covered, and made a show quite equal to that of any former meeting, the grapes, pines, and melons, in particular. The vegetables were well grown, except cauliflowers: we have seen much larger than what were exhibited. The excellent arrangement of two bands, the 8th Hussars and 60th Rifles, gave general satisfaction. Numerous prizes were awarded—and the medals of the Society were also awarded to those persons who had won the greatest number of prizes in amount, during the present year, at the meetings of the society.

SHEFFIELD HORTICULTURAL SOCIETY.

THE fourth, and we believe the last exhibition for the year, of the Sheffield Horticultural Society, was held in the Saloon of the Music Hall, September 14th, on which ceasion the room was most splendid with Dahlias placed on wire frames in the form of the King's Arms, a star, and other devices. The arms were sent by Mr. Harrison, from Wortley; the star from Chatsworth, by Mr. Paxton; and the Prince of Wales's Feathers was the production of Mr. Levick; and consisted of 6000 flowers of 600 different shades. Mr. Hudson, of Clarbro', near Retford, sent a fine specimen of North-Clay Hops, which was much admired. The was also an excellent collection of Dahlias as show flowers, a good supply of green-house plants for ornament, and the different specimens of fruits and vegetables could not be surpassed. It is gratifying to state that about 3000 persons honoured the exhibition with their company, consisting principally of the first families in the town and neighbourhood. Too much praise cannot be given to the Managing Committee for their great exertions; but the best reward they wished for their labours is an increased number of subscribers, and in this we hope they will be gratified. In the evening, about forty gentlemen, friends and supporters of the Society, sat down to a superior dinner at the Tontine Inn.

NORWICH HORTICULTURAL SHOW.

THIS exhibition took place on Wednesday, Sept. 14th. Its usefulness was never so fully demonstrated as in the splendid magnificence, beauty and perfection of the fruits, vegetables and flowers. Every thing was there from the Pine to the Pumpkin, in such rich profusion as was never witnessed in this country. The company was even more numerous than heretofore. Numbers of prizes were awarded. Mr Thurtell has for some days past been exhibiting, at Eaton, the most magnificient Dahlias, both for intensity and splendour of colour, and for magnitude ever seen. Mr. Crushaw exhibited six bunches of splendidly fine grapes, the property of Mr. Roe, weighing about 20lbs. We understand that Mr. Roe is about to take them to town, to be presented to his Majesty. Mr. George Thurtell at Ipswich Horticultural Show, (of which he is a member,) carried off the best prize for grapes.

TAUNTON HORTICULTURAL SOCIETY.

THE first meeting of the Taunton and West Somerset Horticultural Exhibition was held on Sept. 16th. Two o'clock was the time appointed for the admission of visitors, but the committee, occupied with the cares and duties peculiar to the commencement of such an undertaking, could not get through the arrangements until three o'clock, which occasioned much inconvenience to the numerous and respectable company who waited for entrance to the room. The door at length being opened, an elegant and novel treat presented itself. In the centre was a large stand filled with rare and beautiful products of the garden and hothouse. At the western end were placed two very finely-covered hop poles, in profuse bearing. The hops were singularly large and healthy. These were kindly presented by Mr. R. Ham, from the grounds at Orchard Portman, near this town. A star of splendid Dahlias of almost every possible diversity of colour from Mr. Young's Nursery, suspended over the door-way of the room attracted great notice, and was certainly very beautiful. Another star of Dahlias of different formation, but of singular richness and variety of colour, from Mr. Veitch, of Killerton, appeared over the card-room door, and near it was a large crown of Dahlias, supplied by the same nurseryman, in which were some superb flowers. His German Asters were also lovely. Some baskets of Dahlias from Dymond's and from Lucombe's of Exeter, displayed admirable specimens of that delightful pageant of our gardens. A variety of flowers, fruits, and vegetables, was arranged around the room; many specimens of which attracted great attention. The grapes were magnificent. There were but few melons, but those shewn were capital; a small green one of exquisite flavour was honoured with the prize. The distribution of the prizes occupied a considerable time, and it was not until a late hour that the different competitors were apprized of the adjudications. The novelty of the occasion brought a considerable influx of fashionable company to the town, and the room was at one time completely filled with spectators.

IV.—CHOICE OR BEAUTIFUL PLANTS,

FLOWERING THIS MONTH, IN THE PRINCIPAL NURSERIES ROUND LONDON.

AT MESSRS. WILLIAM ROLLISON & SONS', TOOTING.

HOT HOUSE.

Cypripedium insigne.
Crinum hybridum.
Francisca Hopeana.
Gesneria rutila.
——— macrostachya.
Hibiscus liliiflorus.
Hibiscus Rosa-sinensis.
——— mutabilis.
Hedychium Gardeneri-anum.
Melastoma corymbosa.
——— malabathrica.
Magnolia pumila.
Nymphæa pygmæa.
Pancratium speciosum.
Passiflora alata.
——— princeps.
Sarcanthus rostratus.
Sinningia Helleri.
——— villosa.
——— velutina.
Theophrasta longifolia.
Vanda multiflora.
Vernonia axillaeflora.

GREEN HOUSE.

Alstrœmeria hirtella.
——— pelegrina.
Acacia impressa.
Aster lilicina.
Boronia denticulata.
Bursaria spinosa.
Buchneria, species.
Calceolaria diffusa.
——— micans.
——— Gillesi.
——— Herbertiana.
——— thyrsoides.
——— plantaginea.
Crowea saligna.
Ceanothus azureus.
Campylia laciniata.
Chironia decussata.
——— frutescens, alba.
——— linifolia.
Convolvulus althæoides
Dracophyllum gracile.
Ericas. 53 fine species and varieties.
Fuchsia virgata.
——— microphylla.
——— macrostema.
——— pedunculata.
Gnidia levigata.
Grevillea acanthifolia.
——— linearis.
Goodenia grandiflora.
Hibbertia pedunculata.
Hallia imbricata.
Helichrysum splendens
Isotoma axilaris.
Jasminum gracile.
Leschenaultia formosa.
——— oblata.
Lophospermum erubescens.
Oxalis Deppii.
——— floribunda.
——— Martii.
Pimelia linifolia.
Polygala Heisteri.
Passiflora palmata.
——— cœrulea.
——— racemosa.
Rulingia pannosa.
Scævola microcarpa.
Salpiglossis atro-purpurea.
——— bicolor.
Statice sinuata.
Verbena alata.
——— melindres.
——— Aubletia.
——— pulchella.
Wisteria corymbosa.

HARDY.

Asclepias tuberosa
——— pulchra.
Aster, many species.
Cyclamen Europœum.
——— album
——— Clusii.
Campanula glomerata-alba, lacticolor, & other species.
Colchicum byzantinum
——— autumnale.
——— album.
——— flor. pl.
Clematis calycina.
——— florida.
——— flora pl.
Delphinium phœniceum.
Daphne oleifolia.
Daphne Dauphinii.
Erythrolæna conspicua.
Escallonea rubra.
Gentiana saponaria.
——— and other species.
Gaillardia bicolor.
——— aristata.
Leucojum autumnale.
Linnea borealis.
Lupinus polyphyllus.
——— albus.
Linum maritimum.
Liatris lumilis.
——— spicata.
——— scariosa.
Lobelia splendens.
——— fulgens.
——— erinoides.
——— tyanthina.
Œnothera serotina.
——— missouriensis.
——— macrocarpon.
Parnassia palustris.
Phlox pumila.
——— odorata.
——— Lyoni.
——— new French wh.
——— tardiflora.
——— reflexa.
——— glomerata.
——— Thompsoni.
——— Shepherdi.
Potentilla coccinea.
——— Mayiana,
——— Mackayana.
Pentstemon ovatum.
——— Richardsoni
Rhexia virginica.
Rudbeckia serotina.
——— purpurea.
——— Newmanni.
——— pinnata.
Rosa odorata. 4 var.
——— Noisette, 7 var.
——— Indica, 4 var.
——— semperflorens, 4 v.
——— moschata, plena.
——— M'Cartney.
——— perpetual crimson
——— four seasons.
——— Grevillii.
——— microphylla.
Sternbergia lutea.
Spigelia marylandica.
Spiræa bella.
Tigridia pavonia.
——— conchiflora.

AT MESSRS. RONALDS & SON'S, BRENTFORD.

GREEN HOUSE.

Lithospermum scandens.	Linum maritimum.	Salpiglossis atropurpureus, in variety.	Poppy Anemones, fine, sown in March.
Trachelium cœruleum.	Gladiolus psitticina.		

HARDY.

Galinsogea triloba.	Stephania.	Georgiana.	King of the Whites.
Silene picta.	Splendida.	William IV.	Cora.
Lupinus Barclayana.	Zelinda.	Queen Adelaide.	Julia.
Hibiscus Africanus.	Foster's Constantia.	Prince George.	Lady Osborn.
DAHLIAS.	Well's Bellona.	Surpass Triumph-royal	Queen of Roses.
Lady Liverpool.	Densa.	Philip the First.	Mountain of Snow.
Summit of Perfection.	Queen of August.	Foster's Seedling.	Globe Pink.
Eminent.	Albania.	Fimbriata Surpass.	Nymphifolia.
Electra.	Crimson Turban.	Globe Orange.	Alba Multiflora.
Black Prince.	Barratt's Susanna.	Herschel.	Lady Fitz-Harris.
Indiana.	Bona Dea.	Dwarf Rubella.	Scarlet Donna Maria.

AT MESSRS. C. LODDIGES & SONS', HACKNEY.

HOT HOUSE.

Testudinaria Lagunien	Zygopetelon maxillaris	Epidendrum elongata.	Maranta cuspidata.
Justicia venuti.	——— Mackai.	——— cochleatum.	——— comosa.
Sinningia villosa.	——— crinitum.	——— polybulbosa	Dendrobium Squallis.
——— Helleri.	Bletia vericunda.	Cypripedium venustum	Pleurothallis racemiflora.
Jasminum paniculatum	Stylis micrantha.	——— insigne.	
Vanda rostrata.	Liparis foliosa.	Heterotaxis crassifolia	Cymbidium lancifolium

GREEN HOUSE.

Andromeda sinensis.	Aloe saponaria latifolia.	Stapelia elegans.	Lagerstrœmia Indica
Hibiscus pedunculatus	—— mitræformis.	——— divaricata.	rosa.
Kalmia hirsuta.	Stapelia vetula.	——— sororia.	Polygala grandiflora.
Wilsonia corymbosa.	——— stellaris.	——— crispa.	——— cordifolia.
Vernonia flexuosa.	——— reflexa.	and others.	Crinum saligna.
Guidium simplex.			

HARDY.

Escallonia serrata.	Liatris sphæroidea.	Lilium autumnale.
Gentiana saponaria.	——— scariosa.	Leucojum autumnale.

AT MR. JOSEPH KNIGHT'S, KING'S-ROAD, CHELSEA.

EXOTICS, FLOWERING JULY, AUGUST, & SEPTEMBER, 1831.

Bellardiera, sp. nova. flowers blue; a beautiful free flowering climber.

Gompholobium lanatum. a handsome free-flowering shrub.

Gompholobium reticulatum.

Cephalotus follicularis. flowered in July, this is the singular Pitcher-Plant, of New-Holland.

Stylidium, sp. nova. handsome.

Pimelia sylvestris. rare.

V.—NATURALIST'S CALENDAR.

FOR OCTOBER.

BOTANY.

THE variety in the colour of the decaying foliage of trees and shrubs, at this season, cannot but be an object of interest to every one, who has the least feeling for the works of Nature. Trees have not in general showy flowers; but this, in most of them, is amply compensated by the richness of their autumnal tints. Few flowers exceed in brilliancy the deep scarlet of the Virginian Creeper, and few flowering shrubs are more gay than the Elm, in its bright yellow garment. Every species seems to have a colour or shade peculiar to itself, and by attending to these, they are readily distinguished from each other at sight. M. Prinsep, in the 4th Vol. of the Transactions of the Natural History Society, at Geneva, has detailed some interesting experiments on the change of colour in leaves. He finds, that when leaves are shaded from the light, they do not change colour at all, but fall off green; or that any part of a leaf which happens to be in the shade, does not change colour, though the remainder of the leaf does. The colouring matter he discovers to be a resinous substance, (which he calls *Chromule*,) common both to the green and yellow leaf. In the green state, it is soluble in fixed and essential oils; in the yellow state it is insoluble. The yellow Chromule, or the yellow leaf, if left for a length of time in alkali, is completely restored to its original beautiful green colour; and the green Chromule, or green leaf, if treated similarly with acid, acquires the yellow or red of the decaying leaves. His conclusions, therefore, are, "1st,—that all the coloured parts of vegetables contain a peculiar substance, (Chromule,) capable of changing colour by slight modifications. 2nd,—That the autumnal colour of leaves is owing to the fixation of oxygen, and to a sort of acidification of the Chromule"

Trees begin now to lose their leaves; the first frost strips the Ash, and the rest soon follow. Most vegetables seem preparing for a state of torpor; the shoots and blossoms for the ensuing spring, are so well secured under the various coverings and varnish of the buds, that no cold can reach them, and they safely endure the utmost severity of winter.

But few plants come into flower this month, but several still remain, or from those preceding.

The plants proper to the month are *Crocus nudiflorus*, Naked-flowering autumnal Crocus, which has been found in but few places in England; viz.—Nottingham Meadows; the Holmes, Derby; near Liverpool; and near Halifax. This beautiful flower, like the *Colchicum*, appears without leaves, which do not make their appearance till the following spring. *Hedera helix*, Ivy; *Scleranthus annuus*, Annual Knawel.

The Mosses present an interesting assemblage to the Botanist; many of these are now going into flower, and the singular construction of their reproductive organs, and indeed of every part of the plant, will amply compensate him for the trouble of the minute investigation which they require. The species now in flower are, *Tortula muralis*, Wall Screw-moss; *Encalypta alpina*, Alpine Extinguisher-moss; *Grimmia maritima* Sea Grimmia; *Tortula convoluta*, Convolute Screw-Moss, *T. subulata*, Bristle-shaped Screw-moss; *T. barbata*, Bearded Screw-moss; *Hypnum triquetrum*, Three-cornered Feather-moss; and *H. scorpioides*, Scorpion Feather-moss.

ZOOLOGY.

INSECTS.—"In the month of October the Ivy blooms in profusion, and spreading over the warm side of some neglected wall, or the sunny bark of the broad ash on the bank, its flowers become a universal banquet to the insect race. The Great Black Fly, *Musca grossa*, and its numerous tribe, with multitudes of small winged creatures, resort to them; and there we see those beautiful animals, the latest birth of the year, the Admiral, *Vonessa atalanta*, and Peacock, *V. Io*, Butterflies hanging with expanded wings, like open flowers themselves, enjoying the sunny gleam and feeding on the sweet liquor that distils from the nectary of this plant. (*Journal of a Naturalist*,) The Humming-bird-Hawk-moth, *Macroglossum stellatarum* may still be seen flitting round flowers, and sipping their honey, without alighting. The Painted Lady Butterfly, *Pontia cardui*, may sometimes yet be found on the Field Scabions. The Gamma Moth, *Phalæna Gamma*.—Hazel-nuts may frequently be found with the kernel partly eaten away by a small grub; this is occasioned by the larvæ of the *Curculio nucum*, Nut Weevil. The insect deposits its egg, which is brown, and very small, on the outside of the nut, while in its soft and unripe state; as soon as the grub is hatched, it eats its way through the tender shell, into the nut, feeding upon that, and the white substance in the inside, till they become too hard or dry. It then commences eating the kernel, which has now become sufficiently large and ripe for the purpose, taking care to keep the hole open by which it entered, both for a supply of fresh air, and likewise as a passage to escape by, when full grown. About the beginning of this month, or perhaps the latter end of September, the nut becomes perfectly ripe, and falls to the ground. The Weevil, which is at this time generally fully prepared for its change, works itself out at the hole by which it entered, and buries itself in the ground. Soon after, it changes into a chrysalis, in which state it remains till about the beginning of May, when it assumes its beetle form.

The habits of the spider are best observed now, and collections of the species made.

BIRDS.—In this month, the immense and almost infinite multitudes of birds, which are bred in the Arctic Regions, leave their native haunts, in search of milder climates, and a supply of food during the severity of winter. In this, their instinct is directed by the countless shoals of fish which annually leave the same seas, and spreading themselves over the whole ocean of the warmer parts of the globe, offer a supply of food both to man, and to various marine animals, as well as sea-fowl.

The Birds visit the coasts first, where they remain some time, till the increasing cold obliges them to seek food further inland. The numerous species of the Duck tribe, seek the fens, lakes, and rivers; at first in the most secluded spots, till the severity of the weather drives them nearer the haunts of man. Nearly the whole of the species of this genus which usually frequent Britain have now arrived, as the Common Wild Duck, *Anas boschas*; Wildgoose, *A. anser*, Scaup Duck, *A marila*; Shoveller, *A. clypeata*; Pochard, *A. ferina*; &c. The Greenshank, *Scolopax glottis*; Common Snipe, &c. *Gallinago, &c.*; the Purre, *Tringa Cinclus*; and other species of Sandpipers; the Redwing, *Turdus iliacus*; and several other winter birds of passage may now be found,

The Curlew, *Numenius Arquata*; and Godwit, *Scolopax ægocephala*; leave the marshes for the sea shore, as soon as the frosts set in.

Larks are now congregated in flocks, and great numbers are taken in some parts of the kingdom.

The Marten, *Hirundo urbica*; and a few Swallows may still be seen till the middle of the month.

FISHES.—Immense shoals of herrings, *Clupea harengus* of many miles in length and breadth now appear on the coasts of Britain and the opposite Continent, and the Herring fishery commences.

Salmon, *Salmo salar*, now asend the rivers as far as possible, for the purpose of spawning. They have been found in the Derbyshire Derwent, as high as Belper, which is, according to the course of the rivers, 120 miles from the sea. In their journey, no obstacle can interrupt their progress, they mount the weirs, falls, or whatever obstructs their passage, frequently leaping out of the water to a considerable height.

REPTILES.—Snakes become torpid.

METEOROLOGY.

THE moisture of the atmosphere is now greatly increased and evaporation diminished. The mists which now form on the low lands on a fine evening, appearing like broad sheets of water, covering every object but the tops of the trees, and which are gradually drawn up the hills in the morning, are among the most beautiful and interesting sights of the whole year.

BAROMETER.—Mean Height 29,744. Highest 30,610. Lowest 28,740 inches.

THERMOMETER.—Mean Temperature 48,9 degrees. Highest 68. Lowest 27 degrees.

RAIN.—Mean quantity 2,073 inches.

EVAPORATION.—Mean 1,488.

O.J.

VI.—MONTHLY HORTICULTURAL CALENDAR.

FOR OCTOBER.

THE past month has been remarkably favourable for most Horticultural operations; the weather has been particularly dry; seeds have ripened well, and such fruit-trees that have been properly managed, have all the appearance of producing an abundant crop of fruit next season, providing the spring should prove favourable. We wish to impress upon those persons who have fruit-trees to plant, that this is the best season of the year for the purpose, and particularly so till the leaves have dropped, after which, it is as well to defer the operation until early in the spring; it must be remembered that leaves are vital organs, and so long as deciduous plants retain them, circulation is still in operation; it is therefore much better to remove all trees, with most part of the leaves on, so that by their co-operation, the tree may be established in its new habitation, before the severe weather advances. All trees may be removed with safety this month, and the sooner it is done the better. Every dry day should now be made the most of, in getting and storing fruits, winter vegetables, and also to remove small weeds, which appear rather numerously in the beginning of this month; indeed October is one of the most important months in the year to Horticulturalists. Roots, vegetables, &c., have now to be carefully preserved for winter use, and many preparations for the ensuing year

FRUIT DEPARTMENT.

Apples should now be gathered in dry days, and carefully placed in the fruit-room: those who have no fruit-room, may put the more choice kinds into earthen jars, securing the top of the jar so as to make it air tight. If there is neither fruit-room or any in door convenience, they may be pitted in the same manner as potatoes.—If this is done, take care to use clean straw to cover them, before the soil is put on. Broken stone or cinder-ashes ought to be put at the bottom of all pits, used for preserving fruits, and care should be taken to put such sorts into one pit, as will ripen nearly at the same time. Where there is more than one sort in a pit, there should be a division of soil put betwixt them.

Apricot, Peach, and Nectarine Trees should be kept securely nailed to the wall, as the branches, at this season, if neglected, are liable to be broken by the winds. To accelerate the ripening of the wood, it is necessary to go over the trees and carefully shorten the leaves one half, to admit the sun's rays.

Cherries and Plums, in the latter end of the month, if the leaves have fallen off, must be pruned and nailed.

Gooseberries and Currants may be pruned as soon as the leaves fall; in doing this, leave a regular supply of young wood from the bottom, to fill up the places of decayed unfruitful branches that may be taken out.

Strawberries may still be planted, if omitted last month; but it is better to plant in September, as early frosts injure late plantations.

Planting. This is the best season to plant Apples, Pears, Cherries, Plums, Apricots, Peaches and Nectarines; in doing so, preserve the roots as entire as possible, and do not tread them down.

FLOWER DEPARTMENT.

Fibrous-rooted Plants may be increased by dividing their roots.

Carnation Layers, must be kept free from weeds and protected from heavy rains, frosts, and cutting winds.

Auriculas.—See No. 2, page 57 of the Register.

Dahlias require particular attention this month; for their treatment, refer to page 145 of the present number.

Plant Tulips, Ranunculus, Anemonies, Hyacinths, and the more common sorts of bulbs they must be protected from heavy rains and frosts, by coverings, which should be removed in open weather.

Chrysanthemums, in pots ought to be removed into the green-house. Care should be taken to admit as much air as possible to strengthen the plants and prevent them showing their flower-buds weakly. Chrysanthemums against walls must be kept neatly nailed up.

Forcing. All plants from the natural ground, intended for forcing in the spring, should now be carefully potted; taking care to preserve as much of the roots as possible, such as Roses, Pinks, &c. &c.

VEGETABLE DEPARTMENT.

Cabbages, for spring crops, should now be planted. A small bed should be pricked out, four inches apart, to fill up with in the spring, or to plant out, as occasion may require, for a second crop.

Celery. Continue to earth up Celery in dry weather; let it be perfectly dry, and be careful not to earth it up too high, as it retards its growth; care should be taken not to let the earth penetrate to the heart in the operation.

Cardoons, before eating, must have their leaves tied up, earthing them carefully afterwards.

Cauliflowers may now be planted in south aspects, under hand glasses, for an early crop; late sown plants should be pricked under a frame to stand the winter; 50 or 60 plants should be planted in pots, about 5 inches in diameter, and plunged in a cold frame, to plant in the spring for an early crop.

Lettuce, to stand the winter, should now be planted in a warm situation; keep a supply in the frames, lest the frosts should cut off those planted on the borders.

Peas and Beans, may be sown for an early crop; but they are not to be depended upon: but it is always advisable to sow a few in favourable situations.

Carrots, Parsnips, Beet, Scorzonera, Salsify, &c., should be taken up; choose a dry sunny day for the purpose; let them be carefully conveyed to the root-cellar, and buried in sand.

Onions, if not done last month, must now be taken up; let them remain for a few days exposed to the sun and air, until they are perfectly dry, and then remove them to the onion-room, which should be in a dry, airy, situation.

Mushroom-beds may still be made, where wanting.

Asparagus and Artichokes, towards the end of the month should receive their winter dressing, and be carefully protected from frosts.

Herbs for forcing in the winter should now be potted, as Mint, Tarragon, &c.

G. Jewitt, Printer, Duffield, near Derby.

THE

HORTICULTURAL REGISTER.

November 1st, 1831.

PART I.—HORTICULTURE, &c.

ORIGINAL COMMUNICATIONS.

ARTICLE I.—*Description of a House for growing Early Grapes, &c.* By MR. J. HAYTHORN.

GENTLEMEN,

HAVING seen your invitation to gardeners, and all others interested in Horticulture, requesting them to communicate their ideas on constructing forcing houses; I beg leave to send you the description of a house, which I conceive well adapted for forcing early Grapes, and late crops of Peaches and Nectarines;—I consider these to be equally as valuable as early crops, and I think may be easily accomplished.

The house I would propose, should be six or eight feet wide, about three feet high in the front, and ten or twelve feet at the back; and heated in the usual way, with flues or hot water. The front must be so contrived, that the vines on the rafters can be taken entirely out, at pleasure. The back must be formed of pillars, (one under every third rafter) composed of either wood, stone, or metal, with a sufficient plate and coping on the top. The space betwixt the pillars, should be filled up with strong moveable wooden panels, so that at the time the peach-trees have done bearing, and the wood is well-ripened, say about the month of December, the panels may be moved from the north to the south side of the peach trees,—thus exposing them to the action of the weather on a northern aspect; being careful however, that the first exposure be in mild weather, and should it afterwards be very severe, the pillars and coping, would, in a great measure, be a sufficient protection against driving rains, &c.

The vines might be brought into the house, through the front, and trained up the rafters a month or so before the peaches were exposed, in

order to bring them on slowly; and afterwards, the heat could be regulated at discretion. Pots of strawberries, peaches, or vines, might be introduced, for either early or late forcing.

When the early crop of grapes was ripened off and gathered, the lights might be removed, and put to some other purpose, until wanted for the peaches in autumn,—or if the vines on the rafters were taken out, as I before observed, a succession of vines, in pots, might be introduced, at any season. However, I would recommend the lights to be removed, and the panels to be placed on the north side of the peach-trees; and so let the house remain thus exposed, until the peach-trees again require protection.

The following, are the sorts I would recommend;—of Grapes, the *Black* and *White Muscadine*, *Black Hamburgh*, *Black Prince*, *Harrison's Black*, *Black* and *White Frontignac*, *Parsley Leaved*, and *White Sweet-Water;* of Peaches, the *Galande*, *Late Admirable*, *Teton de Venus*, and *Catharine Peach;* and of Nectarines, the *Brugnion*, *Vermash*, and *Late Newington.*

I am, Gentlemen, yours, &c.

J. HAYTHORN.

Nottingham, Sept. 22nd, 1831.

ARTICLE II.—*On an Economical Plan of Growing Apples, and other Fruit.* By A POMOLOGIST.

GENTLEMEN,

I HAVE seen what appears to me a very economical plan of growing Apples, or indeed any other kind of fruit, in a kitchen-garden, a description of which I send you, and if you think it worthy of insertion in your Register, it is entirely at your service.

The trees are planted on the edges of the walk, dwarfs and standards alternately, and trained horizontally, by means of arbour-poles, so as to form an arbour, which would be as pleasant in hot weather, in a kitchen garden, as an arbour of flowers would be in a pleasure garden; and if the walk should be wanted for wheeling dung, &c. to the borders, openings might be left for that purpose. The arbour-poles would last as long as the trees would require support, for after the arbour is formed, the trees will support themselves, the young shoots being tied to the old stems, to keep the whole covered with good wood. If this plan was more adopted, and fruit-trees planted after this manner in orchards, the vegetables and small-growing fruits, would have a more free air, and consequently be larger and better, than in the present way of growing them. In many enclosed gardens in England, the south side of these arbours, might be made up of peaches and apricots.

How would an arbour look, the size of the gate-way, and as high as the orchard wall, at Chatsworth, down the longest walk from the end of the garden? If covered with fruit, I think it would have a good effect; and the ground would be completely saved.

In the event of spring frosts, as in May last, the ground being covered with stems and young shoots, a degree of warmth would be confined in the arbour, which would allow the blossoms inside to set, and make the crop of fruit more certain, than in the old method. The apples this year, I perceive, are almost all in the middle of the trees.

I remain, yours, &c.

October 4th, 1831. A Pomologist.

Article III.—*On a Mode of Propagating Pelargoniums, after being nipped by frosts.*

Gentlemen,

If you think the following mode of propagating Pelargoniums, (or as they are commonly called, Cape or Window Geraniums) deserving of a place in your Horticultural Register, I shall feel obliged by its insertion in your next number. I have tried the method proposed, several times with complete success, and hope it may be the means of preserving many of these interesting plants, which would otherwise be destroyed by the winter.

Many of your readers have, doubtless, had their Geraniums nipped by frost, and may have observed that the roots and stem, from their succulence, are frequently completely killed by it, and soon in a state of decay; while the extremities of the branches continue in a green and vegetating state, even for months after this has taken place. Young shoots and leaves are pushed forth, though from the want of proper nourishment from below, they continue very small, and if left to themselves, the decay of the stem, extends itself to the branches, and the shoots die.

Having had some plants in this state, and finding that I could not continue them by cuttings, which soon decayed in the same manner as the stem; I took off the small shoots, above-mentioned, close to the stem, and planted them in light vegetable-mould and sand, under glasses, they quickly struck root, and in a short time formed vigorous plants, which were much better shaped than if raised from cuttings.

I know not whether the above be new to you, but I have never seen it mentioned in any Work, and as the Pelargoniums are such

universal favorites as window plants, any mode of preserving them from entire destruction by the winter, must, I should think, be generally interesting.

I remain, Gentlemen,

Yours, &c.,

Duffield-Bank, October 5th, 1831. O. JEWITT.

ARTICLE IV.—*On Preserving the Roots of the Geranium, through the Winter.* By A PRACTICAL GARDENER.

GENTLEMEN,

THE following method of preserving through the winter, the more gross and succulent sorts of Geraniums, such as the Large Scarlet, &c. is, I believe, but little known.

On the approach of frost, take them out of the ground; in doing which, carefully avoid injuring the roots, wash off all the earth, and hang them up to the ceiling of a good under-ground cellar, with the roots uppermost. In the spring, they will have made some yellowish-green unhealthy-looking shoots. When the frosts are over, they are to be re-planted, and protected at night, and from cold winds, by mats, or by turning a basket over them, until they have resumed their wonted healthy appearance.

The above method, must prove particularly advantageous to the numerous persons who have not the use of a conservatory; and who happen, like myself, to think that Geraniums never appear so ornamental as when growing in the open ground;—and certainly much more beautiful and natural, than those long-legged sickly exotics, that we frequently see drawn-up in straight lines, in a hot-house.

I am, Gentlemen, yours, &c.

A PRACTICAL GARDENER.

Newport, Isle-of-Wight, Sept. 5th, 1831.

ARTICLE V.—*On the Cultivation of the Ranunculus.* By AN ADMIRER OF THE RANUNCULUS.

GENTLEMEN,

SEEING in your Register, for September, that you wish for some information in growing and flowering the Ranunculus,—and observing in how few places, that beautiful flower succeeds,—I send you the details of the method I took, about twelve years since, in making my beds:—my flowers, have, without any attention except what will

appear, progressively improved since that time, and I make no doubt will improve, for twelve or more years longer, notwithstanding the general opinion, that flowers will become exhausted if planted in the same soil long together.

The soil where I wished to plant my Ranunculuses, being an old exhausted kitchen-garden, I marked off a bed, four feet wide and forty-eight feet long, and completely removed the soil to the depth of eighteen inches, and then loosened the bottom of the trench, as deep as a spade would allow. I then filled it with a light hazel-coloured loam, rather sandy, procured from the driest part of an old meadow, the turf having been previously pared off four inches deep, as I consider nothing so prejudicial to the Ranunculus, as fresh turf. The loam was well beaten over, and mixed with one-eighth part of three-year-old cow-dung; when old cow-dung cannot be had, the loam should be used without any mixture, the flowers may not be so fine, but the roots will be much improved. The bed being filled to the level of the surrounding soil, I took out a trench across the bed, to the depth of the compost, and four feet wide, and wheeled the soil to the end of the bed; I then put eight inches of one-year-old cow-dung on the bottom, and trenched the next four feet over it, and so on, to the end of the bed, which was filled with the compost wheeled from the end. This was done in October, before the mould was much wetted by winter rains; and being laid in a ridge as steep as possible, was allowed to lie until the beginning of March, when the bed was levelled, and that which was about eight inches above the path, was now almost even with it. I then procured some very poor sandy soil, and covered the bed with it about an inch deep.

The bed being thus prepared, I next marked it, the whole length, by means of a line, into twelve divisions, and with a lath, marked lines across, six inches apart. Having twelve divisions across the bed, I planted three sorts, four of each;—the Ranunculus being a very uncertain plant in flowering,—by this way I generally secure two or three good flowers to each sort.

In selecting the roots for a flowering bed of Ranunculuses, care should be taken to choose such roots as are of a medium size, with the crown high and firm to the touch, and the claws placed regularly round the crown. If the large roots are chosen, they generally divide into offsets, instead of flowering.

Having placed the roots on the bed, I cover them two inches deep, with the same poor sandy soil, I planted them in, and having edged the bed, which will be about four inches above the level of the path, with a spade, I consider it completed.

Nothing more need be done to them till they begin to appear above the soil. When the leaves are all above ground, choose a dry day and press the soil firmly about the roots, as the leaves generally remove the soil from the crown of the roots, and if the weather proves dry, exposure very much injures them. In dry weather, they will require watering; and if the bed is made in an inclosed garden, or open to the south, after the 1st of May they will require a little shading, otherwise the leaves turn yellow, and the plants come to perfection without producing flowers.

In shading, care should be taken to have the mats one or two feet from the ground, so that a current of air may pass underneath, in order to prevent the stems being weakened and unable to support the flowers. In a garden quite exposed, no shading is required. If, when the plants are in flower, the bed be covered, without much confinement, the roots increase in strength from year to year, and the flowers consequently become larger and more beautiful, than when exposed.

When the herbage is nearly disappearing, it will be necessary to remove the roots from the bed. I have a tray divided into compartments, sufficient to hold the four roots, with their increase; and as they are taken from the bed, they are picked clean, and put one sort in each of the compartments, each sort corresponding to a list. When the roots are all taken up, the tray is removed to the stand, in an airy chamber but not exposed to the sun; and the first leisure time I have, I separate the offsets from the sorts; and from the stock, select four good roots of each sort, for next year's planting.

The bed should now be carefully turned over, and the dung that was put at the bottom, mixed with the loam, and some ornamental flowers, as the Dahlia, might be planted on it. In October, eight inches of one-year-old cow-dung should be placed at the bottom, and the soil ridged up for the next year. If these rules are attended to, from year to year, the roots will improve in size, and the flowers in colour.

When seed can be procured from good double flowers, it should he sown in boxes or pans, in September, and removed under glass in November.

I have added a plan of the stand I keep the roots in, [fig. 22] which being quite exposed to the air, on all sides, requires no care after the roots are removed from the soil.

I subscribe myself, Gentlemen,

Yours, &c.

An Admirer of the Ranunculus.

1.—Tray divided into three divisions.
2.—Iron Bar, to lock on 3, to keep all secure.
4.—Open space all round, to admit air.

The bottoms of the Trays are of Rug-canvas, but I should prefer Wire. The Trays are of three sizes; the top one contains the Roots of the bed described.

Article VI.—*On the Cultivation of the Carnation.* By Mr. John Revell, Pitsmoor, near Sheffield.

Gentlemen,

I am decidedly of the opinion of Mr. Hogg, when he observes in his "*Treatise on the Growth and Management of the Carnation*," that "Of all the flowers that adorn the garden, whether they charm the

eye by their beauty, or regale the sense of smelling, by their fragrance; the Carnation, may be justly said to hold the first rank." It appears to have been totally unknown to the ancients, in its cultivated state, although it has, from time immemorial, been a favorite flower in Europe; Gerard, in 1597, received it from Poland. It has been occasionally found, in a wild state, in England, growing on rocks and walls;—the general received opinion however, is, that it a native of Germany and Italy, where it is much cultivated. In the beginning of the 17th century, there seems to have been about 50 good sorts known; and the most popular cultivator at that time, was a florist of the name of Tuggre, living in Westminster. Early in the 18th century, as many as 350 or 360 valuable sorts, were cultivated, which appears to be almost equal to the Catalogues of the Florists of the present day;—Hogg, in his "Treatise," published in 1820, enumerates the same quantity of sorts, then in his possession.

I shall now proceed to state the kinds of soil that have been recommended.—

Mr. I. Maddock, of Walworth, in his "Florist's Directory," published in 1792, recommends, "One-third fresh sound loamy soil; one-half rotten dung, (one-year-old) or that which has been used for a hot-bed; and one-sixth of coarse sea or river sand:—these ingredients to be well mixed in autumn, laid in a heap about two feet thick, in an open exposure, and turned three or four times during the winter."

Hogg, in his "Treatise," says, "The time that I generally set about mixing the compost, is towards the end of summer, when the melons and cucumbers have done bearing, whose beds furnish me with the dung proper for my purpose. Requiring a large quantity of mould, (for I mostly bloom about 500 pots of Carnations) I take in the following ratios;—one load of fresh yellow loam; half a load of common black earth, or garden-mould; two loads of rotten horse-dung; with four large barrows of coarse sand, from some wash or pond by the high-road side, or dry road-grit, in lieu thereof, laid up to dry, and run through a sieve. —rotten dung, from mushroom-beds, ought not to be used in this compost, on account of the fungous fibres. Let them be mixed, and thrown together in a heap or ridge, and turned two or three times in the winter, particularly in frosty weather, that it may be well incorporated. On a dry day, towards the end of November, I take a barrowfull of fresh lime, which, as soon as it is slacked, I strew over, while hot, in turning the heap, this accelerates the rotting of the fibrous particles of the loam, lightens the soil, and destroys the grubs, worms, and slugs."

The following is the compost, I have used with success, and what I would recommend to all such as have only small collections.—

Four barrowfulls of fresh yellow loam,
Six ditto of horse-dung, from an old cucumber frame,
One ditto of river sand.

Let them be well mixed, and turned two or three times in winter, as recommended above.

About the latter end of March, or the beginning of April, the last year's layers may be planted off into large pots, to bloom; the pots used, should be what are called 6's,—or such as are about 12 inches wide at the top, 6 inches at the bottom, and 10 inches deep inside;—in each pot, three plants must be inserted, not deeper than they stood before potting; and protect them from easterly winds, or the leaves will soon appear bleached and sickly.

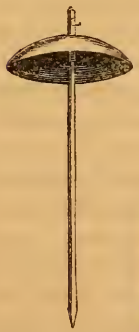
When the plants begin to shoot up for flowering, support them with sticks, about three or four feet long; and in the month of June, let them all have a top-dressing of leaf-mould and sheep-dung, which will give them a very healthy appearance, enable them to grow stronger than they otherwise would, and give a much greater richness and brilliancy of colour to the flowers. Care must always be taken, to give a sufficient quantity of water, for if they are allowed to droop, it will greatly injure the bloom.

In the beginning of August, they will be in full flower; when they begin to expand, a collar must be placed round the bottom of the flower to support it. "These collars are made of white card paper, in the form of a circle, of three or four inches diameter, with a hole in the centre, just large enough to admit the calyx or pod, without much compressing it, and with a cut extending from the centre to the outside or circumference, like the radius of a circle. [fig. 23] On these the petals are finely disposed, and the beauty of the Carnation displayed to great advantage."

23

At this time, they will require great attention, for as they expand, they must be shaded both from the sun and rain, by means of strong paper caps or covers, [fig. 24] about twelve inches diameter, painted white, or green, and formed like an umbrella, to throw off the rain; each should have a square tin tube at the top that would allow the stick, to which the stem is tied, to pass through it as far as is necessary. This tube should be about two inches long, and have a small hole bored through one of its sides, [fig. 25] that it may be fixed, by a nail, to any part of the stick required.—When, however, a great many advance into bloom, it would be better to cover them with an awning, as I recommended for the tulip.

24



25

There are also many insects that are very troublesome to this plant, as the *aphis, or green fly*, *earwig*, *wireworm*, *grub*, *snail*, and *slug;* and a very small black insect, is often very destructive, eating the colour off the petals; but the earwig is the most dangerous, as it commonly secretes itself in the calyx, and bites off the petals at the lower ends, or claws, and

thereby causes them to fall out, and greatly disfigure the flower,—so that if any of the petals hang loose, or are observed to fall out, you may be certain that an earwig is, or has been, there. The best remedy I have found, is to get a large saucer, and place a brick in the centre, and fill up the saucer with water; if the pot is then placed on the brick, neither earwig, snail, or slug, will venture across: you may also set traps for them, by placing tobacco-pipe-heads on tops of sticks, and examining them every morning, you will soon be able to lessen their numbers.

The different varieties of this flower, are arranged by florists, into three classes.—First, *Bizarres*, or such as have two colours on a white ground. Second, *Flakes*, such as have only one colour on a white ground;—the chief excellence of these two classes consists in the distinctness and brightness of the colours, and the formation of the petals, which should be broad, with the edges free from any notch, fringe, or indenture; the stripes of whatever colour they may be, must run longitudinally on the corrolla, as in the Mayor of Ripon, Perfection, William IV, Paul Pry, Champion, Lord Eldon, Lady Hood, Duchess of Devonshire, Village Maid, Invincible, Cleopatra, Willow-leaved, Mayor of Northampton, &c. &c. And thirdly, *Picottees*, being such as have a fringed edge, spotted or pounced with scarlet, red, purple, or other colours; as Comfield's Lady Milton, Hogg's Beauty, &c &c.

The chief means of propagating, is by layers; when however the stalks are too short for the purpose, they may be propagated by pipings, but layers are far preferable, when they can be obtained; July is the most proper time, or at least as soon as the shoots are strong enough for that purpose. The method is, first, to trim the layers, by cutting off the ends with a pair of scissars; then with a sharp penknife, make a slit in the second joint from the root, and pass it through the third; this nib or tongue must be fixed downwards in the mould, and secured with a hooked stick, (or hooks cast in lead would last a great number of years, and save a great deal of trouble) covering it about an inch deep with fine light mould.

If the simple directions here given, are attended to, I feel no hesitation in saying that the plants will answer your highest expectations.

I remain, yours, &c.

Pitsmoor, Sept. 20th, 1831. JOHN REVELL.

ARTICLE VII.—*On the Cultivation of the Gooseberry.* By MR. GEORGE MUSCROFT, Wincobank, near Sheffield.

GENTLEMEN,

THIS fruit, which is now so highly esteemed in this country, is but little store set by on the continent; as in Spain and Italy it is scarcely known, and in France, it is completely neglected. In Piedmont,

where it is found in a wild state, the natives call it by the name of *groseille.* It is a native of several parts of Europe, and in its wild state produces a small green hairy high-flavoured fruit. As it has been found wild in the woods and hedges about Darlington, and in various parts of Cambridgeshire, Norfolk, and other counties, Phillips considers it to be indigenous to this country, although Dr. Smith and Millar, both entertained doubts of its being truly so. It appears not to have been known to the ancients, either in Greece or Rome, as their authors have made no mention whatever of it. The name *Grossularia,* has been given to it, (according to Phillips) by late writers, on a count of its resembling the *Grossos,* (small green figs) Gerard says, it is called *fea-berry-bush,* in Cheshire, and it bore the same name in Lancashire and Yorkshire. In Norfolk, it was abbreviated into *Feabes,* The name *Gooseberry,* seems to have been given, from its being used as a sauce for young or green geese. Culpepper, who was a Sussex author, tell us, that they were called *Dewberries,* in that county, and in some places *Wimberries.* Tusser speaks of it, as having been cultivated as early as the time of Henry VIII, and the perfection to which it is now brought, with the multiplied varieties at present in existence, leaves so small a trait of what it was in its original wild state, as to render it quite uncertain what species of *Ribes,* was the original parent.

In giving you my opinion on their cultivation, I would recommend the tree to be planted about the latter end of September, or the beginning of October, so that the roots may have time to get hold of the ground, before the frosts set in, as the roots are liable to be thrown out by the frost, and thereby injured.

I would recommend a two-year-old plant for planting, for if they are too old when shifted, the roots become strong and stubborn, and you cannot spread them out as you would wish. When you plant a tree, make your trench or hole, which is to contain the roots, about three or four inches deep, and wide enough for the roots to be spread out in every direction. Then spread the roots and young fibres carefully, cover them with earth, and spread a little manure on the top; I would always recommend that the trees be planted in fresh soil, when the situation will admit of it.

For manuring trees, in general, (which should be done in November) I would recommend, for strong land, horse-dung and a little light fresh soil, mixed together; but for light land, cow-dung and fresh soil.

In November, prune your trees, and in so doing, be careful to leave some young wood in them, for you will often find the best fruit on the ends of the young wood, but the young wood should be cut down a little, that is, the end of each should be taken off. If your trees make much wood in spring, take out some of the superfluous, or take off the ends of them, in order to throw more support to your fruit.

To make the fruit grow large:—When your trees are in bloom, and you find two or more on a stem, pluck the smallest off; and when the fruit begins to be fit for use, thin them well, and when they are about half-grown, thin them again, leaving about two or three berries on each branch.

In dry weather, give your trees a gentle watering, once in three days, and when the fruit begins to ripen, put a shade on the sun-side, I recommend a branch of a tree, or something of the kind, as it admits a free current of air; they should, when ripe, also be preserved from the wet, as it causes them to burst, but in this case, they must not be covered close, but have plenty of air. In both cases, I use (for single berries) a small board, about six inches square, with a hole bored in it, so as to be fixed on the top of a stick; having a quantity of these, I can stick them in the ground anywhere, at pleasure, either for shade or shelter

The First Class of berries are the Reds; the Lion takes the lead; it was grown last year above 5 inches in circumference, and weighed 31 dwts. 16 grs. and in the last four years, has won 1536 prizes: the Companion, and Young Wonderful, (two new sorts) it is thought will be as good as the Lion.

The Second Class are the Yellows; the Teazer, was grown last year, 32 dwts. 13 grs.; but the Gunner, has won the most prizes; the Leader, also grows very large;—these three often beat the Reds.

The Third Class, are the Greens; the Peacock, was grown last year, 28 dwts. 14 grs.; the Providence, is as good as the Peacock; the Ocean, won the most prizes.

The Fourth Class, are the Whites; the Eagle was the heaviest, being 27 dwts. 12 grs. and has won the most prizes;—it is a good-flavoured berry, and grows a large crop of very fine fruit. Fleur-de-lis, and the Ostrich, are the next good sorts.

Mr. Lindley, in his "*Guide to the Orchard and Kitchen Garden*," has enumerated no less than 722 sorts. The following are those, which in my opinion, are the most worthy of cultivation in a garden, where only choice sorts are required.—

FIRST CLASS.—REDS.

Lion.	Rising Sun.	Jubilee.	King.
Companion.	Squire Hammond.	New Church.	Royal George.
Young Wonderful.	Plough-Boy.	Keen's Seedling.	Tillotson's Seedling
Huntsman.	Statesman.	Lancashire Lad.	Eclipse.
Sir John.	Lomas's Victory.	Bank of England.	Royal Anne.
Sir Watkin.	Albion.	Crown Bob.	Top Sawyer.

SECOND CLASS.—YELLOWS.

Teazer.	Bunkers-Hill.	Husbandman.	Viper.
Gunner.	Sovereign.	Globe.	Nelson's Waves.
Leader.	Cottage Girl.	Britannia.	Bright Venus.
Rockwood.			

THIRD CLASS.—GREENS.

Peacock.	Favourite.	Bang Europe.	Navarino.
Providence.	Greenwood.	Lord Crewe.	Tramp.
Ocean.	Troubler.	Lord Byron.	Jolly Angler.

FOURTH CLASS.—WHITES.

Eagle.	Bonny Lass.	Governess.	Wellington's Glory
Fleur-de-lis.	Lady Delamere.	Morton Lass.	White Lion.
Ostrich.	Nailer.	Lily of the Valley.	Cheshire Lass.
Nonpareil.	Beauty of England.	Queen Caroline.	Whitesmith.

I remain, Gentlemen,
Yours, respectfully,
Wincobank, Sept. 3rd, 1831. GEORGE MUSCROFT.

ARTICLE VIII.—*A Sketch of the Agriculture and Horticulture of Japan.* By S. S.

GENTLEMEN,

THE Agriculture of a great part of India, of China, and of Japan, is conducted with so much industry, neatness, and skill, that it deserves greater attention paying to it in Europe, than is at present the case; for much might be learnt from it, and many useful hints taken from the various modes in which so great a variety of plants are cultivated in those regions. The care, ingenuity, and variety, of operations, which are employed during their growth, renders the Agriculture of most of the Eastern countries, in many respects, like the Horticulture of Europe.

It is at present, my intention to give only a slight sketch of the Agriculture and Horticulture of Japan. There is, perhaps, no country in the world so highly cultivated, nor any in which so much food is raised on the same space of ground for the subsistence of man, but unfortunately the jealousy of the government is so great as nearly to exclude strangers from the country, and render our knowledge of their modes of culture very slight and imperfect.

The land of Japan, as far as it has been seen by Europeans, is not, in general, remarkable for its natural fertility; it consists chiefly of clay or sand, but of course in so large a country there must be many varieties of soil. The land in general is cultivated by the spade and hoe; the plough is, however, sometimes used, and is either drawn by horses, oxen, or cows: even the steep sides of the hills and mountains are cultivated to their summits, which all travellers in that country agree, has a most pleasing and extraordinary appearance. They have no meadows, and very few fences to the fields, as the small

number of cattle which they have, are always kept the whole year in yards. They have no sheep, and but few horses, oxen, or cows, as they do not eat animal food, or use milk. The Wheat and Barley is sown in beds of about a foot in width, and the same space is left between each bed. The corn is either sown in two drills, the length of the bed, or in rows across it: when the plants are from eight inches to a foot high the earth is dug out of the space between the beds, and laid between the rows of corn, so that the fields have the appearance, when the corn is young, of cabbage seed beds, with trenches between them. The Wheat is sown in November, and is ripe in June,—the Barley is sown either in October or November, and is ripe the end of May.

As there are so few quadrupeds kept in Japan every possible care is taken of whatever will form manure. The economy in this respect often rendering the country disagreeable, and even unhealthy. All the refuse of the houses, even all the human ordure and urine so saved, either in large earthen jars, or in holes, all collected together, is formed into a liquid hodge-podge manure, which is carried in pails, and poured from a ladle on the corn when it is about six inches high. This operation is performed twice to each crop of corn. Keemper says that the great use of human ordure as manure, gives to many of the cultivated vegetables a rank unpleasant taste;* and Thunberg complains that the methods of saving all kinds of manure in pits by the side of the roads, produces often an intolerable stench, and is supposed to occasion several disorders, particularly a soreness of the eyes, to which the Japanese are very subject. The Japanese weed the crops with the greatest industry, so much so, that Thunberg complains that in a long journey, when he had expected to collect a great number of new plants, he could hardly discover the trace of a weed, even in whole provinces.

Rice, being the principal article of subsistence in Japan, the greatest pains is taken with its culture. There are several modes of cultivating it, according to the nature of the ground. The most common method is, in April, to turn over the ground with a hoe, somewhat crooked, about a hand's breath and a foot long, with a handle of wood, then by means of raised borders the land is laid under water. The rice is sown in beds, and when the plants are six inches high they are taken up in tufts or small clusters, containing several plants. These are planted in the rice grounds, about six inches between each tuft; this work is always performed by the women, who wade about

* I have known many persons who think that where night soil is used as a manure the vegetables have a very unpleasant taste, and that the too high dressing with other manure, near London, often gives them an unpleasant flavour;—perhaps some of your correspondents, who have considered the subject, will give you the result of their observations on the effects of the very high dressing for some of the crops, as now practised.

in the water at least six inches deep. The rice is ripe in November, it is then mown, bound up in bundles, and carried home. The mere striking the ears against a band or any hard body, causes the corn to fall from the ears; but before the husk can be separated from the grain a second thrashing or stamping is necessary, this is performed by placing the corn in a hollowed block of wood, forming a kind of mortar, and pounding it with a wooden pestle.

Besides the great use of the grain of Rice, the straw is of great importance, as the Japanese make all their shoes of platted straw: a pair of these is often worn out in a day, if much walked in. When the weather is wet, and the ground muddy, they are most uncomfortable to wear; their large hats, too, are made of plaited rice straw.

Barley, Wheat, and Cole-seed, are all thrashed out in a plain and artless manner, on straw mats in the open air, and frequently before the doors of the houses, with flails which have three swingles. Buckwheat is cultivated, and of the meal small cakes are made, which are boiled, and frequently coloured; these are sold very cheap, in the villages, to travellers.

The Indian Kale, (*Brassica orientalis*) is cultivated to a considerable extent, for the seed, out of which they express oil for their lamps; in April when it is in flower, the fields have a most pleasing appearance, from the yellow blossoms. Several kinds of Beans, Peas, and Lentils, are cultivated, in abundance; Turnips are much cultivated, and grown very large;—but Kempfer says, from the manure, they have so rank and strong a taste, that strangers do not like them, though the natives eat them in great quantities, both dressed and raw. Carrots, which are of a yellowish colour; Radishes; and Potatoes, in small quantities. Among the esculent roots, Batatas, (*Convolvulus edulus*) is the most abundant, and the most palatable. Melons, both white and red fleshed; Pumpkins, which are used for soups; Cucumbers, which are eaten both raw and pickled; Conomon, (*Cucumis conomon*) for pickling; *Solanum melongena*, for the fruit to put in soups; Calabashes, or Bottle-gourd, (*Cucurbita laginaria*) for flasks. For seasoning, a new species of Ginger, (*Amonum mioga*) Pepper shrub, (*Fagara piperita*) of which both the leaves and fruit are used; Bamboo roots; various sorts of Mushrooms, are in great request, and occur commonly in the shops, dried for sale, and are in daily use for soups and sauces. The buds of the *Menyanthes nymphæoides*, with the leaves and flowers, are steeped in brine, and used for pickles. They also cultivate the Red Beet, Carrots, Fennel, Dill, Anise, (*Pimpinella anisum*) Parsley, Asparagus, Leeks, Onions, Black Radish, Lettuce, Succory, Endive, and many others.

The *Sesamum orientale,* is cultivated in many places, and from the small seed, a fine oil is expressed, and used here, as in India, for dressing food. The Cotton and Tea plants, are cultivated to a great extent; also the Varnish Tree, (*Rhus vernix*) the Camphor Tree, (*Laurus camphora*) the Cedar, (*Cupressus Japonica*) the Mulberry, for the numerous silk-worms; and many kinds of forest trees; some of which, are peculiar to Japan.

The desserts, in Japan, consist of many kinds of well-tasted fruits, which are cultivated in the gardens. Shadocks, Seville and China Oranges, Pears, Plums, Cherries, Medlars, (*Mespilus Japonica*) of a very delicious taste; Figs, Grapes, Pomegranates, Spanish Fig, (*Cactus acus,*) Chestnuts, Walnuts, Nuts of several sorts, some of which are peculiar to those regions; two sorts of Barberry are cultivated, *Berberis vulgaris,* and *B. Cretica*

Most of the natives of Japan take great care and delight in their gardens, and cultivate many kinds of flowers, and plant flowering shrubs before their houses, and also form hedges of shrubs, about the farms, on account of their beautiful flowers. Among those planted as hedges are several species of *Viburnum,* the *Spirea chamædrifolia* and *crenata,* which with their snow-white flowers, make an elegant appearance; also the *Gardenia Florida,* both double and single. Nothing can exceed the beauty of the hedges of the Maples, indigenous to this country, (*Acer dissectum, Japonicum, palmatum, pictum,* and *trifidum*) the *Lycium Japonicum,* a small handsome shrub, is planted in hedges The *Azalea Indica,* is one of their most favorite plants, of which they cultivate many beautiful varieties.

Among the flowers they cultivate, are *Chrysanthemum Indicum, Nandina domestica, Prunus cerasus, Aucuba Japonica,* various *Spiræ* and *Magnoliæ, Tagetes patula, Celosia cristata, Hovenia dulcis, Aster Chinensis, Pæonia officinalis, Calendula officinalis, Impatiens balsamina, Mirabilis dichotoma,* and an endless number of others.

Like the Chinese, they are very fond of double flowers, and have an endless variety of the Peach, Cherry, Plum, and many others. They also plant dwarf trees in flower-pots, often with pumice or other porous stone, instead of earth. The *Dolichos polystachyos,* (*Phascolus perennis*) a plant of the pea kind, is planted in many places, and formed into arbours. The *Alcea rosea,* and *Malva Mauritiana,* are cultivated in small gardens, in towns, for the beauty of their flowers.

I remain, yours, &c.,

S. S.

September 25th, 1831.

ARTICLE IX.—*On the Utility of Burning Clay, as a means of correcting the Soil for Gardens.* By MR. STAFFORD, Gardener to R. Arkwright, Esq., Willersley-Castle, near Cromford, Derbyshire.

GENTLEMEN,

I NOW send you my promised Method of Burning Clay; and as it has fallen to my lot to operate on that material twenty-two years out of forty-eight, I may, perhaps, claim some attention from those who may be inclined to correct that material. Nothing can be more unfortunate to the proprietor, and to the person whose lot it is to conduct a garden, when the site happens to be a natural strong clay, and as this so often occurs, it has always given me the utmost concern. Until lately a remedy has been out of the question.

An occurrence, however, took place some years ago, which forcibly convinced me of the important benefit that might be derived, from attention to the subject. The instance is this:—a Mr. Nightingale, near this place, enclosed a piece of ground for a garden, of strong clay, and being acquainted with that celebrated Agriculturalist, Mr. Tollet, of Betley, Staffordshire, he asked his opinion on the subject, who advised him to let the whole be burnt, which it was done in a few weeks; and a work was completed, I may say, in a few days, that never could, otherwise, have been done in his whole lifetime, that is, he rendered the ground prolific; and I never witnessed better success in crops, than I have done of every crop that has been planted in this composition.

A gentleman, who had enclosed a piece of ground of strong clayey soil, some years ago, enquired (through the means of the Gardener's Magazine, I think) whether he could have taken any other method than adding sand, ashes, light earth, vegetable mould, and other such like materials, sufficient to have made a garden upon a bare rock; but when, (he adds) the whole was incorporated, it still remained a garden of clay.

I was then, unprepared to make any answer to such enquiries, but have since much regretted, I did not take up the subject at the time. To make a proper calculation of the expense will be attended with some little difficulty, as it will very much depend on the materials used to burn with. Some persons recommend coal; this however, I condemn, as being of too violent a nature.

When I first came to this place, although the garden had been formed twenty-five years, with most excellent judgment, it was, for the most part, a strong clay; and within nine inches of the surface, even the most common articles would not live upon it. No weather appeared

to have a good effect upon it. At one time it was covered with water, and at another, rendered impenetrable by being too dry. After witnessing the effect on a similar clay, at the place before named, I commenced burning, and in a few days produced a composition three feet deep, equal, if not superior, to any soil in this country.—The clay is rendered as pliable as burnt chalk, and seems to be possessed of the medium of holding just a sufficient quantity of moisture, and no more: as far as I have witnessed, every thing appears to thrive in it; and I have every reason to think, that when clay abounds in peach borders, &c. that very much may be done by way of improving them. As an instance, I last summer applied a quantity of burnt clay to some old peach trees, and on examining their roots in the autumn I found abundance of good young roots, growing in complete bunches; and I believe, that were these borders composed of three parts of this material, they would not be attacked with those diseases so prevalent in the spring, would be more likely to make their wood with shorter joints, and ripen much better and earlier than they could do in a compost, strongly ma nured.

My manner of performing the process, is as follows:—I throw out a trench eight feet wide, and about three feet deep; into this I place as much small wood, or faggots, as will fill the trench to the level of the ground, upon this I place a quantity of stronger wood, such as the roots of old trees, &c., which must be regulated according to the quantity of clay about to be burnt: when the whole is completed, I take the advantage of fine weather to light the fire; when this is done the whole is covered up with that part of the clay which came last out of the trench, as of course it is the strongest; as the fire advances, more is thrown on the heap, making an embankment with the top soil, and all that part which contains any vegetable matter. As the fire increases, the clay contiguous to the fire is dug up, and thrown on the top; and should the weather prove dry, there will seldom require any addition of fuel. I have often been of opinion that I could add to the mass, until it reached to the height of a garden-wall ten feet high.

As the violence of the heat subsides, I spread out the soil, which, from the carbonaceous principles it receives in the process, is rendered in point of richness, fully equal to soot. Indeed, I calculate that the ground so heated will require no manure, for at least four or five years, as every species of vegetable appears to grow much too strong for the first two years, with doing nothing more than giving a slight raking. The clay here, probably is superior to that in some other places, owing to the quantity of calcareous matter it naturally contains, I conceive a portion of it is converted into lime, in the process of burning.

Burning clay, entirely destroys every species of insect and pernicious weed, and on whole quarters, where the process was performed years ago, I have scarcely observed either slug or snail.

I have no doubt, the business might be done with good success and very little expense, where furze and heath could be readily obtained; and as it would take more in proportion to the fineness of such materials, it would tend to enrich the mass to a very high degree. As the price of making up faggots almost amounts to their real value, we have taken the wood direct to the trench, without that process, which has answered very well.

I make it a rule, never to burn more clay on a given quarter, than the space requires to correct the soil, as it would be a waste of labour to remove it from place to place; and as it may be operated upon close to any tree or crop without danger, it is more desirable to perform the operation on the spot. The fire will sometimes require probing, to allow the air to enter; but I never wish to see much smoke escape, as I am certain it greatly contributes to enrich the earth. There will require no particular caution with regard to burning the clay too much; it will be seen, that as the wood consumes, the first course of clay will fall to the bottom of the trench, and this will perpetually take place until the whole of the wood is consumed by the fire, by which time, a body of hot clay will have fallen to the bottom: when, to secure success, I level down the heap, but take particular care not to break or pulverize the compost,—the more this is avoided, the longer it will retain its fertilizing qualities.

Those who have new vine borders to make, could not do better than add to their compost one-third of burnt clay, as the average quantity of rain that falls in this island never properly suits the constitution of vines. I think it would prove an excellent corrector, and prevent those troublesome insects, the wire-worms, from injuring the roots of the vine, and the cost, in most places, would be very trifling. I think, too, that it would be well calculated for anything that requires mulching, for applying liquid manure does not in the least consolidate it. This is, I consider, a great recommendation.

If you think these observations of any importance, you will oblige me by inserting them in an early number.

And believe me to be, Gentlemen,

Yours, &c.

GEORGE STAFFORD.

Willersley, July 19, 1831.

PART II.

HORTICULTURAL AND RURAL SUBJECTS.

REVIEWS AND EXTRACTS.

Reviews of, and Extracts from, Works on Botany, &c.

1.—Edwards's Botanical Register, &c. (New Series,) By John Lindley, F.R.S. &c. Monthly numbers, 8vo. 4*s.* coloured.

No. 8, for October,

Has among other interesting specimens, an excellent one of that very brilliant *Calceolaria*, raised last year by Mr. Young, of Epsom, from a plant of *C. Arachnoidea*, impregnated with *C. Corymbosa;* this will be found a great addition to the flower borders, if turned out about the month of May, and re-potted, and placed in the green-house again in October.

Sarcánthus guttátus, Spotted Flowered Sarcanthus.—A beautiful stove plant; it is a parasite, long since introduced into this country from India,—its flowers are white, thickly spotted with pink. *Silène laciniàta*, Cut-flowered Catchfly.—A handsome scarlet-flowering green-house plant, introduced from Mexico, in 1823. *Low's Purple Lobelia*,—The origin of this plant is not known; it is, however, hardy, easy of cultivation, and of a brilliant colour. *Púrshia tridentàta*.—A green-flowering, hardy shrub, of no beauty. *Onònis pedunculàris*, Long-stalked Rest-harrow.—A pretty, and new species, with light flowers, striped with dark rose-colour. *Mr. Young's Calceolaria*.—A most elegant hybrid; its flowers are orange, with a blotch of rich velvet.

2.—Curtis's Botanical Magazine, &c. New Series. Edited by Dr. Hooker. Monthly numbers, 3*s.*6*d.* coloured, 3*s.* plain.

No. 58, for October.

Contains an excellent figure of *Mr. Neill's Alstrœmeria;* the richness and delicacy of the flowers render it a pleasing species. The many intelligent remarks of the Editor, always make this Work, doubly interesting.

Coryánthes maculàta, Spotted-lipped Coryanthes.—A stove plant, well deserving notice, the flowers are a pale ochreous yellow, spotted inside with purple. *Lonicèra hirsùta*, Hairy American Woodbine.—A beautiful hardy species, introduced from North America, in the year 1819. *Torènia scàbra*, Rough Torenia.—A pretty purple-flowering plant, sent from New Holland, last year. *Alstrœmèria Neillii*, Mr. Neill's Alstrœmeria.—A very handsome plant; flowered for the first time in this country, in Mr. P. Niell's green-house, at Cannon-Mills, near Edinburgh. *Rhododéndron Lappónicum*, Lapland Rhododendron.—It inhabits the Alpine ridges of the low grounds, in the extreme Arctic regions of Europe, Asia, and America; the flowers are small, and resemble in colour, the *R. ferrugíneum*. *Echinocáctus Ottònis*, Mr. Otto's Echinocactus.—Flowers of a delicate lemon-colour, and well worth a situation in the stove. *Nierembérgia grácilis*, Slender Nierembergia.—A native of America; the flowers are white, streaked with purple, having a yellow eye.

3.—The British Flower Garden. By Robert Sweet, F.L.S. &c. 8vo. Monthly. Coloured, 3*s*. Plain, 2*s*.3*d*.

No. 29, for October,

Contains, *Ganymèdes concólor*, Sulphur-coloured Ganymedes. *Phlóx corymbósa*, Corymbose-flowered Lychnidea.—A very handsome rose-flowering species. *Orobus lùteus*, Yellow Bitter-Vetch.—Introduced from the Imperial Botanic Gardens, of St. Petersburgh, in the year 1818; It is perennial, and is increased by seed, and parting the roots. *Tùlipa Bonorotiàna*, Bonorota Tulip.—It has a very exquisite but faint scent, when in bloom; the flowers are of a vivid brick-colour inside, and outside of a very pale yellow, marked with red.

4.—Botanical Cabinet. By Messrs. Loddiges, Monthly numbers. 4to. coloured, 5*s*.; 8vo. partly coloured, 2*s*.6*d*.

No. 174, for October,

Contains, *Phlóx aristàta*.—A delicate little white flowering plant, a native of Carolina. *Oncídium púmilum*.—A parasite; a native of Brazil, and consequently a stove plant. *Erìca triflòra*, and *Erica cylíndrica*.—Two well known green-house plants. *Azàlea Indica phœnicea*.—A very handsome plant, a native of China; introduced in 1825. *Scílla vérna*. *Grevíllea planifólia*.—A scarlet-flowering plant, lately introduced from New South Wales. *Genísta Hispánica*.—A little shrub, bearing yellow flowers; a native of Spain, and the South of France. *Anemòne sylvéstris*. *Orobus Fischèri*.—This little perennial has very handsome crimson flowers, and is a native of Russia.

5.—The Botanic Garden, &c. By B. Maund, F.L.S. Monthly, small 4to. 1*s*. Large paper, 1*s*.6*d*.

No 81, for September, contains,

Ranúnculus amplexicaúlis, Stem-clasping Ranunculus.—This little perennial is a native of the Pyrences, and was cultivated as early as 1633. The generic name is derived from the Latin, rana, (a frog) supposed to have been used to distinguish a plant indigenous to moist places, frequented by frogs. *Amplexicaúlis*, is derived from the same language; amplexus, (embracing,) caulis, (a stalk.) Its flowers are white and form a neat spring ornament for the borders. *Aquilègia Canadénsis*, Canadian Columbine.—This is a native of North America, and was introduced in 1640. Its generic name is derived from aquila, (an eagle,) and lego, (to gather,) in allusion to the nectaries, which are, in most species, peculiarly recurved, and bear a fancied resemblance to the closing claws of an eagle. *Hepática triloba*.—This is a native of Europe, and was cultivated in 1753. Its generic name is derived from the Greek, hepar; the lobed shape of the leaf of this plant was supposed to resemble the liver, which gave rise to the application of the name. *Silène marítima*. Sea Catchfly.—This is a native of Britain, and inhabits sea shores. Its generic name is derived from the Greek, sialon, signifying saliva; flies being often caught in the viscous fluid which exudes from most of the species, gave rise to the English name, Catchfly; its flowers are a yellowish white.

PART III.—NATURAL HISTORY.

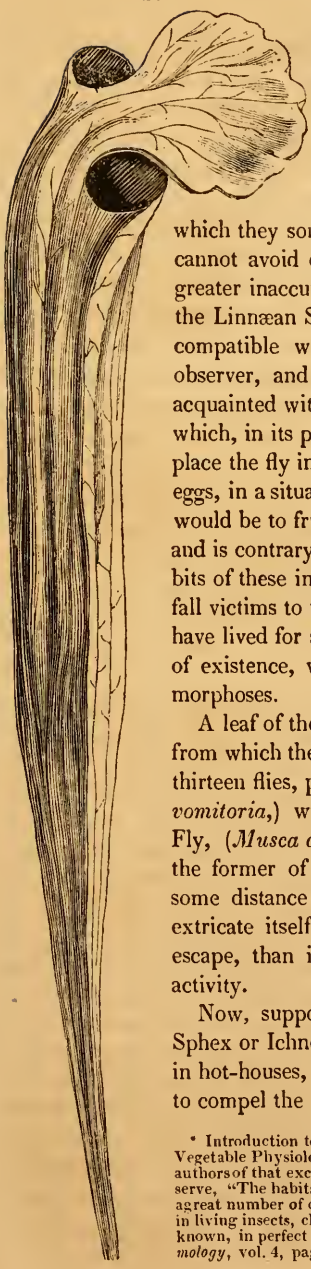
ORIGINAL COMMUNICATIONS.

ARTICLE I.—*Observations on a few of the Plants, which possess, or are supposed to possess, the power of Entrapping Insects.* By EDWARD MURPHY, Esq. Agent to the Horticultural and Arboricultural Societies of Ireland.

GENTLEMEN,

DURING my sojourn in the Botanic Garden, of Trinity College Dublin, where for some years I had the charge of the Exotic plants, I took particular pleasure in availing myself of the excellent opportunity which I enjoyed, of subjecting to the test of experiment, whatever I found recorded concerning the habits of the several plants; and especially with relation to the subject of this communication.—being of opinion, that much which is supposed to be known on this subject, rests on little more than mere conjecture; and with a view to direct the attention of others, to the elucidation of an interesting enquiry, I shall take the liberty of submitting to you, the result of the observations which I was enabled to make.

And first, with respect to the Side-Saddle Flower, (*Sarracenia,*) a genus of plants, with which most gardeners are acquainted; but as many of the readers of a periodical, so generally interesting as the Horticultural Register, may not have seen any of the species, I annex a sketch of the leaf of one of them, the *Sarracenia flava.* [fig. 26] There are four others enumerated in Sweet's "Hortus Britannicus," viz. *purpurea, rubra, variolaris,* and *minor;* all natives of the marshes of North America. Each leaf is a hollow cylinder, capable of containing water; the aperture at the extremity of the tube is furnished with a leafy appendage, which before the leaf reaches its full size, covers it so closely, as to exclude the rain and dews; at other times, the lid recedes from the aperture, and then the tube will generally be found to contain water, in which a number of dead and dying flies, may at all times be observed. This singular construction of the leaf, is evidently designed by Nature to retain moisture, for the purpose of supplying the plant in times of drought, but the late Sir J. E. Smith, having probably examined the plant when young, and observing that the aperture of *S. adunca,* (*variolaris*) was so completely closed as to exclude water, gave it as his opinion, that the tube must have been intended to serve some other purpose, and having stated on the authority of one of the young men, in the Liverpool Botanic Garden



that the flies are deposited in the tubular leaves, by a species of Sphex or Ichneumon, concludes, that "The flies are deposited by this insect, *unquestionably* for the food of itself, or its progeny, probably depositing its eggs in their carcasses, as others of the same tribe, lay their eggs in various caterpillars, which they sometimes after bury in the ground."* I cannot avoid observing, that this quotation, betrays greater inaccuracy in the late venerated President of the Linnæan Society, than one would have supposed compatible with the known industry of that close observer, and ardent lover of Nature. We are not acquainted with any species of Sphex or Ichneumon, which, in its perfect state, feeds on dead flies; and to place the fly in which the Ichneumon had deposited its eggs, in a situation where it must at once cease to exist, would be to frustrate the end designed in laying them, and is contrary to every thing that is known of the habits of these insects; for although the caterpillars often fall victims to these parasites, it is not until the latter have lived for some time, and have reached that stage of existence, when they assume one of their metamorphoses.

A leaf of the *Sarracenia flava*, now before me, and from which the sketch was taken, contains no less than thirteen flies, principally the Blue-bottle Fly, (*Musca vomitoria*,) with two or three of the Common House Fly, (*Musca domestica.*) I have frequently observed the former of these species, after having penetrated some distance into the tube, struggling in vain to extricate itself, but no sooner had I enabled it to escape, than it flew off with its wonted strength and activity.

Now, supposing it possible that any species of the Sphex or Ichneumon, which are occasionally observed in hot-houses, should possess the strength necessary to compel the Common House Fly, to enter the tube,

* Introduction to Botany, (6th edition,) page 158; and Mr. Keith's Vegetable Physiology, vol. 1, page 285. Speaking of these insects, the authors of that excellent Work, the "Introduction to Entomology," observe, "The habits of the whole of this tribe, which properly includes a great number of distinct genera, are similar; they all lay their eggs in living insects, chiefly while in a larva state but not, so far as is known, in perfect insects."—*Kirby and Spence's Introduction to Entomology*, vol. 4, page 209, and sequel.

contrary to its inclinations; it is far beyond the reach of probability, to imagine, that it could oblige the Blue-Bottle to do so; and however easy it may be for the Ichneumon, to deposit its eggs in the sluggish caterpillar, it could by no means deposit them in the body of this strong and restless insect.

But, if the flies are not deposited in the tubes of this plant, by these insects, what is it that induces them to enter? Possibly, as suggested in Kirby and Spence's "Introduction to Entomology," the effluvia emanating from putrid animalculæ, in the lower part of the tube, may induce the flies to enter, in search of a fitting receptacle on which to deposit their eggs,* or they may enter in request of food, but whatever be their inducement, repeated observation has convinced me, that their ingress is voluntary;—and having descended some length, the gradual contraction of the tube, asssited by the short stiff hairs which clothe its inner surface, and which point downwards, effectually prevents their return.

(TO BE CONTINUED.)

Article II.—*Observations on Professor Rennie's edition of Montagu's Ornithological Dictionary.* By Mr. O. Jewitt, Duffield-Bank, near Derby.

Gentlemen,

I have been much pleased with looking over Professor Rennie's new edition of Montagu's Ornithological Dictionary. That gentleman seems to have an anxious desire for accuracy in his work, and as I find some of his statements to differ from my own observations, I take the liberty of offering, through the medium of the Horticultural Register, the following extracts from a journal which I have kept some years; some of which will serve to confirm, and others to correct the descriptions he has given:—

Page 513, under the head "TOM-TIT," (*Parus cæruleus*,) he says, "It lays seven eggs, rarely eight." "It has been said that this bird will sometimes lay as many as twenty eggs in the same nest; but this is certainly an error, for in the great abundance of nests we have seen, with eggs and young, never more than eight were found."

The following, will show that sometimes at least, it lays more than that number:—1821, May 16th. Found a nest of the *Parus cæruleus*, Blue Titmouse; in a hollow maple tree. The entrance to the nest, was a small hole near the ground, just sufficient to admit the bird. Having watched the bird in, we immediately spread a small net over

* That the *Musca vomitoria*, is liable to be deceived, in this respect, is proved, by the fact that it deposits its eggs on certain fœtid flowers of the *Stapelia*, or Carrion Flower.

the hole, intending to catch it, and commenced hammering the tree to drive it out, but it appeared to know that it was safe, and would not be disturbed. We next introduced a stick into the hole, which the bird seized, and twisted round, screaming at the same time violently. It then came and sat close to the hole, watching our proceedings, but without seeming alarmed. After some time, however, it flew out, and was taken in the net. This enraged, but did not seem to intimidate it, and it bit furiously. Having examined it, it was again put to the opening, which it entered, and would not quit it again while we stayed. On the 19th, the nest appearing to be forsaken, we took it. It was composed of moss and fine fibres of bark, and lined with a great quantity of cow's hair, wool, and feathers. The eggs were *thirteen* in number, of a reddish-white colour, sprinkled with small light brownish-red spots, and measured $1\frac{7}{10}$ by $1\frac{4}{10}$ inches in circumference.

BABILLARD.—LESSER WHITE-THROAT,—*Carruca Gurrula*, (*Sylvia Sylviella*) page 17, Mr. Rennie says "is confined to the western parts of the kingdom, from Gloucestershire and Wiltshire, in both which counties we have found them, and is probably in part of Somersetshire, but not in Devonshire and Cornwall."

This bird is not uncommon in this neighbourhood; it frequents gardens, picking off caterpillars and insects from the fruit trees, and uttering at the same time a soft, low, whispering song, which can only be heard a short distance. Its manners are more gentle than those of the White-throat, though equally lively. The following description of its nest differs a little from that given by Montagu:—

1821, May 13.—Found a nest of the *Sylvia sylviella*, Lesser White-throat; it was built on the outside of a large bush of the *Rosa arvensis*, White Rose, or as it is commonly called, Bird Rose, which seems to be its favourite situation for building. The female was not easily disturbed from her nest, which was composed almost entirely of the dry stems of Eriffe, or Cleavers, *Galium aparine*, and other species of *Galium*, with a very few small pieces of green moss. It was lined at the bottom, with very fine fibrous roots, and only a single horse-hair was found in it. A tuft of strong dry grass served as a foundation to build on. The eggs, four in number, were almost transparent, of a reddish white colour, marked round the thicker end with blotches and spots of yellowish-brown, liver-brown, and broccoli-brown;* they varied much in their markings, some having the thick end only, and others almost the whole egg, mottled. On removing the yolk, the colour changed to greenish-white. They measured in circumference, $1\frac{8}{10}$ by $1\frac{1}{2}$ inches. The nest was built so slightly, that the eggs might be seen through the side.

* Werner's Nomenclature of Colours, by P. Syme.

While on this subject, I will just mention that the engraving belonging this bird, in Professor Rennie's work, shows it larger than the White-throat, though in fact the White-throat is the largest bird.

Land Rail or Corn-crake, *(Ortygometra crex.)* Mr. Rennie says, the Corn-crake "never takes the water." This is a mistake; one which I had young, and kept for some months, always seemed highly delighted when water was placed for it. It would swim, dive to the bottom, and play about with the greatest apparent satisfaction, and with as much activity as if it had never been used to any other element. Its manners were peculiarly pleasing and interesting, and its motions elegant. It ran with great swiftness, with its head nearly to the ground. The form of the Corn-crake seems admirably calculated for the life it is intended to lead; its sharp compressed bill and narrow head are well adapted for separating the grass, and opening a way for its slender and gently swelling body; by this means the movement of the blades of grass is so small, that it is enabled to make its way rapidly through the meadows without being perceived, so that one moment it may be close at hand, and in the next, be at the far side of the field, without its being possible to discover in what manner it has changed its situation.

The principal food of the bird above-mentioned, was slugs, *(limax,)* of which it ate an almost incredible quantity in a day, but it was very capricious in its appetite, and would seldom take the same food two days together, sometimes choosing worms, and sometimes bread.

The note of the Corn-crake, heard in the day-time, is harsh and disagreeable; but in a fine calm summer night, when there is nothing else to break the awful stillness, except the occasional song of the Sedge Warbler;—the hoarse voices of these birds, heard at various distances, add wonderfully to the solemnity of the scene.

I have several other observations to make on this work, but as I am afraid I have already trespassed too far on your pages, I will defer them till another opportunity, and remain,

Gentlemen, yours, &c.

Duffield-Bank, Sept. 30, 1831. O. Jewitt.

Article III.—*Observations on the Habits of Snakes and Adders.* By X.

Gentlemen,

On taking up a number of posts from a dry bank, adjoining a wood, in the winter time, quantities of Adders were found, in a torpid state, in the bottom of the holes. Query.—Could not traps be thus contrived to take these reptiles in their quarters, both in summer and winter?

An Adder being slow in motion, if it be disturbed, ascends bushes for its security. A Snake, which is swifter, runs up banks, &c. In the spring of the year, the latter animal is often seen occupying a Blackbird's or other nest, but mostly the former.

The female Adder suffers her young to run down her throat for protection on the appearance of danger. If when thus protected her head be trodden on, then they *run through her;* but if both her head and tail be trodden on, the young ones try to extricate themselves in an extraordinarily agitated manner. It is said by some persons that the female Adder is eventually killed by her young ones so often seeking her protection. An Adder is to be compared to a whip, as it cannot reach any object at which it may strike, beyond its length, and consequently very little danger is to be apprehended from this venemous reptile.

In the mild January of 1827 a Snake and Adder were both killed while basking in the sun.

A brickmaker once had the cruelty to throw a snake into a burning kiln, where he saw it descend into the interstices of the bricks, and he imagined it was consumed. (I believe that the top bricks of a burning kiln are never red hot.) When afterwards the workmen were going to empty the kiln, the snake lay there on the top of the bricks, coiled up, and apparently enjoying its *berth.* Serpents are represented as occupying "the bottomless abyss," perhaps from their power of resisting heat, of which this instance affords an example.

Yours, &c.

August 30*th,* 1831. X.

Article IV.—*Remarks on the Surrey Zoological Garden, established by Mr. Cross.*

That a Second institution of this kind, should be established in our own immense metropolis, does not create our surprise, after witnessing the success which has attended that of the Regent's-Park; but we confess that we were astonished to find any individual bold enough to enter the field, single-handed, against so powerful and influencial a Company.

Mr. Cross, the well-known keeper of the Menagerie at Exeter-Change, and the King's-Mews, has so severely felt the loss of attraction, since the establishment of the Zoological Society, that he has been compelled to remove his Collection from a room to a Garden, and from his knowledge of the care of animals, and possessing so fine a collection, he is perhaps, the only person who could contend against the chartered Society. He has selected a site, very judiciously, on the Surrey side of the river; and we sincerely hope that his expectations of success, may be realized, and that the public may be benefited, by the stimulus that one institution will give to the other.—Science will be benefited, and the study of Zoology increased, by this new establishment,—which must, however, have powerful attractions, to divide public patronage with its competitor.

The grand feature in the new Garden, is a fine sheet of water, which is already animated by a splendid collection of aquatic birds, never before seen to so much advantage. Mr. Cross, has we find, availed himself of the assistance of Mr. Phillips, the landscape planter, who has already transformed this piece of water, into one of the most interesting lakes in the vicinity of London; and on the margin of which, he has erected one of the most novel buildings of the age, forming a complete Zoological Conservatory for carnivorous animals of tropical climates.

The building is circular, and consists of an inner court-yard, around which, the dens are placed, so as to present a new object at every step the spectator advances; and the whole being covered by a dome of glass, nearly three hundred feet in circumference, ensures the animal an equal temperature at all seasons of the year, whilst it protects the visitors also, from unfavorable weather. This glazed promenade, will also form a bower of all the choicest climbing-plants ever yet congregated on one spot; and a stream of water, animated by curious fish, will play beneath the plants, entirely around the walk, which will also be overhung by birds of the most rare and beautiful species.—the whole enjoying a perpetual summer, by the judicious arrangements for heating and ventilating. The building, which is simple, unique, and beautiful, in its outline, is placed on a gentle eminence, commanding views of the most interesting parts of the grounds. A similar building, on a smaller scale, is erecting for the monkeys; so that they may be seen exhibiting their antics, at all seasons of the year.

An octagonal building, surrounded by paddocks, for domestic animals of foreign climes, is also finished, and filled with rare specimens, so that the grounds already possess great attractions, although it is little more than a month since the establishment has been formed.

We shall, in a future number, give a further notice of this Garden, so that our readers may form a just conclusion of its merits.

W.——

ARTICLE V.—*On the Conferva Ægagropila*, Moss-Ball; *from Coomere, near Ellesmere, Salop.*

THEY are found loose at the bottom of the water, and taken up by a rake with a long handle, and are from the size of a pea to that of a child's head. The one sent, is a very fine healthy one. A lady at Oswestry, has one she has kept since 1818, in a large vessel with *rain*-water, in her green-house. When she first placed it there, it was the size of a walnut, and now it is as large as a hat, and in the spring is beautifully green, and bears diaphanous balls, as large as a pea, which drop off and die, probably for want of their natural *Mere*, to bring them to perfection.

I remain, yours, &c.

Bakewell, June 5th. W. W.

PART IV.—NATURAL HISTORY.

REVIEWS AND EXTRACTS.

1.—Quarterly Journal of Agriculture. 8vo., price 6*s*.

Direction of the Winds in the North of Europe, by M. Schouw.—"It results from the observations made by the author, that the western winds are more frequent than the eastern. This rule is without exception; but the western winds diminish more and more as we approach the centre of the continent, being more frequent in England, Holland, and France, than in Denmark and the greater part of Germany; and more frequent in these latter countries than in Russia and Sweden. At London, the east wind is to the west, as 1 to 1,7; at Amsterdam, as 1 to 1,6; at Copenhagen, as 1 to 1,5; at Stockholm, as 1 to 1,4; at Petersburg, as 1 to 1,3. The west winds seem to incline the more to the south, according to the propinquity of the Atlantic Sea; towards the interior of the continent they incline more to the north-west. The north winds appear to increase towards the east. Amongst winds which come from the west that of the south-west predominates in England, Holland, and France; that of direct west in Denmark, and the greater part of Germany; at Moscow the north-west predominates; at Petersburg and Stockholm, the north wind is much more frequent than in the western parts of Europe. In the western and middle districts of northern Europe, such as England, France, Denmark, Germany, and Norway, the west winds are much more frequent during the summer, than during winter or spring. This does not appear to be the case in Sweden and Russia. During the winter the west winds are more southerly; during the summer more direct and more northerly.—*Jahrb. der Phys. und Chemie*, 1828."

2.—The Bee Garden, or a Treatise on the Management of Bees. By John Wallace, Gardener, Dalguise, Perthshire.

On the produce of Bees.—"It is not to be expected that many will attend to Bee-husbandry, merely for the sake of pleasure; but profit may induce others to follow that employment during their leisure hours. Often has the industrious labourer or mechanic, been relieved from embarrassed circumstances by the toil and labour of a swarm of bees, when he could avail himself of no other mode of relief. Not only are bees of immediate profit to their owners, but were they encouraged to the extent of which the pastures of the United Kingdom could permit, they might become even a source of national wealth. It is estimated by persons of learning, that the pasture of Scotland could maintain as many Bees as would, on an average, produce 4,000,000 pints * of honey, and 1,000,000 lbs of wax. Were this quantity tripled for England and Ireland, the produce of the empire would be 12,000,000 pints of honey, and 3,000,000 lbs of wax annually. The income that would thus arise from honey, at the very

* Scotch Measure; the Pint is equal to two English Quarts.

moderate price of 5*s.* per pint, would amount to £3,000,000 sterling; and the wax, at 1*s.*6*d.* per lb, would produce £225,000 sterling, affording in round numbers, a total of £3,225,000 annually.

The rearing of Bees, must therefore appear to be an object worthy of the consideration of all who feel an interest in the welfare of their country. As there are few concerns more profitable than Bees, in favourable seasons, considering the small expense that attends them, I humbly beg leave to lay before my readers the following estimate:—Suppose a person to commence with only two hives, which may cost £3 10*s.* sterling; and allowing each hive, on an average, only to double their number annually, they would increase as follows, in a period of ten years:—

First year,	2 hives.
Second ditto,	4 ——
Third ditto,	8 ——
Fourth ditto,	16 ——
Fifth ditto,	32 ——
Sixth ditto,	64 ——
Seventh ditto,	128 ——
Eighth ditto,	256 ——
Ninth ditto,	512 ——
Tenth ditto,	1024 ——

At this rate two hives would produce one thousand and twenty-four swarms in the period of ten years, which, at a very moderate calculation, would be worth £1. 15*s.* sterling each; so that there would be a clear profit of £1792 sterling, for a little attention to the rearing and proper management of the Bees, allowing the second and third swarms to pay for the hives, stools, labour, and incidental losses.

It may be supposed by the above estimate, that the seasons are favourable; but allowing fifty hives to fail, from various causes, there would still remain £1704 10*s.* sterling, of clear profit. The years 1824 and 1825 were very favourable for Bees: the latter was remarkably so. Almost every hive that year swarmed once, many of them twice, and a few even three times: when the store was collected, they weighed from 25 to 45 lbs each hive. Notwithstanding, I read in the public papers, that honey, to the value of £240,000 sterling, had been imported into Great Britain in the course of the same year, 1825—a most extraordinary sum, and one which, in my humble opinion, might have been easily saved to the nation, if a stricter attention had been paid to the proper encouragement of our own Bees.

3.—Knowledge for the People, or the plain Why and Because. (Zoological Series.) By J. Timbs, Editor of "Laconics," "Arcana of Science and Art," &c., 12mo., 4*s.*

This little work includes Quadrupeds, Birds, Amphibia, Fishes, Worms, and Insects. The questions are such as would very naturally arise in the mind of a Young Naturalist. The answers are plain and satisfactory, and show the research and ability of the Editor. The habits and structure of all are clearly pointed out, and shown to be best adapted to fill the offices, and fully answer the ends designed, both as it regards usefulness to man, and to each other. We certainly would recommend it to every person who is commencing the study of Natural History.

PART V.

MISCELLANEOUS INTELLIGENCE,

ON NATURAL HISTORY, HORTICULTURE, AND RURAL AFFAIRS.

I.—QUERIES, ANSWERS, REMARKS, &c.

REMARKS ON THE HORTICULTURAL REGISTER.—Gentlemen, I was much pleased to see the announcement of your Journal, and immediately became a subscriber. As I am very anxious for its success, I beg to state that I think you have occupied by far too much of your space in mere details of the contents of Edwards' Botanical Register, and other works of the same class; and as your work is chiefly for practical men, your pages might be more advantageously filled.

Your Review of Lindley's "Guide to the Orchard and Kitchen Garden" is little more than an extract; you should tell your readers what the book is. The title of the book and the name of the author make me desirous of purchasing it, but as I know little more than that, I cannot afford 16*s.* on speculation. *

I observed with great satisfaction your intention of inserting papers on the best mode of cultivating Flowers, Fruits, and Vegetables, and I trust you will be able to make your journal a *real* Encyclopædia of Horticulture; but after your promise to accomplish this important object, you propose to do that which will totally change the character of your Magazine, and which will, in my opinion, have a tendency greatly to diminish its interest with a large class of your readers—I allude to your intention of giving Portraits of Gardeners and Naturalists, with memoirs of their lives. Now, I beg to suggest to you, that in place of this, you give regularly, or occasionally, as you may be able, a coloured figure of some new or rare plant, after the manner of the Botanical Magazine, Botanical Register, and similar works. I hope you will take this into your serious consideration, for I am convinced it would give a great and enduring interest to your Journal, while your proposed plan would put an end to its circulation in some quarters that I am acquainted with.

Hoping you will receive these remarks in the same friendly spirit that they are given, I am, Gentlemen, yours, respectfully,

Nottinghamshire, Sept. 1831. A LOVER OF GARDENS.

HINTS TO THE CONDUCTORS.—Gentlemen, allow me to congratulate both yourselves and the public on the appearance, and I hope, the establishment of your new periodical. Such a work has long been wanted, and yours, judging from the numbers already published, promises well to supply this want.

I wish to communicate, (with your permission,) a few thoughts on the nature and utility of your Horticultural Register. In the First place I would observe, that by publishing your work at so low a price, you have most effectually con-

* We refer our Correspondent, to the latter part of our Review, in the last number, and if any other information is requisite, we shall feel happy in communicating it, for his further satisfaction.——CONDUCTORS.

sulted the pecuniary condition of that numerous class of the community—*the working people;* so that it may come within the reach of every inhabitant of the British Empire.—This is unquestionably conferring upon the public a great, and a lasting benefit. You have judged wisely, too, in not confining your Magazine to Gardening alone, but, by opening its pages to inquiries and communications on the interesting and important subjects of Natural History and Rural Economy generally, you must secure to your work the attention of a numerous and multifarious class of readers and contributors. The benefit which will therefore ensue from the Horticultural Register will be spread over a large portion of the community.

But in order to render your work what, from your prospectus you evidently wish it to be—a practical and useful manual to the gardener, and the student of nature, to that numerous class especially, who have little leisure and fewer means of procuring and reading large expensive works; I wish to impress on your minds, and also on the minds of your liberal correspondents *the absolute necessity there is, of consulting in every article, the greatest possible simplicity both of expression and arrangement.* Let the Conductors and Writers of the Horticultural Register keep this principle steadily in view, and I venture it as my decided opinion, that the work will shortly become not only the most popular, but what is still better, the *most really useful* periodical of its kind, in this country. How many thousands are there buried in the solitude and sequestered scenes of the country, who would hail with delight such an instructor every month. The far greater portion of the inhabitants of this beautiful and picturesque Island have been deterred from studying those interesting subjects of Natural History with which it so largely abounds, by the *technicalities* of *arbitrary classification.*—These, to the multitude, prove the bane of study. How many, who had an ardent desire for the investigation of the surrounding objects of nature, have been driven from the pursuit, solely from the harsh sounds of hard names! If you, Gentlemen, write with the constant view of being *clearly understood* by those of your readers, whose previous acquaintance goes no further than the mere elements of the subjects, depend upon it, your success is sure; and I would here suggest the utility of invariably annexing to the scientific name of every object of Natural History, its corresponding English name, and when practicable, some of its most common provincial designations. The interest of the general reader would thus be secured, and he would not be driven from reading the description of an object, as he, too commonly is, under the stern and uncomplying power of artificial systems, by the employment of unexplained terms from the Greek and Latin languages.

I wish not to trespass on your valuable pages by unnecessarily extending this communication; but permit me to express the pleasure which I have felt in perusing most of the articles of your interesting and useful publication. May I just hint that a little extension of the Naturalist's Calendar would be very acceptable. That article, to one like myself, (and many of your readers, I doubt not, are but just beginning to study nature in right earnest,) is of great and practical value. I was glad to find in your last number an article from the pen of one, who certainly ranks among the first of living Naturalists—Professor Rennie. May we be favoured often with productions from his instructive pen.

With best wishes for your success, I am, Gentlemen, yours, most respectfully,

Benenden, Kent, Sept. 7, 1831. GEO. BUCKLAND.

REMARKS ON THE NATURALIST'S CALENDAR.—Gentlemen, I was much pleased with your article in the last number, entitled Naturalists' Calendar, and the re-

marks you make on the usefulness of becoming acquainted with our natural wild plants, and the method of forming a collection of specimens. I am only a novice myself, in Botany, and endeavoured to collect some of the plants which you mention as coming into flower in August. I however, found great difficulty in recognizing them. It occurred to me, therefore, that this article of the Naturalist's Calendar might be greatly improved, if, in addition to the names of some of the plants which flower in the successive months, there were also given a wood-cut characteristic of each plant mentioned; if it were only a leaf of the plant it would be useful to guide beginners.

If a dozen, or even half-a-dozen plants were thus given every month, your periodical would, in a few years, contain within itself a complete Flora of British Native Plants. I am, Sirs, yours, &c.

M——M.

Observations on the Horticultural Register.—Gentlemen, I have read with much pleasure, the three numbers which have appeared of the Horticultural Register, and if I have not received instruction from them, it is not the fault of yourselves, or of your correspondents; but my object in addressing you is not altogether to praise, (although great praise is your due,) but to make a few observations, which I think, if followed, may conduce to the success of the Register. However, I fear not, that when a few more numbers have enabled you to complete and perfect the arrangement of your plans, that you will receive that support from the public that your most sanguine wishes may desire. I would deprecate in particular any controversy, or any thing which may lead to controversy with London and the Gardener's Magazine: the sea on which your keels are launched is sufficiently large for each to keep his own course, without running foul of each other—if you do, both will founder; but I feel certain from the good feeling you have already shown, that your pages will not become a vehicle for attacks and reflections on London's Magazine. You may see the sands and shoals on which he has struck—do you avoid them.

In your Catalogue of British Works on Gardening, you have hitherto omitted any notice of Messrs. Chandler's and Booth's Camelliæ. If it comes within your scheme, I would have short notices, similar to those in the Gardener's Magazine, on this work,—the cultivation of the Camellia and its varieties are so rapidly extending, that such notices would be useful, agreeable, and entertaining, to those of your readers who have not the means to purchase Messrs. C.'s and B.'s expensive, but valuable work.

In your Notes to Readers and Correspondents in the last Register, you express your intention of inserting, in your forthcoming numbers, one, or more papers on the cultivation of various Fruits, Flowers, and Vegetables,—the plan is good; and I trust the friends who are undertaking the task of publishing the papers, will imitate the simplicity and clearness of Mr. Revell, in his papers on the culture of the Auricula and Tulip, and of Mr. G. Harrison in his, on the Pelargonium. But allow me no ask Mr. G. H., what he intends by vegetable mould?—he mentions vegetable mould and decayed leaves—are not decayed leaves vegetable mould?— At least they are *a* vegetable mould.

The plan of N. B, in your last number, respecting the list of new plants is also good, so far as regards an annual list. This could be done without encroaching much on your short space. The lists from the nurseries during the winter season will be short, and will give room for the annual list of new plants. But N. B. asks too much, in wishing for a list of plants introduced within the last ten years.

You have kindly offered your readers, information on the subject of Horticultural buildings; I will shortly trouble you for information and estimates on this subject. If these lines are worthy a place in the Register, they are at your service.

I remain, Gentlemen, yours, &c., a young Amateur,

Sept. 5, 1831. G. A. L.

Changing the Colour of the Flowers of the Hydrangea Hortensis.—In answer to your intelligent correspondent, J. D., I beg leave to say, that the water does not appear to contain any portion of iron,—the spring which supplies the village runs through a stratum of limestone. A friend of mine, living in the neighbourhood, showed me, this summer, a plant in his possession, potted in the same soil, and treated in the same way as those I described in a former paper, except the sheep-manure, which was entirely left out, and it did not appear to have the least inclination to change its colour; whilst a plant in the possession of a neighbour, with the sheep's dung added, had a truss of most beautiful blue flowers.

Oct. 6. Rusticus.

Insects on Beans.—Gentlemen, observing on page 137, of your valuable publication, a query from a correspondent, in reference to the Black-insect infesting the garden bean, has induced me to give him the result of my observations, having grown them rather extensively this season. When in rather an advanced state, or more correctly speaking, when in full bloom, I perceived the general crop to be invariably attacked with the insect in question, at the extreme point of the shoot, which seems to be the seat of generation, from whence it extends its ravages; I immediately had all the tops pinched off, when they finally disappeared, leaving a fair crop of Beans, wholly uninjured, which corroborates W. S.'s information on the subject, as being the easiest and most effectual mode of destroying them.

But what confirms me still more in that opinion, is, the fact of having another quarter contiguous to the one in question, which at about the same stage of growth exhibited a similar infection; these I suffered to remain unpinched, the consequence of which was a total failure of that crop, which I feel fully persuaded would have been the case with the former, had I not adopted the plan.

I am, Gentlemen, yours, &c. &c.

Collycroft Nursery, near Ashborne, Sep. 5, 1831. Archibald Godwin.

P. S.—Is this the same insect that attacks the cherry? Perhaps some of your Physiological readers may be able to inform us.

Curious Bird.—Your correspondent, ☞, does not appear to be much of an Ornithologist, or he would have been aware that the bird he enquires after, is a Ring Blackbird, (*Merula torquata*,) and is by no means uncommon in the neighbourhood where he observed it. I beg leave to refer him to Rennie's new edition of Montagu's Ornithological Dictionary for its description, &c., which work he will find very interesting.

Kentish Town. S. Marheen.

Vines.—Gentlemen, may I take the liberty of putting an additional query to those of Vigorniensis. What time of the year are the Vines to be shifted or repotted? In all new modes of treatment, &c., if your correspondents would kindly give the information of the most proper time of sowing, planting out, potting, &c &c. those operations on which so much depends, would be performed at the proper season,

and prevent much disappointment to those, who, like myself, (I trust a numerous class of your readers,) are novices in the practical part of gardening, and merely cultivate a small spot, as a healthy relaxation from the cares and toils of mercantile and mechanical pursuits. I remain, Gentlemen, your obedient servant,
Hackney, Sept. 1, 1831. N.

Vegetable Marrow.—Gentlemen, the Vegetable Marrow is said to be a very wholesome vegetable, of which little use is yet made. Would it be possible for cottagers to cultivate it, or does it require much care or skill? Perhaps in the next number of your very valuable work you will kindly give some hints on the subject.
Sept., 1831. A Constant Reader.

Propagating the Cactus by Seed.—All the works on Horticulture that have come within my reach I have examined, in order to ascertain what is the method of propagating the different species of Cactus by seeds; however, I find nothing mentioned by any of them in these works. I have just collected a quantity of seed from the *Cactus Jenkinsonia*, perhaps some of your Correspondents will inform me what method I shall pursue with it?

S———.

Gabriel-Hounds.—At night, particularly towards the latter end of Autumn, there are sounds in the air very similar to the cry of a pack of hounds; they appear to me to proceed from some kind of birds, they are called by the country people here "Gabriel-Hounds," and there is a popular tradition amongst them, that whenever these are heard, it is a sure token of death to some person in the village.—Pray what birds are they?
Sept. 14. S. H.

Gooseberries.—We particularly recommend Mr Muscroft's article on the Cultivation of the Gooseberry, (in our present number, page 202) to the attention of our correspondent J. B., at the end of which, he will find a list of the most valuable Gooseberries, which we consider may be purchased at almost any nursery. We visited Mr. Muscroft this last summer, and we conceive him to be unquestionably, the best Gooseberry-grower we ever saw.

Conductors.

Strawberries.—Is it true, that the plant nearest the parent, on a Strawberry runner, is not by any means so productive of fruit as those near the extremities of the runner. A friend of mine who has tried the experiment, assures me that such is the case; if any of your readers have adopted the same experiment, the results I am sure would be very acceptable to your readers. If it proves to be correct, what a field of enquiry will it open to the Physiologist, and how valuable will be the discovery, to the lovers of this exquisite fruit. I am satisfied a great deal has yet to be learned respecting the strawberry. W. S.

Answer.—It seems to us, that the friend of our correspondent must be quite in error, it has always been the practice of experienced gardeners to choose the first runners, being the strongest and best plants for making new plantations, however, we will not contradict the statement until we have proved it by experiment, we hope to receive other opinions on the subject.—Conductors.

II—GLEANINGS, No. 1.

GENTLEMEN,

THINKING a page or two of your work might be usefully employed as a Repository, for such Extracts from valuable works, as are particularly applicable to the subjects of your Register, I take the liberty of transmitting the following, for your inspection,

Yours, respectfully,

LEASER.

COTTAGERS' GARDENS.—Every house in the country, should have a spacious garden, as the land will thus produce more human sustenance than in any common course of agriculture. The usual garden plants cultivated, are Potatoes, Beans, Peas, Cabbage, French or Kidney Beans, Broccoli, Savoys, Turnips, Carrots, Onions, Beets, Spinach, Lettuce, and many sorts of pot-herbs and salads. A garden should be well fenced, and sheltered from the north and east winds, and the hedge-rows and corners should be planted with useful fruit trees. A labourer's garden should be from a quarter to half an acre. Those sorts of Apples and Pears which keep sound for a length of time should be planted, as well as those for present use; together with Gooseberries, Currants, Damsons, and other Plums,—such articles would in pies, be a cheap and wholesome food for children, and might, at times, turn to good account for sale. Suppose a labourer's garden of half an acre, thrown into two equal lots, the one for garden vegetables, the other for wheat, alternately; let the garden lot be again divided into two, the one-half for potatoes, the other half for garden vegetables. The whole might be cultivated with the spade and hoe, without loss of time, by doing a little every day, morning and evening; and in hoeing and weeding, the wife and children might assist. By this plan there would be one eighth of an acre, Potatoes, which might produce forty bushels; one quarter of an acre of wheat, might (drilled and hand-hoed) produce eight bushels; and a hog might be kept from May to Christmas on the refuse of the garden and wash; and fatten after harvest with boiled potatoes and bran, and ground barley from gleanings. The straw of the wheat, would furnish the hog with litter, and dung for the garden would be produced. From these resources many family comforts might be derived; and it were to be wished that gentlemen of landed property would put them in the power of industrious labourers on their estates, by letting them land upon average terms; and if some premium, or reward, (as a store-pig in May,) were given to such as managed in the best style, with the least loss of time, it might be a stimulus to industry.—*Pitt's History of Staffordshire.*

ORCHARDS.—The Orchards of Staffordshire are inconsiderable; but little fruit liquor is made, and perhaps the produce is insufficient for its own consumption, even at table. This is certainly a great neglect, as many soils and situations are well adapted for fruit, and it appears to have been more attended to formerly, many orchards having been suffered to go to decay. In former times there was a crab-mill in most villages; these have gone to decay with the orchards, and the cottagers, who might have drank cyder and perry, (had such been attended to,) are now obliged to drink water. It would be a laudable effort to endeavour to restore the orchards, and would add to the comforts of the labouring people in this country.

The parish of Tettenhall has one singular circumstance in the fruit way; it produces a peculiar kind of pear, called Tettenhall Pear, and known by no other name. Many hundreds of the trees grow in this parish, though scarcely to be found at a distance. The tree is large, and a plentiful bearer; the fruit well-flavoured, bakes and boils well, but will not keep long enough for carriage to a distance, unless gathered before they are ripe. The average annual produce of this parish is many thousand bushels more than its own consumption. The pears ripen about Michaelmas, and their whole duration is about one month, during which time the neighbouring markets are plentifully supplied, and they are carried by the canals into Lancashire. They make but weak perry, and are but little used in that way, there being a demand for them all at market. We must repeat that the culture of fruit trees in this county has been too much neglected, and that the raising of orchards is a desideratum in its agricultural improvements, as producing an useful article little interfering with its present productions. In such a business, due attention should be paid to the proper kinds of fruit, and to those that produce fruit liquor of the best quality. Fruit trees might certainly be raised in pasture land, and in hedge-rows, with very little injury to the other produce of such land; and perhaps the increase of human beverage from fruits, instead of grain, is much to be desired, as tending to increase the quantity of grain for food, and being more conducive to health than malt liquor.—It has been stated that fruit liquor is an antidote to the stone and gravel, and that malt liquor promotes those diseases. Large tracts of this county are well adapted for the growth of apples and pears; deep rich friable loams are their natural soil, or lighte soils of a good depth, and not too much elevated. In thin soils upon gravel, the hard under-stratum should be taken out, and loam put in its place; and bottoms too moist should be under-drained, which would adapt them to grass and corn as well as fruit trees. It is an unpardonable neglect for a house in the country, with land to it, to be without an orchard, or for a village on a fertile soil to be without a crab-mill to make verjuice, cyder, and perry, and the means of employing it. The French are far before us in this respect; and though we are superior to them in strong ale and good beef, their peasantry drink wine whilst ours drink water, when at the same time they might drink cyder and perry, if due attention were paid to fruit-trees. But the business can only be done by the land-owner, it not being consistent with the uncertain tenure by which land is commonly held in occupation.—*Ibid.*

Improvement of Heath Land and Cultivation of Potatoes.—Waste lands are admirably adapted to the growth of Potatoes. "The east side of Dilhorn-Heath was cultivated with potatoes after the heath and gorse had rotted, and being mixed with lime and compost; the crop of potatoes was so abundant as to admit many waggon loads being sent in the winter into the vicinity of the Potteries, about six miles from Dilhorn, which afforded a seasonable supply to many thousand manufacturers. The quantity was not only immense, but the quality of the potatoes was in so high repute, that the Dilhorn potatoes produced two-pence per bushel above the common market price. In this part of the moorlands the potatoe harvest is of great consideration, and the 30,000 artificers and yeomanry there, eat less wheaten bread than in most other places, with the same number. Give a cottager in the moorlands, (with a wife and large family) a cow, and a few roods of potatoe ground, and you make him a happy man; he goes to his daily labour, earns money to purchase clothing, &c. for his large family. The younger children collect the dung and soil from the

public roads for the improvement of the potatoe ground, and the industrious dame, with her stouter children, keeps the ground clean, and assists to get in the potatoe harvest, the chief support of the family about nine months in the year." A pig might be added, to eat up the offal, which, when fat, would add to the general plenty

Many instances have occurred of great success in raising potatoes on waste land, but the shortest way is, first to pare and burn. Two day-labourers gave a guinea for an acre of waste land to plant with potatoes; they pared and burnt it by moonlight after their daily labour, spread the ashes, and paid for ploughing them in; the crop proved so good, and the price of potatoes so high, that they shared £40 between them, besides reserving plenty of potatoes for their families.

A peat-bog on waste land was drained, then pared and burnt; the ashes immediately regularly spread, and the land ploughed in twelve furrow ridge, (it could not be ploughed in narrow ones from toughness;) the furrows were hacked and levelled with heavy hoes, then planted across the ridges with potatoes in rows, and owing to the large quantity of ashes, produced an abundant crop. The land afterwards produced, the two next years, two very strong crops of oats in succession: it was then well limed, and clean fallowed, and is now a good meadow.—*Ibid.*

III.—COLLECTIONS AND RECOLLECTIONS.

RURAL AFFAIRS.

Coffee.—Persons desirous of ascertaining whether Coffee is pure, or whether Succory has been mixed with it, will find the following an infallible test:—Let a small glass vessel be filled with cold water, and a pinch of the coffee thrown into it. If the water remain transparent, and be not in the slightest degree discoloured, the coffee is pure; but should the liquid become tinged with red, and red particles fall to the bottom, as in the case of sugar, when being dissolved in water, it is a sure proof that the coffee has been adulterated with succory,—*Journal des Connaissances Usuelles.*—This notice may be of considerable use in detecting and defeating the practice now becoming very prevalent, of adulterating coffee with succory. It has been clearly ascertained that succory contains no nutritious properties that should make it a substitute for coffee, although it is true that a small tea-spoon full of succory, if added to an ounce of coffee, will improve the flavour, and render the liquid clearer, and of a brighter colour.

Mushrooms.—To ascertain whether what appear to be Mushrooms, are so or not, a little salt should be sprinkled on the inner or spongy part. If in a short time afterwards, they turn yellow, they are a poisonous kind of fungus; but if black, they may be considered genuine Mushrooms. They should never be eaten without this test, as the best judges may be occasionally deceived.

Feeding Swine.—Those who wish that these animals should have a sharp appetite, whilst they are fattening, must give them a couple of handfuls of dried oats once a day; taking care to have a supply for some days forward, constantly on hand. For this purpose a layer of oats must be placed in a pan; salt must then be strewed over it, and the whole moistened with a little water; taking care, however, not to fill the pan to the brim, as the moisture will swell the grain.

Preserving the Wood of Wheel-work.—A Member of the Royal Academy of Sciences of Stockholm, in a memoir read to that Academy, states that wood for the use of building, may be rendered incombustible by letting it remain some time in water, in which alum, copperas, or any other salt which contains no inflammable matter, has been dissolved. He likewise states, as his opinion, that wood rubbed over with very warm alum or copperas water, will by this process be secured from decay, dry rot, or injury from moisture, mushrooms, &c. Also that boiling for some hours the spokes of wheels in vitriol water, will secure them from rotting in the places where they enter the stocks or hubs. After they have been thus boiled, they are to be dried as perfectly as possible, and then may be painted any colour.

To Restore Sour Wine.—Take dry walnuts, in the proportion of one to every gallon of wine, and burn them over a charcoal fire; when they are well lighted, throw them into the wine, and bung up; in forty-eight hours the acidity will have been corrected.

Preserving Fruit.—In Japan, fruit is preserved by dipping it in yeast; the fruit, if very large, is cut in slices, if not, it is dipped whole into the yeast. It derives some taste from the yeast, but fruit preserved by this method, will keep a year or longer. The same method prevails also in China.—*Thunberg's Travels.*

Hollyhocks.—It has been discovered that the Hollyhock, (*Althæa rosea*) is an excellent substitute for flax.—Several individuals have embarked in the manufacture of it, and at present, it holds out every prospect of fully answering their highest expectations

Tree Mallow.—It is known that most of the plants of the Mallow family are capable of producing a considerable quantity of flax. M. Lecoq, supposing that the *Lavatera arborea*, ought to contain a many filaceous fibres, caused a quantity of it to be stripped of its bark, and steeped and prepared in the same manner as hemp. After this operation the bark produced $2\frac{1}{2}$ ounces of extremely beautiful flax, and $1\frac{1}{2}$ ounces of tow. The ropes which were manufactured from it were of excellent quality, more white than those made from hemp, but not quite so strong. M. Lecoq, thinks that on this account they could not be put to the same use as hempen ones; but as the plant is extremely abundant it could be prepared for other purposes, particularly the manufacture of paper.—*Quarterly Journal.*

Extraordinary Oats.—In a field at Hornsea, near Hull, during the late harvest, an ear of oats, of the Tartarian sort, of most extraordinary dimensions, was gathered. The stem was within two inches of six feet in height, and in circumference, at one of the thickest joints, upwards of three quarters of an inch. The ear was fifteen inches in length, and contained 132 grains. This plant was gathered nearly at random, and many others were to be seen equally as fine.

Cheese from Potatoes.—It is reported by the *Bullet. de le Society d'encourage*, for September, 1829, page 393, that Cheese, of an extremely fine quality, is manufactured from Potatoes in Thuringia, and part of Saxony. After having collected a quantity of Potatoes, of good quality, giving the preference to the large white kinds; they are boiled in a cauldron, and after becoming cool, they are peeled and reduced to a pulp, either by means of a grater or mortar. To 5 lbs of this pulp, which ought to be as equal as possible, is added a pound of sour milk, and the necessary quantity of salt. The whole is then kneaded together, and the mixture covered up, and allowed to lie three or four days, according to the season. At the end of this time it is kneaded anew, and the Cheeses are placed in little baskets, where the superfluous moisture is allowed to escape. They are then al-

lowed to dry in the shade, and placed in layers, in large pots or vessels, where they must remain fifteen days. The older these are the more their quality improves. Three kinds of them are made:—the first, which is the most common, is made according to the proportions above; the second with four parts potatoes, and two parts curdled milk; the third, two parts potatoes, and four parts cow or ewe milk. These cheeses have this advantage over every other kind, that they do not engender worms, and keep fresh a great number of years, provided they are placed in a dry situation, and in well closed vessels.—*Quarterly Journal.*

Elder Berries.—M. Aloy's Wehrl, of Vienna, has found by a series of experiments, that the berries of the Elder Tree produce a much greater quantity of spirit than the best wheat. The spirit is obtained by pressing the berries, and the juice is treated in the same way as the *must* of the grape, and afterwards distilled.

NATURAL HISTORY.

Wax Palm.—The Ceroxylon, a species of Palm, so called from its singular property of affording wax, is only found on the mountains of Quindin, in South America. Tropical plants in general, do not vegetate at a greater height than 500 toises above the level of the sea; it is singular, therefore, that the Wax Palm is never found below 900, and that it grows in great profusion at 1,450 toises, when the mean temperature is from 66 to 68 deg. Fahrenheit. It sometimes also springs up and thrives in regions 1,000 toises higher, and in a temperature 30 degrees below that in which any other of the same tribe or family are to be found. The Wax Palm rises to the prodigious height of 180 feet, and its leaves are 20 feet in length. A remarkable circumstance in this tree, is the secreted matter with which its trunk is covered, to the thickness of nearly two inches. This substance, according to the analysis of Vanquelin, consists of two-thirds of resin, and one of wax. Being extremely inflammable, it is employed by the natives, in conjunction with one-third of tallow, in the manufacture of candles.

July 30, 1831. W. Mc. M.

Redstart.—Gentlemen, a circumstance occurred in May last, at Stoke Hall, near Bakewell, the seat of Robert Arkwright, Esq., which, from its singularity, I am inclined to make known through the medium of the Horticultural Register, to your Ornithological readers. A pair of Redstarts, (*Sylvia Phœnicurus,*) had been constantly observed for a considerable time in the neighbourhood of the Apiary, but without the slightest idea on our parts, of their reasons for so long frequenting the place, until one day having occasion to lift up a hive that stood unoccupied, amongst the rest, we were not a little surprised to find a nest constructed, and in this nest, amidst the hum of the busy throng, they actually reared their young. J. H.

An Adder and its Eggs.—In August, 1830, on the coast of Essex, an Adder was taken two feet five inches long, and of an extraordinary bulk. On opening its body, a string of fourteen eggs was discovered; in each egg was a young adder, perfectly formed, and enveloped in a glutinous fluid. These little creatures were lively, and seemed to evince an inclination to bite, all that were taken out of the eggs, however, soon died, whilst those which remained with the envelope unbroken, continued to live, and were active, many hours; and, adds the writer, would probably have lived a long time, had they been left undisturbed. The heart of the parent animal was observed to beat with but little abatement for an hour after its extraction; the palpitations then became less rapid, and in half-an-hour more entirely ceased, apparently less from want

of energy in the organ, than because it began to dry, and adhere to the paper on which it was laid.—*Mag. Nat. Hist. May*, 1831.

Reptiles and other Animals.—The first and most obvious characteristic of the Reptile world, is the coldness of their blood, and the languidness of its circulation. The heart, which in the higher classes of animals, impregnates the blood with vital air, receives but a small portion of that which circulates through reptiles; hence it is feebly oxygenated, and slowly propelled. In the *Mammalia*, (from mammæ, breasts or teats, being such animals as suckle their young,) and *Aves*, (the bird tribe,) the brain is the centre of the nervous system, and there the vital principle seems to be aggregated; but in reptiles there is little or no centrallization of life, and irritability seems equally diffused over every portion of their system, hence they retain life, or, at least, the appearance of vital motion, under circumstances apparently incredible. A Tortoise has been known to live eighteen days after its brain was removed. A Salamander lived several months after its head was taken off, effusion of blood being prevented, by a ligature tied tightly round the neck. The respiratory system in reptiles is very simple; as they do not want atmospheric air to oxygenate the blood, they could not use the complicated and powerful organization with which other animals are supplied; hence we find that these animals retain life when almost wholly deprived of air. Toads have been found alive in the centre of the hardest rocks. Vipers have lived for months shut up in close boxes. The last peculiarity of the reptile race, which we shall notice, is, their power of re-producing certain parts, such as the tail, the feet, &c., when they have been lost.—*Cuvier*.

Norway Owls.—The inhabitants of a little village, called Helgay, 3 miles from Market Downham, are once in every three or four years infested with an incredible number of field mice, which devour their corn of every kind. As certain, however, as this visitation happens, a prodigious flight of Norway Owls are sure to arrive, and tarry till these little mischievous criminals are totally destroyed. This season they repeated their visit; and in a few days, the Owls made their appearance, to the no small joy of the farmers, who pay almost the same veneration to these birds as the Egyptians did to the *Ibis*. As usual, they executed their business, which they seem providentially sent to perform.

Sagacity of a Cat.—De la Croix relates the following almost incredible instance of sagacity in a cat, who even, under the receiver of an air-pump, discovered the means of escaping a death, which appeared, to all present, inevitable:—"I once saw," says he, "a lecturer upon experimental philosophy, place a cat under the glass receiver of an air-pump, for the purpose of demonstrating that very certain fact, that life cannot be supported without air and respiration. The lecturer had already made several strokes with the piston, in order to exhaust the receiver of its air, when the animal, who began to feel herself very uncomfortable in the rarified atmosphere, was fortunate enough to discover the source from whence her uneasiness proceeded. She placed her paw upon the hole through which the air escaped, and thus prevented any more from passing out of the receiver. All the exertions of the philosopher were now unavailing; in vain he drew the piston; the cat's paw effectually prevented its operation. Hoping to effect his purpose, he let air again into the receiver, which, as soon as the cat perceived, she withdrew her paw from the aperture; but whenever he attempted to exhaust the receiver, she applied her paw as before. All the spectators clapped their

hands in admiration of the wonderful sagacity of the animal, and the lecturer found himself under the necessity of liberating her, and substituting another in her place, that possessed less penetration, and enabled him to exhibit the cruel experiment.

Zoological Society.—At the monthly meeting of this Society, held September 1st, E. T. Bennett, Esq. in the chair, the minutes of the last meeting having been read and confirmed, the monthly report stated the number of visitors to these Gardens during August, to have been 43,833, and the amount of money taken, £1989. 9*s*. The receipts of the Society for the month £2592 16*s*. 3*d*. and the balance at the banker's, £3201 13*s*. 4*d*. It was also announced that His Majesty's Commissioners of Woods and Forests had granted additional land in the Park, by which the gardens of the Society would be considerably augmented. Twenty-four foreign members were balloted for, and elected, including scientific naturalists of the principal countries of Europe, and Messrs. G. Ord, Cooper, and Say, of America. The donations to the library, museum, and menagerie, were very considerable.

HORTICULTURE.

Gentlemen, the two following Receipts, I have made use of for a great number of years, and as I have never known them to fail, I consider they may be safely recommended for general use. J. Cur, *Worcester*.

To Destroy Insects on Trees.—

Take 2 oz. of Nux Vomica,
2 oz. of Soft Soap,
1 lb of Tobacco,
½ a pint of Spirits of Turpentine,
8 gallons of Water.

Boil them together, down to six Gallons, and use it new-milk warm; the trees to be carefully dressed over, dabbing it on with a sponge.

Composition for Baiting Traps for Rats and Mice.—Mix Flour of Malt, Butter, and Aniseed to any quantity you want:—bait the traps with it, and set them in the most frequented places. If you wish to destroy them without a trap, mix Corrosive-Sublimate with the above, and lay it in small pieces where they most frequent.

Apples.—Twelve Apples, weighing upwards of 10 lb, were produced by Mr. Abbot, at the meeting of the Ripon Horticultural Society, on Sept. 10th. These were grown on a tree which, although of only six years standing, produced ninety-seven apples, and those, too, of an almost incredible size.

Melons.—The Island Malomacca, which is one of the seven Isles lying in the front of Venice, is justly styled the "Garden of Venice;" its Melons are in high repute, and seldom find their way beyond the tables of the affluent. We instance them, however, on account of a singular feature which marks their advent to maturity. This takes place, almost without exception, between eleven and twelve at noon, and is announced by an emission of a peculiarly balsamic odour, of which no trace previously existed. The fruit must be instantly gathered, and removed to some cool spot; otherwise it loses its taste and perfume in a few hours.

Planting.—Among other instances of successful planting, "Colonel Johnes, of Hafod, was offered £100,000 for woods he had planted for his amusement." There was wisdom in the thrifty advice of the Scot to his son,—"Be aye sticking in a bit tree; it grows while you sleep!"

COTTAGERS' GARDENS.—The plan set on foot at the beginning of the present year, by the inhabitants of Cheshunt, for providing small allotments of ground for the poor men of that parish, has succeeded beyond the most sanguine expectation of the promoters, and has produced the desired effect—that of reducing the parish burthen, and displaying to the labourer, in glowing colours, what may be done by industry. The potato crop, is now in the progress of removal, and will soon be replaced by cabbage and other vegetables for winter use.

HORTICULTURAL RARITIES.

MELON.—On Tuesday Aug. 23rd, a Melon was cut by Mr. Bartlett, Nurseryman of New Bond Street, Bath, measuring three feet in circumference, and weighing 19½ lbs.—This Melon is represented as the largest ever grown in England.

CURIOUS FRUIT.—It is well known that the Peach and Nectarine are varieties of a natural species, called by Linnæus, Amygdalus Persica, but it is not common to see them blended together, as some other varieties of plants and flowers are, upon the same individual. There was grown this season in the garden of Mr. Comfield, Rectory Grove, Clapham, a single fruit, decidedly half Peach half Nectarine.

IV.—CHOICE OR BEAUTIFUL PLANTS,

FLOWERING THIS MONTH, IN THE PRINCIPAL NURSERIES ROUND LONDON.

AT MESSRS. YOUNG'S, EPSOM.

HOT HOUSE.

Ardisia hymenandria.
Begonia Martiana.
——— monoptera.
Brunsfelsia uniflora.
Eulophia Mackaiana.
Gloxinia speciosa, v. candida
Hibiscus Lindlei.
——— trilobus.
Lycopodium circinatum.
Marica semiaptera.
Oncidium divaricatum.
Talauma Candollei.

GREEN HOUSE.

Anagallis Wellsiana.
Alstrœmeria acutifolia
——— psittacina.
Arbutus mucronata.
Asclepias Greeniana.
Atalanthus piunatus.
Bæckia saxicola.
Calceolaria accedens.
——— ——— v. brunnea.
——— decora.
——— duinosa.
——— Gellaniana.
——— hians.
——— Hopeana.
Calceolaria micans.
——— ——— v. flaveola.
——— Morrisoniana.
——— nothia.
——— polyantha.
——— Youngii.
——— ——— v. palidior.
——— ——— v. dilecta.
——— ——— atra.
Cestrum acuminatum.
Encelia canescens.
Grevillea concinna.
——— Seymouriæ.
Heteronoma diversifolium.
Hunnemannia fumariæfolia.
Lobelia decurrens.
——— purpurea.
Malva purpurata.
Mutisia arachnoidea.
Portulacea Gilliesii.
——— grandiflora.
Senecio asper.
Tournefortia heliotropioides.
Trachymene linearis.
Westringia triphylla.
Zexmenia tagetiflora.

HARDY

Aconitum Moldavicum.
Anagallis Webbiana.
Astragalus dealbatus.
Dianthus Balbisii.
Digitalis fucescent.
——— minor.
Drypis spinosa.
Lobelia cœlestis.
Lupinus Hillianus.
——— Marshallianus.
Malva angulata.
Nuttallia digitata.
Œnothera anisoloba.
Papaver alpinum.
——— pyrenaicum.
Phlox Nuttallii.
Scutellaria variegata.
Sophora procumbens.
Spiræa ariæfolia.
——— glaucescens.
Symphoricarpos montanus.
Vicia polyphylla.
Wahlenbergia repens.
Wedelia aurea.

AT MESSRS. C. LODDIGES & SONS', HACKNEY.

HOT HOUSE.

Seaforthia elegans.
Zygopetelum crinitum.
——— Mackaii,
Cymbidium sinense.
——— lanciifolium.
Cœlogyne fimbriata.
Cypripedium venustum.
Justicia venusta.
Calathea macilenta.

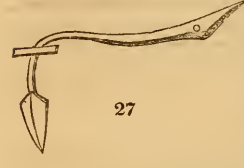
GREEN HOUSE.

Drimia undulata.
Erica mutabilis.
—— multiflora.
—— pyramidalis.
—— Lambertiana.
Erica exsurgens.
—— verticillata.
—— acuminata.
—— Cliffordiana.
—— colorans.
Erica vernix.
Crowea saligna.
Polygala grandiflora.
Wiltsenia corymbosa.
Crotalaria laburnifolia.

V.—HORTICULTURAL AND FLORICULTURAL SOCIETIES.

LONDON HORTICULTURAL SOCIETY.

On the 4th of October another of those very useful papers was communicated to the members, for which the Horticultural world is indebted to Mr. Knight, the president of the society: it contained an account of the Striped Hoosainee Persian Melon, a variety which can scarcely be surpassed for richness of quality, and which well repays any extra care that may be required in the cultivation of it. The varieties of Apples and Pears which were exhibited were very numerous, and were principally those esteemed for their excellence; they were accompanied by Catherine Peaches, Miller's Burgundy Grapes, Cephalonian Melons, and a remarkably fine specimen of the *Potison jaune*, the gourd in so much use on the Continent, which had attained the weight of 139½lb. Among the flowers we observed Phytolacca decandra, Cladanthus arabicus, Gilia capitata (white,) Salvias, Verbenas, and collections of Dahlias from the nurseries of Mr. Veitch and Mr. Lee. At the meeting on the 20th, a paper by the author of the Domestic Gardener's Manual, was read "on the propagation of the Balsam, by cuttings;" a method which has been pursued by him with much success. The collection of flowers included the Scarlet Arbutus, the Noisette Rose, the Salvia Grahami, Lupinus ornatus, Justicia Speciosa, Verbena chamædrifolia and Fuchsia virgata, and microphylla; fruit of the Psidium Cattleianum, very large Walnuts, from Mr. Biddulph, and collections of Peas were also on the table. A Hoe, called a Tulley, with a head similar to that represented in the margin, [fig. 27] and which had been lately received from Lord Vernon, was recommended to the notice of the members as being a very effective instrument, especially for working between narrow rows and around plants; deprived of its cross bar it would no doubt be found useful in cleaning hedges.



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HORTICULTURAL SOCIETY OF IRELAND.

The Autumnal Show of Fruits and Flowers, of this Society, was held at the Rotunda, Dublin, on Wednesday, August 10th, when the prizes were awarded for Grapes, Peaches, Nectarines, Apricots, Melons, Plums, Gooseberries, Currants, Figs, Carnations, Picotees, Yellow Piccotees, Georginas, (Dahlias) Exotics from Nurseries or Public Gardens, Herbaceous Plants, Balsams, Annuals, Pelargoniums, &c. The Lord Lieutenant and the Ladies Paget, honored the Society with their presence, as did also most of the nobility and gentry then in the metropolis. The Fruit was most abundant, and in all respects superior to that of any former Show; and the Exotic Plants, though by no means so numerous, as in our opinion would have been desirable, were extremely beautiful.—The first prize, (the Society's Gold Medal) was awarded to Mr. Mackay, of the College Botanic Garden.

NOTTINGHAM FLORIST AND HORTICULTURAL SOCIETY.

On Wednesday, Sept. 7th, this Society held its last Exhibition for the season, and there certainly was a far better Show than we ever remember to have witnessed. It was principally designed for Dahlias, of which, there was a resplendant display, and more beautiful flowers of the kind, than those which took the prizes, it is scarcely possible to behold. The Fruits were extremely rich and good, particularly the Apples, which were well arranged according to their sorts, and presented a most tempting feast. There were also some fine Pines, from the pinery, of Lord Rancliffe, and several bunches of delicious Grapes. The Vegetables, at this time of the year were not very numerous, but capital of their kind. Perhaps a fortnight earlier and there would have been a better show; but, on the whole, the very large company that attended Bromley-House up to the latest hour, expressed themselves highly gratified with the spectacle. The First Prize for Dahlias, was awarded to the Rev. E. L. Thoroton, and the Second, to Mr. Spencer.

NEWCASTLE HORTICULTURAL SOCIETY.

At a General Meeting, held at the Queen's-Head Inn, Newcastle, on Thursday, Sept. 15th, the judges awarded the following, among other Prize Medals, viz.—The Gold Medals to Mr. W. Kelly, gardener to A. Donkin, Esq. Jesmond, for the best flavoured Pine-apple, (Black Antigua) and to Mr. J. M'Queen, gardener to S. W. Parker, Esq. Scott's House, for the best double Carnation, (Sherwood's Corinthus)—and Silver Medals, to Mr. W. Kelly, for the best Melon, (Scarlet-fleshed Rock); to Mr. H. Robson, gardener to Captain Grey, Styford-Hall, for the best six Peaches from an open wall; to M. G. Robson, gardener to N. Clayton, Esq. Chester, for the best six Nectarines from an open wall; to Mr. J. Scott, gardener to E. Charlton, Esq. of Sandhoe, for the best six Apricots from an open wall, and the second-best double Carnation, (Highland-Boy); to Mr J. M'Queen, for the best bouquet of Double Piccotees; to J. G. Clarke, Esq. Fenham-Hall, for the best bouquet of Double Georginas; and to Mr. J. Ireland, gardener to W. Donkin, Esq. Sandhoe, for the best bouquet of flowers. The following articles were likewise exhibited:—A bouquet of Anemone-flora Dahlias, from the garden of J. C. Anderson, Esq. Point-Pleasant; Calceolaria Integrifolia, from the garden of M. Anderson, Esq. Jesmond; and a dish of Morrello Cherries, from the garden of Captain Grey, of Styford-Hall. This being esteemed the largest Show throughout the year, was consequently attended by an unusually great number of visitors. Several members of the Society, and gentlemen friendly to the institution, dined at the same place, on the following afternoon, The various and well-prepared dishes, were such as never fail to afford a good dinner. The fruit dessert, surpassed anything produced on public occasions in this part of the country.—Pine-apples, Melons, Grapes, Peaches, Nectarines, Apricots, &c, in abundance, to the amount of 88 dishes, being specimens shown the day previous. The Mayor presided on the occasion.

GOOSEBERRY AND CARNATION SHOWS.

ALNWICK.—The Alnwick Annual Show, for 1831, of Gooseberries, Carnations, and Piccotees was held on August 4th, at the Turk's-Head, when the following prizes were awarded:—

Gooseberries.	Reds. 1st,	Rough Robin,..	Mr. Maben.	2nd, Prince Regent...	Mr. Maben.
	Yellows.	Rockwood, ...	— Brewis.	Scorpion,.....	— Balfour.
	Greens.	Greenwood,....	— Balfour.	Green Queen,....	— Maben.
	Whites.	Lady Dallmen,.	— Newton.	Huntingdon Lass,	— Maben.
Carnations.	1st,	Lady Ravensworth,....	— Maben.	2nd, Lady Kay.....	— Maben.
Piccotees.		Star of Eslington	— Oliver.	Prince of Orange,	— Maben.
Seedling ditto.		Miss Hannah Smith.....	— Maben.		

The thanks of a numerous and respectable meeting, were given to Mr Balfour and Mr. Gibbison, gardeners to Earl Grey and General Grey, for producing a choice collection of Double Dahlias; also to Mr. Oliver, gardener to the Hon. Thomas Liddell, for producing three sorts of Lettuce in great perfection,—the Old Bath White Coss, Belle Bonne, and Kelso Abbey; and also three sorts of Turnips,—New Black, Yellow Tettow, and Coll Rabbi. At the same meeting, was introduced by Mr. Mackenzie, of Acklington-Park, two sorts of Gooseberries *naturally* from one plant.

COXLODGE.—The Coxlodge Gooseberry Show was held at the Shoulder of Mutton Inn, on the 8th of August, when a number of prizes were awarded. The meeting was respectably attended, and the evening spent in harmony.

GATESHEAD.—The Gateshead Ancient Florist Society, held its Annual Show of Carnations and Piccotees, August 8th, at the house of Mr. Lister; when prizes were awarded.

HEWORTH.—On the 6th of August, the Heworth Horticultural and Florist Society, under the patronage of John Brandling, Esq. held its Annual Meeting, for the show of Pinks, at the house of Mrs. Arkless; and on the 10th, held its Show of Carnations, Piccotees, and Gooseberries, at the same place. At both Meetings prizes were adjudged.

HEXHAM.—At a meeting of the Hexham Botanical and Horticultural Society, held at the Bush Inn, on Monday, August 8th, for the exhibition of Flowers and Gooseberries, the prizes were adjudged as follows:—

Carnations.	1st.	Butt's Lord Rodney,..	Mr. Grey.	2nd, De Byron,.....	Mr. Grey.
Piccotees.		Lady Effingham,.....	— Grey.	Will Stukeley, ...	— Grey.
Gooseberries.—Roaring Lion,.....			20 dwts. 0 grains,.....		Mr. Charlton.
		Yates's Thrasher,.....	16 dwts. 1 grains,.....		— Charlton.
		Gorton's Viper.....	15 dwts. 5 grains,.....		— Grey.
		Green Ocean,.....	15 dwts. 0 grains.....		— Grey.

MARKET-OVERTON CARNATION SHOW.—An Exhibition of Carnations, took place at the Bull Inn, Market-Overton, Rutland, on July 27th, 1831; when the Premier Prize "for numbers," was awarded to Mr. Orson; and the Second Prize for ditto, to Mr. Hinman. The show of Flowers was excellent, and upon the whole, the Meeting was very interesting.

OVINGTON.—On the 6th of August, the Ovington Society held its Annual Show of Gooseberries, at the house of Mr. John Surtees, when prizes were awarded.

SUNDERLAND.—The Friendly Florists of Sunderland and its vicinity, held their Annual Show, at the Brewer's Arms, on the 15th of August, when prizes were awarded for Carnations, Piccotees, and Gooseberries. Mr. Thomas Davison exhibited a beautiful lot of seedling Piccotees, the prize-flower from which, was named Davison's Harbour-Master.

USWORTH,—A Show of Gooseberries took place at the Stone-Cellar Inn, Usworth, Aug. 6th. Among the many excellent berries that were shown, the one by Mr. W. Claughton, caused great merriment among the Company assembled; it weighed scarcely half-a-grain.

WINLATON.—At the Winlaton Gooseberry Show, held at Mr. Charles Dixon's, August 13th, the prizes were adjudged as follows,—

Greens.	Weightman's Ocean,....	17 dwts. 12 grains,.....	Mr. Handcock.
Reds.	Roaring Lion,.....	17 dwts. 8 grains,.....	— Handcock.
Whites.	White Cockade,.....	16 dwts.....	— Handcock.
Yellows.	Gorton's Viper,.....	15 dwts, 13 grains,.....	— Handcock.

The Second prizes were given to Mr. Dixon, Mr. Jeavons, and Mr. Cowen, for the same berries.

WYMONDHAM PINK SHOW,—held at the Hunter's Inn, Wymondham, Leicestershire, on July 9th, 1831.

Purple Laced.	1st,	Royal George, ...	Mr. Banton.	2nd, Morgan Rattler,..	Mr. Hinman.
Red Laced.		Princess Victoria..	— Hinman.	Bray's Invincible,	— Roberts.
Black and White.		Bigland's Dove,...	— Hinman.	Black-eyed Susan,	— Banton.

WYMONDHAM CARNATION SHOW,—held at the Hunter's Inn, August 3rd, 1831.

Best Stand, Mr. Orson. Second Stand, Mr. Roberts. Third Stand, Mr. Banton.

Scarlet Bizarres.	1st,	Lord Manners,....,	Mr. Hinman.	2nd, Unknown,.....	Mr. Hinman.
Crimson Bizarres.		King Alfred,.....	— Roberts.	Paul Pry.....	— Roberts.
Scarlet Flakes.		Rob Roy,.....	— Orson.	Salamander,.....	— Orson.
Purple Flakes.		Princess Charlotte,	— Orson.	Anticipation,....	— Orson.
Rose Flakes,		Duch. of Devonsh.	— Orson.	Smalley'sSeedling	— Orson.
Red Piccotees,(light)		Lee's Floribunda,.	— Spurr.	Chilwell Beauty.	— Orson.
Red Piccotees, (dark)		Will Stukeley.....	— Orson.	Lord Exmouth,..	— Orson.
Purple Piccotees.		Martin's Linnæus,	— Orson.	Lee's Cleopatra...	— Orson.

The attention of the company was attracted by a beautiful Pyramidal Campanula, grown by Mr. Roberts; it consisted of one large stem, and twenty-one branches, which were placed as regularly round the centre stem, as if done by a first-rate artist.—The stem and branches contained nine hundred and sixty-one perfect flowers.

V.—NATURALIST'S CALENDAR.

FOR NOVEMBER.

BOTANY.

The season of flowers is now over, those which yet remain look sickly and languid; the trees are becoming bare of leaves, and every thing begins to wear a gloomy and melancholy appearance. The hedges, however, are occasionally enlivened with the scarlet fruit of the Rose and Hawthorn.

It is to the Class *Cryptogamia* or *Cellulares*, that the Botanist must now turn for objects of interest, and his attention, no longer engrossed by the more showy parts of the vegetable world, will find sufficient employment and gratification in examining the highly interesting and wonderfully varied forms of these singular productions.—The Musci, (Mosses,) by their vivid green, the variety of their forms, the delicacy of their fruit stems, and above all, by the contrast they offer to the faded and russet colour of the herbage at this season, cannot fail to attract his attention. They are to be found on banks, stones, rocks, trees, and walls; in rivers and in stagnant waters.—The Hepaticæ, too, are well worthy examination. Some of them, as Liverwort, *Marchantia*, are found in damp places, on the inside of wells and watercourses; and others as *Jungermannia*, among moss, in woods, shady places, and bogs. The Lichenes, (Lichens,) will be found universally distributed, as scarcely a stone, a tree, or wall, if it has been long exposed to the weather, is to be found without them. The beautiful "weather tints," (as they are called,) of old buildings, are occasioned by various species of Lichens. The sober grey tint, which we so much admire, on churches, and other old buildings, is chiefly produced by the *Rinodina atra*, and the rich yellow on tree stocks, and walls, by the *Parmelia parietina*. The *Ramalina fraxinea* and *fastigiati* are very conspicuous on old trees. The Reir-deer Lichen (*Cladonia rangiferina,*) so useful as the chief food of that valuable animal, is not unfrequent on moors and heaths, and the Iceland Lichen, *Cetraria Islandica*, so well known as yielding a nutritive jelly, of use in consumptive cases, and which forms an important article of diet with the Icelanders, is found on the tops of the highest mountains in Scotland, Wales, and the North of England. Several of the species are useful in dyeing, and it is highly probable that many might be useful in medicine.—The Fungi are still numerous; the Agarics, by the variety of their vivid colours, give the fields the appearance of being studded with flowers, while "the deep recesses of unfrequented woods are gemmed with the varied beauties of *Hydnum, Helvella, Auricularia, Peziza, Nidularia, &c.* The cones of the Fir in a state of decay, particularly of the Scotch Fir, *Pinus sylvestris*, present the beautiful *Hydnum auriscalpium*, never found on the plants of any other Genus. *Peziza fructigena* spangles the external covering of the Beech-nut, Acorn, Chesnut, and other coriaceous fruits; and the *Peziza nivea*, with its delicate minute cups of pearly whiteness, is found on the withered stems of the Common Nettle, *Urtica Dioica*, and similar herbaceous plants. But it would be almost an endless task to attempt a detail of the myriads which spring from the deep vegetable mould of old and undisturbed plantations. The contemplation of objects so full of interest and novelty, is calculated greatly to rouse the reflecting mind to a consideration of the beautiful shades by which the visible organization of the vegetable kingdom appears to be carried to that mysterious point, where a new character seems to arise, forming, as it were, a link between the vegetable and animal creation; a contemplation greatly worthy the attention of enquiring minds." *

Much uncertainty prevails with regard to the boundaries of the different Orders and Genera of *Cellulares*, particularly *Lichenes* and *Fungi*. Professor Lindley has promised a volume on the subject, as a completion of his Synopsis, which it is hoped will place them on a more settled foundation.

ZOOLOGY.

INSECTS.—Most of those insects which have not been killed by the frosts, have now retired to their winter habitations, and become torpid: a few mild days and a gleam of sunshine are however, sufficient to bring many of them forth for a short time. A few moths may now be found; as the Winter Moth, *Geometra brumaria*, and the Flat-body Moth, *Geometra applana*. The Caterpillars of most of the Lepidopteræ have now either taken the Chrysalis form, and may be found on window frames, and under any projection on walls and house sides, or buried in the ground; or such as were hatched too late to do this, have spun themselves warm winter nests, in which they live in societies, as *Porthesia auriflua* and *chrysorrhœa;* these may be found on twigs of trees. The Entomologist will do well to search for these winter habitations, as he will not only secure to himself specimens of many species he could not otherwise easily obtain, but will find much to interest and excite his admiration in the various contrivances to ensure the safety and comfort of their inhabitants.

BIRDS.—The winter has now set in, and the marshes and fens being frozen, those birds which seek their subsistence in such places are driven to the banks of rivers for a supply of food.

If the frost in the north is suddenly severe, large flights of Woodcocks are sometimes seen this month on the coasts, "where they remain one day to recruit their strength, and then disperse."

The Hawk-Owl, *Stryx brachyotus*, arrives from the northern countries about the same time as the Woodcock, from which circumstance it is sometimes called the Woodcock-Owl. Some singular circumstances are recorded of this Owl in the new edition of Montagu's Ornithological Dictionary, p. 243. "A few years ago, mice were in such vast abundance in the neighbourhood of Bridgewater, as to destroy a large portion of vegetation; and in the autumn a great many Hawk-Owls resorted to the place in order to prey upon them. They were found in the fields among high grass" At page 305 is the following extract from an old author, (Childrey.) "In the year 1580, at Hallowtide, an army of mice so over-ran the marshes near South Minster, that they eat up the grass to the very roots. But at length a great number of strange painted Owls came and devoured all the mice. The like happened in Essex, in 1648." A similar instance is also recorded this year. (See Hort. Reg, page 233.) The instinct which can direct these birds, natives of a distant country, to the place where their food is most abundant, is truly wonderful, and deserving of investigation.

The Dotterel, *Charadrius Morinellus*, visits us for a short time on its way to the south. The Jack Snipe, *Scolopax Gallinula*, has now arrived; and the Ptarmigan, *Tetrao lagopus*, has assumed its winter dress of white.

* Introduction to the Elements of the Linnæan System of Botany, by Mrs. Hardcastle, 4to. 1830.

METHOD OF PRESERVING BIRDS.—The following directions are given in accordance with the promise made in the August number, and it is hoped will be found useful to such as may be desirous of preserving their own specimens. The implements and materials necessary are a sharp-pointed penknife, a folding-stick, (or a folding-knife, with a pen-blade in the end, will be more convenient,) a pair of small, and a pair of strong scissors, a file, a pair of wire-nippers, a pair of pliers, iron wire of various thicknesses, which has been previously softened in the fire, tow, cotton-wool, glass eyes of various colours, (which may be procured at the toy-shops in most large towns,) and a quantity of the following compositions:—

ANTISEPTIC POWDER.

Burnt Alum, powdered,	3 oz.
White Arsenic,	1 —
Camphor,	½ —

To be reduced to a fine powder, and kept in a corked bottle.

ANTISEPTIC PASTE.

White Arsenic,	2 oz.
Spanish Soap,	1 —
Soft Soap,	½ —
Camphor,	¼ —

Spirit of Wine, a few drops.

To be beaten together into a paste and kept in a covered pot or box.

On procuring a bird which it is wished to preserve, it is necessary in the first place to note the colour of the eyes, bill and legs, and any bare skin which occurs on the heads of some species, as these parts are liable to change after death. Some hours must be allowed before the bird be skinned, in order to give time for the blood to coagulate, &c.

If the bird be large it should be suspended by one leg during the operation of skinning. On gently removing the feathers on the breast, a bare space will be found, in this an opening must be made through the skin to the full length of the breast bone. [28] The skin must be loosened from the flesh in all directions by means of the handle of the folding knife, and gently slipped back as far as the first joint of the wing, which is to be separated. The other wing will now be easily separated in the same manner. The skin must next be drawn from off the neck till the back of the skull appears, which must be parted from the neck at the first joint. The bird should now be suspended by the neck, and the skin drawn downwards to the thighs, which must be divided at the joint, leaving the thigh bones and legs attached to the skin. The skin must be drawn downward to the tail; in separating this from the body, care must be taken not to loosen the feathers; it will be necessary therefore for this purpose, to leave a few joints of the back bone attached to the skin. The eyes, brain, tongue, &c must now be removed through the opening at the back of the head, and all fat and flesh carefully cleared from the skin, wings, thighs and tail. In removing the eyes, the thumb and finger must be pressed strongly on the outside, and a small wire hook being introduced at the back of the head they may be easily drawn out without bursting.

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A quantity of the Antiseptic Powder must be put into the head, which must be stuffed with cotton wool, and the whole skin and every place where a particle of flesh remains, well rubbed with the powder. The skin being turned right side outwards, a piece of wire, of a thickness proportioned to the size of the bird, and reaching from the front of the head to the tail, must be cut off and sharpened at both ends, and a shorter piece twisted round the middle of it; [29] the upper end must now be wrapped round with tow, to the thickness of the neck, and passed up the skin till the point of the wire projects thro' the skull;

29

the other end must be thrust through at the underside of the tail. Smaller wires of a proper length, and sharpened at both ends, must now be passed along between the bone and skin of the wings and legs, and the inner ends fastened by twisting them into the main wire. [30] The wires must be left projecting beyond the feet, in order to fix the bird on a board or branch in the case. The body must now be filled out in every part to its natural size and shape with tow; the opening neatly sewed up with silk or strong thread, the legs, wings, and neck placed in their natural position, and an easy attitude given to the bird. The eyes must be inserted, the lids drawn a little over them, to give them a natural appearance, the projecting wires nipped off, the bird fixed on a board, and in about a week it will be ready to fix in a case.

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If the skin is not intended to be stuffed immediately, the *Antiseptic Paste* must be used instead of the Powder.

Quadrupeds are preserved in a similar manner.

METEOROLOGY.

THIS Month is proverbially dull and gloomy. Dense fogs are common, particularly in the Metropolis, where the immense mass of smoke and vapour being prevented from ascending, mixes with the fog, and becomes so thick, as almost to exclude the light of the sun at noon-day.

BAROMETER.—Mean Height 29,776 Highest 30,270. Lowest 29,080 inches.

THERMOMETER.—Mean Temperature 42.9 degrees. Highest 62. Lowest 23 degrees.

RAIN.—Mean quantity 2,400 inches.

EVAPORATION.—Mean 0,770.

Duffield-Bank, Oct. 1831. O. J.

VI.—MONTHLY HORTICULTURAL CALENDAR,

FOR NOVEMBER.

THE general characteristics of this month, are wet, stormy, and foggy weather, intermixed with a few sharp hoar-frosts, and but little sunshine. Green-house plants, and those sheltered in frames, must be allowed very little water, and as much air as the weather will admit of, or they will damp off. Make use of every fine day, to gather any remaining late Pears or Apples, hanging on the trees; let this be done as early as possible, for if they are allowed to imbibe too great a quantity of moisture, now evaporation is much diminished, they will most probably rot. The different kinds of trees that were removed last month, should have a little long litter laid about the roots. This is a very important time to collect soils of different kinds, for various purposes. Several sorts of bulbs require planting. Ground requires trenching, and various preparations, against the severity of winter. The earliest peach-houses may be closed about the latter end of the month, in order to commence forcing; we have, however, found that if they are not closed until about the second week in December, there is a greater certainty of success, and the fruit is very little later in ripening.

FRUIT DEPARTMENT.

Peach, Nectarine, and Apricot Trees on the walls, as soon as the leaves are fallen, should have the nails and shreds drawn from all the small branches, leaving only as many in the wall, as will prevent their breaking, or rubbing against each other in windy weather.

Cherries and Plums, may now be pruned and nailed.

Gooseberries and Currants. See page 202 of the present number, on Gooseberries.

Strawberries in pots, for forcing, should, about the latter end of the month, be placed in a frame, on a slight hot-bed, to continue there until the fruit is set, when they must be removed into the stove.

Fig Trees on the open walls, will require covering with mats, or the shoots will be injured by the frost; also, let the border in which they are planted, have some litter laid on it, to keep the frost from the roots.

Planting Apples, Pears, &c. may still be done early in the month, and what is not done then, had better be deferred until the spring. (see Calendar, for last month)

Forcing. About the latter end of the month, the lights may be put on the earliest peach-houses; but they are more to be depended upon, if deferred until the middle of December, and the fruit is very little later in ripening. For Vines, see pages 6, 185, and 193.

FLOWER DEPARTMENT.

Hyacinths, should be planted before the middle of the month, in pots, or in beds made up of sandy-loam, vegetable-mould, and very rotten dung;—as recommended in the Calendar, for September.

Tulips, will now require your attention. (see No. 3, page 104)

Crocuses, must be planted as early in the month as possible; they thrive best in a good loamy soil.

Ranunculuses and Anemones; the latter, requiring much the same treatment as the Ranunculus,—refer to page 196, of the present number.

Dahlias, will now require taking up. (see No. 4, page 145)

Chrysanthemums, in pots placed in the green-house, as recommended last month, will now advance fast into flower,—let them have a good supply of water, and an abundance of air to prevent them from drawing.

Mignonette, and Ten-Weeks-Stocks, sown in August, to stand the winter in frames, must have a deal of air, and very little water, or they will damp off.

Prepare Mould for Carnations, (see page 199 of the present number) and other purposes, let it be well turned and broken, two or three times during frosty weather.

VEGETABLE DEPARTMENT.

Cauliflowers, such as are large enough for use, if the nights are frosty, dig up, and lay their roots in sand or soil, in a shed or cellar.—Let those that are pricked-out in frames or under hand-lights, have as much air as the weather will admit of.

Endive, must be taken up when severe weather comes, and blanched in a dry cellar.

Lettuce Plants, may still be pricked out in frames, if sufficient were not done last month.

Asparagus beds, must now have their winter dressing. Plant in hotbeds, such roots as are of a proper age to bring strong shoots, place them closely together, set a frame over them, and cover the roots with a light mould, and preserve them from severe frosts.

Cardoons, earth-up finally, as recommended last month.

Peas and Beans, sown this month, will have a better chance to stand the winter, than those which were sown last month.

Mushroom Beds, spawned the former month, must now be attended to, and examined every three or four days; uncover them in dry weather about once a week, to prevent them from moulding. If the weather be very cold, they will require a thicker covering.

Artichokes, must now have their winter dressing.

Sea Kale, will now require covering with pots and long litter, in order to blanch for the table.

G. Jewitt, Printer, Duffield, near Derby.

THE

HORTICULTURAL REGISTER.

December 1st, 1831.

PART I.—HORTICULTURE, &c.

ORIGINAL COMMUNICATIONS.

ARTICLE I.—*On the Improvement of Forest Tree Plantations.* By THE AUTHOR OF "THE DOMESTIC GARDENER'S MANUAL," a Member of the London Horticultural Society.

GENTLEMEN,

ON re-perusing the fourth article of your first, and the ninth of your second number, by your correspondent Quercus, on the subject of Arboriculture, it has occurred to me that I might in a degree, contribute to the diffusion of useful information on a subject of such national importance as that of the cultivation of Timber Trees; and at the same time, further your views of "promoting the interests of that branch of Natural History, which is connected with the production and improvement of Forest Scenery." I, in common with your correspondent, lament that "wide-spread, and almost universal ignorance," that obstinate persistence in erroneous practice, which unfortunately prevails; and I therefore conceive that I cannot do your readers a more essential service, than to direct their attention to three little works connected with the subject of forest trees, which have recently appeared. They are from the pen of William Withers, Esq., of Holt, in Norfolk, and are equally estimable for the elegance and perspicuity of the style in which they are written, as for the sterling worth, and undeniable evidence of the facts which they adduce. The first, in the order of its publication, was entitled "A Memoir, addressed to the Society for the Encouragement of Arts, &c., on the Planting and Rearing of Forest Trees," 1827. The second was, "A Letter to Sir Walter Scott, exposing certain errors in his late Essay on Planting," &c. &c. 1828; and the third, "A Letter to Sir Henry Stewart, Bart., on the improvement of the Value of Timber," &c. 1829.

Mr Withers, previously to publishing the last of the above works, had addressed me, among others of his correspondents; and he subsequently did me the honour to publish the answer that I returned him, and which I take the liberty of extracting from the 90th page of his Letter to Sir Henry Stewart. I am not vain enough to imagine that my reply was entirely conclusive and satisfactory, but such as it is, it may convince the philosophic enquirer how much depends upon the energy excited by the great natural agents, and how little the planter is entitled to expect success, who does his work in a slovenly manner, and neglects to place his trees in situations where they may be duly exposed to the influence of those elements which Nature is ever ready to employ in completing the due development of her own perfect works. Without further preface I now extract the Letter that I have alluded to.

"In replying to your enquiry, 'whether I conceive the application of manure to poor land at the time of planting, can have any injurious effect upon the quality of the timber?' I must observe that many writers, chiefly, I believe, of the Scotch school, are of opinion, that to interfere with the growth of forest trees is but to injure them: thus, I read in the third volume of the Library of Entertaining Knowledge, part I, p. 166, 'the wood of these two genera, *(Prunus* and *Mespilus,)* is close and compact, and takes a good polish; that of the wild sorts being better than the cultivated, and the deterioration being in proportion to the highness of the cultivation. In this, they follow the general law, that self-planted trees yield the best timber, &c.' But these assertions are of little weight with me, who know that men can believe and assert anything.

"I believe that manure is of vast and essential utility to forest, as well as to garden trees, and that, for the following reasons. On another occasion, (Gardener's Manual, p. 16, No. 21,) I have observed that 'the pure earths alone do not perform any material part in the process of vegetable nutrition: they may be considered as the media by which the plant is supported, and through which, it is enabled to supply itself with the aliment necessary to the growth and development of its parts. This aliment appears to be furnished either by decayed vegetation, naturally, (*i. e.* by absorption of the products of natural fermentation, either from the surface of the ground, or floating in the atmosphere,) or artificially and chiefly, by the organic materials applied by labour. Vegetables are found to be resolvable into the elements, carbon, oxygen, and hydrogen. Hence, they must require for their food such substances as are capable of producing the like elements.

"Now, as the native earths are chiefly metallic oxides, it follows of necessity, that plants are nourished either by water alone, and therefore that *water* is the origin of all hydro-carbonous bases; or, that vegetable and animal manures are the sources from which trees and plants most readily derive their nourishment. I believe, indeed, that plants are na-

ture's own immediate electrical agents, and that all hydro-carbonous combinations, are, in fact, but infinitely varied modifications of the elements of water; that *atmospheric air* also, is one of these modifications:—but this is to view primary causes, to look into the first principles of created things.

"If we are to investigate the immediate agents concerned in the work of vegetable nutrition, I should say that the tree being a hydro-carbonous body, requires for its support, that the supply of food to its root be of such a nature as may afford the readiest means of assimilation. Now, vegetable and animal substances, when subjected to fermentation, furnish solid, fluid, and gaseous matters, containing all the elements of the vegetable structure, which elements, when blended with the earths, are distributed to the roots, and are taken up by their vascular system. Manures therefore, must be of essential utility in promoting the vigour and growth of trees.

"If we enquire into the causes that promote vegetable growth I should say that, I cannot but think—nay, firmly believe, every pointed termination of the leaves, twigs, buds, every bristle and prickle, to be an efficient agent in inducing atmospheric decompositions. At page 98 of your Letter to Sir W. Scott, you have introduced the following most philosophic quotations, which bears upon my theory: 'If you deprive a tree of its leaves or mouths, the roots are unable to obtain that which enables them to perform their functions. Nature is true to herself. The single tree sends out its branches to catch and inhale every thing conducive to its productive powers. Where trees are thickly planted, nature directs them upwards to obtain that which their situation prevents them from getting in a lower medium; consequently you observe the lower boughs are thin and weak within, and fall off, whilst, in a young healthy tree, the topmost shoots exhibit vigour, and will make more wood upward in a given time than trees that stand singly; and hence the great length that trees attain in woods.'

"The agency of light induces the ascent of the sap in the spring, at the moment that it propels downward the descending laborated juices: thus, from the moment of the first germination of the seed, the descending and ascending fluids are co-existent; and the solar light in its passage through the vegetable vessels, operates by induction, and attracts those fluids which have been prepared *in the soil* by electro-chemical agency, in the immediate neighbourhood of the rootlets of plants, and brings them into the sap-vessels, whence they are distributed into appropriate cells, wherein they are further laborated by the agency of that *lateral attraction*, which I think is the real basis on which rests the theory of Endosmose, of Dutrochet.

"What I have said, leads to a two-fold deduction. The first is, that every twig, having a vital function to perform, is of vital consequence

to the plant or tree ; hence, to cut off a twig, or to remove a bud, unless it be diseased, is, in fact, a *bona fide* act of destruction on an essential member. I therefore consider all loppings and prunings to be injurious, when *bulk of timber* is the object in view ; and although we prune and disbud wall fruit-trees to obtain fruit-buds within certain limits, we certainly do any thing thereby but improve the strength and vitality of the tree, in as much as regards its bulk in timber, and its ultimate duration. On natural and philosophical principles therefore, *I disclaim against lopping and pruning* TIMBER TREES.

"The second deduction is, that as trees and plants of all kinds are hydro-carbonous bodies, the supply of food to the roots of such bodies should be of a nature, as nearly as possible, resembling the component parts of the body to be nourished; and therefore, *manures are, and must be of real utility to trees and plants of almost every description.*"

I cannot conclude this paper without observing that deep trenching and nice pulverization of the soil, are of vital importance to the speedy rooting, and rapid growth of trees. Sir Henry Stewart, who, strange to say, has objected to Mr. Withers's plan of deep culture, is, or was, one of the most strenuous advocates of the practice which he impugns; for in his "Planter's Guide," he says "trees require depth of soil to raise them to perfection. Soils considered as agents of vegetable culture, are subjected to operations, which effect changes on them either mechanically or chemically. Of the former description there are none so important for the use of trees as deepening and pulverizing. Deepening can be executed with effect only by trenching or double-digging, (for the plough can do little in such a business,) and pulverizing is naturally combined with that process. The first great object should be to give scope to the young roots and fibres; because without fibres in abundance no woody plant can shoot freely and develope its parts, whatever be the richness of the soil. The fibrous roots absorb the juices by means of introsusception ; * but the quantity absorbed does not depend alone on the quantity existing in the soil, but on the number of the absorbing fibres. The more we can comminate the soil, the more those fibres will be increased, the more this nourishment will be absorbed, and the more vigorous and healthy the plant will become."

The limits prescribed have constrained me to abbreviate much, or rather to select a few choice and appropriate sentences; but the extracts are literally faithful, and I trust cannot fail to be abundantly conclusive.

I remain, Gentlemen, yours, &c.

G. I. T.

* Your readers who possess the "Domestic Gardener's Manual," are referred to the second and third paragraphs of page 86, in which the introsusception of the nutritive vegetable fluids, is treated of as an electrical phenomenon.

Article II.—*On the Culture of the Rose.* By Rusticus.

Gentlemen,

Observing on the cover of your Magazine, an announcement of your intention to insert papers on the cultivation, &c. of all our chief "Fruits, Vegetables, and Flowers;" and as my remarks on Changing the Colour of the Flowers of the Hydrangea, seems to have met with your approbation, I beg leave again to trouble you with a few more remarks on the Culture of the Rose. This ornament and charm both of the palace and cottage, seems to have been a universal favourite for an unknown length of time, both throughout Europe and Asia. Along the plains of Syria, Roses are formed in thick plantations, and form one of the means of subsistence to the natives, who convert the leaves and flowers into cakes, otto, and tarts, the latter of which, according to modern British travellers, are exceedingly delicious: it is not certain, however, what are the species there cultivated. Some persons must have informed me, or I have read, that in Damascus they collect the young tops of Rose trees, and eat them as vegetables.

There seems to have been but few sorts cultivated till within the last 40 years, since which time a great number of beautiful varieties have been raised from seed on the Continent, chiefly in France; Britain, too, has produced upwards of 300 new varieties, mostly from the *R. spinosissima,* or Scotch Rose, thus swelling up the nursery catalogues to upwards of a thousand names; many of these, however, so nearly resemble each other, that it has occasioned many persons to doubt whether they are distinct varieties, or whether the trifling distinction which does exist merely arises from situation, soil, &c. However this may be, the distinction amongst many of the French Roses is so trifling as scarcely to be discernible; and most judges have come to the conclusion that there does not exist more than about 500 real distinct varieties.

The Rose thrives best in a rich, strong, loamy soil, and is generally propagated by layers, when the true sorts are intended to be preserved. By cuttings, for such as the *Rosa Indica,* and its varieties, *R. Banksia, R. noisette,* &c.; by suckers for the Provence or Cabbage Rose, and many other common sorts; and by budding or grafting, when standards are wanted, or a variety of coloured flowers on one bush.

Laying, is performed thus;—in the beginning of July, just when they are coming into flower, having provided yourself with a sharp knife, and a few hooked pegs, commence by taking hold of the shoot intended to be layered, and make an incision just below a bud, on the upper side of the branch, making your knife pass half way up to the next

bud above; then give the branch a slight twist, that the part so cut may rest upon the soil; stick in your peg, to hold it in its place, and cover it up with soil, to about the depth of two inches. The custom of layering without the incision, retards their striking roots so long, that very often they are not fit to take off from the stools until the spring following; whereas, if the incision be made, I have seldom found them more than two or three months at most, if the season be not very dry.

Cuttings.—There are very few, except the China Rose, and its varieties, that appear to strike readily from cuttings. The method I pursue is this;—about the month of May I take a quantity of cuttings, and place them under a hand-glass, on a north aspect, in a composition of leaf mould and light loam. These are generally struck so as to be potted off in the autumn.

Suckers.—Most of the common sorts admit of being propagated by suckers, and division of the root. But if a variety of coloured flowers is wanted on one bush, or standards are required, it will be necessary to *Bud.* These last are not only a great addition to the ornament of the garden, but M. Brouville, of Versailles, conceives that the colours of the flowers are rendered more brilliant and durable. How far this idea may be correct, I am not prepared to say; this, however, I know, that the flowers appear to show themselves to greater advantage, and expose the brilliancy of their colours more to view, on a standard than on a dwarf. The common time for *Budding*, is in July; they, however, will take very freely if the operation is performed in the spring, providing a small portion of wood be attached to the bud: for this purpose scions are cut, and stuck in the ground, until the bark of the stock will run. To wait for this, however, is not indispensibly necessary, in all cases, for many sorts will grow very readily, if they are inserted in a niche exactly fitting the bud, and tightly bound up with some soft bass mat. In both cases it will be necessary to prune away the stock, down to the branch in which the bud is inserted, and the branch itself shortened to two or three eyes; for although this will, in a great measure, retard the progress of circulation, and evidently stop the roots from making the progress it otherwise would do; it will, nevertheless, help the bud greatly, and will speedily cause it to throw out leaves. When a little branch is formed by the bud, nip of the end, in order to make it branch, and if care be taken of it, and the other buds on the tree kept within due bounds, it will flower the same autumn. The different varieties of the China Rose may be budded earlier than any other sorts, but in exactly the same manner. Dr. Van Mons, in a paper read before the London Horticultural Society, in 1824, says that there is no fear of the scions becoming quickly

too dry, as he has budded from scions that had remained in a drawer two days.

Grafting is much more troublesome, and seldom so effectual as budding. In Flanders *Cleft Grafting* is much practised. The scion is either of the same diameter as the stock, or the cleft in the stock is made near enough the side for the bark of the scion, to come in contact with the bark or the stock on both sides; these are bound with ligatures of soft bass-mat, (first soaked in soap and water, and afterwards in a solution of alum, in order to render it impermeable to water;) this, binding, is then covered with a coat of clay, mixed with old slacked lime, made sufficiently thin to be applied with a brush.

Propagation by *Seed*, is merely practised where new varieties are wanted. Let the hips be gathered as soon as they are fully ripe, and thrown together in a heap, which must be frequently turned, until the husks are completely rotten; then clear th seed from them, and let it be sown about the latter end of February, it will come up about the beginning of July; in the spring following, let the plants be transplanted out.

To retard the blooming season, Mr. Hayward has already explained in page 15, of your Register. I have only to add that the practice is far from being a modern one, as I find it was successfully practised by the ancients.

Pruning, is not of the least importance: let every branch be shortened according to its strength, and cut out as much old wood as possible, without disfiguring the tree. The young wood intended to flower the following season, might be cut to about two or three eyes.

The Rose is much infested with insects, particularly the Rose Plant-Louse, *(Aphis rosæ,)* which, however, may easily be destroyed by smoking, if the trees are in a house; and by making a solution of quick lime, soot, and water, of about the proportion of one peck of each to ten gallons of water, if out of doors:—after being well stirred together, and left standing until the water has become quite clear, take it out with a watering pot, and mix with it about one-sixth of strong tobacco water; which if applied to the Roses with a syringe, will effectually destroy the *Aphis*, and generally some of the larvæ of other insects, which roll themselves up in the leaves and buds of the flowers. The Rose Gall-fly, *(Cynips rosæ,)* which receives its name from the rose-galls, it occasions by puncturing the bark; the Earwig, *(Forficula auricularia,)* is very destructive to the flower; the Cow-lady, or Lady-bird, *(Coccinella 14 guttata;)* several species of the Crane-fly, as *(Cecydomyia*, and *Tipula;)* and some of the Saw-flies, *(Tenthredinidæ,)* such as *Hylotoma rosæ*, *Allanthus viridis*, and *Athalia rosæ*, all of which deposit their larvæ in the leaves and flowers, and

which, if not picked off, will eventually destroy the bloom, if not the plant itself.

The sorts of Roses most to be recommended for forcing, are the Red Provence, Moss Provence, and White Provence, for the first crops; and for later flowering, the Tuscany, Damask, and Maiden's-blush. Let strong suckers, or layers, of these, be carefully taken up about the beginning of November, and planted in pots of about five inches diameter, inside measure, (upright forty-eights;) let the lower part of the plant be inserted rather deeper than it before grew. For this purpose it will be necessary to twist it round the pot two or three times, then fill the pot with a compost of vegetable mould and good light loam; prune the tops so as not to leave above two or three buds above the soil, then plunge the pots up to the rim, in an open, airy situation. Let them be shifted into larger pots every year, till they are large enough to place in 24-sized pots. The year after the plants are potted, introduce a quantity into the stove, and place them in a situation where they receive about the heat of eighty degrees by day, and sixty by night; let every one of them be marked, as they must be placed first into the house every year, and so on with the rest in succession. The times proper to take them in, are (if the flowers are wanted about Christmas,) sometime early in October, the second crop in November, which will bloom in February, and so on every month, until the natural season of flowering in the open air. Be careful to smoke the house every month to destroy the *Aphidæ*, and pick off all grubs, or your crop of flowers will fail. After they have done flowering, allow them to remain either in a frame or greenhouse for two or three months, until their wood is a little matured, for if they are too suddenly exposed to the open air while the wood is tender, (a method practised by many persons,) they receive so severe a check, that they seldom or ever mature their buds, so as to flower well the succeeding season. While they are making their wood, give them a good supply of water, mixed with a little dung of either deer, sheep, fowls, or pigeons; this will replenish the soil, and greatly assist the plant. When they have partly done growing turn them out of doors, placing them in a sheltered situation. Prune, pot, and introduce them into the house again in rotation, at the proper season, and for every hour's extra trouble they may have occasioned, you will be amply repaid by a most plentiful blow of fine flowers, and these at almost any season you may think fit.

I am, Gentlemen,

Yours, &c.

October 20th, 1831. RUSTICUS.

Article III.—*Hints on the Cultivation of the Rose.* By A Practical Gardener.

Gentlemen,

The disposition both to oblige and instruct, evinced by your reply to an "Amateur of Roses," has led me to conclude, that you will perhaps find space in your very agreeable magazine, for a few additional hints on the culture of the Rose; which, possibly, may prove useful to your correspondent, and other unprofessional gardeners.

All Roses take readily by *Budding* or *Grafting* one upon the other; but it is obviously necessary that free-growing kinds should be worked upon stocks, which are likely to keep pace with them; and luxuriant and slow growers should not be worked together on the same plant, because the former by absorbing an undue share of sap would literally starve the latter.

In *Budding* these shrubs it is of primary importance that the stock, at the time of being worked, should be healthy, free growing, free from knots and excrescences, and in full sap. For if the bark does not rise with facility, owing to a deficiency of that juice, there will be considerable trouble in inserting the bud at all; and should that difficulty be overcome, the pains would even then be lost, for the bud would almost certainly perish from want of sufficient sap to nourish it.

The common Dog Rose is the best foundation for standard Roses. Stocks of this species, transplanted out of copses and hedges, any time from the middle of October to the end of November, answer well for budding the succeeding summer. Among the leading points to be practised in forming standards are these;—transplant strong, clean, straight stocks, as just mentioned; cut them over at a height to suit your taste—say from three to six feet; and cover the wounds with a cement,—directions for making which will ensue. In the spring, when they begin to shoot out, rub off all buds but three or four at the top, so situated as to promise an uniform head. Carefully pinch off fresh buds, and remove suckers as soon as they appear.

In the progress of the summer, the stocks will require to be staked, and demand continued attention to the disbudding of them and the regulation of their shoots, particularly in occasionally pinching off the tops of the latter to promote strength and thickness, rather than length of growth. Early in July displace the thorns in those parts of the young wood where it is designed to make incisions for the buds. Budding on the wood of the same year's growth is recommended, because by putting three or four buds on as many young shoots, a handsome head will be obtained sooner than by any other mode. But if these shoots are too slender, the operation may be performed in the old wood, when the bark peels freely. In this case, three or four buds may be put in different positions round

the upper eight or ten inches of the stock; or if two only are inserted, they should be placed on opposite sides.

The criterion for judging the proper time for *summer budding* almost any kind of tree or shrub, and which proves nearly unerring, is this:—when the bud at the extremity of the same year's shoot is *just formed*, that scion of buds is then in a fit state for use. With respect to Roses, however, experience has convinced me that their summer budding should not be commenced before August; although tolerable success may attend the execution of it in July. But worked thus early, a portion of the buds will commence growing the same season, at a period when it is too late to ripen their wood sufficiently before the commencement of frosts; and the usual result is, that some are injured, and others entirely killed in severe weather: whereas the buds inserted in August generally remain dormant until the following spring, when they push forth with unimpaired strength.

In arid situations, or in dry summers, watering the stocks copiously, for two or three weeks previous to working them, will give strength to their shoots, and ensure the bark rising freely; which latter point, as stated before, is very essential towards obtaining complete success. It may however be observed, that with common care, scarcely a bud out of a score will miss.

In preparing the bud, it is unnecessary to adhere to the common practice of removing the bit of wood at the back, which is taken along with it from the scion. Omitting to do this saves much trouble, and the unfailing success attending the mode, (partially acted on by others,) has been established and confirmed to my satisfaction by the results of repeated trials made by myself. Cloudy weather, or the evening, should be chosen for inserting the buds; an operation which ought never to be attempted under a hot sun, or in cold east or north-east winds.

The injurious effects of the east wind at the time of budding or grafting being executed, are acknowledged and noted by ancient as well as modern writers. Tusser, in his "Five Hundred Points of Good Husbandry," (London, 1557,) says,

> "In March is good grafting, the skilful do know,
> "So long as the wind in the East do not blow."

In ligatures, common cotton tape, rather more than the eighth of an inch wide, answers better than bass, because it is ready without trouble, is pleasanter to use, and more portable. It has also the recommendation of cheapness;—a piece of it containing eighteen yards, may be had of any mercer for three-halfpence. When the ligatures appear to indent the stock they should be removed or loosened after about six weeks from the time they were put on; but if no injury of the sort is perceptible, they may be suffered to remain until the end of February, or the beginning of March, and then taken off altogether.

It requires some little skill to prune the Tree Rose properly, but any person accustomed to the care of vines would readily comprehend the mode of doing it. The same principle is applicable to both. The chief art consists in retaining certain branches to form a regular head; and in pruning those so as to effect that purpose, and, at the same time, cause them to throw out supplies of young wood. In the last week of February, or the first week of March, the shoots of the preceding year, which are intended for producing flowers, should be cut back, leaving only two eyes to each.

The Composition for covering wounds after pruning, is made thus:—Quarter of a pound of black resin, quarter of a pound of black pitch, and half an ounce of bees wax, melted together, and just when it is about to rise in the pot, stir it with a tallow candle until the froth is settled down. When it has cooled some degrees, lay it on the wounds with a brush, to the thickness of a six-pence.

It will not be out of place here to notice a common error, which almost every body has heard of, and which some few novices in gardening receive as a fact. It is, that a Rose budded on a Black Currant tree will produce black flowers. At what period this notion originated it would perhaps be difficult to ascertain; but is no very modern idea, for we find it mentioned in the "Maison Rustique," (London, 1600,) where the equally probable and practicable method of obtaining a Rose with green flowers, by budding on a Cabbage stalk, is recommended. Nevertheless, it is true that grafts or buds of one tree will sometimes take upon stocks of a different genus. Du Hamel succeeded in budding the Rose upon the Oak; but the fact, however interesting to the naturalist, and curious in a physiological point of view, leads to no useful practical purpose, for in the result it is found that although such buds may take, and even grow freely for a time, they always perish in a few months, and frequently cause the destruction of the stocks also: where there is no natural connection betweeen the bud and the stock, there ever is a want of conformity in their vessels and juices, which sooner or later proves fatal to one or both.

Generally speaking there is no need for grafting Roses, the claying part of which is rough unpleasant work. Budding, either in the spring or summer, is a perfect substitute for it. However, for the benefit of amateurs, I will just mention a mode of grafting, which afforded an invalid confined to his house, some amusement, and succeeded completely. He had some Dog Roses, grubbed from a copse, with about three inches of the stem preserved to each root. These having been brought into his apartment, with a supply of scions, he grafted upon them a number of Noisettes, Boursault, and other choice Roses, in the "cleft" and "whip" manner, after which they were clayed, and planted in a cool frame, so deep as to leave only one eye appearing above the soil. In due time they all shot out, and a large proportion grew vigorously and blossomed

abundantly the same year. It should be mentioned, that when the scions began to push, and for some time subsequently, attention was paid to giving air, shading from the sun, and watering them in bright dry weather. When they had made shoots two or three inches long, the inuring of them gradually to the open air was commenced, and afterwards the glasses were removed altogether. This grafting was performed on the 14th of February.

Before closing this letter, permit me to say a few words respecting the Double Yellow Rose. A mode of culture which would afford a fair prospect of obtaining, what is very rare,—a good bloom of this rose, is, I believe, a desideratum in works on gardening. The idea has therefore been suggested that it would be some guide to persons desirous of cultivating it, and not wholly uninteresting to your general readers, to state where this splendid shrub does flourish, and every year blossom in perfection, briefly noticing the aspects, soil and pruning as follows.

At Standen House, about two miles from this place, there are three remarkably fine Double Yellow Rose trees. One of these, against a south wall, is twelve feet high, and fifty years old, and has frequently produced a hundred blossoms in a season, few of which proved defective. Hence if it be not inferred that a south aspect is to be preferred for this plant, all must at least agree that it cannot be expected to do better on a north one, as has been recommended. The other two Roses against a west wall, rather exposed, also bloom very freely, and suffer little from their insidious enemy, "the worm i' the bud." All these trees grow in a somewhat sandy loam, with a subsoil of yellow sand and gravel; and are pruned and trained in the manner ordinarily practised with Peach Trees, the dead wood being carefully removed, and the young shoots shortened, just before the buds begin to move in the early part of the year.

An old author recommends the Sweet Briar as the best stock for budding the Rose upon.

Trusting you will kindly excuse my trespassing upon your valuable pages.

I remain, Gentlemen, yours, &c.

Newport, Isle of Wight, Oct. 23, 1831. A Practical Gardener.

Article IV.—*On Pruning Forest Plantations,* By An Arborist.

Gentlemen,

Having during the last thirty years, planted nearly eight hundred acres of mountain land, and having *annually* pruned my trees, I think I may venture to give an opinion on the subject, and if my casual remarks would be acceptable to your readers, I may at my leisure, transmit them for your insertion.

In managing plantations, the object is to give at the same time a due proportion of shelter and of air. In many cases, plantations which have been well attended to, in respect to enclosing, draining, and properly planting, have thriven well for the first twelve or fifteen years; yet in fifteen years more, the forest trees have been ruined by allowing the Scotch Fir and Larch, (which had been judiciously planted for shelter) to remain for twenty-five or thirty years. The Oak, the Ash, the Elm, and the Sycamore, have been partly destroyed, and what remain, are for want of air, so drawn up, and left in such a debilitated state, that though their oppressors are at length removed, they cannot support themselves; and the few that can stand, from the sudden transition which they have undergone, immediately stagnate, and become overgrown with moss.

Too great a partiality for trees, often occasions an error, which defeats the object of the planter and improver. It is as necessary to thin and prune trees judiciously, as to plant them with care and judgment; and yet it too often happens, that those who are extremely fond of planting, cannot reconcile it to their taste or judgment, to cut away trees that absolutely injure their plantations, and eventually defeat their progressive improvement. Surely no person can dispute, that a grove or plantation, consisting of trees properly furnished with branches, and rich foliage, is not a more beautiful and pleasing object, than if such trees presented an unsightly appearance of half-dead and naked stems. Nor is it to be supposed that trees crowded together, and robbing each other of support, and of the invigorating power of the sun and air, can arrive at a profitable growth. It is more absurd to be tenacious of cutting away young trees, when necessary, than it is reprehensible not to plant them, when it may be done with advantage.

The progressive works of thinning and pruning demand a skilful, and if possible, a master's hand. All trees are patient of the knife. Many pruners, from an apprehension of injuring the stem of a tree by cutting the branches too close, leave stumps, over which the bark can with difficulty, if ever, unite: they should undoubtedly be cut quite close and smooth. If even the bark did receive a slight injury, it would be of trifling consequence compared to leaving a dead stump. From ignorance of the bad effects, or from want of attention, too many pruners cut off a number of branches at once, instead of removing annually not less than three, or more than five, of the largest and strongest from every tree, always beginning at the top.

The practice should decidedly be condemned of cutting off large limbs, to improve the timber; we may daily see the deplorable effects of it; as the trees exhibit symptoms of speedy decay, the stems being like wells full of water and rotten wood, into which you could thrust a stick from the wound to the ground.

The sap of a tree may be considered as the raw material furnished by nature; and man, the manufacturer, who moulds it into the form most useful for his purpose. A moderate quantity of leaves and small wood is necessary to every tree; but all above that quantity are of no use to the plant, and of little value to its owner. Strength is gained as effectually by a few branches dispersed about the stem to force a head, as by many. Opening a plantation too much at once is a sure way to destroy its health and vigour. Though it has been more or less fashionable for more than a century to form plantations, yet it has also been as generally the custom to neglect their future culture, that by far the greater proportion of the surface covered with trees in Britain may be considered as neglected or mismanaged. The artificial strips and clumps have generally never been thinned or pruned; and the natural woods, and copse woods, improperly thinned or cut over.

It is no idle speculation to look forward to what may be the value of fifty acres of trees of thirty years growth, nor to what the thinnings of the plantations may produce in the interim; and it will be found that poor land is converted by these means to a good purpose, and at a trifling expense. Wishing you success,

I am, &c. &c.

Ruthen, Oct. 20, 1831. AN ARBORIST.

P. S. Would not a short notice of the Oak, Larch, &c. be a pleasing variety in your useful work?

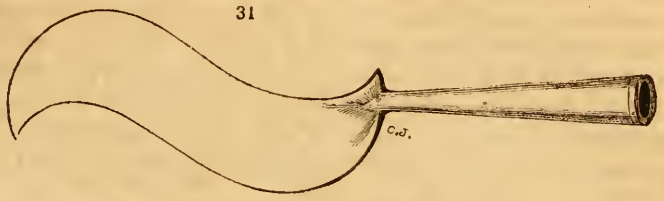
ARTICLE V.—*Description of an Improved Pruning-Hook, invented by* MR. JOHN HOWDEN.

GENTLEMEN,

I HAVE at length received your Horticultural Register, four numbers at once; and as I wish not only to be a Subscriber but also a Contributor, the first article I intend giving you shall be *a Cutter!* —don't be alarmed, Gents, I don't mean to cut you,—the edge of my Cutter, is to be directed, not directly, but in a sloping direction, against the boughs and branches of trees and hedges.

I am fond of pruning young trees well, and I like to have a good tool, or pruning-hook; I have now got one made to my mind, which you may call "Howden's Patent Hedge-bill." Our blacksmith makes them of old carriage-springs, but the Sheffield edge-tool makers might temper them much better. They are something in the form of a capital S, [fig. 31.] and on all sides "sharper than any two-edged sword." The blade is twelve inches long, by three inches wide, but might be made either larger or smaller; it is welded to a socket about

nine inches long, which is a little flattened, and receives a steale or handle, of any length. The socket itself is a sufficient handle, when used



as a one-handed tool; but with a long handle, its cut is fearful,—I have frequently cut off the end of a rail nine inches in circumference, at one blow. It has all the powers of the carpenters' axe, the pruner's chisel, the Highlander's broad-sword, and the Saracen's sabre,—a fearful javelin in the hands of a Saul, a Samson, or a Terry Alt. It also makes a good thistle spud. I think that if a Sheffield tool-maker would take out a patent for it, it might be a good speculation;—or if ever government should have occasion to kill Britain's enemies, this instrument would do well to cleave helmets.

Yours, &c.

October 20*th*, 1831. JOHN HOWDEN.

ARTICLE VI.—*Description of a newly invented Propagating Pot, for increasing with facility and certainty such Greenhouse and Hothouse Shrubs, as cannot be propagated by Cuttings.* By MR. S. APPLEBY, F. L. S. Nurseryman, Florist, and Lecturer on Botany, St. James's Gardens, Doncaster.

GENTLEMEN,

THE great difficulty and loss, which generally attend the propagation of shrubby plants by cuttings, as well as the length of time required to prepare them either for sale, or for places they are intended to occupy, and the inconvenience of layering them in the pit, are evils which it would be almost superfluous to point out.

It is presumed, that all these evils may be removed by the use of the pot I am about to describe, and should you consider the following remarks, and description, deserving a place in your valuable publication, they are at your service, for insertion.

It is known to those who have conservatories, that the propagation of some species of exotics, is very difficult. Some grow easily from seed, but the seed of greenhouse plants does not *commonly* ripen with us. Cuttings, are planted with success at certain seasons, and strike immediately or at some distant period, according to the nature of the

plant;—but it is well known, that there is not an equal certainty of success with all plants attempted to be raised from cuttings. Layering, is another system of propagation, applied to plants which do not grow freely by the latter method; an evident objection arises here, that of separating the layer from the stool, and transferring it to a pot, thereby retarding its growth, and perhaps endangering the plant; this is especially annoying to the cultivator for sale, who has looked forward to the time when his labour and attention were to have been rewarded, by having scarce plants ready for market.

The benefits of using the propagating-pot, are as follows:—

1st.—The certainty of all the branches making plants,—which is no small advantage in a new plant.

2nd.—The layered branch is growing as vigorously, while rooting, as it was before laying; with the superior advantage which layering in a pot possesses over the open ground.

3rd.—The layers, which may now be called *plants*, being already confined in the pot, will only require separating and re-potting, to be saleable.

4th.—A succession of young plants may be obtained by removing the rooted ones, and re-placing the propagating-pot to the successional branches, which may be formed for any indefinite period.

The propagator, [fig. 32] is made of the same material as the common garden-pot; the upper part (A) is the size and form of the small thirty-six, but about two inches deeper, for holding sufficient water to moisten the earth. A loop-hole is cut through the side, about half-an-inch wide, and an inch and a half long, and about the same distance from the top, through which to admit the layer. To prevent communication between the upper part and the socket, a small hole is made at the base of the pot, immediately under the loop-hole, to let out the superfluous water.

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S. H. sc.

B, is a socket, continued from the upper part, intended to admit a stake, which may be long or short, to elevate or depress the pot, as the branch to be layered may require.

Fig. 33.—A propagating pot with a layer in it, upon a stake.

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S. H. sc.

I remain, Gentlemen, yours, respectfully,

Doncaster, October 4, 1831. S. APPLEBY.

Article VII.—*Remarks on the Erection of Labourers' Cottagers.* By Arthur Fitz-Arthur.

Gentlemen,

In the "Gardener's Magazine," and in your publication, Cottage Architecture, appears to be an interesting topic: how far the merely erecting of cottages, though prefaced by the very powerful plea of philanthropy, may be agreeable to the spirit of either miscellany, must be left to the determination of their respective conductors.

Like your "Bricklayer's Labourer," I am a great lover of the picturesque, and also an admirer of real cottage scenery. I would have the house, its inhabitants, and its accompaniments, completely to correspond with one another, so that taken in any point of view, they should form that harmony which is always desirable in a picture, without which, according to my ideas, the picturesque, (that undefinable term which every one uses, but nobody explains,) would be entirely destroyed. Should we, for instance, see a peasant, his hat slouched over his ears, his smock-frock hanging in tatters, surrounded by a half-score of healthy, but naked and bare-footed children, with a wife, so ill-clad as scarcely to preserve the covering of decency, spread about the door of one of those ornamental buildings, falsely designated cottages, we should undoubtedly conclude that such a family ought not to be inmates of such a house. There perhaps might be a garden, but to such a labourer it would be worse than useless, for it would show the wretchedness of the tenant still more forcibly. Thus, from the want of a proper fitness between the parts, the picture would be destroyed; and the eye, which in other circumstances might with pleasure gaze upon them, would turn away with the feeling of pity, if not of contempt. Such a cottage as that given by your correspondent, (one of a large fashionable family,) ought to have for its inhabitant the married footman of the proprietor, for the "crested buttons" and worsted-laced coat seem quite in keeping with the fantastic ornaments of the dwelling; and as your correspondent, Artus, has observed, the house proclaims "the dependance of its possessor."

Perhaps, Gentlemen, the term Cottage is but indifferently understood by the greater part of those who write about the different modes of building one: it is one among the many words in our language, which has had various significations at various periods, but which I should contend ought always to be confined to the small dwelling, of whatever form, occupied by a person in the lower walks of life, instead of which we find it indiscriminately applied to the residence of tradesmen, and to the rural abode of opulence and rank. This is a perversion of terms, which we ought as soon as possible to get rid of, for every word in every language ought to have a precise and unchangeable meaning, independent of either times or fashion.

In "Les Termes de la Ley," published in 1671, under the word "Cottage," I find the following definition:—

"Cottage, is a little House for habitation of poor men, without any Land be-"longing to it, whereof mention is made in the first Statute made in 4 Ed. I. "And the inhabitant of such a house is called a Cottager. But by a Statute "made in the 31 year of Queen Eliz. cap. 7 no man may build such a Cottage "for habitation, unless he lay unto it four acres of Freehold-land; except in "Market-Towns or Cities, or within a mile of the Sea, or for habitation of "Labourers in Mines, Sailors, Foresters, Shepherds, &c."

Taking the Cottage as just defined, every "lover of the picturesque" will agree with me, that these "little houses for habitation of poor men," form the most pleasing and the most varied objects of English scenery. Whether built on the open heath, without even the shelter of a half-withered pine, or under the covert of an impervious wood, the cottage possesses a charm which is undefinable, and the eye gazes on it with unwearied interest. This, I should imagine, arises partly from the materials of which it is formed being congenial to its situation, partly from the little art visible in its erection, and partly, and perhaps principally, from the natural association of the house, its inhabitants, and its locality; it seems formed for the scene, and the scene for the cot.

But the Cottage, though circumscribed by no known rules in respect either to form or material, has a very different appearance in different situations, and this difference is very perceptible in every country. In low flat countries, as in the counties of Lincoln and Cambridge, these dwellings are generally, if not universally, built of the scrapings of the soil, mixed up with chopped straw, and plastered on wattled osiers; in hilly countries, as in the Peak of Derbyshire, of rough amorphous stones. Here they have low roofs, covered in some parts with brown slate, in others with thatch;—there high roofs, thickly formed of thatch, or of red channelled tiles; in both cases the best possible adaptation to situation, and to the wants and convenience of their respective inhabitants.

It would encroach too much on the pages of your work to give a characteristic view of the Cottages of the different counties, or even of those in the different situations of hill and dale, of wild moor and cultivated farm, of wood and heath, of coast and inland rock, of the miner in the Peak and the boor in the Fens; and yet these have all a separate and distinct character, differing, like their occupiers, from one another, yet all agreeing in the generic name, varying in species, like the different tribes of human beings, yet forming together the common name of Man!

I think I observed before, that a Cottage is one of the most pleasing parts of English landscape. Take, for instance, one of the most humble of the mud-built huts of Lincolnshire. Its inhabitants, (I wish it *was* the case,) supported by labour, and feeling independent of parochial aid, (or, of that eleemosynary assistance, which while it preserves life, degrades the object,) have washed the walls over, with the lime of the neighbourhood, which is generally of a yellowish-brown colour; have

planted the little garden in front with useful vegetables; cultivated a large bed of English Mercury, (the luxury of the county) and reared a China Rose, beside the door. This gives an air of comfort to the dwelling, and if there be naturally a wood behind as a background, and a good oak in front, this Cottage will make a pleasing picture, rendered still more interesting by the ducks dabbling in the pool, and the sow with her litter, feasting on the acorns. This shows at least that Content might reside in the dwelling, and that the possessor may as an Englishman ought, walk uprightly, and feel his value, as a man, a husband, and a father.

Without extending my observations on Cottages, I beg, gentlemen, to be permitted to repeat one remark. It appears to me that the subject while confined to the *building only*, is not necessarily a part of the Horticultural Register. So far as the cottager can be instructed in the management of his garden and his orchard, (generally the same plot of ground,) so far as he can be assisted with seeds, or plants, or trees, Cottages form an integral part of your work; but to interfere in the laying down plans and elevations for those non-descript erections, which we so frequently meet with under the name of Cottages, seems to me to be deviating too widely from your original plan. Other periodicals may perhaps claim a greater latitude, but yours, being professedly horticultural, ought in all its essays to have an eye to gardening.

Laying the form of the Cottage entirely out of the question, much may be yet done in improving its general appearance, and in adding to the comfort and enjoyment of its inmates. For this end nothing appears to me more eligible than to encourage a taste for gardening. This would make a man fond of his own fireside, would keep him at home on a summer's evening, and the beans and peas gathered on the Saturday, would taste the better at his Sunday's dinner, from being the produce of his own leisure labour, and of the joint assistance of his wife and his little ones.

There are, I am sorry to say, many Cottages which have no gardens. It would not be too much to expect the Lord of the Manor, or the parish authorities, in such cases to allot to the industrious cottager a small garden plot, from the waste beside the roads, or rather, if it could be done, of some field or enclosure adjoining the Cottage. A small rent, might be paid for it, and the proprietor, besides being no loser, would have the additional satisfaction of having assisted an honest industrious man to rear his family, and keep himself above want. But this topic has already been so ably treated, that I shall forbear to expatiate, reserving for my next letter a few hints, which will, at least, have practicability to recommend them, for improving the residences, and as the common phrase has it, for "bettering the condition of the poor."

Wishing every success to your publication, and hoping that it will continue to increase in public estimation,

I remain, Gentlemen, yours, respectfully,

Derby, Oct. 3, 1831. ARTHUR FITZ-ARTHUR.

Article VIII.—*Some account of the Present State of the Colony at Swan River, Western Australia.* By J. T.

Gentlemen,

From the great interest that has so generally been taken in the welfare of the New Colony, Swan River, in Western Australia, I do not doubt but that a few Extracts from Letters I have lately received from two gentlemen, who were among the earliest agricultural settlers at that place, will be acceptable to some of your readers.

I am, your obedient Servant,

Oct. 31, 1831. J. T.

Extracts from letters from S. T——, Esq.

Perth, Swan-River, Feb. 9, 1831.

"I very much want to know what is thought of this place in England, and what the reports concerning it are. The people at the Cape of Good Hope, have been doing us all the injury they have been able, in persuading settlers bound here, to remain at the Cape, to spend their ready money, by spreading reports that we were starving, &c. T. and I are quite contented; we find it nearly as good as we expected. Our grant of land on the Swan River is, for the size, as good as any on the River; we have got our buildings up, and several acres under the plough. Sheep thrive here beyond anything I could have expected; our stock of Merinos has already more than doubled,—we lost one of them the other day by the native dogs. There was lately a skirmish with some of the natives, in which one black man was killed. There has been a large extent of good land, very thinly wooded, discovered beyond the hills, about forty miles from our farm; we have taken up the remainder of our grant there. We are still obliged to cut salted meat when we cannot get Kangaroo. Kangaroo hunting is no sport except for the pot, for the dogs frequently leave you, kill, and then return to show. The fishing up the river is not worth speaking of, and as for shooting, you may walk all day without getting a shot."

May 7. 1831.

"We are now very busy getting in our Wheat, and making our gardens; many things we planted last year, failed, from being planted out of season."

Extract from a letter from D. T——, Esq.

Swan-River, March 7, 1831.

"We have had a great deal of trouble since I wrote last, chiefly owing to the conduct of some of our servants, but we now begin to peep over the hill, and another season will, I hope, make the road

easy enough. Last season was one merely of experiment, and almost every one got in their crops too late; two years have, however, made us acquainted with the climate and soil, and the crops which were rightly timed, were remarkably fine.—Wheat, Barley, Oats, and Rye, have yielded well on half-cultivated land; Potatoes, Mangel-Wurzel, Turnips, and almost every variety of European vegetables, have been raised in perfection. Cucumbers, yield larger crops than I ever saw in England; and we have the most delicious Melons, I ever tasted. Flax, Hemp, and Tobacco, grow wild; so that when we have raised our own supplies of food, these will be abundant articles of export. There is also much land well adapted for Opium. The most desponding of the settlers, are now in good spirits, and even the stock-holders, of Van Dieman's Land, acknowledge that they cannot raise hay so good as the natural grasses here afford.

"The great drawbacks to the settlers, arise from the lazy and turbulent conduct of the labouring classes; and the want of means to import a sufficient quantity of Stock.—The former, will bring its own remedy, as they cannot live without work; and we have applied to government for assistance, in the latter. We have, ourselves, lost a great deal of time by the misconduct of some of our labourers, but we have got rid of the troublesome hands, and find that we can get on as fast, and certainly more comfortably, with half the number. Provisions have been enormously high, until the last few weeks, but from the Governor's arrangements, they are not likely to rise again above a reasonable price.—Flour has fallen from 9d. per lb. to 2½d.; Salted Beef and Pork, from 1s. to 6d. per lb. Fresh meat still brings great prices Beef, 1s., Mutton, 1s.3d., and Lamb, 1s.8d. per lb.

"The land lately discovered beyond the hills, is spoken of more highly by each succeeding party which has visited it; we have taken up a location there,—a great portion of our grant, is covered with fine grass; the trees are more thinly scattered than near the coast, and consist principally of Sandal-Wood. Some fine specimens of Mahogany, have been sent to England, and to the Isle of France, but I fear some bad lots have also been shipped, which may create a prejudice against it, that will require a long time to overcome. Our horses are as fat and sleek as any nobleman's in England, although they had have nothing to eat but the native grasses, for the last twelve months."

NOTE.—The Mahogany mentioned above, was shipped in the Edward Lombe, which ship has not yet arrived in England, but is expected daily.—It is not yet ascertained, whether it is the same species as that in general use, but all accounts speak highly of its quality.

J. T.

PART II.

HORTICULTURAL AND RURAL SUBJECTS.

REVIEWS AND EXTRACTS.

ARTICLE I.—*Reviews of, and Extracts from, Works on Horticulture, Rural Economy, &c.*

1.—HORTUS CANTABRIGIENSIS; OR AN ACCENTED CATALOGUE OF INDIGENOUS AND EXOTIC PLANTS CULTIVATED IN THE CAMBRIDGE BOTANIC GARDEN. By the late JAMES DON, Curator, 12th edition, illustrated by numerous wood cuts. Corrected, &c. by GEORGE SINCLAIR, F.L.S., &c. 8vo. 12*s*.

WE announced in No. 4, page 187, of our Register, the forthcoming of this new edition, which certainly possesses decided advantages over every other edition of Don that has hitherto appeared. One important feature is the illustration of each class and order by wood cuts. This will be found of great importance to young Botanists; as will, also, the names of the plants being accented. But the most prominent feature of improvement is the appendix attached; this contains select lists of Hardy Ornamental Creepers; Green-house Creepers; a selection of different species and varieties of Fruit Trees, including Apples, Pears, Plums, Grapes, Peaches, Nectarines, Apricots, Figs, Gooseberries, Currants, Raspberries, &c. &c. with others calculated to ornament the pleasure ground, green-house, or stove. The properties of most of the chief fruits are described, and the situations they ought to occupy in the orchard, kitchen garden, &c., pointed out, with the time of their coming into use; and in addition to this, a list of the most valuable seeds for husbandry. The whole of the appendix is alphabetically arranged to render it easy to refer to. These additions to a catalogue of plants render the work valuable; it does credit to the editor and deserves an extensive circulation.

2.—TRANSACTIONS OF THE LONDON HORTICULTURAL SOCIETY. (Second Series) Vol. I, Part 1.

Page 84.—*Some Remarks upon the Cultivation of the Strawberry.* In a Letter to the Assistant Secretary. By MR. JOHN FAIRBAIRN, F.H.S. Read, June 1, 1831.

AFTER the fruit is set, he stirs the surface of the soil pretty freely, and puts on an inch, or an inch and a half, of well fermented dung, and in dry weather gives abundant waterings upon it; he then lays down flat tiles, having a half circle cut out of each of them; these are painted black, in order to give a stronger attraction to the heat His beds are made of light soil, with a small portion of fine Oak bark; the plants are put in, in the usual way, and the tiles laid so as to cover the whole bed. By these means Mr. Fairbairn informs us he has found that the fruit sets early, and is of a very superior size and flavour.

Page 85.—*On the Cultivation of the Persian Varieties of the Melon.* By T. A. KNIGHT, ESQ., President. Read, May 1, 1831.

THE writer informs us that he erected a small forcing house, for the almost exclusive culture of this fruit, and grew them by means of fire-heat only. This house consists of a back wall, nearly nine feet high, and a front wall nearly six feet, inclosing a horizontal space of nine feet wide, and thirty feet long. The fire-place is at the east end, and very near the front wall; and the flue passes to the other end of the house within four inches of the front wall, and returns back again, leaving a space of eight inches only between the advancing and returning course of it, and the smoke escapes at the north east corner of the building. The front flue is composed of bricks laid flat, in order to give a temperate permament heat, and the returning one, with them standing on their edges, the usual way. The space between the flues is filled with fragments of burnt bricks, which absorb much water, and gradually give out moisture to the air of the house. Air is admitted through apertures in the front wall, which are four inches wide, and nearly three in height, and which are situated level with the top of the flues, and are eighteen inches distant from each other. The air escapes through similar apertures near the top of the back wall. These are left open, or partially, or wholly closed, as circumstances require. Thirty-two pots are placed upon the flues, each being sixteen inches wide, and fourteeen inches deep; but they are raised by a piece of stone or brick, to prevent their coming in actual contact with the flues. In each of these pots one Melon plant is put, and afterwards trained upon a trellis, placed about fourteen inches distant from the glass, and each plant is permitted to bear one melon only. The height from the ground at which the trellis is placed, is such as can be conveniently walked under, to discover the appearance of Red Spiders, or other noxious insects; and by this method, two, and even three crops may be obtained in one season.

Being so liable to burst, Mr. Knight raised the points of the fruit higher than the stems, and not one failed to ripen in a perfect state; they were found to ripen very well hanging perpendicularly, but the Ispahan grew very deformed.

3.—GARDENER'S MAGAZINE; Edited by J. C. LOUDON, F.L.S., &c. Published every two months, price 3*s.*6*d.*

No. 34, FOR OCTOBER.

THIS number contains a continuation of the general results of a Gardening Tour, which takes up nearly 45 of its pages; it is followed, however, by a series of interesting articles, some of which we shall extract.

On the Cultivation of the Cyclamen cöum. By MR. JAMES HOUSEMAN.

THE *Cyclamen cöum*, says the writer, deserves to be rescued from that neglect to which its easy propagation, and consequent commonness have subjected it. Sow the seed as soon as ripe, in the month of May, in a wide pan or pot, well drained; fine leaf mould is the most suitable; place them on a dry bottom, in any shady part of the flower garden. In October remove them to a cold frame or pit, where they may be defended from frost; and though a little heat does not hurt them in this stage of their growth, it is altogether unsuitable when they have arrived at the age for flowering. In twelve months, they should be transplanted into pots or large pans, in which they will flower in the month of January following. From the time they are transplanted, keep them in a shady, yet airy place, occasionally watered; and about the first of November they may be removed to an open airy

part of the greenhouse to flower. When done flowering, they should not, as is often the case, be thrust away into any by-corner out of sight, but should have an open situation to perfect their leaves, and be free from injury by frost. This summer and winter management, and but seldom shifting, will keep them in fine flowering condition for many years. A few words are said relating to the *Bouvárdia triphylla* and *Eránthis hyemális*, which are followed up with some intelligent remarks, by J. D.; we suppose Mr. J. Denson, of Bayswater.

On raising Seedling Ranunculuses. By the Rev. Joseph Tyso.

The system consists in having some of the best show flowers of each class, which produce a *pericarpium*, or seed vessel, either dark, white, scarlet, crimson, yellow, striped, &c.; and a number of the best semi-doubles of each corresponding class, producing *anthers*, as well as *pericarps*. Then if a new dark flower is desired, fertilize *Naxara*, *Variat*, *Quixos*, or any good dark flower, with the pollen, of a dark semi-double, or nearly double flower, containing the best properties as to colour, shape of petals, and general habit. If a superior flower, with a yellow ground, and dark edging, be desired, then fertilize *Grand Monarque*, *Julius*, or *Grand Berger*, with the pollen of a yellow-edged flower, of first-rate properties. Those that have the greatest number of petals are to be preferred, so that they have *anthers* producing *farina*. A similar method must be pursued in order to obtain a superior flower of any other class. The seed generated in this way will certainly produce some fine varieties.

Shephérdia argéntea. Described by J. B. Russell, Esq.

This beautiful tree grows spontaneously in the extensive plains on the banks of the Missouri, and resembles the *Eleágnus argéntea* so much, that they might easily be mistaken one for the other when not in fruit. The Messrs. Winships, nurserymen, at Brighton, near Boston, are supposed to be the only persons who cultivate it to any extent. Their standard tree, is about fourteen feet high, and eight years old from the seed. The tree is perfectly hardy, grows vigorously in any part of North America, and is said to bear a near resemblance to the Olive Tree; it is one of our earliest flowering trees, being covered with blossoms in March. Its fruit is about the size of the Red Antwerp Currant, much richer to the taste, and forms one continued cluster on every branch and twig.

On the Culture of the Gesneriæ. By Mr. S. Appleby.

All the species, under the writer's care, grow from leaves taken close off by the stem or root stock; he however, prefers shoots taken off at the second joint from the top, and put into sand, under bell or hand glasses, and placed upon a warm flue, and shaded with thin white paper. As soon as they are rooted they are potted in a compost of heath mould, vegetable earth, and perfectly rotten dung, in about equal parts, and unsifted; they are afterwards shifted into pots six inches wide at top, and plunged in the pine pit; when in full growth give a good supply of water, occasionally sprinkling it over the leaves. When done flowering they are treated much in the same manner as that recommended by an Amateur, for the treatment of the *Trevirána coccínea*, page 50 of our Register, except in the division of roots. When the *Gloxínia maculáta* has done flowering, the pots are removed into a cool room, and kept dry until the tops are dead; they are then cut off, and the roots shaken from the soil, and each strong root potted in a pot six inches wide, and then placed in the warmest forcing house.

4.—Flora and Pomona. By C. Mc.Intosh, C.M.H.S., &c. 8vo. coloured, 1*s.*8*d.*

Part 24, for October, contains.

Potentilla splendens, Splendid Cinquefoil.—A yellow flowering species, a native of the mountains of Nepal, and was introduced in 1822. *Combrétum purpúreum*, Purple Combretum.—This is an elegant specimen of this beautiful plant: the execution of it does honour to the artist, and credit to the editor. This plant is generally considered difficult to propagate. Mr. Mc. Intosh has been informed by Mr. Reith, cultivator at Messrs. Colville's, that it strikes with greater certainty by cuttings of half-ripened wood, and that in six or eight months afterwards, it invariably comes into flower. *New Cereus.*—Mr. Rolles, of the King's Road, has imported a new species of Cactus; its flowers resemble the *Cáctus deprássa*, and it has about 17 angles, a greater number than any other species hitherto introduced.

On the Arrangement of Green-house Plants during Summer.—The method recommended, is to place them on the side of a steep, sloping bank, cut into steps like the stage of a greenhouse. The advantages to be derived from this system, are three-fold. 1st,—the plants stand upon a bottom not liable to be affected by excess of either drought or moisture. 2nd,—they are better exposed to the light, air, and sun, while their roots are partially shaded by each other. 3rd,—an artificial shrubbery may be formed corresponding with the surrounding scenery. Next to this method, the editor recommends arranging them in groups, according to their constitution and natural habits.

Part 25, for November, contains

The White or Common Muscadine Grape.—(By no means, we think, happily executed.) This is not the Royal Muscadine, of Miller, which appears to have been identical with the Old White Muscadine, of Parkinson, a much larger growing Grape. This is often cultivated by the name of *Chasselas de Fontainbleau*, from which, however, it materially differs in its foliage, although the fruits have a great resemblance. The foliage of the *Fontainbleau* is downy on the under side, and the present subject is quite smooth. It is supposed to have been introduced in 1660, by Sir William Temple, and is well known in this country as one that will ripen in the open air.

Moorpark Apricot.—The synonyms of this excellent fruit are Anson's, Temple's, Dunmore's Breda, and often the Peach Apricot,—it is decidedly the best Apricot in cultivation.

On the Cultivation of Apricots.—Apricots are in general increased or propagated by budding on Plum stocks of different sorts. The Breda and Brussels being best calculated for standards, are usually budded on stocks of the St. Julian Plum, by which means clean and strong stems are obtained. The diseases of the Apricot are generally to be traced to careless or accidental injuries, the effects of which produce gum, canker, &c. 1st,—leaving the wounds ragged, on amputating large branches; and 2nd,—tearing off the young shoots in summer, so as to injure the bark, and leave holes in the branches. Both these necessarily admit the wet into the wood, and canker is the consequence; to prevent which, the author recommends using a sharp thin-bladed knife, to cut the superfluous shoots close to the bark, and shorten the others to half-an-inch, to induce them to form natural spurs for blossom at the base.

Article II.—*Reviews of, and Extracts from, Works on Botany, &c.*

1.—Edwards's Botanical Register, &c. (New Series) By John Lindley, F.R.S., &c. Monthly. 8vo. 4*s.* coloured.

No. 9, for November, contains

Carton's Rhododendron.—One of the elegant Highclere varieties raised in 1825, named in honour of Mr. James Carton, gardener to the Earl of Caernarvon. The flowers are of a rich lilac colour, tinted with purple. *Státice pubérula*, Downy-leaved Statice.—A little white flowering green-house herbaceous plant, native of the Isle of Graciosa, one of the Canaries, where it was discovered by P. B. Webb, Esq. *Michaúxia lævigàta.*—This is supposed to be identical with *M. decándra* of Fischer. It is a native of Persia, where it was found on Mount Albourg, by the French travellers, Olivier and Bruguiere. The flowers are ochreous-yellow, and the plant is thought to be a frame perennial. *Ulex genistöides*, Portuguese Furze.—A pretty yellow flowering green-house shrub. Said to be found in sandy pine woods, in Portugal. *Aristolòchia caudàta*, Livid-flowered Birthwort.—A creeping stove perennial; the flower is pitcher shaped, and of a yellowish-brown colour. It is similar in many respects to *A. trilobáta*, but its flowers are smaller and differently coloured. *Calceolària arachnoídea*, Cobweb Slipper-wort.—A purple flowering hardy species, introduced from South America, by Dr. Gillies, and Mr. Cruckshanks, and is an interesting ornament to our gardens. *Hemiclídia Baxtèri*, Baxter's Hemiclidia.—A handsome yellow-flowering evergreen shrub; a native of Lucky Bay, on the west coast of New Holland.

2.—Botanical Cabinet. By Messrs Loddiges. Monthly. 4to coloured, 5*s.*; 8vo, partly coloured, 2*s.*6*d.*

Part 175, for November, contains

Onósma echiöides.—A native of the South of Europe; a hardy perennial, with yellow flowers. *Erica trússula, rubra.*—An exceedingly beautiful kind, producing a profusion of rose-coloured flowers. *Erica congésta.*—A dwarf spreading white-flowering species. Both this and the last require a cool airy green-house. *Vieusseúxia glaucópis.*—This is a most delicate and beautiful bulbous plant, from the Cape of Good Hope. The flowers are delicately white, with a purple eye-like spot at the base of the petals. The flowers last but a single day, but are followed by others in succession from the same spathe. *Camélliu Japónica Préssii.*—This fine variety was raised from seed by Mr. Press, at E. Gray's, Esq. of Hornsey; its flowers are a delicate white, slightly striped with rose-coloured streaks. *Phycélla glaúca.*—This plant is the same with the *P. ignéa glaúca* of the Botanical Magazine, 2687, and is a very pleasing green-house plant, with crimson flowers. *Bossiæa Scolopéndrium.*—A native of New South Wales, introduced in 1792. It requires the shelter of a conservatory or green-house, and has flowers of a yellow colour. *Orchis fuscescens.*—A half-hardy plant, native of North America. *Euónymus bullàtus.*—This species of the Spindle-tree thrives well in the green-house; its rose-coloured flowers, though not splendid, have a very pleasing appearance. *Hákea repánda.*—This little green-house shrub is a native of the south-west coast of New Holland, bears white flowers, and is by no means despicable.

3.—Curtis's Botanical Magazine, &c. (New Series) Edited by Dr. Hooker. Monthly. *3s.6d.* coloured, *3s.* plain.

No. 59, for November, contains

Oncídium bicornùtum, Two-Horned Oncidium.—This Orchideous plant was discovered in woods, about 60 miles from Rio, by — Harrison, Esq. The colour of the flowers is yellow, mottled, and spotted with purplish red. *Lantàna nivèa mutábilis,* Changeable White-flowered Lantana.—A stove plant, having yellow flowers, which afterwards change to rose colour. *Achras Sapôta,* Common Sapota. (Bully-Tree.)—In the mountainous woods of Jamaica this grows to the height of 50 feet; and its timber is of great service in making shingles for corn-houses. It is a native of the West Indies, and is cultivated throughout the hot parts of South America for the sake of its fruit. *Salpiglóssis integrifólia,* Entire-leaved Salpiglossis.—This is a handsome half-hardy plant, with rich crimson purple flowers, introduced from Beunos Ayres. *Centroclínium refléxum,* Reflexed Scaled Centroclinium.—A handsome rose-purple flowering stove annual. And *C. appréssum,* Close-pressed Scaled Centroclinium.—This species was introduced by Mr. Cruckshanks, from Peru; the colour of the flower is similar to the last.

4.—The British Flower Garden. By Robert Sweet, F.L.S. 8vo. Monthly. *3s.* coloured, *2s.3d.* plain.

No. 30, for November, contains

Rhododéndron pùlchrum, Pretty Rhododendron.—The flowers of this handsome hybrid are of a bright rosy-purple, spotted on the inside with bright red spots. It was raised from seed by Mr. Smith, of Coombe Wood, Kingston, about four years ago. *Hermione Trewiàna,* Trew's Hermione.—This is identical with the Narcissus Trewianus. *Philadélphus hirsùtus,* Hairy Syringa.—A handsome little white-flowering shrub; was detected by Mr. Nuttall, on the banks of the French Broad-river, Tennessee, near the warm springs; he has given a description of it in his valuable work on the genera of North American Plants. *Málva miniàta,* Vermillion-flowered Mallow.—This elegant species appears to have been introduced to our gardens as early as the year 1798, but its native country is still unknown. It is supposed to be a native of Chili. Being a late flowering plant it is of great importance to the decoration of the borders, in the months of October and November, at which time it is clothed with fine vermillion-coloured blossoms.

5.—The Bonanic Garden, &c. By B. Maund, F.L.S. Monthly. Large paper, *1s.6d.* Small, *1s.*

No. 83. for November, contains

Dáhlia supérflua, Painted Lady, Anemone-flowered variety. *Œnothéra serrulàta,* Saw-leaved Evening-Primrose.—The name of the genus is derived from the Greek, oinos thera, in allusion, as stated by Theoprastus, to the roots catching or acquiring the perfume of wine, as they become dry. This is a beautiful yellow-flowering species, a native of the hills in the interior of North America. *Pentstèmon ovàta,* Oval-leaved Penstemon.—The flowers of this are light purple, shaded with darker rose-coloured stripes. It is a handsome species, and was collected by Mr. D. Douglas, in North America, in the year 1826-7. And, the *Lílium ártagon.*—A well-known plant, in our pleasure gardens.

PART III.—NATURAL HISTORY.

ORIGINAL COMMUNICATIONS.

Article I.—*Observations on the Common House Spider.* By Mr. S. S. Smith, of Nottingham.

Gentlemen,

Should you think the following account of the manner the Common House Spiders attack and destroy their prey, worthy of a place in your Horticultural Register, it is at your service, and should you approve of it, I have several others from personal observations, which I will forward to you from time to time.

I am, Gentlemen,

Yours, respectfully,

Nottingham, Oct. 30, 1831. S. S. Smith.

Perhaps none of your readers, or very few of them, have noticed the way the Common House Spider, *(Aranea domestica,)* attack and destroy their prey;—I, myself, never did till the summer of 1830: since that time I have noticed them, and other insects, pretty minutely. The first that I saw, to notice, was in a lumber-room, where a Wasp *(Vespa Vulgaris,)* was entangled in a web, and the Spider, being a small one, dared not meddle with it, and it soon struggled until it regained its liberty: it had not proceeded far, however, before it fell into another snare, the proprietor of which, like the last, was too small to venture an attack. I then began to interest myself in the destruction of the Wasp; I therefore put it in a web which was inhabited by a much larger and stronger Spider than either of the former. As soon as the web began to move, the Spider darted from his hole, but seeing what a formidable captive was ensnared, he slackened his pace, and appeared to move with caution. This the Wasp observed, and struggled violently to free himself, which he quickly did, and on regaining his liberty, he appeared to be in a great rage. I now began to despair of seeing a battle, but in a little time it became more strongly entangled than ever; the Spider moved very cautiously towards it, and I observed it moved three times round it, binding it with a cord each time, and then left it to struggle. The Wasp soon broke these cords, and would have regained its liberty, which, being ob-

served by the Spider, it darted swiftly down its web, passed a cord three times round its wings, and twice round its legs, and left it a second time to struggle and tire itself. In about two minutes, when the Wasp was still, the Spider made its appearance, and cautiously advanced to within a little distance, where it made a stand, apparently to see whether its prey was alive or dead; the Wasp no sooner observed its enemy than it began to make extraordinary efforts to get free from its thraldom; the Spider then moved towards it, and broke both its wings in two, almost close to the body; the Wasp constantly striving to dart its sting into the body of its enemy, which it observing, took its position behind the body of the Wasp, and every time the sting darted out, the Spider wrapped a cord round it; it then began, whenever the sting moved, to bite at it: but in this it evidently got hurt several times, for I perceived it repeatedly draw back, put its feet to its mouth, and let fall a small drop of moisture; in a while I saw it completely bite off the end of the sting; it then came round to its head, wrapped a cord round its mouth, bit its body in two, and left it. I began to conjecture it only killed it for the sake of killing, but in this I was mistaken, for in a few minutes it made its appearance, wrapped its cord round the Wasp's body, tied it to its hinder legs, and dragged it to its hole. It then fell to work dissecting. Its first application was to break off both wings close to the trunk, which it brought to the outside of the web, and let fall; it then came down, repaired its web, examined every part, to see that all was right, which being satisfied was the case, it returned to enjoy its meal. In about two hours I saw that the body, as well as every other part of the Wasp, was completely cleared from the web.

S. S. Smith.

Article II.—*Remarkable Sagacity of the Mole.*

Gentlemen,

I addressed you last month on the subject of Lord Albemarle's discovery of a remedy against the Wire-worm. I again take leave to offer you some further suggestions to improve the knowledge of the history and habits of animals, &c., for which purpose an immense fund could be gathered from the pages of the Sporting Magazine, but more, from a source that hitherto never has been sought after, I mean the game-keepers. I seldom get into the company of that class of people, without learning something interesting regarding birds and beasts; and as most of your correspondents are persons employed in

gentlemen's families, and are also, perhaps, your personal friends, a suggestion from you to them requesting them to embody the keepers' report occasionally in their communications, could not fail of being highly interesting and novel. Take the following, as narrated to me by one, on whose veracity I can rely, as an instance of sagacity.

He took a Mole out of a trap that had just sprung, for the purpose of ascertaining if Moles could swim, as it was caught close to a large pond, into which he threw it to about the centre. It there lay motionless for a short time, but then began to swim in an involved circle, gradually extending it, until after half an hour's exertion it reached the bank of the pond, and soon disappeared in its own element. That Mole went for upwards of half a mile before any indications of its work shewed itself, and then afterwards it always worked differently from other Moles, by throwing up a hill, and then diverging twenty yards in a different direction, and throwing up another. On the incident being mentioned to the old mole-catcher, he said that he had now got his master, for that he should never be able to catch it; and such proved the fact, for although he lived some years afterwards in the neighbourhood, it was not caught while he remained there, but it could always be discovered where it had been, from the peculiar manner in which it had been at work.

In summer time, Moles work at a great distance under ground, and except in rainy weather, they cannot work near the surface. Hence a dry summer destroys a greater part of them, and they are frequently found dead in woods, apparently from fatigue and want of food, as their emaciated state evinces their want of strength to regain their own element.

P. S. In one of the last volumes of the Society of Arts, I think there is a Water-proof Composition Receipt. They offered a premium for the best, and of course I infer that they have published one. Will you be so kind as to publish it in your Magazine.*

* We will enquire, and endeavour to give our Correspondent an answer in our next.—CONDUCTORS.

PART IV.—NATURAL HISTORY.

REVIEWS AND EXTRACTS.

1.—Journal of Agriculture, &c. Published Quarterly. 8vo. price 6*s*.

No. 14, for August, contains

An interesting Article on Geology, viewed in relation to Agriculture. By W. M'Gillivray, A. M.

The experienced agriculturalist may judge correctly, (says the writer) of the general capabilities of a district, from a superficial inspection, and may perceive its adaptation to the cultivation of certain plants, or to the rearing of certain species of animals, in consequence of a single glance of the eye; but it is not to the agriculturalist alone that a knowledge of Geology is of importance, for it will readily be perceived that as the rocks, and other materials which the exterior of the globe affords, are applicable to numerous purposes in the arts, a more correct knowledge of them than that derived from superficial inspection, must be of decided utility; however, the chief object of the writer, is to impress upon the mind of the cultivator of the ground the advantage he might derive from such a degree of attention to the science in question, as might afford a correct idea of the rock deposites, without inducing him to run the risk of bewildering himself among the idle speculations to which their phenomena and relations have given rise.

Of the agents which have produced the greatest modifications upon the surface of the globe, those which may first occupy our attention are Volcanoes and Earthquakes. Volcanoes are openings in the outer layer of the globe, through which are emitted various substances, generally in a state of fusion or incandescence, together with aëriform fluids. They are usually situated on the summit of detached mountains, and present at their extremity, the form of a funnel, to which the name of Crater is given. Volcanoes are of very general distribution, although large portions of the globe are entirely free from them. They usually form series of immense extent, frequently running in right lines, although widely differing from each other. Of these great series, one of the most remarkable is that presented by the chain of the Andes, which, extending from Patagonia along the western coast of South America, forms the isthmus by which the two great portions of the western world are separated, traverses Mexico, and continues its course northward into the rocky mountains of North America. From Patagonia to Mexico upwards of sixty Volcanoes are known to exist in this range. Another great range of Volcanic action commences in the Aleutian Archipelago, and extends to Kamschatka, the Kurile Isles, the Japanese and Phillipine Islands, Loo Choo, Celebes, and the Moluccas, where it branches off to the east and west. In Europe there are few active Volcanoes; Mount Etna in Sicily, Vesuvius on the opposite coast of Italy, Stromboli in the Lipari Islands, Hecla, and five others in Iceland, are all that are known. According to D'Aubuisson, M. Ordinaire estimates the number of active Volcanoes at 205, of which 107 are in islands, and the other 98 on the continents.

It is a remarkable circumstance, that all the Volcanoes which are at present in a state of activity are situated in the vicinity of the sea. It is also well known

that there exist many sub-marine Volcanoes, of which the island formed in 1707, near Santorin, those in 1638, 1720, and 1811, near St. Michael, in the Azores, that in 1783, on the south-west coast of Iceland, and other phenomena of a like nature, afford ample proof.

Volcanoes do not always continue in a state of activity, but experience periods of cessation, and even remain quiet for centuries, and some have now the appearance of being finally exhausted. The first symptoms of volcanic action, are subterraneau noises, shakings of the ground, and the emission of smoke by the crater. When the air is agitated, the smoke rolls along in immense clouds, which cover the surrounding country with darkness; jets of burning sand and ashes from the Volcano traverse these columns, and clouds which sometimes emit lightnings. Then follow eruptions of incandescent masses of stone, which are projected into the air, and fall in all directions around the Volcano, in the form of sand, dust, cinders, or stones; the shakings of the earth continue; the melted matter contained in the Volcano ascends into the crater, and overflowing the lowest part of its edge, descends along the sides of the mountains, sometimes with great velocity, but more usually in a stream flowing with slow and majestic motion. Frequently an opening takes place in the side of the mountain, through which the lava makes its escape. Enormous currents of mud and water burst forth, and torrents of rain fall from the atmosphere, while the noxious exhalations often spread over the surrounding country, and destroy animal and vegetable life.

The smoke of Volcanoes generally consists of aqueous vapour, impregnated with hydrogen and carbonic acid gases, or sulphuric acid. The ashes consist of powder, of a grey colour, in a state of extreme tenuity, and are usually mixed with sand. In the eruption of Hecla, in 1766, complete darkness was produced by the cloud of ashes to a great distance; and in 1812, a cloud of volcanic ashes and sand, from a Volcano in the island of St. Vincent's, covered the whole of Barbadoes, producing such a degree of darkness, that at noon the nearest object could not be distinctly perceived. Volcanic sand consists of small cinders, usually mixed with crystals of augite and felspar, and forms the greater portion of the substances projected by Volcanoes. Scoriæ, or cinders, consist of portions of the melted lava projected by the escape of elastic fluids. One of the most remarkable substances produced by Volcanoes is sulphur, which, Humboldt remarks, is very rare in craters which are still burning, while all the old Volcanoes ultimately become solfaterras.

Lava is the mass of incandescent and melted matter, which carried upwards to the mouth of the crater by the force of the elastic fluids, escapes at the lowest part of the brim, or through an aperture formed in the side of the mountain. By the eruption of the Skaptar Jokul, in Iceland, in 1783, two vast streams of lava were produced, one of which was fifty, the other forty miles in length, with a breadth in some places extending fifteen miles, and an average depth of one hundred feet. Von Buch, who witnessed the eruption of Vesuvius in 1805, saw a torrent descend from the summit to near the sea, over a space of more than seven thousand metres, (about four miles and a half,) in three hours. In general, however, currents of lava move with extreme slowness; and Dolomieu mentions one which took two years to traverse a space of three hundred and eighty metres. The tenacity of lavas is usually so great that it is difficult to thrust a stick into them while they are flowing; and Spallanzani hardly produced any impression upon a current by throwing very large stones upon it. Lavas take also an extraordinary time in cooling. Currents are mentioned which were still progressing ten years after their eruption. Spallanzani, while passing over a current which had ceased to flow for eleven months, saw through the cracks in its surface that it still was red.

Besides these matters, torrents of water and mud are often ejected by Volcanoes. Breislak is of opinion that most of those which are alledged to have issued from Vesuvius and Etna, were produced by heavy rains, the water of which, mixing with the ashes and sand, flowed to the bottom of the mountain, and were presumed to have come from its crater. Such Volcanoes as rise into the regions of perpetual snow, often give rise to torrents which do not issue from the crater, but are produced by the melting of snow and ice. Condamine relates, that six hours after an eruption of Cotopaxi, a village thirty leagues distant, in a straight line, was swept away by a torrent of this kind. At other times they arise from water accumulated in fissures and subterranean caverns; and in general, cannot be supposed to come directly from the focus of volcanic action.

Earthquakes have been found to be most numerous and violent in volcanic countries, and the regions in their vicinity. The great Earthquake which destroyed Lisbon, in November, 1755, extended over nearly the whole of Europe, and even to the West Indies. St. Eubals, 20 miles south of Lisbon," was engulphed; a wave, 60 feet high, swept over the coast of Spain; at Tangier, in Africa, the sea rose and receded 18 times; at Funchal, in Madeira, it rose 15 feet above high-water mark; and at Barbadoes it rose 20 feet; at Algiers, Fez, and Morrocco, the agitation was violent; and tremors were felt in Italy, Switzerland, Holland, Germany, Sweden, and Norway; as well as in Antigua and Barbadoes. Earthquakes are usually preceded by an unusual state of the atmospbere, subterranean noises, resembling the rolling of carriages, thunder, and sometimes the discharges of artillery, the drying of springs and wells, the agitation of quadrupeds and birds, giddiness and other phenomena, of which it is unnecessary to make mention. D'Aubuisson is of opinion that the effects of Earthquakes are greatly exaggerated in a geological sense. "If," says he, "the geologist confines himself to the facts which the historian relates and proves, he will find that Earthquakes are nothing more than mere trepidations of the ground. The mineral masses remain in the same order, and with the same solidity as before. A few cracks and fissures are the only geological effects that result from them." Mr. Lyell, on the contrary, thinks that the superficial alterations, arising from Earthquakes and Volcanoes, important as they are in themselves, are still more so as indicative of far greater changes in the interior of the earth's crust. "The renovating as well as the destroying causes, are unceasingly at work, the repair of land being as constant as its decay, and the deepening of seas keeping pace with the formation of shoals. It appears from these views that the constant repair of the dry land, and the subserviency of our planet to the support of terrestrial, as well as aquatic species, are secured by the elevating and depressing power of Earthquakes."

After some more interesting observations, which we would have condensed, could we have spared room, the writer says, his next object shall be to give some idea of the nature and relations of the solid materials of which the exterior of the globe is composed.

2.—A Guide to the Arrangement of British Insects: being a Catalogue of all the Named Species hitherto discovered in Great Britain and Ireland. By John Curtis, F.L.S. author of British Entomology. 8vo. 8*s*.6*d*.

Our readers need scarcely be informed, that this catalogue is valuable to those who are making a collection of British Insects. It will, according as the the Author says, "1st,—enable them to arrange their cabinets systematically.

2ndly,—They may mark off their own Insects, so as to know instantly whether they have a species or not, by which means their desiderata will be shown; and this, the Author is persuaded, will enable students to enrich their cabinets by mutual exchanges, to an extent which could not be accomplished by any other means. 3rdly,—It will form labels for cabinets. 4thly,—It will be a systematic Index to the 'British Entomology,' and also to 'Gravenhorst's Ichneumonidæ.' 5thly.—It will be a catalogue of the Author's Cabinet," which however he says will give "no very adequate idea, from the vast number of species in his possession that are either unnamed, or with manuscript names only." The Editor also remarks that "he has been able to add upwards of a thousand names, (besides Gravenhorst's Ichneumonidæ,) that will not be found in any other list."

3.—MAGAZINE OF NATURAL HISTORY. Edited by J. C. LOUDON, F.L.S., &c. Published every two months, price 3*s.*6*d.*

NO. 22, FOR SEPTEMBER, CONTAINS

Page 434,—*On Hermaphrodite Insects.* Communicated to the Editor, by J. O. WESTWOOD, ESQ., of Hammersmith.

WHO took the figures from an extremely rare quarto tract, published by Professor Klug, of Berlin. Fig. 34, represents the very rare Moth, *Bómbyx pìni*, (*Eutricha*, Steph.) and by drawing a line down the body, it will be perceived that the left side of the insect, possesses the characters of the male, whilst the opposite side exhibits the contrary characters of the female. Fig. 35, is a much more singular specimen of *Bómbyx*, (*Clisiocámpa*, Curt.) *Castrénsis*,—the wings on the right side, being those of a male, and the antennæ and abdomen of the left belonging to that sex; while the left wing, right antennæ, and the right side of the abdomen, are those of a female.

34

S.H. *sc.*

35

S.H. *sc.*

36

S.H. *sc.*

Fig. 36, represents the *Bómbyx*, (*Hypogymna*, Hubn.) with the antennæ of the male, but the ground of the wings white, as in the female, with light waves; which the writer conceives may be a pale variety of the male. There is also the representation of an Hermaphrodite Stag Beetle, (*Lucànus Cervus*, *L.*) the left side of the specimen being male, with the jaw twisted, and the right side

female. The writer goes on to speak of several other instances, and concludes by observing that these, as well as others, occupy the attention of one of our most philosophical researchers in Natural History; and that we may rest assured from the hands of the most acute detector of the *Cygnus Bewickii*, the student will receive a memoir worthy, not only of the subject, but of its author.

No 23, for November.

Observations on the Forficula minor. (Lesser Earwig)

Speaking of the flight of Earwigs, a writer in this work says, "I have long known it on the credit of others, but not at all from inspection, till May 12th, 1831. Between 5 and 6, P. M., the atmosphere was warm and most exciting, when in an area between two ranges of hot-bed frames, I saw numerous specimens of *Forficula minor*, all in highest exstasies, and traversing the ground in all directions. I thought I also saw some flying, and alighting round about. Hereupon I caused one on the ground to mount my hand, and elevating it to the level of my eye, saw it fly off; thus also did a second, a third, and a fourth. Each before taking flight, aided or effected the expansion of its snow-white membraneous wings, with the forceps in its tail, which it turned over its back, and used with admirable adroitness. They flew ably, and in curves of short diameters."

4.—The Honey Bee. By E. Bevan, M.D. 12mo. 9*s*.

Separation of Wax and Honey.—After deprivation, the box, or hive, containing the combs should be kept in a warm room till it is convenient to drain it of its contents, as the more fluid the honey, the sooner and the more completely will it run off. This is, of course, a reason for not deferring the draining longer that can be avoided. The combs should be separated from the boxes or hives with a broad spatula, and a double-edged instrument, (which the writer has recommended for separating the combs from the side of the hive,) and placed afterwards on a clean dish. The waxen covers, on both sides of the sealed combs, should be sliced off, when by placing them on a hair sieve the honey will run through tolerably fine, and may be caught in an earthen pan. For prime purposes the purest combs should be selected, and their honey passed through a separate sieve. Mr. Isaac recommends letting this fine honey drop through the sieve into a silk sarse, (such as is used by the apothecary, for sifting fine powders,) and from the sarse into an earthen pan; this would enable the apiarian to obtain his honey in a more depurated state. The sarse must be first wetted, or the honey will not run through it. If the weather be cool, this business should be done in a room where there is a fire

"The ordinary combs may be chopped up, or broken down with the hands, and together with the refuse combs after draining, may be thrown into as much clean water as will cause the wax to swim. The whole may remain in this state for some days, to dissolve all the honey for making common mead; or the combs may be spread out upon broad dishes, and set before the bees in an evening, as also the utensils which have been employed during the process, first strewing them over with short straws, to prevent the bees from smearing their wings. The former is the best mode of disposing of the refuse combs and utensils, as the latter is apt to produce quarreling and robberies. The combs having been cleared as completely as possible, the finest should be boiled in water enough to float them, till they are

thoroughly melted. The melted mass should be poured into a canvass bag, made in the form of a jelly bag, with a draw-tape or string at the top, and then be suspended over a tub or pan of cold water. The strings of the bag being tightly drawn, the expression may be effected in various ways. Some press the bag between two strong round sticks, tied or strapped together at their ends, so as to resemble a pair of nut-crackers, with which two persons may by repeatedly stripping down the sides of the bag, express the whole of the wax. Others express it by making an inclined plane of a board, about four feet long, placing one end of it in the tub or pan of water, and the other against the breast of the assistant, who puts the bag on the board, and passes a round stick firmly down it, as long as thet wax will run. A screw press, made hot, would of course answer the purpose better than either of the above modes.

"The crumbled combs might be put over the fire in a steam kettle, with water under it, and the wax which runs through might afterwards be melted again, and passed through the bag. The new combs will melt almost entirely, but the old ones, owing to their cells having received so many linings, will preserve their form, the wax running from them, but in small quantities.

"The vessel used for melting wax should be capable of containing a good deal more than is put into it, as the contents may boil up suddenly, and occasion loss and inconvenience, as well as danger. The wax having been separated from the water in which it was melted, should be re-melted with just water enough to prevent burning; and having been well skimmed, may be poured out into proper moulds for forming cakes, the vessels being first rinsed with cold water to prevent the wax from adhering to them. The melted wax should be placed near the fire, and covered over, to cool gradually, or the cakes will be liable to crack. If it be desirable to have the wax in a very pure state, it may be boiled over and over again with fresh water."

5.—British Entomology. By John Curtis, F.L.S. Monthly. 8vo. 4*s.*6*d.* coloured.

No. 94, for October, contains

Cetonia Statica.—Order *Coleoptera*, Family *Melolonthidæ.*—An extremely rare insect in Britain, supposed to be the same with Donovan's *Scarabæus Greenii*, They are very common in France, on roses and thistles. A kindred species, in Malta, is very destructive to the apricot blossoms, in March. *Serroccrus Pectinatus.*—The same Order, Family *Ptinidæ.*—It inhabits old wood, especially Oak, and it has been found in abundance in the decayed parts of large old posts, near Bridgenorth, in Shropshire. *Anchylopera Ustomaculana*, The Loch Rannock Tortrix —Order *Lepidoptera*, Family *Tortricidæ.*—This Moth was discovered by Mr. Curtis, in 1825, in the Black-Wood, of Loch Rannock; and he is the only person who has a given description of it. *Conops Macrocephala.*—Order *Diptera*, Family *Conopsidæ*—A scarce insect, taken in August, 1824, on a plant of the *Scabiosa succisa.*

PART V.

MISCELLANEOUS INTELLIGENCE,

ON NATURAL-HISTORY, HORTICULTURE, AND RURAL AFFAIRS.

I.—QUERIES, ANSWERS, REMARKS, &c.

On Destroying Sparrows.—It was with considerable pain that I read in your last number, Mr. Stafford's proposal of exterminating the whole race of Sparrows by poison. He appears to me, to have considered the subject, as regards the injuries occasioned by Sparrows, very superficially, without having weighed against them, the many benefits which we derive from that bird. That they are often troublesome in gardens, I do not deny;—but I believe that from the great quantity of caterpillars, grubs, and other insects, which they devour, they on the whole, fully, if not more than fully, compensate for the injury which they do in the gardens. To Farmers, I have no doubt that they do much more good than evil. It is only during about a month in the year,—at seed-time and before harvest,—that they occasion him injury; the rest of the year they benefit him, by the grubs and other insects which they eat; by keeping his hedges clear from caterpillars; and by consuming the seed of so many kinds of weeds which otherwise would grow both in the meadow and arable land.

The different methods which have been employed for the poisoning of the earth-worms, have always produced sterility; and I have no doubt that if Mr. Stafford's plan was followed, it would produce much injury, and cause the loss of many valuable crops. I hope no person will devote to sudden and unthinking destruction, the whole race of Sparrows, without reading Bewick's admirable and pathetic defence of them.*

If, on a full consideration, it is still thought desirable to destroy Sparrows to a great extent, I think the doing it by poison, is very objectionable, for fear some of the dead birds should be picked up by the poor, and being supposed to have been shot, should be eaten by them;—and thus great injury might be done to a human being: and also, because when poison is used about a house, many accidents continually occur from it. I feel no shame in defending this humble species of birds, when their whole race is pointed out for extermination, which in all parts of the globe, always follow the cultivator of the earth, and claims to be the companion of civilized man; and when we are told by the Highest authority, that insignificant as they are among animals, they partake of the protecting care of their Creator.

To endeavour to keep within due bounds, Sparrows and every race of animals, is doubtless permitted to man, when they increase to an extent to be injurious.—But my objections to Mr. Stafford's proposal are, that it would carry the destruction of this species of birds to an extent, that instead of being beneficial, would be greatly detrimental; and that his mode of effecting it, is most highly dangerous.

The use, which some species of birds are of, and the injuries of others, both in the garden and farm, are subjects of much real importance, as well as of

* See Bewick's British Birds, vol. I, page 154.

interesting curiosity.—And it would, I think, be gratifying to many of your readers, if some of your correspondents would, from time to time, make known through the Register, facts of either kind that may occur to their observation.

I am, Gentlemen, your much obliged reader and servant,

Nov. 1831. J. T——

HINTS FOR THE REGISTER.—Sirs, I am watching the progress of your Horticultural Register with much satisfaction, and am induced from the interest I feel in it, to offer my very urgent remonstrance against the proposed introduction of Portraits. Such things are seldom satisfactory when appearing in such a form, and were they ever so well and faithfully executed, it is impossible that they can prove of general interest to your subscribers. I had intended to write to you before I read in your last number the suggestions of another correspondent to the same effect.

If you wish to enhance the value of your work by engravings, his proposal would be infinitely preferable, though it seems to me scarcely practicable. Engravings of flowers would be of little value unless they were coloured, and I do not see how this could be managed.

Allow me to make another more feasible, and certainly not less useful suggestion;—give occasionally useful elevations and working plans of labourers' cottages. And if along with this you would regularly devote a portion of your work to papers on the best method of ameliorating the condition of the agricultural poor, by Gardens, and Cow-keeping, you would make a very welcome addition to your arrangements. I strongly recommend to your notice the Philanthropic Magazine, and especially the plans for Cow-keeping, &c. so largely and successfully adopted by Mr. Wm. Allen, in Sussex. Faithfully, yours,

W. CARUS WILSON.

Kirkby Lonsdale, Nov. 11, 1831. Rector of Whittington.

ANTS.—Gentlemen, I have been much annoyed for the last three or four years by a species of Ant, which was not formerly in my garden, but which has now established itself there in great numbers, in defiance of all my efforts to prevent it. They are of a dark black colour, and highly polished, and are about a medium size between the large Horse Ant, and the small black Garden Ant, and they differ from all other sorts, in that they invariably make their nests in the holes of walls and buildings, and never burrow in the ground, like the Common Ant. The mischief they do is immense: as soon as the Apricots begin to get ripe they attack them most voraciously, and it is astonishing how soon a large one disappears before these little gluttons, but the worst of it is, like the Harpies of old, whatever they touch they pollute; and I can assure you without affectation, that an Apricot or a Peach is not eatable after they have once begun upon it. My object in writing to you, is in the hope that either you, or some of your Correspondents may be able to give me some advice upon the matter. I have already tried to steam them in their holes, and have also given them several large squibs of sulphur, without apparently doing them any injury—at least their apparent numbers were not diminished. Perhaps there is nothing left for it but fresh pointing the wall; but even this would be doubtful, as they have established themselves on the other side as well, and also, I suspect, in the tiling of the house. Besides which I would rather, if possible, avoid the trouble and expense of new pointing, as the wall does not by any means require it, and is so thickly covered with trees, that it could hardly be done effectually. You may, perhaps, be able to tell me of some poison

to put in their paths, or of some other means of destroying them, as I assure you the mischief they have already done me is very considerable, and they appear to be very much on the increase. Several dozen fine Apricots and Peaches were completely spoiled by these little vermin last summer; and if they increase at the rate they have as yet done, they will probably destroy the whole crop next year.

I remain, your very obedient Servant,

Wandsworth. W. W——

Ants.—Gentlemen, being a subscriber to your valuable publication, I take the liberty of troubling you with the following query.

I have a house heated by steam in which cucumbers are forced for a winter supply. The house has lately become infested with dark-brown winged Ants, which are completely destroying the plants, and every means I have hitherto used to destroy them have proved unavailing. I shall detail the different methods I have tried, with their effects; and if you can suggest a better I shall be greatly obliged. I first mixed a paste, moistened well with honey, into which I grated very fine a quantity of Nux-vomica, and laid it on different parts of the bed, during the first day they ate greedily of it, but soon left it entirely off. I next fumigated the house with tobacco, which destroyed all that were on the plants at the time, but knowing that all on the bed, or other parts of house, would immediately get under the soil, I did not repeat it. I then placed a number of flower-pot feeders containing honey and water, (as recommended by Speechly) but out of twelve pans, not more three dozen were caught in two days. I then syringed the plants with strong tobacco-liquor, but that did not in the least annoy them. I next sprinkled the bed with powdered lime; and afterwards with flower-of-sulphur;—neither of which, had the least effect. Then placed slices of turnip rubbed with honey. I placed the feeders with a paste of honey and flour at the bottom of each, in the hopes of destroying them with boiling water when collected; but neither, seemed an attractive bait. I likewise strewed lettuce leaves on the bed; but nothing seems to suits their palate so well as the flowers and tender leaves of the cucumber.

At the beginning of this month, my plants looked remarkably well, with a promise of plenty of fruit; they have now a stunted unhealthy appearance, every leaf being eaten in holes, and no sooner does a flower expand, than it is immediately filled with Ants,—I have killed 31 from out of one single blossom. I have repeatedly watered every part of the house where I can with safety to the plants, with boiling water,—but they still keep increasing; although within the last ten days, I am certain I have killed on an average six hundred a day.

Wishing every success to your excellent work, I remain, yours, &c.

Lichfield, Nov. 20. 1831. J. M——

Iris Pavonia.—We have thought since we informed our Correspondent B. S. what were our views on the culture of the *Tigridia pavonia*, that we were mistaken as to the plant he intended, but as the *T. pavonia* not uncommonly goes by the name of *Iris*, and there being no plant strictly called *I. pavonia*, we then ventured to suppose the *Tigridia* was the plant alluded to; however, lest we were then mistaken, and our Correspondent disappointed, we have now added a few lines on the culture of the *Vieusseuxia glaucopis*, which we conceive might be what he intended as some years ago it passed under the name of *Iris pavonia*, as did also *V. pavonia*, and *Morœa pavonia*, none of which however latterly are scarcely known by the former name. The *V. glaucopis* is a native of the Cape of Good Hope, has delicate

white flowers, with a bright purple eye, not unlike the spots on the tail of a Peacock, it appears to thrive best in a sandy peat earth, and from the changeable climate we experience in this country, it will not prosper without some means of artificial heat, although it does not appear to enjoy the green-house; but if planted on a Vine border, close under the front wall of a stove, it will generally be found to thrive and flower freely. The only means we have of propagating it is by offsets, as the seeds seldom or ever properly ripen. CONDUCTORS.

CLEARING TREES FROM LAND.—In the report of Prizes given by the Society of Arts, there was one awarded to a Gentleman for the particulars of his method of Clearing Trees from Land, as practised by him in New South Wales. If it be not out of the track of your Magazine, will you be so kind as to explain in what consisted his method, as it may be useful to

AN EMIGRANT.

BLACK HAMBRO' GRAPES.—In answer to a Subscriber, page 137, September number, relative to Black Hambro' Grapes being spotted or marked, I beg to say that having had the berries of Black Hambro', and of the White Frontingac Grapes, marked or blotched with brown lines or spots, I very carefully noticed from whence the injury proceeded. Judging it to proceed from a weakness in the Vines, I resolved to assist them by washing them by means of a syringe, with pure water, of the temperature of the house. This I commenced with as soon as I perceived that the berries were set. I did this to all the bunches that were set, but carefully avoided water falling upon any which were still in blossom. The time I attended to washing the Vines was early in the morning, before the sun had much influence upon the house. As the berries increased in size, I increased the force of applying it, by means of the syringe, as well as give a greater quantity of water. I continued to adopt this method every morning, till the berries began to change colour, when I desisted altogether.

Since I attended to watering the Vines as above stated, which has been several years, my berries have been entirely free from marks or blotches.

Near Wakefield, Nov. 1, 1831. J. PLANT.

ANSWER TO G. A. L.—We beg to inform our Correspondent, G. A. L., that when we have proceeded a little further towards completion of our arrangements, we intend inserting short extracts from Messrs. Chandlers and Booth's Camelliæ, in the manner he suggests. If any of our Correspondents wish to purchase it, we can assure them it is got up in a style that does honour to the Authors; and from what we know of Messrs. C. and B we are perfectly satisfied that no individuals are better calculated for the undertaking than they are.

CONDUCTORS

II.—NOTICES AND ANTICIPATIONS.

BRETTON HALL.—We have received notice that the large Domical Conservatory, Hothouses, and valuable Collection of Plants, at Bretton-Hall, Yorksh. are to be sold in the spring, by public auction, if not otherwise previously disposed of. We cannot refrain from expressing our regret that so fine a collection, by so noble a patron of Botany and Floriculture, as Mrs. Beaumont, should be thus destroyed. CONDUCTORS.

III.—YORKSHIRE SCIENTIFIC MEETING.

DURING the last week in September, a Meeting of men of science from all parts of the kingdom, took place at the ancient metropolis of the empire, the City of York. This Meeting was formed on the plan of the Scientific Meetings which have been held annually for several years in Germany, and other parts of the Continent, and which have been found to produce results highly favourable to the advancement of science.

The company assembled, consisted of persons of distinction from various parts of the kingdom, together with several of the gentry of Yorkshire, and the Members of Philosophical Societies in this County. The following is a tolerably full and accurate list:—

VISCOUNT MILTON, M.P., F.R.S., CHAIRMAN.

Viscount Morpeth, M. P.
Lord Dundas.
The Archbishop of York.
Mr. Justice Park,
Sir George Cayley, Bart.
John Dalton, Esq., F. R. S., Manchester.
Dr. Brewster, Sec. R. S. E. Edinbro'.
John Robinson, Esq., Sec., R.S.E., Edinbro'.
R. I. Murchison, Esq., F.R.S., President of the Geological Society, London.
H. Witham, Esq., F.G.S., Edinbro'.
J. D. Forbes, Esq , Edinbro'.
J. F. W. Johnson, Esq., Edinbro'.
Archdeacon Wrangham, Hunmanby.
Rev. J. Radcliffe, Oxford.
Sir Thomas Brisbane, London.
Sir Philip Egerton, Oulton Park.
Sir C. Ibbetson, Bart., Denton.
Hon. W. Howard, Castle Howard.
J. Goold, Esq., Zoological Society, London.
R. Havell, Esq., London.
Thomas Maude, Esq., Harrowgate.
J. G. Armitage, Esq., Huddersfield.
Rev Joseph Hunter, F.S.A., Bath.
J. Macky, Esq , Dublin.
Godfrey Higgins, Esq., Skellow Grange.
E. Charlton. Esq., Hisbyside.
W. H. Charlton, Esq., ditto.
M. White, Esq., Newbury, Berkshire.
James Emerson, Esq., Bristol.
W. Earle, Esq., London.
W. H. Gilby, M.D., Wakefield.
John Dunn, Esq , Scarbro'.
W. H. Dikes, Esq., F.L.S., Hull.
J. E. Lee, Esq., Hull
John Hey, Esq., Leeds.
John Lapage, Esq., Leeds.
Dr. Warwick, Manchester.
J. S. Warwick, Esq., ditto.
J. E. Denny, Esq., Leeds.
J. C. Bailey, Esq., London
Rev. J. Drake, Wakefield.
Thomas Allen, Esq., Edinbro'.
John Barefoot, Esq., London.
Dr. Wright, Thirsk.
John Adamson, Esq., Newcastle-on-Tyne.
Rev. W. Hutton, ditto.
Rev. Theodore Dury, Keighley.
J. Williamson, Esq., Scarbro'.
W. West, Esq , Leeds.
J. Marshall, Esq , Headingly.
J. Marshall, Jun., Esq., Headingly.
James G. Marshall, Esq., Headingly.
J. W. Childers, Esq., Cautley.
J. N. Blake, Esq., Bradford.
Thomas Richmond, Esq., London.
E. S. Cayley, Esq., Wydale.
J. Grey, Esq., York.
Captain O. V. Harcourt, York.
Dr. Goldie, York.
B. Horner, Esq., York.
Rev. William Scoresby, F.R.S., Liverpool.
J. H. Abraham, Esq., F.L.S., Sheffield.
Dr. Pearson, Treasurer to the Astronomical Society, Leicestershire.
Dr. Lloyd, Dublin College.
Dr. Daubeny, Oxford.
James Rennie, Esq., Professor of Natural History, King's College, London.
Hon. C. Howard, Castle Howard.
Rev. W. Vernon Harcourt.
T. R. S. Wheldrake.
Rev. William Cockburn, Dean of York.
Archdeacon Harcourt, Stokesby.
Luke Howard, Esq., F.R.S., Ackworth.
J. Phillips, Esq., F.G.S., York.
B. Rotch, Esq., London.
W. H. Crook, LL.D., London.
W. Gilberston, Esq., Preston.
W. C. Hewitson, Esq., Newcastle.
Arthur Strickland, Esq., Baynton.
Rev. Thomas Belgrave, Baynton.
Dr. Black, Bolton.
E. Tracy, Esq., Teddington, Gloucestershire.
W. A. Peel, Esq., Lancashire.
Richard Potter, Jun., Esq., Smedley Hall Manchester,
J. R. Watkins, Esq , Bolton, Lancashire.
Andrew Faulds, Esq., Warsbro'.
J. H. Lane, M.D., Liverpool.
W. Smith, Esq., Hackness.
T. W. Embleton, Esq., Middleton.
E. N. Alexander, Esq., F.S.A., Halifax.
W. F. L. Scott, Esq.
C. Frost, Esq., F.S.A., Hull.
L. Macdonald, Esq., London.
W. Lambert, Esq., Thirsk.
Bartholemew Lloyd, Esq., Thirsk.
G. Johnson, Esq., Berwick.
Dr. Booth, Birmingham.
T. Thrush, Esq., Harrowgate.
R. W. Turner, Newcastle.
Rev. James Yates, London.
E. Baines, Jun., Esq., Leeds.
G. B. Greenough, Esq., F.R.S.
Thomas Blount, Esq., Durham.
J. Phillips, Esq., London.
W. Burgess, Esq , Leicestershire.
Rev. S. Sharpe, Wakefield.
Angus Fletcher Dunans, Esq.
J. Williamson, M.D., Leeds.
J. Stickney, Scarbro'.
H. R. Bishop, Esq., London.
W. Wharton, Esq., Durham.
Rev. C. Wellbeloved, York.
Dr. Simpson, York.
I. C. Pritchard, M.D., Bristol.
J. Belcombe, M.D., York.
Rev. W. Hincks, F.L.S., York.
G. Lowther Thompson, Esq., Sheriff-Hutton.
Dr. Wake, York.
Dr. Wasse, Moat Hall.

Rev. J. Graham, York.
Richard Hey, Esq., York.
F. Cholmley, Esq., F.H.S., Bransby.
William Grey, Jun., Esq., York.
Alderman Wilson, York.
Rev. W. Taylor, York.
T. H. Fawkes, Esq., Farnley.
Robert Allan, Esq., Edinbro'.

FIRST DAY, MONDAY, SEPTEMBER 26, 1831.

The morning of this day was devoted to the reception of Strangers, registering their names, and delivering tickets of admission to the Scientific Lectures and Papers during the week. At eight o'clock in the evening the Philosophical Museum was thrown open for the evening *conversazione*, which formed the prelude to those diversified scientific attractions, which were to be continued through the week. The entrance-hall was decorated with elegant plants of gigantic dimensions, from the garden of J. Smith, Esq., of York. The spacious theatre of the Museum, with its extensive suite of rooms, were brilliantly lighted with gas, and presented a scene, which, at every step, displayed some interesting object of the kingdom of nature. A short and interesting Lecture was delivered by Mr. Phillips, the Scientific and zealous Secretary of the Yorkshire Society, on some specimens of Fossils, which had been brought for exhibition on this occasion.

SECOND DAY, TUESDAY.

The First Meeting for scientific purposes, was held this morning, at twelve o'clock. The theatre of the Museum was occupied by a large company of men of science, when the Rev. William Vernon Harcourt moved that the Chair be taken by Lord Viscount Milton, the President of the Yorkshire Philosophical Society, which was carried by acclamation.

His Lordship having taken the chair, declared himself inadequate to sustain properly the task they had imposed upon him, as in such an assembly as the present some other person might have been found much better qualified for the situation, though none were more anxious than he was to promote the objects of the meeting. It is now more than ten years since the Yorkshire Philosophical Society was established,—a Society which had done much towards advancing the interests of science; and he had no doubt the proceedings of the present meeting would prove that science and the means of science were not confined to the Metropolis. No doubt could be entertained that by means of meetings like the present, where scientific men met together, to communicate to each other their mutual ideas and discoveries, such an impulse would be given to science as would be most beneficial. It was much to the honour of the Yorkshire Philosophical Society, that they had been the first to set the example of holding a meeting like the present; an example, he trusted, which would be followed by other places. He could not conclude his remarks without saying a few words of well deserved praise of his Reverend Friend, to whom the Yorkshire Philosophical Society owed its origin,—he could not pay a greater compliment than, passing all other compliments, by saying,—"Si monumentum quæritis, circumspicite."

The Rev. W. V. Harcourt said, the meeting owed its origin to a number of Gentlemen, several of whom were now present, who had cordially concurred in the hope that it would be conducive to the interests of science; they had agreed that the first meeting should be held in that place and at that time, and he hoped that the accommodation made by the Council for their reception would prove satisfactory to the distinguished strangers who had honoured them with their presence.

Mr. Phillips, the Secretary of the Society, then read the proceedings of the Council; and also letters which had been received from a number of Professors and others of eminent scientific attainments, who, from various causes, had been prevented from giving their personal attendance in York on the interesting occasion, all of whom cordially concurred in the plan, and expressed their regret that they were unable to attend.

Mr. Harcourt then proceeded to detail the causes which had induced the origin of the present meeting, and read a paper drawn up by the Council of the Philosophical Society, recommending the formation of an Association for the furtherance of science, and for the removal of all obstacles which may stand in the way of such a desirable object. A string of resolutions for the formation and government of the proposed Association were then moved; the first of which, That an Association be formed, to be called "The British Association for the advancement of Science," was carried unanimously. The second resolution, explanatory of the objects of the Association, was carried unanimously. The third resolution, res-

pecting the qualifications of those persons who might become members of the Association, occasioned long discussion, and was referred back to the committee. The other resolutions were then passed with scarcely any opposition.

About a hundred of the visitors dined together at five o'clock, at the York Tavern; Lord Milton was in the chair.

In the Evening the suite of rooms was again thrown open, and the theatre was filled by a most brilliant company. Several of the ladies appeared in full dress, and the effect of the spectacle was most delightful. The Lecture was delivered by J. H. Abraham, F.L.S., of Sheffield, who took the magnet for his subject. Mr. Abraham noticed the discovery of the magnet, and the gradual improvement in magnetic science to the present time. He introduced several original and very interesting experiments, viz.: his invention for the relief of needle-pointers, his mode of neutralizing magnetism in the steel works of time-keepers, his method of giving any number of poles to a bar of steel, and concluded the Lecture with some very interesting remarks, illustrated by experiments on the influence of the magnetic over the electric fluid.

THIRD DAY, WEDNESDAY.

Lord Milton took the chair about half-past twelve o'clock. His Lordship stated that in compliance with the resolution of yesterday, the Committee had taken under consideration some of the resolutions which were then passed; and the Rev. V. Harcourt, as Chairman of the Committee, would report what had been done. Mr Harcourt stated that the third resolution excited considerable discussion yesterday, and after mature consideration the Committee had resolved to substitute for it, five distinct propositions. First, that all members of this meeting shall, on subscribing the obligation-book of the Association, become members thereof. Second, that the Fellows and Members of all chartered Societies be entitled to become Members of the Association. Third, that all office-bearers, and members of councils, or managing committees of all Philosophical institutions, be entitled to become members of the Association Fourth, that members of Philosophical and Scientific Societies, who are recommended by their respective councils shall be members of the Association. Fifth, that £1, annual subscription, or a composition of £5, be paid by each member of the Association; and that 18 months' arrear of an annual subscription shall exclude from the Association. The resolutions were all carried unanimously. The Chairman then observed that the business of arranging and passing the rules being happily brought to a conclusion, they would proceed to the most pleasant part of the business of the day—the reading of Scientific Papers The first paper, by Dr. Brewster, on the progress of the science of Mineralogy, was read by Mr. Robinson, F.R.S.E, owing to the Doctor's absence, from indisposition. Mr. Phillips then read a paper by Dr. Henry, of Manchester, on the philosophical character of Dr. Priestly. These papers excited great interest, and a spirited discussion.

The rooms of the Museum were again thrown open in the evening, at eight o'clock, when Mr. R. Potter, Jun., read a paper on a new construction of the Reflecting Microscope, originally proposed by Sir Isaac Newton: he exhibited several beautiful elliptical Mirrors, ground by himself for the instrument. Mr. Phillips then read a very interesting description, by Dr. Brewster, of a new instrument for distinguishing precious stones and other minerals, by the colour reflected, under particular conditions of combination with fluid media and a rectangular glass prism.

FOURTH DAY, THURSDAY.

It was announced on the assembling of the meeting, by R. I. Murchison, Esq., F.R.S., that Lord Milton would take the chair, in the character of President of the British Association for the Promotion of Science On taking the chair the noble President acknowledged the honour conferred on him in appointing him President of the British Association during the ensuing year. Mr. Harcourt then announced that the place selected for the next meeting of the Association, in June, 1832, was Oxford, and the President elect was Dr. Buckland.

The Council of the British Association at the Annual Meetings, shall be composed of all persons attending those meetings who have contributed a paper to any Philosophical Society, which paper has been ordered to be printed.

The first paper read this morning, was one by Mr. John Dalton, of Manchester, entitled,—Experiments on the quantity of food taken by a person in health, compared with the quantity of secretions and insensible perspiration.

Mr. R. Potter, Jun., next read a paper on the subject of the refraction of light, intended to show, that a certain hypothesis of M. Fresnel, was contradictory to experiment.

M. W. Hutton, next read an Essay on the Whin Sill, in which, with much minuteness and laborious research, he described the whole course of that interesting rock, from its rise in this county, through a line of 100 miles, to a distant part of Northumberland, offering, as he proceeded, such remarks on its probable formation as his own close and personal inspection had suggested to him. Mr. Murchison, bore testimony to the diligent research and great ability displayed in the paper, and made a few remarks which his own observation on the Whin Sill had suggested, and expressed his hope, that before another annual meeting, future observations would enable them further to clear up this interesting subject. Mr. Phillips agreed both with Mr. Hutton and Mr. Murchison.

[The Rev. W. V. Harcourt begged leave to interrupt their scientific proceedings for a moment, to observe, that an invitation had been received from the Archbishop for the gentlemen present at this scientific meeting to dine at the Palace, to-morrow at five o'clock, and to request those gentlemen who meant to accept the invitation, to leave their names at the door of the theatre.]

Mr. J. F. W. Johnston then read a paper on the discovery of a new metal, called Vanadium, which had only been discovered about November last. Many beautiful specimens were exhibited and described, with much scientific acumen.

Henry Witham, Esq., next read a very ingenious paper on Fossil Vegetation, with a view to gain votaries to that part of geology which depends for its progress on accurate knowledge of Fossil Botany.

The proceedings of this morning's meeting were closed by the reading of a paper by Mr. Phillips, communicated by Dr. Henry, on a peculiar phenomenon belonging to the Copper Ore of Anglesea.

The meeting was attended by upwards of one hundred gentlemen, and during a part of the proceedings the Archbishop was present. The meeting broke up at a quarter to four o'clock.

On Thursday evening Mr. Scoresby communicated the results of his recent researches concerning the law of magnetic induction, the diminution of the magnetic force in proportion to the square of the distance, and the employment of those data for the construction of apparatus by which to measure the thickness of walls, the solid intervals between the subterranean tunnels, and gangways in mines, collieries, &c., and in general to the determination of short distances otherwise immeasurable. The experiments by which Coulomb ascertained the law of magnetic intensity were on a very minute and delicate scale, but the powerful magnets of Mr. Scoresby have enabled him to exhibit their effect in producing a deviation of the needle at the distance of 60 feet.

FIFTH DAY, FRIDAY.

This morning Mr. Scoresby completed his curious experiments in Magnetism. Dr. Brewster gave his very interesting paper on the structure of the crystalline lens. Mr. Murchison communicated the principal results of Mr. Gilbertson's researches concerning the shells of existing species which lie in the gravel and silt beds of Lancashire. Dr. Daubeny delivered a short lecture on the connection between mineral springs and volcanic action, and on the gaseous contents of Taff's Well, near Cardiff.

A large party of the members of the Association then proceeded to Bishopthorpe to enjoy the cheering and friendly hospitality of the Archbishop. Three delightful hours passed rapidly in the Palace, and then the whole assembly returned to the hall of science.

Mr. Potter, from the lecture-table, spoke of the passage of electricity in the Torricellian Vacuum; Dr. Warwick exhibited Moll's method of creating a temporary magnet; Dr. Daubeny exhibited a new instrument; and Mr. Phillips read an account from the Malta Gazette of the New Island raised by submarine fires from the bed of the Mediterranean.

I was obliged to leave York, on the Saturday morning, but am informed that several interesting papers were read in the course of the day. The Meeting closed on Saturday evening, and I fully believe that all the scientific visitors left York more highly gratified than the most sanguine could have anticipated. H——

IV.—CHOICE OR BEAUTIFUL PLANTS,

FLOWERING THIS MONTH, IN THE PRINCIPAL NURSERIES ROUND LONDON.

AT MESSRS. W. ROLLISSON & SONS', TOOTING.

STOVE.

Adiantum cuneatum.
Bletia verecunda.
Blechnum orientale.
Cypripedium insigne,
Franciscea Hopeana.
Geissomeria longiflora.
Ixora rosea.
Limnocharis Plumeira.
Murraya Exotica.
Polypodium pectinatum.
Stenorhynchus speciosa.

GREEN HOUSE.

Acacia impressa.
Bursaria spinosa.
Barbacenia purpurea.
Crowea saligna.
Corræa pulchella.
—— speciosa.
Ceanothus azureus.
Cactus truncatus.
Calceolaria bicolor, & others.
Eriostemon salicifolia.
Ericas, (40 kinds)
Fuchsia microphylla.
—— thyrsiflora, and others
Gnidea lævigata.
Grevillea mucronulata.
———— Baurii
———— acanthifolia.
Indigofera aphylla.
Lachenalia pendula.
Leucopogon juniperinus.
Oxalis rosacea.
—— polyphylla.
—— variabilis.
—— Bowii.
—— longiscapa.
Phylica, nova species.
Witsenia corymbosa.

HARDY.

Noisette Roses, in variety.
Semperflorens ditto ditto.
Hardy Ericas ditto.
Chrysanthemums ditto.
Dianthus Fischeri.
Daphne hybrida,
Cyclamen Clusii.
Menziesia nana.
Potentilla Mayiana.
Tritoma media.

AT MR. YOUNG'S, EPSOM.

GREEN-HOUSE.

Arthrostemma multiflora.
*Begonia diversifolia.
*Hermannia glandulosa.
*Illecebrum Canariense
Isoplexis Canariensis.
*Leucoryne ixioides.
Pimelea diosmæfolia.
Pycnostachys cœrulea.
Stylidium graminifolium.
Trachymene linearis.

HARDY.

Aster paludosus.
*Centrocarphœ grandiflora.
———— triloba
*Cestrum acuminatum.
*Colchicum Chinense.
*Crocus serotinus.
Gentiana Catesbei.
Lonicera canescens.
Salvia Indica.
—— nubicola
Saxifraga tricuspidata.
Symphoricarpus montanus.

FRAME.

Alstrœmeria acutifolia.
———— pallida.
———— psittacina.
Lobelia purpurea.
*Lythrum Chilense.
*Nierembergia gracilis.
Perilomia ocymoides.
Phalangium Nepalense.
*Podanthus gratus.
*Satureja mollis
*Senecio asper.
*Staurocanthus aphyllus
*Tropæolum tricolorum.
Zexmenia tagetiflora.

Those marked thus * are very rare indeed, and scarcely to be met with in this country.

V.—HORTICULTURAL AND FLORICULTURAL SOCIETIES.

LONDON HORTICULTURAL SOCIETY

During the past month papers have been read descriptive of two sorts of Grapes, the Black Constantia, and a new variety raised by Mr. Money, of the Hampstead Road, called the Muscat Escholata. Very fine specimens of the latter were exhibited from an eastern aspect, in which situation it arrived at maturity as early as the Muscadine. But one of the most important Communications which has been made to the Society for a long period, was a statement of the results which had been obtained in the Society's Garden, by planting Potatoes according to the mode pointed out and pursued by Mr. Knight of Downton; in following up whose suggestions great care and attention appear to have been bestowed. Considering the produce of Roots per acre, with which the Potatoe growers in the neighbourhood of London are satisfied, viz., from 8 to 12 tons, the increase by the new method of planting is very striking: one variety (*La Divergente,*) having yielded a return at the rate of 24 tons per acre. The names of those who had obtained medals at the different exhibitions of the season were announced. A very beautiful *Cypripedium insigne*, from Messrs. Rollisson's Nursery, attracted great notice at the 1st of this month's exhibitions, which have consisted principally of Grapes, Apples, and Pears, that the spring frosts spared; Chrysanthemums, Dahlias, Fuchsias, &c.

VI.—NATURALIST'S CALENDAR.

FOR DECEMBER.

BOTANY.

THIS month, to the Botanist, is one of the most barren in the year; it produces few new objects. The Lichens and a few Mosses are almost the only vegetables in a state of fructification. Among the latter may be mentioned the following, *Buxbaumia aphylla*, *Phascum multicapsulare*, *P. muticum*, *Gymnostomum ciliatum*, *Orthotrichum aristatum*, *Hypnum prælongum*, *H plumosum*, *H. schreberi*, and *Bryum roseum*.

The berries of the Holly, *Ilex aquifolium*, are now ripe, and their bright scarlet makes a rich contrast to the dark green of the leaves. The berries of that singular and interesting parasite, the Misseltoe, *Viscum album*, are also ripe, and both afford food to various species of the Thrush family.

The structure of the buds of trees, the investigation of their modes of defence against cold, and of the various forms in which their leaves are folded, form an interesting and very appropriate study for this time of the year; indeed there are many parts of physiological Botany which may now be advantageously studied.

The dried specimens of plants gathered in the summer should now be mounted and arranged according to the directions given in August. The Mosses may either be pressed and treated as other plants, or they may be folded up in small paper packets, properly labelled, which is perhaps preferable, as they will at any time, by immersion in water, revive so as to be fit for examination. Should the former mode, however, be preferred, they should be pressed immediately after being gathered, as they are apt to shrivel by exposure to the air.

ZOOLOGY.

INSECTS.—The December Moth, *Eriogaster populi*, may be found in the beginning of the month. "It is remarkable that in several other species of Moths, which appear in the perfect state in the winter months, the female is not furnished as the male is, with wings. Though considering the habits of female Insects, this is not to be much wondered at, for nature leaves it to the instinct of the males to find them out; and while they remain motionless, stationary, or nearly so, the males are pursuing their flight in every direction, continually on the wing, and seldom alighting. Besides the Moth just mentioned, one or two others now make their appearance; and in open weather, the Common Gnat, *Culex pipiens*, and several of its congeners may be observed on the windows of rooms, or dancing under the shade of trees."—*(Comp. Alm., 1829.)* The Yellow-line Quaker Moth, *Noctua flavilinea*, appears towards the end of the month.

BIRDS.—Should the weather prove severe, those Birds which in summer frequent woods, and solitary places, now approach human habitations, and if the cold be intense, even venture within the doors;—among these may be mentioned the Redbreast, *Sylvia rubicula*; the Wren, *Sylvia troglodytes*; and the Pipit Lark, *Alduda trivialis*. Many of the rarer winter birds, may now be occasionally met with; as the Hawfinch, *Loxia coccothraustes*, which comes in small flocks, at uncertain periods, and feeds on the fruit of the Hawthorn; the Chatterer, *Ampelis garrulus*, a very rare bird; the Snow Bunting, or Snow-flake, *Emberiza nivalis*; and the Siskin, *Fringilla spinus*, this bird is not regular in its migrations, it comes in flocks, and feeds on the fruit of the Alder, *Alnus glutinosa*. The Brambling, *Fringilla montifringilla*, is sometimes seen in large flocks, particularly on the coasts of Kent and Sussex. Many species of Sea-fowl, and other water Birds, will now be found on such rivers as remain unfrozen, as the Goosander, *Mergus Merganse;* many species of Wild Ducks and Geese, *Anas;* Gulls, *Larus;* Divers, *Colymbus;* Grebes, *Podiceps;* Terns, *Sterna;* and others which are only met with here when the winter in the northern countries of Europe is uncommonly severe.

QUADRUPEDS.—Many animals now become torpid or inactive. The Hedgehog, *Erinaceus Europæus*, forms a warm and deep habitation of moss and leaves, and there, coiled up like a ball, it sleeps away the winter, awakening at short intervals to take food. The Dormouse, *Myoxus muscardinus*, which also becomes torpid, lays up a store to subsist on during the winter. Bats, *Vespertilio*, retire to caves and old buildings, and there, closely wrapped up in the membranes of their fore feet, or wings, they hang suspended by their hind feet, till the reviving heat of spring brings them forth in pursuit of their insect prey.

METEOROLOGY.

THIS month, though colder, is not so unpleasant as the last; the bright clear frosty days which frequently occur, tend greatly to enliven it, while it is scarcely possible to imagine anything more beautiful than the hoar frosts, which are now common, particularly if seen in a fine woody country.

BAROMETER.—Mean Height 29,693. Highest 30,320. Lowest 29.120 inches.
THERMOMETER.—Mean Temperature 39,3 degrees. Highest 55. Lowest 17 degrees.
RAIN.—Mean quantity 2,426 inches.
EVAPORATION.—Mean 0,516.

Duffield-Bank, Nov. 1831. O J.

VIII.—MONTHLY HORTICULTURAL CALENDAR,

FOR DECEMBER.

THIS Month is seldom so damp and foggy as the last, but Greenhouse plants must still have very little water, and as much air as the weather will admit of. Now, is the opportunity to collect all the leaves which the late frosts cleared from the trees, and lay them together, for hot-bed and other purposes. Let every spare piece of ground be trenched, at every opportunity, so that the frosts may have power to act upon, and pulverize it. Look well to the Pine pits, that no declension of heat be allowed to take place, lest severe weather come suddenly and you be unprepared.

FRUIT DEPARTMENT.

Apples, Pears, &c, newly planted, should be mulched with rotten dung, to keep the frost from the roots.

Fig Trees on the open walls, must be well covered from the weather. (see Calendar for Nov.)

Cherries, Plums, &c. should now be pruned.

Strawberries in pots for forcing, should now be brought in about every three weeks, and placed in a frame or slight hot-bed, as recommended last month.

Gooseberries. See page 202.

Forcing. The earliest Peach-houses, should now have a little fire; be careful however, not to allow the heat to rise above 55 degrees by day, as forcing too rapidly, invariably causes the buds to break weakly

Forcing Vines. See pages 6, 185, and 193.

FLOWER DEPARTMENT.

Dahlia Roots, being now taken up, will require carefully drying. See page 147.

Mignonette and Ten-Week Stocks, in frames, must be exposed, by taking off the lights, as often as the weather will permit.

Soils for Auriculas and Carnations, should now be prepared, if not done last month. See pages 56 and 199.

Tulip Beds, will require sheltering occasionally, by mats or straw, from heavy snows or rains, or the bulbs will be damaged.

Rose Trees in pots for forcing, should now be taken into the stove, to come in flower about February or March. See page 245 to 253.

Lilacs in pots, as well as many other sorts of plants, for forcing, should now be introduced.

VEGETABLE DEPARTMENT.

Cauliflower Plants, in frames or under hand-glasses, must be well protected from frosts, and have plenty of air when the weather will permit.

Asparagus. Continue planting new beds on a slight heat, as recommended last month, about every fortnight or three weeks, and cover them safe from the frosts.

Radishes. A thin crop should now be sown on a slight hot-bed; as soon as they are up, give a great deal of air, to prevent them from drawing,

Peas and Beans should be sown in a sheltered part of the garden, if the weather be open, in the beginning of the month.

Lettuce Plants, in frames or under hand-glasses, must have abundance of air.

Mushroom Beds, out of doors, must be cleaned from wet litter, about every week or ten days; put a covering of dry hay next to the bed, and lay a sufficient covering of straw or mats, to protect them from the frosts.

Sea Kale must be covered with pots and dung, to blanch for table, when not done last month. As a criterion, we may generally calculate that it will be ready to gather in about six weeks after covering.

VIII.—COVENT-GARDEN MARKET LIST.

London, November 14, 1831.

THE supplies of Vegetables, during the last, and up to the present period, in this month, have been abundant and of excellent quality:—the prices obtained have been far from remunerating to the cultivators. Apples, and other Fruits of this season, are in good supply at reasonable prices, but principally of foreign growth; our own crops, in general being very short.

G. C——

	from		to	
CABBAGE TRIBE.	*s.*	*d.*	*s.*	*d*
Broccoli, White, per bunch,....		6	1	3
——— Purple, per bunch,....		4	1	0
——— Cape, per bunch,.....		4	1	0
Cabbage, White, per dozen,....		6	1	0
——— Red, per dozen,.....	1	0	3	0
——— Plants or Coleworts doz	1	0	2	0
Cauliflowers, per dozen,.....	1	0	3	0
Savoys, per dozen, ...		6	1	0
TUBERS AND ROOTS,				
Carrots, Old, per bunch,.....		4		6
Horse-radish, per bundle,.....	2	6	5	0
Jerusalem Artichokes, per dozen.		6		
——— ——— per hf. sieve	1	6		
Parsnips, per dozen,.....		6	1	0
Potatoes, per ton,.....	£3		£4	
——— per cwt.,.....	3*s.*	0	4*s.*	0
——— per bushel,.....	1	9	2	3
——— Kidney, per bushel,...	2	0	2	3
——— Scotch, per bushel....	1	6	2	0
Red Beet, per dozen,.....		6	1	0
Radishes, Red, per dozen hands 24 to 30 each,....		6		
——— —— per bunch,.....		1		1½
Salsafy, per bunch,.....		8		
Scorzonera, per bundle,.....	1	3		
Skirret, per bunch,.....		8		
Turnips, White, per bunch,....		1		1½
SPINACH TRIBE.				
Sorrel, per half sieve,.....	1	0		
Spinach, per sieve,.....	1	0		
——— per half sieve,.....		6		
ONION TRIBE.				
Garlic, per pound,.....		9	1	0
Leeks, per dozen bunches,.....		9	1	0
Onions, Old, per bushel,.....	4	6	5	0
——— for Pickling, per hf. sieve	4	0	5	0
——— Green, (Ciboules) bunch,		4		6
Shallots, per pound,.....	1	0	1	4
POT AND SWEET HERBS.				
Basil, per dozen bunches,.....	1	6		
Fennel, per dozen bunches, ...	2	0		
Lavender, (dry) per doz. bunch.	3	0		
Marjoram, (dry) per doz. bunch.	1	0		
Mint, (dry) per doz. bunches,..	2	0		
Parsley, per half-sieve,.....	1	0		
Peppermint, (dry) doz. bunches	3	0		
Rosemary (green) per doz. bunch		6		
Sage, per dozen bunches,.....	2	0		
Savory, per dozen bunches,....	3	0		
Tarragon, per dozen bunches,..	5	0		
Tansy, per dozen bunches,.....	1	0		
Thyme, per dozen bunches,....	2	6		

	from		to	
ASPARAGINOUS PLANTS, SALADS, &c.	*s.*	*d*	*s.*	*d.*
Burnet, per bunch,.....		3		
Cardoons, per bunch, (3).....	3	0		
Celery, per bundle, 12 to 15,....		6	1	0
Endive, per score, ...		9	1	6
Lettuce, Cos, per score,.....	1	0		
——— Cabbage. per score,....		6		
Small Salads, per half-sieve,....	1	6		
—— ——— per punnet,.....		2		3
Watercress, per. doz. sm. bunches		4		6
STALKS AND FRUITS, FOR TARTS, PICKLING, &c.				
Green Capsicums, per hundred,.	1	6		
Tomatoes, per sieve,.....	5	0		
EDIBLE FUNGI,				
Morels, (dried) per pound,.....	12	0		
Mushrooms, per pottle, ...	1	0	1	6
Truffles, English, per pound,..	12	0		
——— Foreign, per pound,....	12	0		
FRUITS.				
Apples, Ribston Pippins, bushel,	18	0	20	0
——— Nonpareils, per bushel,..	24	0	28	0
——— Golden-Nobs, per bushel	15	0		
——— Baking, per bushel,.....	6	0	10	0
——— French, per bushel,.....	5	0	8	0
——— Corpendeans, per bushel	4	0	7	0
——— Royals, per bushel,.....	6	0	7	0
Almonds, per peck,.....	7	0		
Brazil Nuts, per peck,.....	12	0	16	0
Chesnuts, English, per peck,...	2	0	2	6
——— French. per peck.....	3	0	8	0
Filberts, English, per 100 lbs..	£7	10	£8	
Grapes, Hot-House, per pound.	3*s.*	0	6*s.*	6
——— Spanish, per pound....		10	1	0
——— Black Hamburgh, per lb	2	4		
Lemons, per dozen,.....	1	0	2	0
——— per hundred,.....	6	0	12	0
Medlars, per half-sieve,.....	8	0	12	0
Melons, Spanish, each,.....	2	6	4	0
Nuts, Spanish, per peck,.....	6	0		
——— Barcelona, per peck,.....	7	0		
Oranges, per dozen,.....		9	2	0
——— per hundred,.....	3	0	14	0
Pears, Swan's Egg, per hf. sieve	8	0	10	0
——— Charmontelle, p. hf. sieve	10	0	16	0
——— Winter Beurré, hf. sieve.	18	0		
——— St. Germain, per hf. sieve	14	0	18	0
——— Cresan, per half-sieve,..	14	0	16	0
——— Baking, per half-sieve,..	3	0		
Pine-apples, per pound,.....	6	0	10	0
Pomegranates, per dozen,.....	4	0	6	0
Quinces, per half-sieve,.....	16	0		
——— per dozen,.....	6	0		
Sweet Almonds, per pound,....	2	3	3	0
Walnuts, per bushel,.....	4	0	6	0

G. Jewitt, Printer, Duffield, near Derby.

THE

HORTICULTURAL REGISTER.

January 1st, 1832.

PART I.—HORTICULTURE, &c.

ORIGINAL COMMUNICATIONS.

ARTICLE I.—*On the Cultivation of Celery.* By MR. C. MACKAY, Under-Gardener to the Botanical and Horticultural Society, of Manchester.

GENTLEMEN,

HAVING been in the neighbourhood of Manchester for these two years past, and observing the Celery to be superior in quality to that grown in other parts where I have been, and likewise observing in one of the numbers of your Magazine, that you wished for an account of the Celery cultivated in the neighbourhood of Manchester, I am induced to send you the following.

My opinion is, the Celery that goes by the name of the Solid-Red, is a distinct variety from that which the London seeds-men send out under that name; and what appears a convincing proof of it, is, the early crop that is sown in the month of February does not run to seed, as the other kind is liable to do.

The invariable method practised by the best growers about Manchester, is, to sow the first crop on a small bed, of a size suitable for a one-light frame, prepared after the usual way, and when the young plants have attained sufficient strength for pricking out, there should be a bed prepared of the following compost; one half of rotten dung, the other of rich loam, well mixed together, made about six or seven inches in depth, upon a hard beaten surface, where it may receive the benefit of the sun; by which means, the plants acquire good roots, by not penetrating too deep into the earth. They are afterwards transplanted out in trenches of 18 inches wide, taking out the soil to the depth of 10 inches, and filling them up with rotten dung, so as to admit a covering of soil sufficient to prevent the air from injuring the

roots; so that when they are planted, the trenches are level with the surface: by which means the plants acquire more strength than by being planted in hollow trenches, as practised by most gardeners. Great care should be used in taking up the plants, which should be done with a trowel, permitting as much earth to remain with the roots as possible, and planting them immediately into the dung, from 8 to 9 inches apart.

The ground most proper for planting Celery is a strong soil, having a clay bottom, whereby the plants are kept cooler than upon a sandy soil.

I am, Gentlemen,

Your obedient humble Servant,

October 15, 1831. CONSTANTINE MACKAY.

ARTICLE II.—*On the Culture of Celery.* By J. M—— of Penwortham, Lancashire.

GENTLEMEN,

As you solicit contributions, however trifling, I forthwith send you my method of cultivating Celery, which, if you think worth a place in your Register, I shall feel obliged by its insertion.

About the first week in March, I take a large flower-pot, about thirteen inches diameter, and about nine inches deep, and fill it with soil, composed of one-half black peat, (commonly called bog-soil,) one-fourth of leaf mould, and one-fourth of fresh loam; this compost should be put together six months before it is used, and be turned twice, at least, during the six months. The pot being filled to within an inch of the rim, I sow the seeds, covering them with the same sort of soil, sifted. I then place the pot in a cucumber-frame; the temperature of which is about 60 degrees of Farenheit's thermometer. As the plants come up, I raise the pot to within three or four inches of the glass, otherwise they would become very weak; observing at the same time to place the pot as near as possible to that part of the frame where air is admitted. When the plants have made four leaves each, I take a box, about three feet and a half long, thirteen inches wide, and six inches deep, and fill it to the depth of four inches with rotten dung from an old hot-bed, which was composed of leaves and stable-dung in equal parts; I then fill the remaining part of the box with the above mentioned soil, and select from the seed-pot such of the plants as are short and stiff, and prick them out in the box, at the distance of three inches each way I place the box in a vinery, where the heat is 65 or 70 degrees, shading them from the sun till they have made fresh roots, and supply them freely with water. As the plants advance in growth I give them more air, till about the last

week in April, when I remove the box to a cold frame, where it remains till about the 3rd or 4th of May, at which time I prepare the trenches, by taking out the soil to the depth of one foot, and twenty inches wide; the length must be suited to circumstances. The soil taken out of the trenches must be placed on each side, for the purpose of earthing up the plants. I fill the trenches to the depth of nine inches, with the above mentioned soil. I then separate the plants, by cutting a line between each row with a large knife: a square bole will adhere to each plant, which must be carefully removed to the trench, I make a hole with my hand, insert the plant, and gently press the soil round each, allowing the plants to stand nine inches apart; I then give them a copious watering.

At the end of three weeks from planting they will require earthing; this must be done carefully, by drawing the leaves together, and holding them with one hand, and with the other drawing a little soil round each, till the whole is finished. This operation should be performed on a dry day, when the plants are free from all external moisture; and care should be taken that no soil gets to the hearts of the plants, as it causes them to rot, and thus become useless. This earthing I repeat about every fourth day, till about the 10th or 12th of July, at which time I have Celery weighing from 7 to 10 lbs. each.

For my general crop, I sow on a warm border, about the last week in March, and again at the end of April; and when large enough, I transplant them six inches apart into beds, well prepared with the above-mentioned compost.

By the above method I never fail to have a succession of Celery from July till the end of April; and I find that where bog-earth is used in the composition, the Celery is much improved both in size and flavour;—the bog earth retaining a great portion of moisture, which appears essential to its growth.

I am, yours, most respectfully,

Penwortham, Lancashire, J. M——
Nov. 22, 1831.

ARTICLE III.—*On the application of Quick Lime for the Destruction of the Caterpillar upon Gooseberry and Currant Bushes, also for the Preservation of small Seeds from Birds.* By MR. JOHN PLANT, Gardener to John Hardy, Esq., Heath Hall, near Wakefield.

GENTLEMEN,

IF you judge my method of destroying Caterpillars upon Gooseberry and Currant bushes, as well as preserving small seeds

from birds, worthy a page in your excellent Magazine, it is at your service.

During the last six years, I have made use of quick-lime in spring, just when the buds of the trees are opening. I take the advantage of the trees being moistened by rain or dews, otherwise I sprinkle the bushes with water by syringe or engine; then with a quantity of fresh well fallen lime I give each bush a strong dusting over the branches. I repeat the operation in the course of four or five days.

Supposing that at the time the buds were beginning to expand their foliage, the insects were then hatching, or about creeping from their hiding places; I was induced to adopt the application of lime, judging that it would not only destroy the young insects, but should any escape, it would, by adhering to the green buds, or young foliage, render the food of the insects poisonous. By attention to the mode described, I have never had any Caterpillars on the bushes at a later season of the year.

It is my practice to prune the bushes in autumn, and to have the ground about their roots manured and dug.

I have likewise found lime to be an excellent preservative of small seeds, as Broccoli, Turnip, Radish, &c., from the ravages of birds. When I sow a bed with seeds I immediately give it a strong dusting all over, to prevent the birds taking what seeds may accidentally be uncovered, as they will not eat the seeds when strongly covered with the lime. When I observe the plants coming up, I water the bed, or take advantage of dew, and give the bed another dusting. If the weather be rainy I repeat it if required, till I perceive the plants have got into rough leaf.

I am, &c.

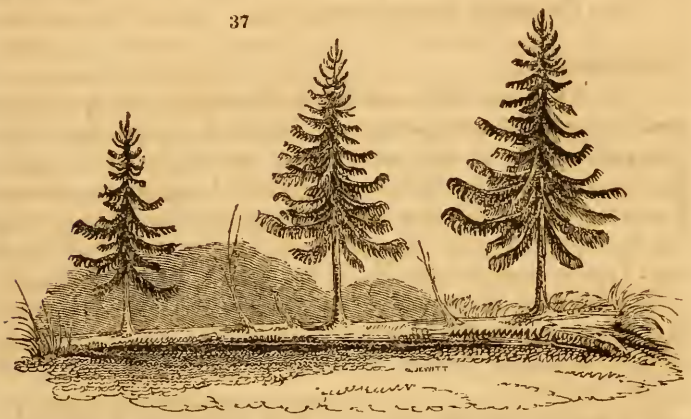
November 2, 1831. JOHN PLANT.

ARTICLE IV.—*Account of a Larch Tree, with hints on the Propagation of the Araucària.* By EDWARD MURPHY, ESQ., Agent to the Horticultural and Arboricultural Societies of Ireland.

GENTLEMEN,

THE Larch Tree, from which the accompanying sketch [fig. 37] was taken, occurs in one of the woods of Lady Mary Ross, at the Falls of the Clyde, in Lanarkshire; it was thrown down by some accident, and a portion of the roots having remained uninjured, and the situation being moist and shaded, it not only continued alive,

but pushed up three shoots from the prostrate trunk, each of which has become a handsome tree, differing in no respect from plants raised from seed.



This specimen I consider of importance, as affording a perfect illustration of the mode recommended by my excellent friend, Mr. Stewart Murray, Curator of the Glasgow Botanic Garden, for obtaining a tree-like stem from cuttings of *Cunningha\mia lanceola\ta*, and which he judged from analogy would be found equally applicable to the kindred genera, *Arauca\ria*, *Pinus*, *&c.** Many plants of these tribes are easily propagated by cuttings or layers, but the offspring never, I believe, if left to themselves, assume any other shape than that of branches; but Mr. Murray found that on bending a branch-like plant of *Cunningha\mia lanceola\ta*, and fastening it on the surface of the ground, a shoot was produced possessing all the characters of the original tree. *La\rix* possesses the same property, and if, as there is every reason to believe, *Arauca\ria excélsa* will succeed, when treated in the same way, this fine plant may soon be much more common than it is at present.

A splendid specimen of *Arauca\ria excélsa* was lost some years since in the Royal Dublin Society's Botanic Garden, in an attempt to elevate the house in which it grew, but previous to this misfortune cuttings or layers had been struck, and although they have attained considerable dimensions, and notwithstanding, that every attempt, short of that recommended by Mr. Murray, has been made to force them to assume the appearance of trees, they continue mere branches.

Yours, respectfully,

E. Murphy.

* Gardener's Magazine, Vol. II, page 409.

Article V.—*On Metallic Hothouses.* By Mr. Stafford, Gardener to Richard Arkwright, Esq., Willersley Castle, near Cromford, Derbyshire.

Gentlemen,

I was very glad to see that Mr. Mc.Murtrie took the hint you gave in your first number, when you "request all practical men to take into consideration of what materials the roofs of Hot-houses ought to be constructed." His observations were what I anticipated; however, I must beg leave to differ from him with regard to the metal roof causing the Pine plants to look of a yellow colour, although in the Horticultural Transactions, I observe Mr. Oldacre makes a similar remark; and many persons have given me their decided opinions in favour of the same. My opinion is, that this badness of colour arises from a portion of the roots being partially decayed, for every plant I have examined has been in that condition.

This appearance always takes place in the spring, and generally before the plant has recovered from the various checks received during the winter, but as the season advances, such plants always make every effort to regain their proper hue; and as considerable light is necessary for this purpose, I conceive metal roofs may answer a good end. So far I beg to disagree with my old friend: at the same time I well know him to be a man that will search out the real cause of an apparently evil effect. All writers agree that plants of a sickly colour do not respire a sufficient portion of oxygen, and this is very evident if we observe any plant under the process of blanching.

About 32 years ago, Mr. Pindar of Birmingham, (generally called the Patent Sash Manufacturer,) erected two vineries and a greenhouse, at Aston, near Der' y, for the late Joseph Walker, Esq. a man above all others well calculated to superintend such a work, being of the firm of Messrs. Walkers, Iron Founders, of Rotherham; being situated near the spot I had every opportunity of observing the process, and according to the practice of Jordan, every part was well executed. For 16 years afterwards I made many observations, and can state without the fear of contradiction, that no houses yet erected ever produced better Grapes and Pines than were grown in these. The last time I saw them, however, the roofs were in a most wretched state, I think more so than I ever saw any others, either before or since. The small strips of iron within the copper, that formed the bars, had corroded to that degree, that they were extended to twice their original size, and otherwise appeared going fast to decay. At the same time some wooden houses that had been built four times as long, had no appearance of decay, although subjected to the same routine of crops.

From this time, I never conscientiously recommended this description of bars, but many improvements have since been made, some of which have superseded the original patent. I still however fear they will never answer like wood, when heat is required throughout the winter, as in the case of Pines; nor do I ever recollect an instance where this subject was brought forward in my presence, that I did not plainly express those very doubts on the subject; for I never viewed a metallic roof without considering it very unequal to wood in point of durability.

I had two houses built on Jordan's principle under my care, when in the service of the late Lord Waterpark, of Doveridge. I never found them, however, equal to an old house which was built of wood 30 years before the metal ones. Both of these houses appeared to answer the purposes intended very well, but I was always compelled to be more particular in attending to give air to them, than to the one with a wooden roof; and I believe this to be one great reason why they are brought into such disrepute, for the close manner in which the glass is filled up prevents the least circulation of air: a practice, which I think has done more towards their failure than any thing else, whilst in the old-fashioned wood houses there is a constant supply of fresh air passing through the caps of most of the squares. This appears to be generally unnoticed both by proprietors and gardeners. It has been seen that matters went on better under a wooden roof than a metal one, which is evidently because the former had the means of ventilating in the best of all methods; while the latter was so sealed up, that it was impossible for the dampness that arose during the night ever to escape, so that when the heat of the sun, in the morning, caused a dense vapour,—actually pernicious through its constant confinement,—all the leaves in the house became debilitated, and if air were not speedily given, would in the end certainly prove fatal. So much for the reason of leaves showing a sickly colour under a metallic roof. I shall now speak of what I conceive to be the benefits arising from metallic roofs; but before I do this, I shall just observe that the expense of these roofs, (from the information I have been able to obtain, and from what has come under my own observation,) where they were built without any particular ornaments, was always estimated at double the cost of one constructed of wood.

These roofs, I conceive, are admirably calculated for the large Ornamental Conservatories, and I think the person who first adopted them deserves the warmest thanks of every person who is an admirer of gardening. I am sure it will ever give me pleasure to hear that those who have embarked in this business meet with the encouragement they so richly deserve.

From the commencement of Mr. Jordan in this line of business, I have been on the most intimate terms of friendship with him, and when in the height of prosperity, he made my cottage his home whenever

business brought him near me. On this account I have often had opportunities of conversing with him on the subject; and in all my interviews I never remember hearing him state that he could erect a house, either cheaper or better of metal than of wood. His first invention gave an impulse to Horticulture, and met, as may be remembered, with extensive encouragement, and whenever the finest crops were not found under these roofs, it was considered to be owing to the gardener's inattention. Many individuals have since entered in the same affair, so that I wish to be understood to speak in general terms, when I mentioned the expense above. For instance, supposing a gentleman of Leeds, as I am aware has been the case, sends for a builder from Birmingham, to erect one or more houses, this journey, and the subsequent ones, added to the carriage of the materials, 150 miles, are all put in the scale against the metallic roof; whereas, if the same person employed a neighbour, either on this material, or wood, one half would of course be saved. This I believe to be one grand cause why those persons who have constructed Hothouses of this material, have never received a sufficient remuneration, nor has any person ever amassed a fortune, or even been paid for his exertions, who erected them. I beg to be understood that I have nothing hostile against the system; I am conscious it will answer in many cases.

We have a hand-glass here, made of metal, which has been kept well painted, and exposed to the open air 32 years, and it appears as perfect as when it was first made, neither the putty or bar seems to be affected.

I intend, at some leisure opportunity, to send you a paper on the internal treatment of houses, I shall therefore withhold further remarks at this time, and only subscribe myself,

Yours, &c.

Willersley, Aug. 29, 1831. GEORGE STAFFORD.

ARTICLE VI.—*Observations upon the Glazing of Hot-houses, &c.* By JOSEPH HARRISON, one of the Conductors of this Magazine.

IN page 148, of the October number of this Magazine, will be found an article on the subject of Glazing Hot-houses, &c, by our esteemed correspondent, Mr. Saul, in which a mode of glazing is recommended by him, which he considers superior to that described in page 10, of the number for July.

As it appears Mr. Saul's knowledge of the method he recommends, is only theoretical, we shall here detail the result of our *practical* experience on the same principle, having had it in operation some years at this place, and specimens of which have been exhibited to hundreds of persons, in most of the principal towns; as London, Liverpool, Birmingham, Manchester, &c. &c.

However satisfied Mr. Saul may be with a theoretical knowledge of the system he proposes to notice, we beg to say, we are fully convinced his covers over the joints of the glass, whether of metal or other material, are very objectionable, and productive of injury.

Several years ago we had some sashes glazed in this way; and in order to get the edges of the metal to bed close to the glass, as well as to have it bed down to the tops of the squares of glass, and also to admit of folding back for the purpose of any required re-glazing, we were obliged to have the metal very thin, but we uniformly found that the edges were raised by the action of the sun upon them during summer; this caused a separation of the putty or white lead, from either the metal or the glass, generally the latter. Such openings admitted and retained the wet in winter, which being expanded by frost, forced the openings still wider. This plan was also found very expensive in its first construction, as well as in repairing injuries every spring, by bedding and re-puttying the metal covers.

We had also a number of sashes constructed with a piece of metal much stronger than the above, and which would not rise at its edges; this mode also proved objectionable, for when the piece of metal was long, and a square of glass was required putting in, a great deal of trouble was caused by having to loosen the covers for the purpose of getting the square to its place, also in re-puttying and bedding the metal afterwards.

The plan of having each piece of metal only the length of the squares it had to cover, was also tried. There was less trouble in re-glazing by this manner than the former, but it was liable to every other evil attending that, as well as some others; and the expense of the method was a considerable increase upon the former.

One of the greatest evils complained of in the old mode of glazing, is that of wet getting between the glass and putty; and this must always be the case, in consequence of the ribs swelling in damp weather, and contracting in hot weather, putty not being equally affected with the wood; it of course leaves the wood or the glass, and in either case wet finds admittance, and a portion of dirt getting washed in between the putty and the wood or glass, the putty then loses its effect. Water being thus permitted to lodge underneath the putty, or betwixt it and the wood, and the air not having free access to dry up the moisture, the putty soon loses its properties, and decays. It will then soon be found that the putty at the under side of the glass, and upon which it was bedded, will also speedily decay. Thus steam, or rain admitted from broken squares, running down the ribs, is permitted to enter, to the detriment of the wood, as well as allowing drips to enter the house. By the expense of an annual attention to painting, inside and outside, these evils may in some degree be lessened.

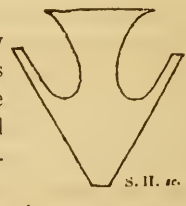
The same evils which attend the old mode of glazing, as above stated, we found to exist under the mode we tried, recommended by Mr. Saul; for wherever there was a covering to the joints, wet invariably found its way underneath, and the cover preventing the free access of air to dry up the moisture, the putty decayed at the upper side of the glass, and between the edges of the squares, and also the bedding putty.

The evils above stated, are entirely prevented in the system we have in operation here and elsewhere. The improvement in having a smooth surface of glass, does not allow of any attraction for water to lodge under, so that the putty or cement we employ, either for bedding the glass with, or closing up any openings betwixt the edges of the squares, (these openings are very trifling, as we have the glass cut by a square, so that the edges meet quite close up the centre of each rib, and the surface may be said to be one entirely of glass) is open to dry as early as possible; and the putty or cement, is not in the least damaged.

Mr. Saul states, that if we make use of the same kind of putty as he does, it would be liable to crack.—This might be the case; (though we feel confident, that if it were properly glazed with any common putty, it would not) but with the putty we use it never will,—it having a considerable portion of white-lead in it. The cement we make use of for closing up betwixt the edges of the squares, is not liable to any suspicion of cracking or decaying, but will retain its properties co-extensive with the duration of the glass itself,

To prevent the bedding putty being at all injured by wet in the inside of the house, arising from steam, or broken squares admitting it, we have channels made down the sides of each rib, having a considerable slope from the glass, as fig. 38; and any water accumulating there, is immediately conducted from the putty into the channel, and is conveyed away from the bottom of each sash. by the sill being sloped off considerably from the glass, and falling upon a lead flushing into the spout, or prepared channel.

38



S. H. &c.

We are aware that metallic houses are not liable to the same extent of injury, in the putty leaving the framing, &c, as is the case tn wooden houses, but in every other respect we have very great objections to metallic hot-houses.

In page 185 of the October number, a correspondent predicts that when the framing at the sides of a sash gives way, that our mode of glazing will not be as perfect as it was before. We should wonder if it was; but even supposing the framing ever to give way, it would only affect the edges of the glass that come in contact with the side-framing, and would not in the least affect any other row of panes. The author of the prediction, has not informed us what mode of glazing, under si-

milar circumstances would remain as perfect as before the framing gave way.

We feel obliged to our cosrespondent, for his suggestion of metallic bars, diagonally fixed over the sash, we beg to inform him we have never seen any sashes constructed for hot-houses, &c. but what had metallic bars for securing the framing and ribs together, and keeping them in their proper places. We have for at least twenty years, adopted them; and very probably they have been in use as long as hot-house buildings. But we have always had our bars placed crosswise of the sash, and used one, two, or more, according to its length. We think the cross-bars will be found to effect the desired purpose much better than if fixed diagonally. We have every corner of the sash secured by metal plates. We do not, as our correspondent directs, fix our bars flush with the surface of the ribs, but with the under side of them; so that we can get to point the upper surface of the bars, when required,—which we could not do without taking out the glass, in the mode he suggests: to fix them in that manner, would obstruct the channels we have down the sides of the ribs. We do not, however, expect the framing of any sash glazed on our system, to give way by decay, so early by a very great number of years, as in any other mode of glazing we ever yet saw; our method of having the wood kept dry under the glass, secures to us this advantage.

In reply to a correspondent, who thinks that the appearance of a sash does not agree with the representation made in our advertisement upon the cover of this Magazine;—we beg to state, that it precisely answers to what is stated. We did not make use of the term, an *even* sheet of glass, because the overlaps of course prevent it being so. Should he, in his extensive and *important* tours, ever come into Yorkshire, and call upon us, we will attempt, by every means in our power, to set him right in every thing he desires, relative to glazing hot-houses, &c.

J. H.

Article VII.—*On Heating Conservatories, &c. with Hot Water.* By P. T. O.

Gentlemen,

My object not being ostentation, but useful publicity, of a cheaper mode of Hot Water Heating than I have seen detailed in any publication, I annex the cost of fitting a Conservatory and Forcing Flower House, for insertion in your valuable Magazine, if you consider it worth publication.

I have proved the efficiency in economy of fuel, combined with sufficient heat, in a Vinery fitted last season in the same manner, after trials of hot water in the same Vinery upon other principles and other

metals. The mode I have adopted has also the advantage of giving some labour to the neighbourhood, instead of employing workmen from London.

My name is unnecessary as I give the address from whence I obtained my materials, Messrs. Graham and Sons, Iron-Wharf, Trig-Lane, Thames Street. I therefore only subscribe myself,

Your well wisher,

P. T. O.

Cost of fitting a Forcing Flower House, the back flue being retained, and the hot-water pipes traversing only the east end and the front; the delivery pipe and the return pipe being of the same diameter.

	£.	s.	d.
Round boiler,	2	8	9
18 yards 4 inches ronnd pipe @ 4*s.* 3*d.*,	3	16	6
Elbow instead of cistern,	0	8	6
Country smith, fixing joints, &c.,	2	0	0
Country bricklayer, setting boiler, &c., about	3	0	0
	£11	13	9

Cost of a Conservatory, about 55 feet long; the delivery and return pipes of the same diameter, and placed one below the other, the length of the house.

	£.	s.	d.
Square boiler,	5	13	11
Square cistern,	1	13	9
34 yards 4 inches pipe @ 4*s.* 3*d.*,	7	4	6
Country smith, as above,	4	2	0
Country bricklayer, about	4	0	0
	£22	14	2

If more heat is required, a double length of delivery pipe would cause additional expense of

	£.	s.	d.
17 yards 4 inches pipe @ 4*s.* 3*d.*,	3	12	3
Smith, joints and fixing,	2	0	0

Article VIII.—*On rendering Garden Sticks durable.* By Mr. W. Claughton, of Chesterfield.

Gentlemen,

As the durability of Garden Sticks is a consideration with many of your readers, perhaps the following may not be too trifling to insert in your Magazine. Mr. Claughton, of Hasland, has in his

possession Garden Sticks which have been in constant use for the last 25 years, and still remain as perfect and free from decay as when first used. The method adopted by him to thus preserve them, is as follows:—First, they are made of red deal, they are then placed in a situation where they become very dry; when in this condition they are soaked in a quantity of Linseed oil, allowing them to remain in it some time: when removed from this they are again dried for a week or two, or at least as long as is necessary to dry up all moisture occasioned by the soaking in the oil. When they are completely dry they are painted twice over with Verdigris paint, which entirely preserves them, as it completely prevents any wet from possibly penetrating.

Yours, &c.,

Chesterfield, October 13, 1831. WILLIAM CLAUGHTON.

ARTICLE IX.—*On Preserving Seeds during a Voyage.* By MR. THOMAS SHORT, Jun., of Marton, near Bawtry.

GENTLEMEN,

IT has long been a cause of regret to those who have attended to the cultivation of flowers, that hitherto no simple and efficient means have been devised for the preservation of seeds during long voyages. Sugar, salt, and paper have been used for this purpose, which having proved altogether inefficient, renders it unnecessary to detail any particulars relative to the manner of employing these. I believe Mr Livingston succeeded in drying seeds by means of Professor Leslie's instrument, without destroying or deteriorating their vegetable power, but so great is the inconvenience attending the employment of this instrument, chiefly from the incommodious size and form, that the majority of travellers cannot possibly avail themselves of the use of it.

The following method will answer perfectly well, and appears preferable to Leslie's instrument, in-as-much as it combines the three-fold advantage of cheapness, efficiency, and extreme simplicity:—Let the seeds which are to be preserved be immersed in a strong solution of Gum Arabic; then let them be carefully dried, and without any further preparation they will become perfectly secured against the injurious consequences of a humid and variable atmosphere, and not subject to mildew, and therefore enabled to retain their vitality after the most protracted voyage.

Those who are insensible to the delightful and scientific recreation of the flower garden, may deem my communication void of interest,

and altogether useless, but to persons of a different character, and more especially to ladies,—whose minds are so admirably adapted to the investigation and pursuit of pleasures of this nature,—any simple discovery which may enhance the attractive splendour of the flower garden, or be in any way an accession to so truly fertile a source of intellectual delight, will be hailed as no despicable contribution to their edification and amusement.

Yours, respectfully,

Marton, near Bawtry,
Nov. 31, 1831.

THOMAS SHORT, Jun.

ARTICLE X.—*Remarks on the Gardens of T. A. Knight, Esq. President of the London Horticultural Society, at Downton-Castle.* By F. H. S.

GENTLEMEN,

ON a visit this Autumn to Downton Castle, our highly respected and worthy President was so kind as to show me many of his experiments under operation, as well also as to state his experience in other things, some of which may be worthy a place in your Register.

First then, *Hot Water*, (don't be alarmed, tho' I wish you and Hot Water better friends.) Mr. Knight says, water heated to the degree of 150 will kill any insect on the Pine. His gardener has proved it under his own (Mr. Knight's) observation. I understand they were watered with a syringe, and repeated two or three times, though Mr. Knight has had very little trouble with insects on his Pines, his fruiting house being a curvilinear. I believe, with him, that the insects will not increase so readily under a strong light.

The varieties of Persian Melons were very fine, growing in a small house, in pots, placed on the flue in front, and trained up trellis work near the glass. The fruit of course resting on the trellis. I was surprised at the weight of one of the fruit I lifted up, and have no doubt they are much superior in flavour to those grown in dung heat. Mr. Knight has holes in the front walls of his Pine and Melon houses, to admit air, which coming in near the flue, drives up the heat, and causes a circulation of air in the house, which passes off near the top of the back wall. Of course more heat is required by keeping a constant circulation of air. The Melons also, in frames, heated with dung linings, have air admitted through the lining up the bed to the frame.

Mr. Knight's Potatoes were worthy of notice. The crop in the field was very strong, planted nearly three feet row from row. Whole Potatoes planted, and pretty thick in a row. The soil seemed very

shallow, as nearly all of it was taken up in earthing. Mr. Knight said he expected 700 bushels to the acre.

Watering Celery, at Downton, is done by causing a stream to run through the trenches; and Mr. Knight's fine Marrow Peas I found attended to by the same kind of watering, a drill drawn out on one side the row; by which means they are kept longer in bearing.

I am, Gentlemen,

Yours, &c.

Lancashire, November 7, 1831. F. H. S.

ARTICLE XI.—*On the "Cottage-Homes of England."* By PHILO-COT.

GENTLEMEN,

IF the following observations fall in with the plan of your work, they are entirely at your service.

"THE Cottage-Homes of England!
"By thousands on her plains;
"They are smiling o'er the silvery brooks,
"And round the hamlet Fanes.
"Through glowing orchards forth they peep
"Each from its nook of leaves,
"And fearless there the lowly sleep,
"As the bird beneath the eaves."

MRS. HEMANS.

PERHAPS it would be difficult to find in any language a more glowing, a more just description of that fascinating feature of landscape, the *Cottages of England*, than the fair authoress has comprized in the stanza selected for my motto. This stanza, however, is but one of a series descriptive of the "*Homes* of England," and its beautiful transition to the *home* of the *lowly* cottager, will ever be admired by the lover of simplicity in poetry. The poetess seems, however, rather to have alluded to the period thus described by Goldsmith,—

"A time there was ere England's griefs began,
"When ev'ry rood of ground maintain'd its man;
"For him light labour spread her wholesome store,
"Just gave what life requir'd, but gave no more:
"His best companions, Innocence and Health;
"And his best wishes, ignorance of wealth,"

than to the degraded cottager of the present day. In such a state a labourer would enjoy the happiness of his own fire-side, and the cottage home of England would be an enviable situation to every mind which could appreciate the value of content and competence.

"But times are alter'd! Trade's unfeeling train
"Usurp the land, and dispossess the swain;

"Along the lawn, where scatter'd hamlets rose,
"Unwieldy wealth and cumbrous pomp repose,
"And every want to Luxury allied,
"And every pang that Folly pays to Pride;
"Those gentler hours that Plenty bade to bloom,
"Those calm desires that ask'd but little room,
"Those healthful sports that grac'd the peaceful scene,
"Liv'd in each look, and brighten'd all the green;
"These far departing, seek a kinder shore,
"And rural mirth and manners are no more!"

The state of the cottager is changed, and from causes which I shall not at present attempt to enquire into; he, in too many instances, no longer finds a *home* under the roof which covers all he has dear in the world, for Want has taken possession of his hearth, (no longer a fire-side,) and Disease and Penury, have supplanted Health and Innocence.

In a picturesque point of view, no object is more charming than a *Cottage*, whether situated on a barren heath, with no other accompaniment than a blasted pine, or under the shelter of an impervious wood, on the borders of a rippling stream, or on the summit of a rock, to all appearance inaccessible to human foot; it gives an interest to the landscape, and adds a beauty to every scene: and perhaps for no other reason, than that it is simple in its form, and suitable in its materials, to the situation it occupies, having in its general effect nearly as much the appearance of a work of Nature as of Art. These are points which will ever recommend it to the eye of Taste, and present it as an object worthy the attention of the artist.

Here I would be understood to allude not to those fanciful nondescript buildings, which have now assumed, in defiance of all language, the name of cottages, but the real abode of

"——— A bold peasantry, their country's pride,"

which through a long series of ages have borne the name of ENGLISH COTTAGES, where Industry has flourished, where Independence has been nurtured, where Liberty has been matured; dwellings, humble as they are, which have given hosts of defenders to their country, and in despite of all intimidations, have supported the inherent rights and privileges of Britons.

The periodical publications of the present day teem with projects for "*ameliorating the condition of the labouring poor*," but these projects seldom go farther than to the erecting of new fanciful edifices, possessing in many cases, much beauty, and even elegance, but which are totally unfit for the inmates, for whom they are designed. They certainly ornament a park, and improve the appearance of a domain, but they are by no means adapted to the use of a peasant and his family. A cottager requires no ornament; his wants are few and sim-

ple, and all he needs is the means of supplying them at the least expense. It is not so much in the disposition of the rooms (though elegantly laid down in the plans submitted to the public,) that the comfort of the cottager consists, but in the power of using his rooms to the best advantage. Whether he has a pantry or a cellar, is of little consequence to him, provided it be well stored with such food as is necessary; and whether he sleeps in a parlour or a chamber, is of as little consequence, if he has in either room a good wholesome bed, on which he can rest his limbs after the labour of the day: but there is one thing, an appendage to his cottage, which to me appears indispensable, and for these simple reasons, that it will increase his enjoyment, augment his comfort, and endear to his heart, and to the hearts of the surrounding family, the pleasures of the "COTTAGE HOME." This appendage is a garden; and this garden should be of such a size as to produce, in plenty, table vegetables of every description; potatoes for winter use, and the most usual kinds of fruit; a part, too, should be preserved for the cultivation of a few choice or pleasing flowers: for these, though they may not be included among the absolute necessaries of life, add a charm and enjoyment to existence; they moreover furnish support for a hive or two of Bees, and thus produce a certain profit, almost without labour.

A garden, suppose of about a rood of land, well managed, would thus add much to the comforts of a labourer and his family, and as the cultivation would be in a great measure the province of the wife and elder children, with what the husband could do in light mornings, before the time of his regular work, or in fine evenings after it was concluded, the produce of the garden would be so much gained from time otherwise unemployed, or unprofitably spent; and the Radishes from being just drawn, the Beans or Peas fresh gathered, or the Cabbage newly cut, would be eaten with a much greater relish at the evening meal, than if they had been purchased at the last market.

To give directions for stocking such a garden with suitable fruits and vegetables, or for cultivating them in the most advantageous manner, is out of my province, but there is no doubt that some of the *practical men* among the correspondents to the Horticultural Register, would feel happy in having an opportunity of contributing a paper on the subject, couched in such plain familiar language, as a simple cottager can understand, and understanding, can reduce to practice.

Another addition I think might be made to the cottager's comforts, at comparatively little expense, and this is the cultivation of a hardy Vine: by covering the walls of the house it would add much to the beauty of the dwelling, and if properly trained and managed, would

afford a treat which seldom falls to the lot of the labourer, a taste of Grapes, either eaten green, made into small tarts, like gooseberries, or pressed and fermented for wine. These certainly would not have the size or flavour of hothouse Grapes, nor would the wine be like Port or Frontignac, but they would be a luxury to a poor man; and why a poor man should not have his luxuries as well as a rich one, I can see no reason, especially when they can be procured at so cheap a rate.

The Vine, I may be told, will not succeed generally in Britain; to this I answer, that it did succeed formerly, and that even at North Allerton, in Yorkshire, one of remarkable size, and which annually bore a profusion of fine Grapes, stood for more than two centuries. In the midland counties it still grows, and bears fruit; and I feel convinced that nothing but an interest in its cultivation is wanting, to render it the general climber of the cottage.

Again I would observe that I am no practical man; I do not understand the cultivation of the Vine. I must therefore trust as before to the philanthropy of the Conductors, or some of their correspondents, for a statement of what Vines are most hardy for open air growth, what soil is most proper for them to be planted in, and the manner of training and pruning them. This will be conferring a real obligation on the cottager, as by giving him a new stimulus to his exertions it will add another charm to *home*.

Thus have I endeavoured to show how the "*condition of the poor may be bettered*," without subjecting any one to one farthing of loss or expense. For his garden and cottage he would be able to pay a reasonable rent, and the profit he made of it would depend on his own exertions. His low wages would be helped out without his being degraded by application to the parish for relief, and he would feel within himself an idea of independence, because he could provide for his own wants by his own industry. His family would grow respected and respectable, he would feel he had a stake in the welfare of his country, and the pride of his heart would be, "THE COTTAGE HOME OF ENGLAND!"

It will be perceived, in this rude essay that no mention has been made of other cottage comforts. The cow, the pig, and the poultry, have not entered into my plan, because they could not (particularly the two former,) be procured without considerable expense; nor have I said much more of the improved picturesque appearance of a cottage with such an adjunct as a well cultivated garden. Though I am not a cultivator, I may perhaps, if this be well received, in some future number trouble you with a plan or two of such gardens as will be most suitable for cottages, and give you a perspective view of one of

the cottages improved as I have hinted, in contrast with the same cottage in its former state.

Hoping to see the time when every English Cottager shall possess what may emphatically be called "A HOME!"

I remain, Gentlemen,

Yours,

Derby, November 5, 1831. PHILO-COT.

ARTICLE XII.—*On a Singular Variation in the Leaves of a Mulberry Tree.* By W. R——, of Palmer's Green.

GENTLEMEN,

I THINK the enclosed specimens, and their history, sufficiently curious for insertion in your Magazine;—if you are of the same opinion, it will be easy for you, by means of a dotted outline, to give your readers an idea of the shape of the leaves.

I came to the house in which I now reside, about fifteen months ago, and was pleased to find in my garden, amongst a pretty good collection of fruit trees, a *Mulberry Tree.* Now, Gentlemen, you must be aware that to a mind at all cultivated, the pleasure derived from a garden, does not entirely arise from the gratification it affords the senses, but is greatly increased by the associations which its fruits and flowers have with the most elegant and cherished ideas of that mind. A *Rose* is not only a beautiful flower, displaying a charming colour, and yielding a delicious smell, but it is the

"Tendre fruit des pleurs d' Aurore,
"Objet des baisirs du Zephyr,
"Reine de l' empire de Flore;"

it is the dearest theme of the poet, from Anacreon and Sappho, to the Anacreon of our own day. Indeed, not a flower or a fruit, but, by its associations, or its power to force us

"To look through Nature up to Nature's GOD,"

possesses a charm for the reflecting mind; far, far beyond the works of man.

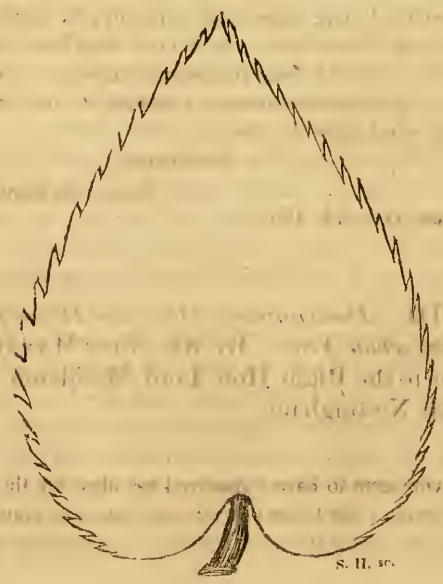
It were easy for the pen to run riot on this theme;—but, this is an account of a Mulberry Tree. The idea of this tree is so immediately connected with the name of Shakespeare, that the bare mention of it, carries us away to New Place, at Stratford: we see that bard, who has immortalized himself, and the language he wrote in, delighting, as all great minds must, in the productions of Nature, planting his Mulberry Tree, in the town of his birth. From the day that this became known, there is no Shakespearean who does not eat the delicious fruit with additional zest:—

and on learning there was a Mulberry Tree in my garden, I ran to see it with more eagerness than any other object in my little domain.

But, Gentlemen, I found my tree a poor, deformed and stunted invalid; full of canker, dead branches, and everything unhealthy. I learnt that the lady who had planted it, being pleased to see her grand-children seated beneath it, had ordered a mound of earth to be piled round it, half-way up the stem, and this being covered with turf, and necessarily excluding all nourishment from the elements to the roots, had produced, as I imagine, the effects I describe. I looked at my Mulberry Tree, almost in despair; but taking courage, I set to work with it immediately.—I removed the bank from the stem, and clearing away the mould quite down to the roots, supplied its place with several barrowfulls of rotten dung. I cut out all the dead branches and most cankered places, and then scoured every part of it well with a brush and strong soap-suds. In addition to this, every washing-day, I had several pails of soap-suds poured round the bottom of the stem, so as to reach all the roots. My tree, in the spring, looked much the better for my care; the buds showed well, but all the fruit was destroyed by that cruel night of the 6th of May, which, I think, will be strongly marked in every gardener's journal of this year. With summer, however, it revived, but bore no fruit.

I now come to the cause of my addressing you. The new shoots it made, are the most extraordinary in size, length, and healthiness of appearance, I ever saw a tree make; but strange to tell, while the leaves of the old part of the tree were the regular Mulberry leaf, [fig. 39] *all*

39



those of the new shoots were, and are, shaped like a Vine or Oak leaf. [fig. 40] The texture, substance, and feel of the leaf are the true Mulberry, but the shape of every leaf of the new shoot is such as you see in

40

S. H. sc.

the specimen I send you. In my neighbourhood we have several good gardeners, to whom I have shewn this curiosity, as likewise to some other first-rate horticultural men. As none of these have ever seen such an instance, I am induced to send this account to you, to see if it will elicit from any of your correspondents, a solution of the cause of this, and its probable effect upon the tree.

Gentlemen,

Yours, obediently,

Palmer's Green, Oct. 24, 1831. W. R.

Article XIII.—*Description of a Circular House for Forcing Grapes the whole Year.* By Mr. John Haythorn, late Gardener to the Right Hon. Lord Middleton, Wollaton Hall, near Nottingham.

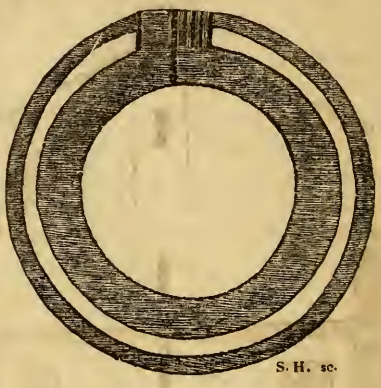
Gentlemen,

As you seem to have considered my ideas on the erection of a House for growing early Grapes worthy of a place in your Register, I have again sent you a few thoughts, which, though hastily put together

in writing, may perhaps not be altogether without use to some of your readers.

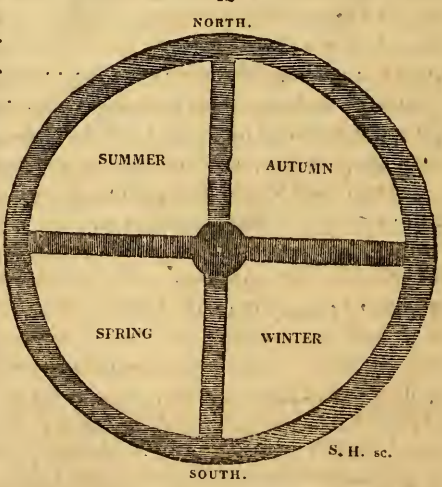
My design is, to form a house in which the forcing may be continued throughout the whole year. It struck me that a circular one [fig. 41] would be well calculated to produce regular crops of Grapes. I will suppose it to be from 40 to 50 or 60 feet in circumference; the front built so that the Vines may be taken in and out at pleasure, having a sufficient number of Vines according to the size of the house, and the quantity of fruit required. These Vines should be introduced through the front, in regular succession; five, six, or seven, every three or four months, exposing them again as the wood becomes ripe, and the fruit is gathered.

41



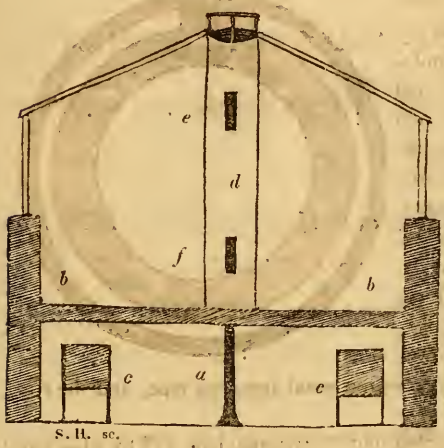
Or the house might be parted into 4 divisions, [fig. 42] by glass partitions, to answer for the four seasons, and by way of saving glass, the roof might have only one half framed and glazed, and be made to turn round on the front and centre plaits, by means of grooves and rollers, so as to cover any two of the divisions. I will suppose, to begin forcing in the spring, the summer division would be covered at the same time, in order to be coming on slowly, When the spring crop is cut, the roof must be moved over the autumnal division, and so on to the winter, covering and exposing. The roof must be made to fix closely over each partition, &c. In a house about 45 or 50 feet in circumference, each division would contain six or seven Vines, which with good management would produce about two hundred bunches of Grapes, so that the four di-

42



visions would annually bring eight hundred bunches, or thereabouts. Pots of Vines, Peaches, or Strawberries, might be introduced at different seasons. This house should have a hot air chamber, [fig. 43] (*a*) which should be sunk sufficiently below the level of the ground (*b b*) to admit a person to do repairs at the flues, &c., whenever it was required. For this purpose it would be necessary to have a door against the fire place. No more than one fire would be required to work the house at all seasons: the flue (*c c*) would run round the chamber, and the heat might be admitted into the house by holes made in the floor of each division. The floor might be supported by perforated walls, or by cast-iron bearers. I think chambering is the best method yet invented, being the safest and least expensive, as it regards the consumption of fuel. If it was objectionable to have the chimney in the centre of the house the flue might be made to terminate at some wall near, or in a shrubbery; and to prevent the escape of the heat, when the fire was not at work, it would be necessary to fix a damper outside, for if a body of heat was confined in the chamber, constant fire would not be required.

43



The roof itself should be supported by a pillar in the centre, formed into a cylinder (*d*) left open at the top, and to prevent the rain from falling in, a cap might be fixed over it. Two ventilators might be made in this cylinder; the upper one, (*e*) to let out the hot air, as I should not recommend the sashes on the roof to slide; and the lower one, (*f*) to let in cold air, which might also be admitted through each partition, when required. Whenever it was thought necessary to steam the house, the flues should have a quantity of water thrown on them, and for the purpose of retaining it, it would be better if the covering of the flues was a little scooped out, so as to allow a small quantity of water to remain on the top;—this would give up a constant moisture as long as required.

The front of the house should not be less than six feet high; two feet of which, should be brick-work, and the remainder, glass.

I am, Gentlemen,

Yours, &c.

Nottingham, Nov. 12, 1831. J. HAYTHORN.

PART II.

HORTICULTURAL AND RURAL SUBJECTS.

REVIEWS AND EXTRACTS.

ARTICLE I.—*Reviews of, and Extracts from, Works on Horticulture, &c.*

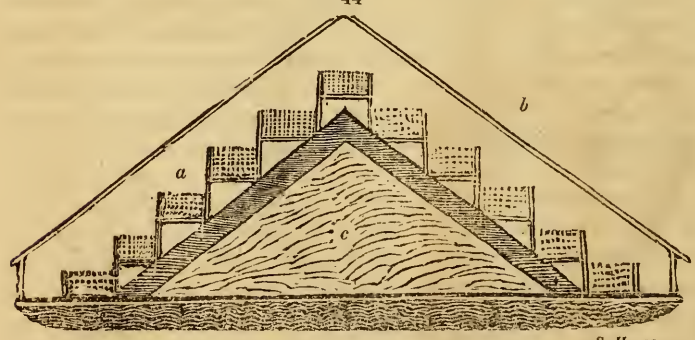
1.—GARDENER'S MAGAZINE; Edited by J. C. LOUDON, F.L.S., &c. Published every two months, price 3*s*.6*d*.

No. 34, FOR OCTOBER, CONTAINS,

A Plan for Growing Early Potatoes and Radishes. By MR. J. HAYTHORN, of Wollaton, near Nottingham.

PLACE two stages, such as are used for greenhouse plants, back to back, fronting east and west, (fig. 44) and form the shelves into boxes (*a*) of a sufficient depth for soil, and of any convenient length; a sort of frame, or square trellis, (*b*) should

44



S. H. sc.

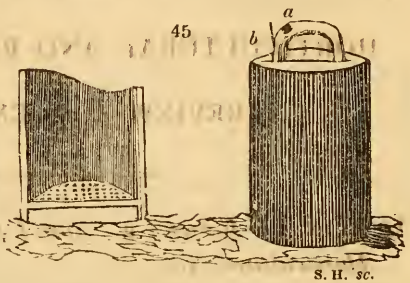
be raised a sufficient height above the boxes, to support mats for protection against frost and stormy weather; such boxes, the writer says, would be much better than a sloping bed, as they would receive the moisture better, as well as the heat from the dung.(*c*) The same scheme might, perhaps, answer for growing early fruits, trained on trellises in the position of the protecting covers. In winter draw the stages from under the protecting trellis, empty the boxes, and turn them upside down, to protect Lettuce, Endive, &c, from wet and frost.

No. 35, for December, contains

An account of a Watering Dispatcher. By Mr. Saul.

In volume 5, p. 656, is figured and described, an utensil called the Sonde, [fig. 45] which is a watering machine, said to be used in the neighbourhood of Avranches; and where much watering in the open air is requisite, as in the market gardens of France and Italy. It is simply a cylinder, of copper, brass, or tin, (wood might do,) with the bottom fixed an inch or two above the lower rim, and pierced with holes like the rose of a common watering pot, to let the water enter and escape; and there is a hole in the handle of the upper part of the utensil, (*a*) to let the air escape when filling with water; the way to do which, is to plunge it in a well or cistern, and when full, the person who carries it, places his thumb on the hole,(*a*) or turns the cock (*b*); to let the water escape, remove the thumb or return the cock. And in vol. 7, p. 219, is another similar utensil, called the Aquarian, [fig. 46] by Mr. J. Murray, who says it is admirably adapted for tender exotics. Its intermission is under the most perfect control; it is filled in the same way as the last, and the supply is retained by the fall of the lever, (*a*) which renders it air-tight; or the finger may be used to cover the hole instead of the lever.

45



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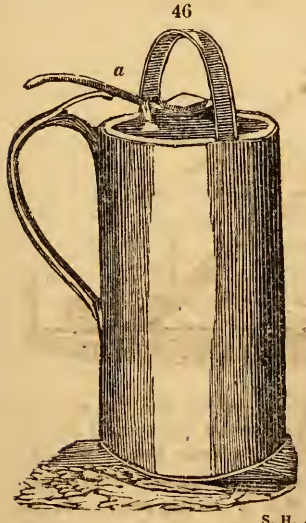

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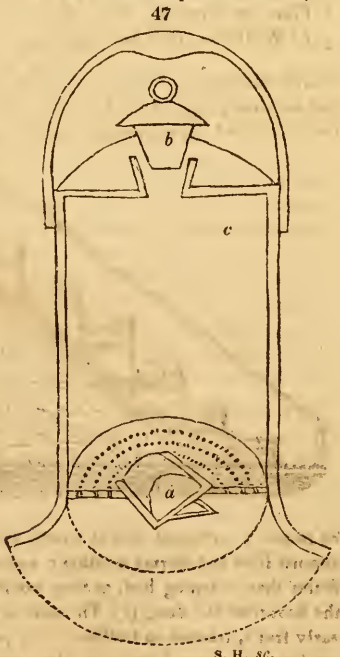


S. H. *sc.*

The improvement in Mr. Saul's Waterer, [fig. 47] is, that the water in filling, has not to enter by the holes through which it is subsequently distributed; this inconvenience is obviated, by means of a lifting clack, (*a*) the same as used in the

bucket of the common pump: this clack admits the water, and closes securely when the Dispatcher is filled. *b*, is an upper valve, which is raised by the upward pressure of the air, as the water rushes in at *a*, and as soon as the water has risen to the height of the cover, (*c*) the valve (*b*) falls, and enables the user to take the Dispatcher where he pleases. The clack will not allow a drop of water to escape from beneath it.

2.—Flora and Pomona. By C. Mc.Intosh, C.M.H.S., &c. 8vo. coloured, 1*s*.8*d*.

Part 26, for December,

Contains a figure of the *Polygala speciosa*, Showy Milkwort.—(Polygàleæ.)—This beautiful species is now pretty well known in our greenhouses; it was introduced from the Cape, in 1814. It is very impatient of damp, and is easily injured by either cold or drought. It strikes from cuttings of the young wood, taken off as close as possible to the old, so as to allow a portion of it to be attached to the cutting: plant them in a pot of fine sand, and cover them with a bell glass, place them in a dry shady frame, &c., and shade them from the heat of the sun.

Metrosidèros speciòsus, Showy Metrosideros.—(Myrtàceæ.)—This splendid species was introduced from New South Wales, in 1823. Its scarlet flowers are justly considered a great ornament to our conservatories. It is chiefly propagated by seeds, which have the property of retaining their vegetative powers for several years. The seeds succeed best if sown in finely sifted sandy peat, and placed either in a cool shaded frame, or on a shaded shelf in the greenhouse. Sweet, in his Botanical Cultivator, says "Cuttings may be rooted, but not without difficulty, taken off in the ripened wood, and planted under a bell-glass in sand."

On the Propagation of Bulbous-rooted Plants.—As many are found to be very difficult to increase, as the *Crìnum amàbile*, *Cyrtánthus obliquus*, *Brunsvígia fluxuôsa*, *Brunsvígia Josephínæ*, *&c.*, to obviate this apparent defect, the Editor recommends cutting off the top of the bulb, in spring, close to the quick, that is, sufficiently deep to destroy the heart of the bulb, whence the flower-stems, and leaves proceed: by this check offsets will be formed; it is necessary, however, to be careful that no water be allowed to stand in the hollow part of the bulb, and as a primary precaution, it is recommended to invert the plant, that any moisture proceeding from the wound may escape; if it has a tendency to decay, pounded charcoal may be applied once a day, or every other day.

On the Propagation of the Genus Rùbus.—Those of this Genus that do not root freely when laid in the usual way, may be readily struck, if the point of the shoot be placed about an inch in the ground. The sap thus checked, will form a callosity or bulb-like appearance, from whence roots will soon issue, which when they have, it may be separated from the parent.

On the Propagation of the Asclèpias tuberòsa.—The system recommended is to graft the tops of the roots, each having a bud or eye, upon the roots of any of the more common and hardy species of Asclepias.

Article II.—*Reviews of, and Extracts from, Works on Botany, &c.*

1.—Edwards's Botanical Register, &c. (New Series) By John Lindley, F.R.S., &c. Monthly. 8vo. 4*s.* coloured.

Part 176, for December, contains

Semi-double Tree Pæony.—A valuable hybrid, from the *P. Moutan*, described by Mr. Sabine, in the Horticultural Transactions, under the name of *P. Moutan carnea plena*. The colour of the flower is white, tinted with a flesh-coloured blush, giving it a very delicate appearance. *Caprifólium occidentále*, The North-west Honeysuckle.—A handsome species, native of the north-west coast of North America: it is a perfectly hardy creeper, and has flowers of a dark red, or vermillion colour. *Mádia élegans*, Elegant Madia.—A yellow flowering hardy annual, discovered on the north-west coast of North America, by Mr. Douglas. *Stylídium fasciculátum*, Fascicled Stylidium.—An interesting and beautiful green-house annual, like the rest of its genus, possessing the curious property of having the column, or support of the anthers and stigma, endowed with an irritability of so active a kind, that the slightest touch of a pin on the outside of it, when curved, is sufficient to make it leap to the opposite side of the flower, and invert the whole of its highly curious apparatus of propagation. *Scutellária alpina*, Alpine Scutellaria.—A beautiful herbaceous plant, having purple and yellow flowers. It is a native of the mountains of Switzerland. *Azálea nudiflóra*, var. *scintillans*, Sparkling Azalea.—This is one of the Highclere varieties, and is very brilliant, having flowers of a bright orange tinted with vermillion. *Cyrtánthus cárneus*, Flesh-coloured Cyrtanthus.—This is a handsome bulbous plant, a native of the Cape of Good Hope.

2.—Botanical Cabinet. By Messrs. Loddiges. Monthly. 4to. coloured, 5*s.*; 8vo. partly coloured, 2*s.*6*d.*

Part 176, for December, contains

Líparis priochilus.—A stove plant, with orange-coloured flowers; supposed to be a native of China. *Vísmea glábra.*—A handsome red-flowering stove plant, from South America. *Sphærolóbium vimíneum.*—A yellow flowering broom-like plant; a native of New South Wales. *Calceolária purpúrea*, Purple Calceolaria.—It requires the green-house; and is a native of South America. *Gilliésia graminea.*—A curious green-house plant, with green flowers; discovered by the late Mr. M'Rae, at Valparaiso. *Gladíolus Natalénsis.*—This splendid species is a native of Natal, on the south east coast of Africa; its colours are a yellow ground, richly striped and spotted with vermillion and light red. *Potentílla Calábra.*—A neat little hardy perennial plant, with bright yellow flowers, and silvery leaves; very suitable for rock work. It is a native of Naples and Sicily. *Erica empetrôides.*—having white flowers; a native of the Cape of Good Hope, well known in our green-houses. *Erica calostôma.*—This, much resembles the *E. ventricôsa;* hence it is supposed to be a variety of that species. *Habránthus pállidus.*—A bulbous greenhouse plant, with pale yellow flowers, introduced in 1830, from Valparaiso, by Mr. George Eglinton.

3.—Curtis's Botanical Magazine, &c. (New Series) Edited by Dr. Hooker. Monthly. 3*s*.6*d*. coloured, 3*s*. plain.

No. 60, for December.

This Number completes the 5th volume of the new series, or the 48th volume of the work, and contains,—*Peristèria elàta*, Lofty Dove-flower.—(Orchìdeæ.)—A parasite, with a bulb as large as a Swan's egg; and bearing yellowish-white flowers. *Oróbus canéscens*, Canescent Bitter-Vetch.—(Leguminòsæ.)—This is a very desirable species, with purple flowers; and was introduced by Mr. Fischer. *Cephalótus follicularis*, Follicled Cephalotus.—(Rosàceæ.) This highly-curious plant was discovered by M. Labillardiere, in Leuwin's-Land. It has a number of pitcher-shaped appendages of an ovate form, situated amongst its leaves, which, like the famous *Nepéuthes*, have a very striking appearance. *Bánksia mèdia*, Intermediate Banksia.—(Proteàceæ.)—The flowers of this species are of a dull yellow, densely collected into a broadly-oblong terminal head. The seeds were gathered on the south-western shores of New Holland, by Mr. Baxter. *Baptísta perfoliàta*, Perfoliate Baptista.—(Leguminòsæ.)—An herbaceous greenhouse plant with pale yellow flowers. It was introduced by the late S. Elliott, Esq., and by Dr. Wray, of Augusta, from Georgia, where it grows on dry sandy hills. *Monnìna obtusifòlia*, Blunt-leaved Monnina.—(Polygàleæ.)—This purple flowering stove-plant, was introduced from Lurin, near Lima, by Mr. Cruckshanks.

4.—The British Flower Garden. By Robert Sweet, F.L.S. 8vo. Monthly. 3*s*. coloured, 2*s*.3*d*. plain.

No. 31, for December, contains

Phycélla Ignea var. *pálchra*. Miss Reinagle's Chili Lily.—(Amaryllidea.)—A bright red flowering plant, a native of the vicinity of Valparaiso, in Chili. *Streptanthèra cúprea*, Copper-coloured Streptanthera.—(Irideæ.)—This is an elegant species, introduced by Mr. Synnot, from the Cape of Good Hope. *Prímula ciliàta*, Fringed Primrose.—(Primulàceæ.)—A suitable little plant for rock work; the flowers are a pale flesh colour. *Leucocárpus alàtus*, Winged-stalked Leucocarpus.—(Scrophularìnæ.)—This is supposed to be identical with M. Kunth's *Mímulus perfoliàtus*. The white fruit it bears, however, sufficiently distinguishes it from the *Mímulus*, or any other genus hitherto established among the *Scrophularìnæ*.

5.—The Botanic Garden, &c. By B. Maund, F.L.S. Monthly. 4to. Large paper, 1*s*.6*d*., small 1*s*.

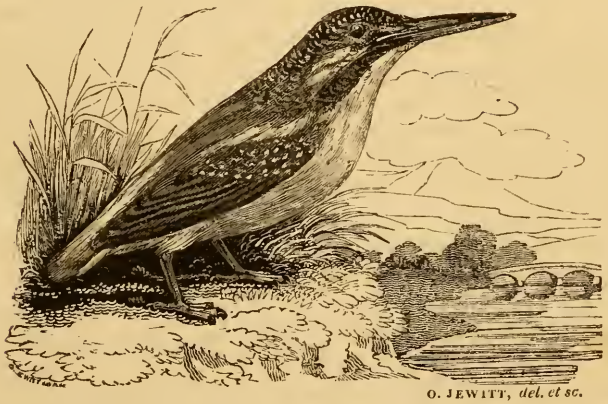
No. 84, for December, contains

Salpiglóssis straminea, Straw-coloured Salpiglossis.—(Solàneæ.)—A native of Chili, and was introduced in 1824. *Æthionéma membranácea*, Membranous podded Æthionema.—(Crucifèræ.)—This is a small neat herbaceous plant, with rose-coloured flowers; was raised from Persian seeds, imported by the late Mr. Barclay, of Bury Hill. *Pentstémon pulchéllus*, Pretty Pentstemon.—(Scrophularìnæ.)—A native of Mexico, introduced in 1826, and not uncommon in some of our gardens, where it is a great ornament. *Rudbéckia columnáris*, Columnar Rudbeckia.—(Compósitæ.)—A yellow flowering plant well known in our gardens; introduced from North America, in 1811.

PART III.—NATURAL HISTORY.

ORIGINAL COMMUNICATIONS.

ARTICLE I.—*Some account of the Natural Habits of the Kingfisher.* (Alcedo Ispida, *Linn.*) By JOSEPH PAXTON, F.L.S. & H.S., one of the Conductors.



O. JEWITT, *del. et sc.*

THE weight of this bird (according to Professor Rennie, in his new edition of Montagu's Ornithological Dictionary,) is an ounce and a half; its length seven inches; the bill two inches long of the male, and of the female not quite so much. It is well known that it forms its nest in holes, in the banks of rivers, not unfrequently in such as have been formed by rats, although Professor Rennie seems to evince some doubts on this subject. It always chooses such as are ascending, and generally goes two or three feet in the bank; "at the end is scooped a hollow," says Montagu, "at the bottom of which is a quantity of small fish bones, nearly half an inch thick, mixed in with the earth; on this disgorged matter the female lays to the number of seven eggs, which are perfectly white and transparent, and of a short oval form, each weighing about a drachm." As these bones were observed to be in the holes before they had any eggs, it was very naturally supposed, by Montagu, that both male and female visited the hole to disgorge this matter, for the purpose of forming a nest with it. However, Professor Rennie has found from repeated observation that this is no general rule, "for the exuviæ of fish bones ejected" by them, "as is done by all birds of prey, instead of

being dried on purpose to form the nest," he has found "scattered about the hole in all directions, from its entrance to its termination, without the least order or working up with the earth, and all these moist and fœtid," whence he concluded the idea of Montagu was an error.* It commonly frequents the hole it selects, for "a series of years, and will not abandon it though the nest be repeatedly plundered of the eggs or young. Small fish, such as Barristicles and Minnows, seem to be its principal food, but it will eat slugs, worms, and leeches. It will occasionally suspend itself on the wing, and dart on its prey like the Osprey; but more frequently it sits perched on a bough over the water, and pouncing upon the small fish as they come near the surface, seizes them with its bill. It is rarely seen about rocky rapid water, where the Dipper chiefly resorts, but is frequently found about wooded streams, and fish-ponds, inhabiting the shores of large salt water rivers, and estuaries."

These birds are said to be very shy and solitary. Mr. Jennings remarks, (in his Ornithologia, page 172,) that "they are rarely, if ever, found near the habitations of man." In some parts, however, they are far from uncommon near the habitations of man, neither do they appear timid when approached by individuals, but will sometimes sit until persons advance to within a few yards of them. Mr. Rennie gives us an instance of this, in Montagu's Dictionary, p. 280, where he observes when speaking on its habits, "it is not so very shy and solitary as it has been represented, for it has more than once allowed me to approach within a few yards of the bough on which it was perched. I am in the habit of seeing Kingfishers very often, on the banks of a brook which runs past my garden, at Lee, in Kent, not one hundred yards from my house. A Kingfisher's nest was found, with young, on the bank of the same brook, within gun-shot of a whole row of houses." And a similar remark is made in page 82, vol. 4, of the Magazine of Natural History. This, however, must be understood as no general rule, for we have found that in many parts of the country a single specimen is scarcely to be met with; and even when one has been observed, it has made a speedy retreat before it could be approached at any convenient distance. "They fly with great rapidity, notwithstanding their wings being very short; the motion of them are so very quick as scarcely to be perceptible. When the young are nearly full feathered they are so extremely voracious, that the old birds not being capable of supplying them with food, sufficient to satisfy the calls of hunger, they are continually chirping, and may be discovered by their noise."

Thousands of imaginary virtues have been ascribed to them by the superstition of the ancients; for instance, their bodies, when dried, were supposed to preserve cloth from being moth-eaten; they also calmed

* It is evident however, they do sometimes form their nests of the bones, as mentioned by Montagu, one that was taken out of the bank of a little rivulet which runs through Chatsworth Park, was so formed.

the sea, preserved the peace of families, proved a sure protection against thunder, and augmented hidden treasures. The Tartars of Siberia employed their skins as antidotes, or at least preventatives, of almost every evil; and in many cases they were supposed to act as an extraordinary charm, wherever they were introduced. In some places they tear off the birds' skins, and throw them into water, carefully preserving such as swim, from the belief, that if with them they touched a woman, or even her clothes, they would immediately fall in love with her. The Ostiacs, a particular tribe, took off the skins and claws of these birds, and kept them in a sort of purse, in the full persuasion that so long as they remained in possession of these precious charms, they were beyond the reach of every misfortune.

We learn from Zinnani, that in the mild climate of Italy, this bird breeds twice in the year. And Ovid informs us, that its nest was a floating one;* and among other wonderful properties, Aristotle supposed it to have the power of staying every boisterous wind, in order that the waters might be preserved smooth during the time of its incubation.† And to render a bird with such charms, complete, the poets conferred on it the power of song;‡—indeed, there was scarce any good property which this bird was not supposed to possess. Nor was this superstition confined to the ancients, "I have once or twice" says Mrs. Charlotte Smith, in the Natural History of Birds, vol. I, page 73, "seen a stuffed bird of this species, hung up to the beam of a cottage ceiling, and imagined that the beauty of the feathers had recommended it to this sad pre-eminence, till on enquiry, I was assured that it served the purpose of a weather-vane; and though sheltered from the immediate influence of the wind, never failed to show every change, by turning its beak to the quarter whence the wind blew."

It has however lost all its supposed power, amongst the scientific of the present day, and we are obliged to content ourselves without either its fine melodious song, or its floating nest, it still however retains charms though of a different nature to those of the ancients,—it is universally considered the most beautiful bird, for plumage, in Europe. It is met with throughout Europe, Asia, and Africa.

It is not our intention to attempt to confute the excellent descriptions given by modern writers, on the natural habits of this charming bird; but to detail what we know of it, from actual observation. Having become possessed some young ones, last summer, we were very anxious to rear them;—this we have accomplished, and to the best of our information, it is the first time Kingfishers were ever reared by hand. To accomplish this object, we had a wire cage constructed, about ten feet

* "Incubat *halcyone* pendentibus æquore nidis,"—Ovid Met., Lib. xi.

† "Dies *halcyonii* appellantur septem ante brumam et septem a bruma."—Arist. Hist. An. Lib. v, cap. 8.

‡ "Cum sonat halcyone cantu, nidosque natantes,
"Immota gestat sopitis fluctibus unda."—Silius Ital. Lib. xiv, p. 275.

long, and four broad; the back part of the cage was made to imitate as nearly as possible, the banks of a river:—through this cage, a small stream of water is conducted, in which the birds receive their food, &c. When the young birds were first taken from the nest, Minnows and Bullheads were their principal food, they have since been fed on almost every species of fresh-water fish, although they evince a marked preference to *Trout*.

Immediately on a quantity of small fish being put into the stream of water, they commence killing them, regardless of who may be near; and so surely do they strike, that although we have repeatedly observed them, we never yet saw them miss their prey. As soon as they have caught a fish they kill it, by knocking its head against anything that may be near them. The quantity of fish consumed by each bird is almost incredible,—we should think, on the average, not less than *six ounces a day, each;* they could not exist twenty-four hours without food, they so quickly digest it. There can be no doubt, that the sole reason of the Kingfisher migrating to the sea side on the approach of severe weather, arises from the voracity of its appetite.

They are quite tame and domesticated, frequently sitting on the head or shoulder of the person who is in the habit of cleaning out their little dwelling. They are also very cleanly, we have observed them to dive into the water as many as forty times incessantly, for the purpose of washing,—this is generally done in the evening.

Although they appear satisfied with their confinement, they are far from being friendly with each other; they fight with their wings something after the manner of the Swan,—this is rather surprising, as they are very dexterous with their bills when seizing their prey.

We have tried to rear others, in a common cage, feeding them partly on flesh, but never succeeded.

J. P.

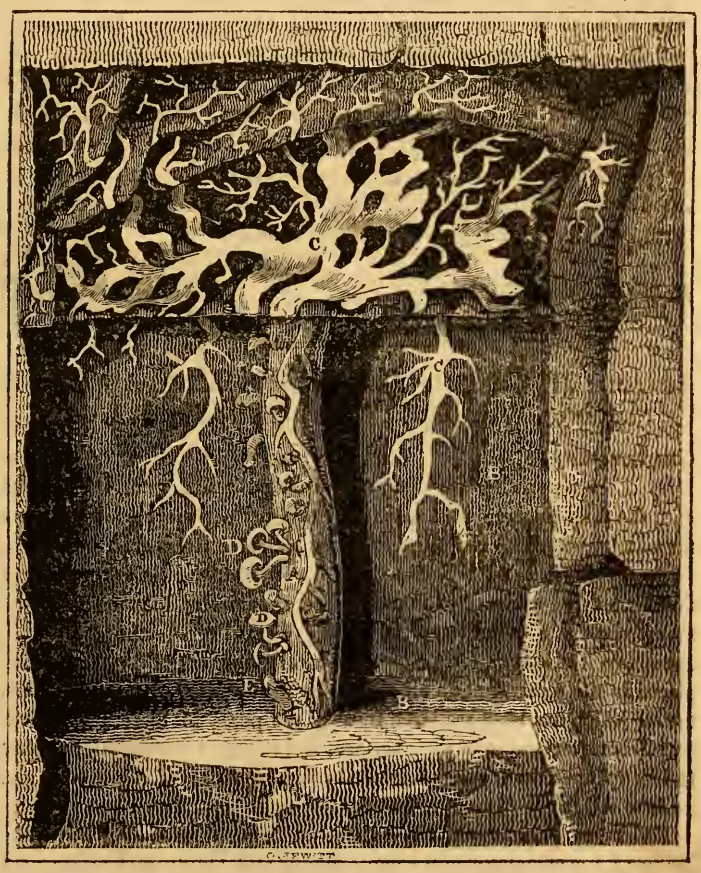
Article II.—*An Account of different species of Fungi, &c., found growing in a Marble Quarry.* By White Watson, Esq., F.L.S., of Bakewell, Derbyshire.

Gentlemen,

In a quarry of Black Marble, at Ashford, in Derbyshire, made on the side of a hill, and driven horizontally into the said hill side, are beds of marble of unequal thickness, lying inclined to the east and north-east, comformably to the surface of the ground. Within this quarry, at about forty yards, is an upright piece of oak wood, about two feet one inch long, and six inches in diameter, (marked A, on the annexed plate,) which was placed there in 1773, to support the bed of black marble. (BBB) From the top of this post, in 1777,

a Mouseskin Byssus, *Byssus septica*, (marked ccc) spread its fine white foliage up and down the post, and along the marble, in various directions; and Fungi, as common Mushrooms, *Agáricus campéstris*, (DD) with deep flesh-coloured gills; and *Bolétus ténrex*, (E) also grew out of the post, as shewn in the plate, [fig.49] which was drawn October 13th, 1777, by White Watson.

49



The fissures in the rock being always moist, and the atmospheric air excluded, the water issuing in small quantities down the post, and causing the wet rot, gave rise to these Fungi, which are said to be "plants that live without air."

It is supposed that the different kinds of Fungi which appear upon decaying timber, are produced by the remaining powers of life in the sap of the unseasoned wood; and that the same kind of living organi-

zable matter which, whilst its powers remained perfect, would have generated an oak branch, will when debilitated, give existence to various species of Fungi.

A dry season after hay harvest, parching up the eddish grass, being succeeded by warm showers, occasions a great Mushroom season, as in this year, 1831, when there was the greatest quantity ever known. One man frequently brought 200 pecks in a cart, from Ashbourne to Sheffield. September and October were the plentiful months. It is observed that the eddish this year is generally very indifferent on limestone land, and not good for cattle. Where the eddish was much burnt, as about Ashbourn, Mushrooms on the limestone soil were most plentiful, but where the eddish was good on shale land, which is retentive of moisture, few or none appeared. In the years 1818 and 1826, the eddish on limestone was much burnt, and these were great mushroom seasons.

Yours, respectfully,

Bakewell, Nov. 29, 1831. WHITE WATSON.

ARTICLE III.—*On the Porosity of Wood, and Effects of Copper on Vegetation.* Communicated by F. J. G. W.

GENTLEMEN,

On perusing the Glasgow Mechanics' Magazine, I have met with the following remarks, which you may not perhaps consider unworthy of admission into the pages of your invaluable Register.

On the Porosity of Wood.—"The porosity of wood is so remarkable that air may be transmitted in a profuse stream, by blowing with the mouth through a cylindric piece of dry Oak, Beech, Elm, or Birch, about two feet long. If a piece of wood or stone be put in water, and placed in the receiver of an air pump, by withdrawing the external air, the air which has been scattered through the pores of these bodies will issue from every point of their surface, and rise in a torrent of bubbles. In like manner, Mercury is forced through a piece of dry wood, and made to fall in the form of a shower."

Effects of Copper on Vegetation.—"Some time since, (says Mr. Phillips,) I accidentally spilt some solution and Oxide of Copper near the root of a young Poplar tree. In a short time the tree began to droop; the leaves on the lower branches dying first, and eventually those on the upper ones. On cutting a branch from the tree I observed that the knife was covered with Copper, and the whole breadth of the branch, showing that the Copper had been absorbed, and had undoubtedly proved fatal to the life of the tree.

F. J. G. W.

PART IV.—NATURAL HISTORY.

REVIEWS AND EXTRACTS.

1.—British Entomology. By John Curtis, F.L.S. Monthly. 8vo. 4s.6d. coloured.

No. 95, for November, contains

Orgyia gonostégma, the Scarce Vapourer, or Orange Tussock Moth.—Order *Lepidóptera;* Family, *Arctüdæ*.—The Caterpillar feeds on the Oak, Birch, Nut, Sallow, Barberry, Rose, and Bilberry, and is found in May and June; and the Moth is produced in August and September. *Scaphídium quadrimaculàtum*, Orange-Spotted Scaphidium.—Order, *Coleóptera;* Family, *Scaphídidæ*.—Shining black colour, with four irregular Orange spots on the back, This insect is not common, and was formerly considered very rare; it is accompanied by a specimen of the *Sedum àcre*. *Cinètus dórsiger*, Black and Ochre Cinetus.—Order, *Hymenóptera;* Family, *Práctotrupidæ*.—This is of a shining ochreous colour; the plant accompanying it is *Cnicus praténsis*, Meadow-plume Thistle. *Ly'da fasciàta*, the Barred Lyda.—Order, *Hymenóptera;* Family, *Tenthredínidæ*—The plant is the *Aira præ'cox*.

No. 96, for December,

Contains the Index for the Eighth Volume; and *Lyméxylon navàle*, Windsor Lymexylon.—Order, *Coleóptera;* Family, *Cantháridæ*.—The larvæ of this insect feed upon timber, especially Oak, which they perforate and destroy. The plant is *Orobánche cærùlea*. *Aphídius círcii*, the Thistle-Aphis Destroyer.—Order, *Hymenóptera;* Family, *Ichneùmonidæ*.—These insects are parasitic, and live in the female Aphides. *Acidàlia degenerària*, the Portland Ribbon-wave Moth. *Eléuchus Walkèri*, the Walkerian Stylops.—Order, *Strepsíptera*,—Accompanied by a specimen of *Hypóchæris radicàta*, (Long-rooted Cat's-ear.)

2.—Edinburgh Philosophical Journal.

Magnetic re-action of Platina.

In a piece of Russian Platina, the size of a wallnut, Göbel detected the two magnetic poles. Its magnetism was so powerful that a middle sized needle was attracted by it, and a magnetic needle was, at a certain distance, set in by it. Many similar pieces of Platina, from the size of a hazel nut to that of a hen's egg, in the collection of the Imperial Mining Academy of St. Petersburgh, exhibit similar properties.

PART V.

MISCELLANEOUS INTELLIGENCE,

ON NATURAL-HISTORY, HORTICULTURE, AND RURAL AFFAIRS.

I.—QUERIES, ANSWERS, REMARKS, &c.

HINTS TO THE CONDUCTORS.—Gentlemen, I have been a reader of your Register from the commencement of its publication, and have been much pleased with its contents. The object of my writing is to concur with "a Lover of Gardens," in stating that I think your intention of giving Portraits, &c., of Horticulturalists and Naturalists, will be no improvement to your work, that I in common with several of your readers with whom I am acquainted, would much rather see an engraving of some plant, fruit, or flower, in its stead, which for economy might, I should think, be executed on stone, and three or four in a plate.

I think there must be some error in the article on the cultivation of the Ranunculus, p. 197. The author certainly cannot intend that the loam should be put on the bed eighteen inches deep, and then immediately, (as it would appear,) move the whole of it by trenching, for the purpose of putting the cow-dung at the bottom, which it appears is done in October. I can only presume that he means the loam should be put on some months before, but any benefit in that, I cannot find.

I hope you will add the Polyanthus and Magnolia to the List of Flowers of which you intend giving articles on the cultivation of. I hope when you write on the *Grape*, you will give some instructions for the cultivation of it in pots, in cucumber frames, for the benefit of Florists who may use them for the protection of their Carnations, and other flowers, in the winter, and who would like to cultivate Grapes in the summer, which I am inclined to think might be done very advantageously, even *without* heat, and I for one, should like to try it.

I am, Gentlemen, your obedient Servant,

Holloway, Nov. 19, 1831. RUSTICUS IN URBE.

REMARKS.—Gentlemen, I was so delighted with the three first numbers of your work, which were put into my hands late last night, that I could not retire to rest till I had more than skimmed them through. I admire the plan, and approve of the general performance; at the same time I am sorry to see the pages disfigured by bad spelling of scientific names, which I mention, not for the sake of finding fault, but for correction. I allude to the names of some of the insects. I consider it of great importance that attention should be paid to this subject, as the derivation, which often in a single word explains the nature, habit, or colour, &c. of an insect, is, by false spelling, entirely lost.

Also, in mentioning several insects, you give their old and exploded names; this I consider bad, because it is losing the ground which the scientific Naturalist has with difficulty gained. I strongly recommend Mr. Stephens' Catalogue to you, (which you have noticed in No. 2, p. 89,) which will be of great use in correcting bad spelling, and giving modern names. You should request your Correspondents to write scientific names legibly.

The following are a few of the errors which I have observed, with their corrections :—

At p. 30, *C ossus ligniperda* is spelt *Ligniporda*. In the same page the *Bombycidæ* are called *Bamlycidæ*. At p. 39, *Carybydæ* should be *Carabidæ*. *Noctudiæ* should be *Noctuidæ*. *Aparaiæ*, *Apiariæ*. At p. 90, *Stomoxys calcitrans* is given *calcytrans*. In the same page we have *Cicindella* for *Cicindela*. The *Abraxas (Geometra) Grossulariata* is called *Grossultria*. *Tipula Tritice* should be *Cecidomyia Tritici*. At p. 142, *Vanessa atalanta* is spelled *atatanta*.

At p. 89 you laudably lament the pain to which insects are put, in killing them. A lingering death may be avoided. Beetles are instantly killed by dropping them into scalding water; Butterflies, large Moths, and Dragon Flies, by pinching the thorax, and then taking them by the underside of the wings, and dipping the underside *only* of the thorax and abdomen in scalding water; and the smaller Moths, Flies, and other delicate insects, by smothering them with sulphur. These methods are fully detailed (together with very copious instructions for collecting, rearing, and preserving insects,) in a very useful little work, published about three years ago, by Mr. Ingpen, A.L.S.

Should anything in the above hasty lines meet with your attention, I will in my next send you a sketch of an instrument for killing insects, by means of heat from boiling water, without in the slightest degree injuring their colours; which some of the above methods are not entirely free from producing.

I am, Gentlemen, your well-wisher,

CARABUS NITRUS.

PORTRAITS.—Gentlemen, I beg respectfully, as a Subscriber, to enter my protest against your proposed intention of introducing the Biography and Portraits of Gardeners and Naturalists, and instead of which, to act upon the suggestion of a "Lover of Gardens." I am, Gentlemen, yours, respectfully.

Hampshire, Nov. 11, 1831. J. C.

REMARKS.—Gentlemen, it was with pleasure that I beheld the first number of your Register, hoping that we should have a very cheap work, and one that would contain nothing but what is useful to the Gardener or the Naturalist, but in that I find I was mistaken, and what I have to complain of is, that in your last number there are "Remarks on the Erection of Labourers' Cottages." Now what use are those remarks to a gardener? I should think none; unless he undertakes to superintend the building of Labourer's Cottages in his district. That article has no more business in a Horticultural Register, than the first article "on the Culture of the Dahlia" would have in a "Builder's Guide," I hope we shall have no more articles that way.

The article "On Destroying the House Sparrow," instead of occupying two pages might have been contained in a few lines, which would have made room for more valuable information, as most gardeners well know that method.

Pray be particular in spelling the names of plants, as many errors have already occurred that way: for instance, *Lophospérmum erubéscens*, p. 189, is on

page 190, called *Lithospérmum scándens,* This is likely to lead us young gardeners into error and confusion. *Linum maritimum,* in p. 189, is classed among the hardy plants, while on the following page it is among the inhabitants of the greenhouse: it is neither, for it is a frame plant. That it will bear the severity of some winters, I am aware; I am also certain that it is often killed in winter, unless it has a slight protection. My method with it is, to strike cuttings in June, put them singly in small pots in July, shelter them in a cold frame all winter, and then turn them in the open borders in spring, strike more young plants, and leave the old ones in the open air to take their chance.

Wishing your work the success it merits,

I remain, Gentlemen, yours, most respectfully,

Bury St. Edmonds, Oct. 28, 1831. H. T.

Answer to H. T.—Our Correspondent has found so much to complain of, that it becomes necessary for us to say a word or two in explanation. The first complaint is, that we have introduced remarks on the Erection of Labourers' Cottages: we conceive our Correspondent cannot have read the title-page of our work with sufficient attention, or he would not have been so surprised on observing "Rural Affairs" introduced.—We refer him to it, and to the preface of the work for an answer. We stand convicted of the errors in spelling the names of plants, although our Correspondent's corrections are ill-placed, with regard to *Lophospérmum,* &c., which he will observe by referring to a catalogue of plants; however, we will endeavour to prevent it as much as possible for the future. The distance we are from our printers, and the lateness of the month when we receive the Nursery Lists, (sometimes the 24th or 25th,) have in a great degree caused such errors. Cond.

Gardener's Magazine.—Gentlemen, in looking over Loudon's Gardener's Magazine, for October, I find he has some ill-will towards the prosperity of your much valued Horticultural Register, which I, along with a score of my neighbours, think a most excellent and cheap periodical; and I believe, is generally thought so, by most eminent Horticulturalists. Mr. Loudon states that you have committed great errors which are too numerous to mention; now perhaps, was he to look back over his own work, he might then find plenty of his own, but he is something like a many more, he can see errors in other people, but forgets to look at himself. Perhaps you have not examined his last Magazine minutely, or you would have found in page 550, line 10, that he informs his readers something about *Spurring in Pines:* I should suppose this is something new. Many people have called on me, to ask if I knew anything of the method, the only answer I could give them was, that I had never heard of it before. As I have no communication with Mr. L., perhaps you would be so good as to make enquiries for me, so that I may be able, through the medium of your Register, to satisfy my friends about this matter, should they make any further enquiries.

I am, Gentlemen, your well-wisher,

Brighton, Oct. 5, 1831. A LOVER OF FAIR-PLAY

Hothouse Glazing.—Gentlemen, The expedient of your Correspondent J. D., (Horticultural Register, No. 4, p. 185,) to delay the framing giving way at the angles, in glazing on the above principle, will not be adopted, even if it were efficient, (which it is not,) because the diagonal bars of metal will give the

structure a heavy and prison-like appearance; and if the glass does not crack until the wood decays, (and good wood should have been used,) no one will have cause to complain. With regard to the cracking of the glass from the shrinking of the wood, I do not think there is more danger by glazing on the new method, from this case than by the old one, when the wood is not properly seasoned. Be this as it may, the above objection will always prevent the use of the diagonal bars.

The remarks of Mr. Saul, on Messrs. Harrison and Curtis's method, in the same No. of the Register, are worthy attention; but I must leave them to some of your readers better acquainted with the subject than myself, and I trust they will not allow it to be idle, for it is an important and interesting one, and doubtless, the method is capable of improvement.

It strikes me that a great objection to this method will be the difficulty of procuring glass, (without great trouble and expense,) sufficiently flat at the edges, to join so closely and evenly in the centre of the ribs, as to prevent the water from running between the insterstices, and eventually finding its way into the house.

I remain, Gentlemen, yours, &c., a Young Amateur,

G. A. L.

P. S.—I must be allowed to call Messrs. Harrison and Curtis to order: they advertise that specimens may be seen at Messrs. Bailey's, High Holborn, and in consequence I called there last Monday, but Mr. B. informed me that when Mr. Harrison was in town, he called upon them and appointed them as Agents, and promised to send a specimen, which he had not done. The disappointment was of no consequence to myself, having plenty of spare time, and no distance to go; but there are some who may be disappointed, and who have but little time, and come from a distance.

Oct. 5, 1831. G. A. L.

Balsams.—Gentlemen, the following extract is from the Athenæum, of October 22nd: "Horticultural Society, Oct. 18. A paper by the Author of the Domestic Gardener's Manual, was read, 'on the propagation of the Balsam, by cuttings;' an operation which has been attended with success, and the design of propagating the variety by converting one of its members into a perfect vegetable body, and thus in a degree counteracting the annual nature of the plant, found to take effect satisfactorily." My object in making this extract, is to suggest to the Author of the Domestic Gardener's Manual, that he would confer great pleasure on your readers by communicating to you, for insertion in the Horticultural Register, the substance of the above-named paper on the Balsam. There are few of your readers who require to be informed that the seed of the Balsam can never be depended upon, not even when saved from the finest double flowers; there are few also, who have not experienced the mortification and disappointment of seeing their Balsams flower single, or of a bad colour, after having bestowed upon them that care and attention which this beautiful but valuable annual requires. The successful method, therefore, of propagating the Balsam by cuttings, or any other way, which secures us from the risk and uncertainty attending its propagation by seed, is a desideratum to be wished for by every admirer of this plant; and I feel assured that the ingenious Author of the Domestic Gardener's Manual will not hesitate to gratify them by an early communication on this interesting subject.

I remain, Gentlemen, yours, &c., a Young Amateur,

Nov. 7, 1831. G. A. L.

On Destroying Ants.—Gentlemen, observing in pages 278 and 279, of your Register, two enquiries respecting the best method of destroying Ants. I beg to inform your Correspondents that amongst many trials to destroy them, I have met with none so effectual as that of giving every encouragement to the Common Toad. I have for several years paid attention to these reptiles, and so has every person under my control, in-so-much, that I have sometimes had as many as three or four dozen; some of which have become so domesticated that I have taken them in one hand and exhibited their food in the other, which they have taken with the great composure. So much store do my family, as well as myself, set by them, that my two little girls are in the habit of bringing them home in their hands, from the roads and fields, with as much delight as they would the choicest objects. Those I recommend, are about three ounces weight, and from the observations I have made of their progress, I should calculate about five years old. This size appears more lively than the larger ones, and I have often known them remain for several days together, at the mouth of the hole where the Ants congregated; and such is their agility, that they will take the Ants, when on the wing, as quick as they come within reach; and their instinct is so great, that if you erect a habitation for them contiguous to the resort of the Ants, they will remain, and consider it their dwelling; and should they be taken and placed in another part of the garden or house, they will endeavour to return to their old station again. The quantity of insects they devour is immense, as they have a very quick digestion.

I have preserved and protected them, for more than twenty years. My reason for commencing it, originated from the circumstance of a friend of mine calling on me, who on observing the hot-beds so much infested, and concluding the crops would be destroyed, advised me to introduce Toads as a certain remedy, and to my great surprise and satisfaction, I observed them the next day devouring the Ants as fast as I was able to count them. From that time I have observed with satisfaction, that wherever Toads are encouraged, Ants will disappear. I much regret that these useful creatures should meet with the ill-treatment they often do, even from gardeners. I have often been almost insulted for harbouring them myself, and I have scarcely met with one individual that half appreciated their value. When trees are infested with Ants, confine the Toads behind a board set on edge until they become habituated to the spot.

J. Stafford.

On Destroying Ants.—Gentlemen, in your Register, No. 6, p. 278—9, are two queries, as to the destruction of Ants within doors, and without. I have known common frames for Cucumbers and Melons completely cleared of Ants which infested them, by merely confining a Toad in them. The poor Toad is loathed and persecuted by many who should know better, for he is very serviceable in preying on worms, grubs, and insects of various kinds. J. M. might easily avail himself of his services in the house for Cucumbers, but it would require some contrivance to enable him to get at the Ants in a wall, as described by W. W. I have no doubt that the Hedgehog would be of great service confined in a walled garden, as he feeds on Grubs, Worms, Snails, Slugs, &c.

Norfolk. H. S

Tigridia Pavonia.—Will you, or any of your Correspondents, do me the favour to inform me, of the best method of raising the *Tigridia Pavonia*, from seed, and of its general management, compost, &c.

C. N.

Strawberries.—Gentlemen, in your valuable Horticultural Register, for this month, to which I am a Subscriber, I observe an enquiry by W. S., whether the plants nearest the parent Strawberry are not as productive as those at a greater distance; I am happy to say that I can give him some information on the subject, having made it my study for several years, and having always found it to answer.

When I want to make a new bed of Strawberries, it is invariably my practice to prick out the plants nearest the parent, (if I have sufficient,) and those which appear with a full bold centre, for those plants which have only a single leaf in the centre seldom flower or bear fruit. I have found by experience that the plant which does not flower and produce fruit the first year, generally proves barren. I have tried several different sorts, not for one year, but for three years, by cutting off every runner, and leaving nothing but the parent plant to stand; and out of a large quantity have found very few ever to bear fruit. Therefore every plant that does not flower the first year I always pull up, and leave the deficiency to be supplied by the runners from the remainder; and in point of productiveness I am not afraid to say that few can beat me.

In making my beds, (although I am aware that a different method is recommended,) I plant two rows of Strawberry plants, about twelve inches asunder, and from four to six inches in the rows, leaving on each side about eighteen inches for the runners, which in general fill up the space the first year, leaving plenty of plants for new beds, as a succession is always necessary, never allowing the beds to stand more than three years, as in that time I find them to run off both in size and productiveness.

But at the same time, I have to observe that even those runners which are farthest from the parent plant, (if my directions are observed,) will likewise produce as much fruit as those nearest the plant; but I should always prefer the former method.

If you think the foregoing remarks on the Strawberry worth inserting in your Register, they are at your service, wishing you every success in your undertaking, which have no doubt will be ensured to you if you conduct it upon the same principles you have set out with. But I should recommend to your serious consideration whether it would not be better to give drawings of plants, &c. instead of portraits, &c., as one of your Correspondents in this month observes;—but of course that must be left to your own judgments, which you think the best.

I am, Gentlemen, yours, &c.

Wakefield, Nov. 9, 1831. H. J.

Topping Beans.—In regard to Garden Beans, whenever I find the Black Fly appearing at the top, I cut off all the tops, taking care either to burn them or remove them, for if left lying amongst the Beans, they will again infest them. I have always found it the safest and most effectual to the preservation of the crop.

H. J.

Aphis Fabæ.—Gentlemen, I certainly conceived the system of Topping Beans to prevent the depredations of the Aphis Fabæ had been so long practised, that scarce person any could have been ignorant of it. I am happy, however, to see that such enquiries are not treated with contempt by practical men, but that such persons actually condescend to give answers to them; thus proving their willingness to communicate their knowledge for the benefit of others. After your Correspondent, Mr. A. Godwin, has answered the enquiry made by W. S., p. 137, of

your Register, he requests to be informed whether this is the same insect which attacks the Cherry, I beg leave to inform him that it is not; the former being the Aphis Fabæ, and the latter the A. Cerasi, neither of which I conceive capable of existing long on the food of the other.

SERAMALEA.

Retarding the Blooming of Roses.—In answer to J. D., page 185, I beg to state that the shoots under the operation of pruning are those of the previous year's growth, and the pruning is delayed whilst the upper buds have pushed some length, and then the shoots of the previous year are shortened below where any bud has pushed this season, so that the dormant buds upon the remaining part of each shoot may be excited.

J. HAYWOOD.

Auriculas.—Will Mr. Revell be so obliging as to give a substitute for old Ants' Nests in his compost for Auriculas, that is, if any thing else will do as well?

Passifloras.—Perhaps some of your Correspondents would send you an article on the Culture of Passifloras, and other greenhouse plants?

T. H.

Polishing Shells.—Gentlemen, you would oblige some of your Subscribers if you would give, as soon as possible, the best and most simple method of Polishing Shells. T. H.

Mespilus Japonica.—I shall be obliged if you will inform me how to cultivate the Mespilus Japonica. Yours, &c.

Delta.

Melons and Cucumbers.—The Conductors, in their Review of Mr. Lindley's Guide, (Horticultural Register, page 164,) say that *Cuttings are preferable under all circumstances*, either for Cucumbers or Melons. Do they mean by this, to assert that the culture of these plants may, by cuttings of bearing plants in autumn, be extended throughout the winter; and thus the necessity of sowing the ensuing spring be obviated? A few plain, practical hints on this interesting subject, in as much as respects the time and method, soil, and general treatment of such cuttings, would be exceedingly valuable.

Pinkney's Green. G. I. T.

Tobacco.—I have this summer grown a few plants of the Virginia and Oronooka Tobacco, for the purpose of fumigating and washing shrubs and plants, and find that by any method I adopt, the leaves become a mere tissue, without substance, and totally unlike the imported herb. Will any of your Correspondents point out a mode by which the plant can be properly dried, so as, in a degree at least, to resemble in colour, texture, and quality, the Tobacco of America?

G. I. T.

Vegetable Marrow.—Gentlemen, A Constant Reader, in page 227, enquires about practicability of cottagers cultivating the Vegetable Marrow. In reply to his enquiry, I beg to state, that if the object of cottagers is to make the most of what ground they may cultivate as gardens, the cultivation of the Vegetable Marrow will not answer the purpose. My statement is founded upon experience. At

this place we cultivate a great deal of this vegetable, and I find one plant will cover about fifty square yards of ground. The exact number of fruit gathered from a plant during a season, I am not prepared to state, but the produce, when compared with other vegetables, is very far below them. An early crop of Potatoes, and then a late crop of Cauliflowers, Cabbages, or Broccoli, upon the same extent of ground, will be found to yield a far greater produce than the former vegetable, and in some instances superior in point of nourishment. Vegetable Marrow, to be made at all palatable, requires rather more accommodating sauce than many of the poor can afford to furnish it with, whereas most of them can supply a little salt and pepper for Potatoes and Cabbages.

Petworth Gardens, Nov. 6, 1831. G. HARRISON.

VEGETABLE MOULD.—In reply to G. A. L., page 225, I beg to inform him that what I term Vegetable Mould, is that produced by well-rotted cabbage leaves, and vegetables of a similar character. What I mean by decayed leaves is a soil produced from the leaves of oak, &c. The former soil is one of the richest, and the latter is a very light one; both are very essential in a suitable compost for Pelargoniums.

G. HARRISON.

ERROR.—I find in the article I sent you on the treatment of Pelargoniums, page 102, an error in the description of the compost. It should have been stated—to equal parts of vegetable mould and decayed leaves, add one-third of peat soil, and one-sixth of white sand. I will thank you to give this insertion at an early opportunity.

G. HARRISON.

HEART'S-EASE.—Gentlemen, plants of the Heart's-ease, (*Viola tricolor,*) which are sold in the London Markets are often better than those grown in private gardens, and I have often known it complained of, that when removed, they soon degenerate. I should be obliged, (and I doubt not also, many of your readers) if any of your Correspondents acquainted with the culture of that favourite flower, would send the best method of managing it; and also the way of managing the Dark Red China Rose. I remain, your obedient Servant,

T. S

II.—COLLECTIONS AND RECOLLECTIONS

NATURAL HISTORY.

VEGETABLE SERPENT.—Some Italian Journals mention that a new organised being has been discovered in the interior of Africa, which seems to form an intermediate link between vegetable and animal life. This singular being has the shape of a spotted Serpent; it drags itself along on the ground, and instead of a head has a flower shaped like a bell, which contains a viscous liquor. The flies and other insects, attracted by the smell of this juice, enter into the flower, when they are caught by the adhesive matter; the flower then closes, and remains shut until the prisoners are bruised and transformed into *chyle*. The indigestible portion, such as the head and wings, are thrown out by two lower spiral openings.

This Vegetable Serpent has a skin resembling leaves, a white and soft flesh, and instead of a long skeleton, a cartilaginous frame, filled with yellow marrow. The natives consider it delicious food.

Oct. 10, 1831. W. Mc. M.

THE RAVEN.—The Raven is a bird of humour and sagacity. There was one kept a few years ago at Newhaven—an inn, on the road between Buxton and Ashbourn. This bird had been taught to call the poultry when they fed, and could do it very well too. One day the table was set out for the coach-passengers' dinner; the cloth was laid with the knives and forks, spoons, mats, and bread, and in that state was left for some time, the room door being shut, but the window open. The Raven had watched the operation very quietly, and, we may suppose, felt a strong ambition to do the like. When the coach was about arriving, and the dinner carried in, behold, the whole paraphernalia of the dinner-table had vanished! It was a moment of consternation—silver spoons, knives, forks, all gone. But what was the surprise and amusement, to see, through the open window, upon a heap of rubbish in the yard, the whole array carefully set out, and the Raven performing the honours of the table, to a numerous company of poultry, which he had summoned about him and was very consequentially regaling with bread.—*Juvenile Forget-Me-Not.*

RURAL AFFAIRS.

THE WEAVIL.—Salt is said to be an effectual preventive against the destruction of wheat by the Weavil. Mix a pint of salt with a barrel of wheat, or put up the grain in old salt-barrels, and the Weavil will not attack it. In stacking wheat, 4 or 5 quarts of salt to every 100 sheaves, sprinkled among them, will entirely secure them from the depredations of this insect, and render the straw more valuable as food for cattle.

BEANS.—Observing in your Register the produce of one Oat. I take the liberty of stating the produce of one Bean. In one of my walks in the spring I picked up a Horse Bean, which I planted in my garden betwixt some gooseberry trees, and took no further notice of it until the autumn, when I found it very full of pods, and have this day counted the produce, which is 170 good seed Beans.

Wakefield, Nov. 9, 1831. H. J.

HORTICULTURE.

VINES.—An idea being generally entertained that Grapes, cultivated in the open air, must from the nature of our climate, be inferior to hothouse Grapes. We offer to our readers the following remarks, sent by a Correspondent, to prove what may be done by a proper cultivation of the Vine. "Through a superior method of training and pruning the Vine, Mr. Clement Hoare, of Siddlesham, has this year produced some of the finest Grapes, of the Black Hamburgh sort, which have perhaps ever been ripened on the open wall in this country. When the bunches were cut a few days since, many of the berries were found to measure upwards of three inches in circumference; and in point of quality and flavour they have been pronounced by several competent judges to be fully equal to those grown under glass."

ONIONS.—Mr. William Ramsay, gardener, Chanceloti, (Potland) has this season, raised seedling Onions, which have excited the astonishment of all who have seen them. One which he pulled weighed 1 lb 5 oz. and measured 16½ inches in circumference.—this was the largest, but he has a number more, of nearly the same enormous size.

III.—HORTICULTURAL AND FLORICULTURAL SOCIETIES.

LONDON HORTICULTURAL SOCIETY.

SINCE our last report, papers have been communicated to the Society "On the beneficial effects of the accumulation of Sap in Annual Plants," and "a report on the Propagation of Cabbages by slips," by Mr. Knight and Mr. Lindley. The second edition of the Catalogue of Fruits has also appeared, and seems in every way calculated to be useful to the Horticulturalist, on account of the mass of information contained in its pages, gathered during the last ten years, from observations on the merits, size, season, &c. of the proved varieties existing in the Society's garden.

The exhibitions have comprised the yellow and white varieties of the Double Indian Chrysanthemum; a Potison Jaune, weighing 153 lb, being one of a crop, the aggregate weight of which was 555 lbs. from the same vine; Forbidden Fruit, from the West Indies; a Duchesse d' Angoulême Pear, weighing 3 lb 2 oz; a specimen of the *Banksia æmula;* and very fine Camellias; from the collections of Mr. Wells, Mr. Allnutt, Messrs. Chandler, &c. A Chinese Pruning Knife was also on the table, communicated by Mr. Reeves; its primitive appearance, did not convey a very favourable idea either of its efficiency as an instrument, or of the mechanical skill of those with whom it originated.

NORWICH HORTICULTURAL SOCIETY.

THIS Society held its last Show for the Season, on Wednesday, November 16, 1831. The two preceding days of cold and frost were succeeded on Wednesday, by heavy snow storms from the north-west, and the whole morning was most unfavourable for the attendance of members and visitors; indeed, so uninviting was the weather that it might almost have been anticipated, that the flowers sent for exhibition would "blush unseen," and the fruits "waste their fragrance" in an empty Corn Exchange. The few, whose love of horticulture tempted them to brave the inconvenience of wet and cold, had the satisfaction of finding that this, the last Show for the season, was a most excellent one, and fully calculated to support the pre-eminence which the Norfolk and Norwich Horticultural Society is by all visitors (particularly by those who are acquainted with similar Societies in other parts of the kingdom,) admitted to have attained.

The Chrysanthemums were the great object of attraction, of which there was a large and very splendid exhibition—those from Mrs. Ives were very much and deservedly admired. Mrs. Burroughes, Mr. J. Vince, Mr. Middleton, Colonel Chitty, the Rev. Charles Penrice, and Mr. J. Toll, severally contributed very choice and extensive assortments of this charming autumnal flower; indeed the number of contributors was so great, that it would almost appear invidious to specify any, but the above were most particularly striking.

Mrs. Mackie contributed (but not for prizes) a select collection of Chrysanthemums; some remarkably fine grown Primula Sinensis, and one of the dentated variety, the flowers of which were particularly large; and some choice greenhouse plants; amongst them, the Erica fasicularis; Crowea Saligna; Camellia Bohea, and Japonica, double striped and white; Oxalis tetraphylla; and very splendid specimens of Fuchsias virgata and microphylla; a plant of the Double Tuberose, in full bloom, grown in the open air, (of which charming plant there have been some fine specimens in flower for some time past, grown abroad at the Nursery, in a warm situation) were much admired, as also a basket of dried flowers, tastefully arranged, consisting of different species of Elichrysums and Gnaphaliums.

Amongst the fruits were a leash of Pines, one Melon, some remarkably fine Muscat of Alexdria Grapes, (from C. Thompson, Esq., of Witchingham) also Black Prince and St. Augustine Grapes, grown out of doors; some large black Pears, of Worcester, Uvedale, Cardillac, Crassane, and Chaumonteile Pears; Imperatrice Plums; White Currants; Chesnuts; Nottingham Medlars; Filberts, of the year 1830; Nonpareils, Ribstone Pippins, Striped Beaufins, and other sauce and dessert Apples. There were some fine Oranges, (kept from last year) sent by Mr. J. F. Roe, in London-street.

Amongst the vegetables were some very large Savoys, (one from the Rev. P. Stannard, of Tasburgh, weighing more than nine pounds) gigantic Celery, White Beet, Onions, Potatoes, Capsicums, a few Green Peas, grown from the seed of this year, Indian Wheat and Bread, &c.

It was gratifying to see the Cottagers' table so well filled with specimens of their care and industry; amongst which were St. Augustine Grapes, (out-door) Black Spanish Radishes, Onions, Flowers, &c. There were also ten Apples grown upon an engrafted seedling tree, in in a garden, planted by Robert Lighton, aged 84 years, a cottager at Hardwick, near Long Stratton. About four guineas was distributed in money amongst the Cottagers.

About fifty members of the Society afterwards dined together, at the Swan Inn, Richard Crawshay, Esq., in the chair. By the regulations adopted of requiring the parties who proposed attending to send notice to the landlord, Mr. Asker was enabled to provide accordingly, and an excellent dinner was served up. The inconvenience and irregularity experienced on a preceding occasion was also obviated, by a gentleman being appointed as Steward, which office was kindly undertaken by George Seppings, Esq. In the course of the evening, Mr. Crawshay stated that it was intended to submit a proposition to the next general meeting of the subscribers, for giving a *dejeuner* or some similar entertainment, to the ladies, to whose patronage and countenance the society was so much indebted for the attainment of its present success—a proposition in which we are sure every one will most happily concur; for none can have participated of the various fruits at the different dinners without feeling the burning blush of shame, at the recollection that all the fine productions of Pomona, sent during the year, and temptingly exhibited, had been to the fair visitors at the Corn Exchange, as forbidden fruit—see they might, but neither touch nor taste.

DEVON AND EXETER HORTICULTURAL SOCIETY.

THE Ninth Exhibition of this Society, took place on Sept. 30th, at Congdon's Public Rooms, Exeter. The Room was most gorgeous, and at the same time the arrangement highly tasteful; here the Crinum amabile; the Zamia lanuginosa, (a native of Southern Africa, and considered more than 100 years old); the Ficus elasticus, or Indian-Rubber Plant; the Psidium cateleyanum, or Purple Guava, with fruit just ripening on its branches; the Jacaranda mimosifolia; Canua bicolor; Acacia pubescens; Buonapartea juncea; Salvia splendens; Polygala grandiflora; Pyrethrum uliginosum; the superb Plantain; the noble flowering Cactus, and others, towered over all;—while sheltered but not hid by their spacious branches, and well disposed, were the splendid Allamanda cathartica; Plumbago Capensis; Hoya carnosa; Salvia pseudo-coccinea; Nycterium amazonium; Crinum Americanum; Ipomœa insignis; Amaryllis grandiflora; Nerium caruéum; Phlox autumnale; Aconitum Japonicum; Erythrolæna conspicua; Ageratum cœlestina; Chelone atropurpurea; Rudbeckia Newmannia; Lantana scabrida; Gesneria bulbosa; Dracæna terminalis; Solanum Balbisii; Cycas revoluta; Salvia fulva, and involucrata; Crassula obliqua, and falcata; several beautiful specimens of Gloxinia caulescens; Correæ speciosa; Camellia fimbriatum; Dichorizandra thyrsiflolia; Trichomene cœrulea; Pentstemon Richardsonia; Aster patens; Tagetus lucida; Gentiana Saponaria; Liatris squarrosa; &c. Most judiciously intermixed, were the creeping tribes, as the Thunbergia alata, &c. To these must be added specimens of the Pancratium littorale; and then came in rich though dwarfish beauty, the Passiflora coccinea; Stapelia glauca; Punica nana; Fuchsia microphylla, and macrostemon; Hæmanthus puniceus; unequalled specimens of the Egg-Plant, from the gardens of Wearman Gifford, Esq.; an exquisite specimen of the Calceolaria diffusa; from Pince & Co.; &c. &c. Of hardy perennials, Mr. Booth and Mr. Gifford, had resplendent shows; and in bulbs, it is imagined that Mr. Booth has scarcely been surpassed, his seedling Amaryllises in pots, eight or nine in number, being pronounced by all, to bear the palm from anything of the kind they had ever before seen. There was also the odorous Rosa Indica, or China Rose,—a bouquet of roses from which plant was exhibited by Lucombe, Pince, and Co , before the Society, in April, and from which a bud or two has been cut every day since that period. In Dahlias or Georginas, there never was a more resplendeot show; Dymond & Co. had them worked into a gorgeous crown, (the ermine at the base being admirably imitated by the manner in which the white and violet-coloured Dahlias were interwoven) an anchor also, and a star, were formed in a similar way. Mr. C. Sclater had an immense anchor formed in this manner; Booth, a crown; Veitch, crown and rich stars; Lucombe & Co.. a most massive crown, with the letters "W. A." "Pince & Co." &c. in the composing of which 6000 of these beautiful flowers had been used; Morris, of Tor, near Torquay, stars, crown, &c. These principally occupied the side walls, and gave a singular appearance to the whole.

The Fruits were very fine;—of the Citrus tribe, particularly so. The Grapes in rich luxuriance, and the wines of home manufacture, from grapes grown in the open air, most delicious. All other varieties of Fruit were presented in rich abundance; these, as well as the noble display of vegetables, both from the cottagers' and noblemen's and gentlemen's gardens, show, in a way not to be mistaken, that this excellent Society, has been the means of giving an impulse, that will in the end, tell most largely and beneficially for man.

The orchestra was filled by a band of musicians, whose performances greatly enlivened the scene. The room was crowded with gentry, and John Beaumont Swete, Esq. of Oxton-House, was called to the Chair. In his address to the company, he said, it must be matter of pleasing congratulation to them all, that in the exhibition that day, there was abundant proof of the interest which cottagers began to feel in Horticultural pursuits. How much might be done in this way many were impressed with, and what they saw before them was no slight proof of the correctness of the reasoning. He did, therefore, hope that all would, in their respective neighbourhoods, stir up and excite the labouring poor to exertions in this way, by making it apparent to them that not only would the comforts of themselves and their families be increased, and their dwellings rendered far more ornamental but that they would also hold up to them the sweet and cheering hope of countenance, and even reward, for their efforts. Of the stimulating nature of reward, they had more and more abundant proof every time the Society met, and particularly in the rich display now before them.

Mr.Gidley, read the list of prizes, as awarded by the judges.

HULL FLORAL AND HORTICULTURAL SOCIETY.

THE Sixth Meeting of this institution, for the season, was held on Thursday, October 6th, for the exhibition of Dahlias, China-asters, French and African Marygolds, Greenhouse Plants, Bouquets, Apples, Celery, &c. This was the last exhibition for the year, and a truly noble conclusion of the Floral and Horticultural efforts of the Members of the Society it was, for the season. The Dahlia is in this country, rather a modern flower. These Societies have given a stimulus to its cultivation, and we are sure that those who have seen the perfection, both in colour and formation, to which it has been brought in Hull, cannot for one moment doubt that this Society deserves both credit and patronage. The same observations will apply to many other species of flowers. Their natures and habits have been carefully and successfully studied, and each successive Show has manifested improvement in brilliancy and distinctness of colour, as well as in elegance of structure. The taste for Horticulture is daily increasing, and we shall not be surprised to learn, in a year or two, that the ungenial soil of the neighbourhood has been converted into a matrix for vegetables that will vie with those of the finest soils. Emulation works wonders. It is operating most advantageously here at present, and only wants the countenance of the higher classes, to render it efficient in making the district round Hull, a garden profuse in vegetable productions, as beautiful and useful as any district in the kingdom. The exhibition of Fruits, on the present occasion, was magnificent, especially the Apples.

IV.—NATURALIST'S CALENDAR,

FOR JANUARY.

BOTANY.

THOUGH the most severe weather of the year commonly occurs in this month, yet vegetation begins a little to revive; and should the latter end of the month be mild, the Snowdrop, *Galánthus nivàlis*, may be seen emerging from the ground; and in the garden the Winter Aconite, *Eránthis hyemàlis*, begins to show its golden blossoms.* The Christmas Rose, *Helléborus nìger*, and the Laurustinus, *Vibúrnum tinus*, are also in flower. The Mezereon, *Dáphne Mezèreum*, begins to open its buds. The Sweet Violet, *Viola adorâta*, is now in bud, or in sheltered situations, in flower. Several plants that have out-lived the early part of winter are still in flower, as Red and White Archangel, *Làmium purpùreum* and *álbum*; Chickweed, *Stellària mèdia*; Groundsel, *Senècio vulgàris*, Annual Meadow-grass, *Pòa ánnua*; Furze, *Ulex Europæ'us*; and Ivy-leav'd Toadflax, *Antirrhinum Cymbalària*; these plants may truly be said to flower the whole year.

The Mosses now in fructification, are Rigid Screw-moss, *Tórtula rìgida*; Early Moss, *Bry'um pellùcidum*; Hygrometer Moss, *Funària hygromètrica*; and Stemless Moss, *Phàscum mùticum*.

The leaf buds of the Honeysuckle, *Lonicèra Periclymènum*, begin to expand, and the catkins of the Hazel, *Cory'lus Avellàna*, to appear.

ZOOLOGY.

INSECTS.—A few Moths may occasionally be found, as the Bay-shoulder Button-Moth, *Perònia spadiceàna*; the Early Moth, *Cheimatòbia rupicaprària*; these, with some species of Gnats, are almost the only winged insects which venture forth. A remarkable circumstance respecting insects, is the existence of the autumnal brood of Caterpillars, upon a very scanty supply of food, and sometimes without any. In gardens, for example, the speckled and spotted (white, yellow, and black) Caterpillar of the Magpie or Currant Moth, *Abráxas grossulariàta*, may be found on Gooseberry and Currant bushes, of which the more expanded buds only can afford them food; and yet they usually survive the hardest winters, though not advanced beyond the first or second skin, and not so thick as a Crow-quill. The eggs, also, of many insects are deposited in the autumn, and notwithstanding the severe cold of winter, survive, and are hatched in spring. An example of this is the Lacquey Moth, *Clisiocámpa Neùstria*, which are laid in a spiral form round the twig of a tree, and fastened by means of a strong cement.†

Many singular and minute insects may be found among Mosses and Lichens.

BIRDS.—The observations on the winter migratory birds, last month, apply equally as well to this; but as the weather is now more severe, there is a greater probability of the rarer water-birds and sea-fowl being driven inland.

The Missel Thrush, *Turdus viscivorus*, begins its monotonous song, and commences building its nest. This is the earliest songster we have. The Redbreast, *Sylvia rubécula*, and the House Sparrow, *Fringilla doméstica*, frequently build this month. The greater Titmouse, or Black-cap, *Pàrus màjor*, and the Hedge Sparrow, *Sylvia modulàris*, sing. Larks, *Alaùda arvénsis*, are now seen in large flocks. The Long-tailed Titmouse, *Pàrus caudàtus*, is seen in small flights visiting the trees in gardens and orchards; they proceed in one regular direction, flitting from tree to tree, and in this manner pass over a large tract of country in a day.

"Some gardeners, who know no better, accuse many birds of destroying the buds of their trees at this season, because they are seen continually nibbling about them. The truth is, however, that it is not the buds, but the insects frequenting them, of which the birds are in search. In the same way some birds search under the decayed bark of trees, amongst the straws of a thatched barn, or the moss on trees, for their favourite food." ‡

The Golden-crested Wren, *Sylvia Régulus*, the smallest of European birds, may now be frequently observed in thick hedges near houses. It summer it is seldom seen, as it then retires to more unfrequented places, and rarely approaches human habitations, except in severe weather. It is wonderful how so small and delicately formed a bird can endure the rigours of winter; yet it seems to brave the cold quite as well as those apparently more hardy: perhaps the constant exercise which it uses in seeking for its food, may account for it.

METEOROLOGY.

BAROMETER.—Mean Height 29,881. Highest 30,540. Lowest 29,200 inches.

THERMOMETER.—Mean Temperature 49,9 degrees. Highest 74. Lowest 29 degrees.

RAIN.—Mean quantity 1,786 inches.

EVAPORATION.—Mean 2,290 inches.

* In January, 1828, the following plants were in flower here in the open ground: Double and Single Snow drop; Scotch, Yellow and Black-streaked Yellow Crocuses; Double Lilac, Single Red and Common Primroses; Polyanthuses; Arabis alpina; Blue Navelwort, (*Omphalodes verna*;) Winter Aconite; Double Red Hepatica; Laurestinus; Mezereon; Daisies; Crowfoot; and Archangel.

† Comp. Alm.

‡ Comp. Alm.

Duffield-Bank, Dec. 1831. O. J.

V.—MONTHLY HORTICULTURAL CALENDAR,

FOR JANUARY.

JANUARY, is usually accounted the coldest month in the year, and in consequence of the intense frosts generally experienced at this time, little can be done in trenching the ground, &c. however, where any is left undug, make use of every favorable opportunity to throw it into ridges. Prepare dung for forcing Cucumbers, &c. when they are wanted early. Be careful that the Pine pits experience no declension of heat;—or, the plants, by receiving a check, will most of them start prematurely into fruit, in the spring.

FRUIT DEPARTMENT.

Pruning and Nailing should now be attended to, at every convenient opportunity. Peaches and Nectarines, however, would be better delayed until the beginning of February, or at least until the buds have advanced a little; as pruning them too early, sometimes proves injurious, if the weather should afterwards be very severe.

Strawberries for Forcing, continue to bring in about once a fortnight, as recommended last month.

Peach Houses, where the fruit is wanted early, should not be delayed;—be careful, however, that the heat from the flues is very moderate at the commencement, or the probable consequence will be the loss of the whole crop of fruit.—(See Calendar for December.) If Peaches and Nectarines in pots, be placed along the flues, they will ripen their fruit at least three weeks earlier than those trained on the trellis. The houses closed at the end of November, or beginning of December, will now be out in blossom, and by the end of the month the fruit will begin to set, they will now bear the heat from 60 to 65 degrees, by day.—Be careful not to syringe them while in blossom, but keep the flues very moist and give plenty of air during the day-time, and you may ensure a good crop of fruit setting, if the trees are healthy.

Cherry Houses, should have the glasses put on in the beginning of the month, and a little fire put in the flue in order to dry up the damp; but be particularly cautious to give as much air as possible, and never allow the heat to rise higher than from 45 to 50 degrees, Fahreinheit, for the first month. Cherries in pots, might also be placed over the flue, after the manner of Peaches; these would be earlier than those trained on the wall, although there is less dependance on a crop of fruit from pots.

Vines. See pages 6, 185, 193, and 293.

FLOWER DEPARTMENT.

Mignonette and Ten-week Stock may be sown about the latter end of the month, in pots, and placed on a very slight hotbed; the former in a light, sandy, maiden soil, perfectly free from dung. As soon as they appear, be cautious to give them plenty of air.

Auriculas should be top-dressed the latter end of this month, or beginning of February. See page 57.

Dahlia seed should be sown about the end of this month or beginning of next, and a few of the old roots may be plunged in a little old tan, or a moderate hot-bed. See p. 145 and 147.

Tulip Beds will require occasionally sheltering, as recommended last month.

Forcing. Continue to take into the stove, Roses, (see page 245 to 253.) Lilacs, Pinks, Hyacinths, &c., as may appear necessary.

VEGETABLE DEPARTMENT.

Cauliflower plants in frames, &c. must be well protected from frosts at night, and have plenty of air in the day time.

Asparagus. Continue planting new beds on a slight heat, as recommended last month.

Lettuce plants in frames, &c. must be kept free from rotten leaves, or they will be liable to perish.

Early Frame Peas, and Mazagan Beans should be sown in pans or boxes, about the latter end of this month, and placed on the flues of the stove, to transplant out for the first crop.

Potatoes may be planted about the middle of the month, in sandy soil on a slight hotbed, or in boxes, as recommended by Mr. Haythorn, page 312; in either case sow a thin crop of Radishes and Lettuce over them.

Mushroom Beds out of doors must be kept free from damp litter. After gathering the Mushrooms, cover them well from the frost. See Calendar for December.

Rhubarb Roots may now be regularly taken up and planted in an old Pine pit, or in any situation where they will receive a slight heat; and if covered with pots like those used for Sea-Kale, the stalks will have pushed sufficiently for use in a fortnight.

G. Jewitt, Printer, Duffield, near Derby.

THE

HORTICULTURAL REGISTER.

February 1st, 1832.

PART I.—HORTICULTURE, &c.

ORIGINAL COMMUNICATIONS.

ARTICLE I.—*On the Cultivation of the Vine.* By ELECTRICUS.

GENTLEMEN,

THE culture of that most grateful tree, the VINE, is an object of deep and increasing interest. The tree has, in all probability, been known in this country, for upwards of 1500 years; but it does not appear to have been scientifically attended to, till about the middle of the seventeenth century. Mr. Loudon, at No. 4795, of his Encyclopædia of Gardening, mentions the fact—on the authority of "The Fruit Gatherer," by Lawrence, that, "the Duke of Rutland, at Belvoir-Castle, has done so much justice to the Vine, as to have fires constantly burning behind his slope-walls, from Lady-day to Michaelmas; whereby he is rewarded by the largest grapes; and even the best Frontignacs, in July," he adds, "These sloped walls were afterwards *covered with glass.*"

The origin then of vineries—or grape forcing-houses, is to be traced to the act of placing a glass screen in front of a wall, at Belvoir-Castle, in Leicestershire, in the year 1718.

The chief object that I have in view, in presenting this paper, is to excite an enquiry concerning the best and most obvious method of training and pruning the Vine, either in the open ground, against walls and fences, or—and particularly, in houses of one description or other, covered with glass. Many persons would start an objection to the general adoption of the latter mode of culture, on the ground of the difficulties and expenses attending the construction of forcing-houses; but, as I have recently witnessed the erection of a small house, by the junior members of a family, without the assistance of either bricklayer, carpenter, or plumber, I can speak with confidence of the facility with which

the work may be performed, and of the very trifling expense that need be incurred. I shall not now stop to enumerate the details of the erecting, because I wish to pass without loss of time, to the object of the present letter, which is, chiefly, *to invite the communications of the able Conductors of the Horticultural Register*, or of some of its experienced contributors, *on the readiest method of producing the heaviest and best crops of grapes in small houses*, whose internal dimensions shall range between 12 and 24 feet in length, and 8 and 12 feet in breadth; such houses, as in point of fact I can prove, may be constructed at an outlay of, from eight or ten, to fifteen or twenty pounds.

While I earnestly invite you, Gentlemen, and any of your Horticultural friends, to enter into a full detail of a subject so enticing, and indeed useful, I conceive that I shall afford to many of your uninitiated readers, a source of profitable entertainment, by extracting from accredited authorities, one or more of the modes of pruning the Vine, under glass, that have struck me as most likely to secure a good crop of fruit. Authorities, it may be remarked, differ materially; and many persons are perplexed by the multifarious directions which are to be found in books; it is therefore particularly desirable, that practical gardeners, who have by experience, arrived at a certain method of producing excellent crops of grapes, should furnish a clear and intelligible detail of operations, by which their readers may be enabled to experimentize, with some prospect at least, of obtaining a successful result.

That I may not needlessly trespass upon your indulgence, I shall confine myself to the two following extracts, observing however, that I ought to mention the able directions of Mr. Charles Harrison; but I am conscious that I could not thus do justice to a writer who may justly be considered one of our first authorities; it must suffice therefore, to refer your readers to his chapter on the Vine, commencing at page 256 of his "Treatise on Fruit Trees." 1825.

Mr. Lindley, in his late excellent work, "A Guide to the Orchard and Kitchen Garden," evidently gives the preference to Mr. Speechly's method of training, for, he observes, at page 227, "I have been entirely indebted to the late Mr. Speechly, for this method of managing the Vine, which I believe was never practised previously by any other person in this country; I have adopted it for several years, and I confess, I prefer it to that of any other method."—And again, "I visited Mr. Speechly, at Welbeck, some years before his death, and had an ample opportunity of witnessing the excellence of his management," &c.

Mr. Lindley's avowed object is to obtain *large berries* upon *large bunches*, in preference to an increased number of clusters, at the expense of a deterioration in point of bulk and quality. He says, "Let the Muscat of Alexandria, Black Hamburgh, or indeed any other sort, be selected; and compare fifty single berries of the largest size, with a hundred others

of the same aggregate weight, equally in a state of maturity; the preponderance of the scale of merit will be given, I apprehend, by all competent judges, to the fifty instead of the hundred."

In this opinion, most persons will, I presume, cordially acquiesce, the attainment therefore, of these fine clusters, is now the object of enquiry; and it can be effected only—as Mr. Lindley remarks—"by having the Vine in a vigorous and flourishing state. In the hot-house, or in the vinery, as soon as the Vines are planted out, *one good shoot* must be obtained for each rafter, or other place intended for its support; and as soon as the leaves are fallen off, it should be cut down to the bottom of the rafter. In the spring, the *two uppermost shoots* must be trained at length, cutting off any others which may be produced from the lower eyes. When they have grown to the top of the rafter, they must be stopped; this will occasion two or three of the upper eyes to push out into lateral shoots, which must be treated in the same manner as directed under the head *Propagation*," (that is, "they must be shortened to two eyes each,") "and the small laterals, from beside the main buds, from their first appearance, must be treated in a similar manner.

"When these two shoots have cast their leaves in the autumn, one of them should be cut down to two eyes, leaving the other shoot to ten, twelve, or fifteen, according to its strength. This, according to Mr. Speechly's method, is the commencement of an alternate system of fruiting one shoot this year, to be cut down for the purpose of furnishing a supply for the next.

"If the number of eyes left upon the long shoot be not too great, they will all push and show fruit, one or two bunches from each eye; which, for the first crop, had perhaps better be reduced to one, and this at the time after the berries are set, as it will then be seen which is most likely to form the best bunch, leaving that and cutting the other away; stopping the shoot at the same time, two joints above the fruit. The uppermost eye will push again, which must be treated as described before, for laterals."

I have been much struck by the description of a mode of pruning and training, practised and detailed by Mr. Seton, of Stamford-Hill, near London;—it is to be found in the Encyclopædia of Gardening, paragraph 2981 and 2982, in an extract from the third volume of the Horticultural Transactions. "Having observed," Mr. Seton says, "that the fruit produced on vigorous shoots which usually grow at the extremities of the branches, is, generally, more abundant, and of a finer quality, than that produced on the short lateral ones, I was desirous to promote the growth and preservation of the former; but the usual mode of training the branches, across the house and upwards, being subject to the objection before-mentioned, and little scope being afforded for it in a house of small dimensions, I thought I should obviate these inconveniences, in

great part, and attain another object, presently to be mentioned, by training the branches in a horizontal direction, and keeping the whole of the fruit-bearing part of each tree nearly on the same level.

"*Five Vines were placed at the end of a house twenty-five feet in length*, for this purpose provided with rods placed horizontally under the glass of the roof, twenty inches asunder, and extending from end to end. The first Vine placed at one end, being trained up to the two lower rods, *a shoot of it was laid along each of them*, and continued successively from year to year, till it reached the other end; then the shoot on the lower rod *was turned upwards* to the next, and led back upon it towards the stem of the tree; while that on the upper rod *was turned down*, and led back, in like manner on the lower one. During this process, a sufficient number of spurs, or short branches, were left annually on the old wood, to produce fruit. When the leading shoots which had been thus trained in a retrograde direction, approached towards the end whence the original branches proceeded, preparation was made for a succession of young wood, bringing forward two fresh shoots from the stem of the tree, and leading them on close to the preceding ones. As these and the leading shoots of the first branches, which were then on their return, advanced, the spurs on that part of the old wood to which they had reached were cut out to make room for them, the naked stem only being left. When the second series of branches had returned nearly to the end at which the trunk was situated, the first series, on which there was then but little of the herbage remaining, was cut out at the trunk. Fresh shoots were then brought forward, to succeed the second series; and so on, without end."

Each of the five Vines was trained alike, on two rods devoted to each tree, and thus, Mr. Seton conceives, he attained two important objects; first, producing an abundant supply of superior fruit; and secondly, of retaining each individual tree, in "*its own peculiar climate, to which alone all its parts are exposed.*"

If this communication be favorably received, and produce the notice that it is my object to elicit, I may perhaps be led to follow it up with another paper, "On the Culture of Vines, upon the Open Wall," and also to enter into a somewhat minute description of the construction of small forcing-houses, furnished with flues, a steam apparatus, and a pit for leaves or tan. I hope Mr. Stafford, among others of your able correspondents, may be induced to take up the pen. He would also add greatly to the valuable information he has already furnished, if he were to enter into a somewhat more minute description of the method of pruning and training his Vines in pots.

I am, Gentlemen,

Your sincere well-wisher,

November 22, 1831. ELECTRICUS.

Article II.—*On the Method of Cultivating the Vine, as practised in France. Extracted and abridged from a Treatise by C. Chaptal, on the Cultivation of the Vine and Making Wines.* Communicated by J. T——.

The Effects of Climate, Soil, Exposure, Seasons, and Culture, on the quality of the Wines.

Climate.—All climates are not suited to the cultivation of the Vine. Though it seems to vegetate with vigour in northern climates, yet the fruit does not acquire a sufficient degree of maturity; and it is an invariable fact, that beyond the 50th degree of latitude, the juice of the grape does not attain that fermentation which converts it into a sound wine. In the north, grapes abound with the principles of putrefaction, but contain scarcely any element of spirituous fermentation; and the expressed juice of the fruit, having experienced the phœnomena of fermentation, produces a sour liquor, in which there exists only that proportion of alcohol necessary for interrupting the movements of putrid fermentation.

The Vine therefore, as well as other productions of Nature, has climates peculiar to itself. It is between the 40th ad 50th degrees of latitude, that this vegetable production can be cultivated with any degree of advantage. It is between these points that the most celebrated vineyards are found, and the countries richest in wines, such as Spain, Portugal, France, Italy, Austria, Styria, Corinthia, Hungary, Transylvania, and a part of Greece.

But of all countries, none perhaps presents so happy a situation for the Vine, as France; none exhibits so large an extent of vineyards, nor exposures more varied; and no country has such an astonishing variety of temperature. From the banks of the Rhine to the bottom of the Pyrenees, the Vine is almost every where cultivated; and in this vast extent the most agreeable and most spirituous wines are to be found. But though climate stamps a general and indelible character on its productions, there are certain circumstances which modify and limit its action; and it is only by carefully attending to what each of them produces that we can be able to discover the effect of climate alone. It is thus that we often find the different qualities of wine united under the same climate, because the soil, exposure, and cultivation, modify and mask the immediate action of that grand agent.

On the other hand, there are some Vine plants which do not leave us the choice of cultivating them indiscriminately in any latitude at pleasure. Soil, climate, exposure, and cultivation, ought all to be appropriated to their inflexible nature, as the least violation of this

natural character essentially alters the product. Thus the Vines of Greece, transported to Italy, no longer produce the same wine; and those of Falernum, cultivated at the bottom of Vesuvius, have changed their nature. It is confirmed by daily experience, that the plants of Burgundy, transported to the south, no longer produce wine so agreeable and delicate.

The characters by which certain Vines are distinguished, cannot be re-produced in different sites: for this purpose the constant influence of the same cause is necessary, and, as it is impossible to unite them all, the consequence must be, changes and modifications. We may therefore conclude that warm climates, by favoring the formation of the saccharine principle, must produce wines highly spirituous, as sugar is necessary to the formation of such wines. But the fermentation must be conducted in such a manner as to decompose all the sugar of the grapes, otherwise the result will be wines exceedingly luscious and sweet, as has been observed in some of the southern countries, and in all cases where the saccharine juice of the grapes is too much concentrated to experience a complete decomposition.

The cold climates can give birth only to weak and exceedingly aqueous wines, which have sometimes an agreeable flavour: the grapes in which scarcely any saccharine principle exists cannot contribute towards the production of alcohol, which forms the whole strength of wines. But on the other hand, as the heat from the fermentation of these grapes is very moderate, the aromatic principle is preserved in its full force, and contributes to render these liquors exceedingly agreeable, though weak.

Soil.—The Vine grows every-where, and if we could judge of the quality of it by the vigour of its vegetation, it is in fat and moist soil, well dunged, that it ought to be cultivated. But we are taught by experience that the goodness of wine is never proportioned to the force of the Vine. We may therefore say, that Nature, desirous to assign to each quality of soil a peculiar production, has reserved dry light soil for the Vine, and has entrusted the cultivation of corn to fat and well-nurtured land.

"Hic segetes, illic veniunt felicius uvæ."

Strong argillaceous earth is not at all proper for the cultivation of the Vine, for not only are the roots prevented from extending themselves in ramifications, as is the case in fat and compact soil, but the facility with which these strata are penetrated by water, and the obstinacy with which they retain it, maintains a permanent state of humidity, which rots the root, and gives to all the Vines, symptoms of weakness, which soon end in their destruction.

There are some kinds of strong earth which do not possess those hurtful qualities that belong to the argillaceous soil above mentioned. Here the Vine grows and vegetates in freedom; but this strength of vegetation still essentially hurts the good qualities of the grapes, which can with difficulty acquire maturity, and gives the wine neither spirit nor flavour. This kind of soil, however, is sometimes set apart for the Vine, because its abundance makes up for its quality, and because it is often more advantageous for the farmer to cultivate the Vine than to sow corn; besides, these weak but abundant wines, furnish a beverage suited to labourers of every class, and are attended with advantage in regard to distillation, as the Vines require little culture.

It is well known to all farmers that moist soil is not proper for the cultivation of the Vine. If the soil, continually moistened, is of a fat nature, the plant languishes in it, rots, and dies; on the other hand, if the soil be open, light and calcareous, the vegetation may be strong and vigorous, but the wine arising from it cannot fail to be aqueous, weak, and destitute of flavour. Calcareous soil, in general, is proper for the Vine; being arid, dried, and light, it affords a proper support to the plant. The water with which it becomes occasionally impregnated, circulates, and freely penetrates through the whole stratum; the numerous ramifications of the roots imbibe it at every pore; and in all these points of view calcareous soil is very favourable to the vine. In general, wines produced in calcareous soil are spirituous, and the cultivation is so much the easier, as the soil is light and not strongly connected; besides it is to be observed that these dry soils appear exclusively destined for the Vine: the want of water, mould, and manure, oppose the idea of other cultivation. But there are some kinds of soils still more favourable to the Vine; those which are at the same time light and pebbly: the root easily forces itself through a soil, which by a mixture of light earth and pebbles, is rendered exceedingly permeable. The stratum of *galets*, which covers the surface of the earth, defends it from the raging ardour of the sun; and while the stem and the grapes receive the benign influence of that luminary, the root, properly moistened, furnishes the juice necessary for the labour of vegetation.

Volcanic earth also produces delicious wines. I have had occasion to observe in different parts of the south of France, that the most vigorous Vines, and the most capital wines were produced among the remains of volcanoes. The wines of Tokay, and the best wines of Italy, are the production of volcanic soil. The last Bishop of Adge, dug up, and planted with Vines, the old volcano, of the mountain,

at the bottom of which that ancient town is situated, and these plantations form at present one of the richest vineyards in that canton.

There are points in which the granite does not present that hardness and unalterability, which generally form the character of that rock: in these places it is pulverulent, and appears like dry sand. It is among these remains, that the Vine is cultivated in several parts of France, and the wine is of superior quality. The famous Hermitage Wine is produced in such a situation. The farmer, more anxious to obtain wine of a good quality than abundant vintage, will establish his vineyard in light pebbly soil, and not make choice of a fat rich soil, unless he intends to sacrifice quality to quantity.

EXPOSURE.—The same climate, the same cultivation, and the same soil, often furnish wines of very different qualities. We daily see some mountain, the summit of which is entirely covered with Vines, present in its different aspects, astonishing varieties in the wines it produces.

The most favourable exposure for the Vine, is between the east and the south. Small hills, rising above a plain, intersected by a stream of pure water, give the best wine, but these hills ought not to be too close to each other. A northern exposure has at all times been considered as most fatal to the grapes:* they always remain harsh, sour, and destitute of the saccharine principle, and the wine must participate in these bad qualities. A south exposure is also not very favorable: the earth, dried by the heat in the day time, presents towards evening, to the oblique rays of the sun, an arid soil destitute of moisture. The sun, which by its position, penetrates then under the Vine, and darts its rays upon the grapes, which have no longer any shelter, dries and heats them, ripens them prematurely, and checks the vegetation before the period of fulness and maturity has arrived.

SEASONS.—The influence of the seasons, on the Vine, is so well known in all countries where vineyards are planted, that long before the vintage, the nature of the wine may be predicted. In general when the season is cold, the wine is harsh, and has a bad taste; when rainy, it is abundant, weak, and not at all spirituous: it is therefore destined for distillation, at least in the south of France, because it would be disagreeable to drink, and difficult to preserve.

* NOTE.—The general principles, in regard to the influence of exposure, admit of many exceptions. The famous vineyards of Epernai and Vorsenai, in the mountain of Rheims, are fully exposed to the north, in a latitude so northern for Vines, that it is in those places where the region of the Vine suddenly terminates under that meridian.

The vineyards of Nuits and Beaune, as well as the best of Beaugenci and Blois, lie to the east; those of Loire and Cher, lie indiscriminately towards the north and south. The excellent hills of Seaumur, face the north; and the best wines of Angurs, are produced from Vines which grow in all exposures.

The rains which come on when the vintage approaches, are always the most dangerous: the grapes have neither time nor sufficient strength to mature the juices, and they become filled with a liquid, which holds in solution too small a quantity of sugar, for the produce of the decomposition, to be either strong or spirituous. The rains which fall when the grapes are increasing in size, are exceedingly favourable.

Winds are always prejudicial to the Vine; they dry up the branches, the grapes, and the soil; they produce, particularly in strong soil, a hard compact crust, which impedes the free passage of the air and water, and by these means maintain around the roots, a putrid moisture, which tends to corrupt them.

Fogs are also exceedingly dangerous to the Vine; they are destructive to the blossoms, and do essential injury to the grapes.

Though heat be necessary for ripening the grapes, giving them a saccharine taste and a good flavour, it would be erroneous to believe that its action alone, can produce every effect required. It can be considered only as a means necessary for maturation, which supposes that the earth is sufficiently furnished with the juices that ought to supply the materials. Heat is necessary, but this heat must not be exercised on dried earth, for in that case, it burns rather than vivifies. The good state of Vines, and the good qualities of the grapes, depend, then, on a just proportion, a perfect equilibrium, between the water, which furnishes the aliment to the plants, and the heat, that alone can facilitate its maturation.

Culture.—The Vine grows naturally in Florida, America, and almost every part of Peru. In the south of France, almost all the hedges abound with wild Vines; but the grapes they bear, are always smaller, and though they come to maturity, they never acquire the exquisite taste of the grapes which are cultivated.—The Vine, then, is the work of Nature, but Art changes its products, by bringing the culture of it to perfection. The difference which exists at present, between the cultivated Vine, and that which grows wild, is the same as that established by Art, between the vegetables of our gardens, and those of the same kind which grow naturally in the fields. The soil, where the Vine is planted, requires great care: it should often be dug up, but should not have the manure necessary to other plantations. It must here be remarked, that all those causes which powerfully concur to give activity to the vegetation of the Vine, alter the quality of the grapes; and here, as in other delicate cases, the culture ought to be directed in such a manner that the plant may receive only scanty nourishment, if grapes of a good quality are required. The celebrated Olivier de Serres, says on this subject, that "by a public decree, dunging is forbidden at Gaillar, for fear of lessening the reputation of the white wines, with which the people of that district supply their neighbours of Toulouse, Montauban, Castres, and other places." There are some persons, however, who, in order to

increase the crop, dung their Vines, but they thus sacrifice the quality to the quantity. The dung most favourable to the Vine, is that of pigeons or poultry: dung fœtid, or too putrid, should be carefully rejected, as it has been proved by observation, that the wine often contracts from it, a very disagreeable taste.

In the Isles of Rhé and Oleron, the Vines are manured with sea-weed; but the wine thence acquires a bad quality, and retains the peculiar odour of the plants. Chasseron observes, that the same plants decomposed into mould, manure the Vine with advantage, and increase the quantity without injuring its quality. Experience has also taught him, that the ashes of sea-weed form excellent manure for the Vine. This able agriculturalist is of opinion, that vegetable manure is not attended with the same inconvenience as animal manure; but he thinks, and with justice, that the former cannot be used with advantage, except when employed in the state of mould.

The method of cultivating Vines on poles or props, ought to be regulated by the climate;—this method belongs to cold countries, where the Vine has need of the whole heat of the sun. By raising them, therefore, on poles placed perpendicularly in the ground, the earth being uncovered, receives all the activity of the sun's rays, and the whole surface of the plant is completely exposed to this action. Another advantage of cultivating on props, is, that it allows the Vines to be placed nearer to each other, and thus the produce is multiplied. But in warmer climates, the earth requires to be sheltered from the excessive heat of the sun; and the grapes themselves have need of being protected from its scorching rays; and to accomplish this, the Vines are suffered to creep on the ground; they then, every-where form a covering sufficiently thick and close, to defend the earth and a great part of the grapes, from the direct action of the sun. But when the increase of the grapes has attained its maximum, and nothing is necessary but to bring them to maturity, the cultivators collect in bundles the different branches of the Vine, uncover the grapes, and by these means facilitate the maturation. In this case, the same effect is produced as by propping; but recourse is had to this method only when the grapes are too abundant, or when the Vines grow in a soil too fat or humid. In some countries, the Vine is stripped of its leaves, which produces nearly the same effect; in others, the pedicle of the grape is twisted, to hasten the maturity, by checking the vegetation. The ancients, according to Pliny, prepared their sweet wines in this manner.

The method of pruning the Vine has also a great influence on the nature of the wine. The greater the number of branches left to one Vine, the more abundant the grapes, but the worse the quality of the wine.

We may consider the quality of the soil as the work of Nature; all the art consists in stirring it, and turning it several times, at favourable

periods; by these means, it is freed from noxious plants, and is better prepared for receiving water, and for transmitting it with more ease to the plant; the air can also penetrate to it with more ease; and thus all these conditions necessary for proper vegetation, are united. When on account of some particular speculations, it is necessary to obtain a greater abundance of wine, and when the quality may be sacrificed to this consideration; the Vines, in that case, may be dunged, more shoots may be allowed to the stems, and all the causes which can multiply the grapes, may be united.

I remain, yours, &c.

J. T——

ARTICLE III.—*On Native Soil being Changed by the application of Manure produced from Land of an opposite nature.* By MR. S. APPLEBY, F. L. S., Nurseryman, Florist, and Lecturer on Botany, St. James's Gardens, Doncaster.

GENTLEMEN,

IT is well known that every kind of vegetable matter, in its final decomposition, returns to its parent earth, and I have latterly had reason to think, that it returns to that very quality of earth from which it was originally produced. This idea has been in some measure confirmed, from the observations I have made on the gradual alteration of soil in the garden of an intimate friend, who some years ago retired from his farm, situated in the North-Clays, to a more desirable residence on the borders of Sherwood-Forest, Nottinghamshire.

The sub-soil of my friend's kitchen garden is a hard rock-sand, and the surface-soil formerly consisted of a light sand, with the most trifling admixture of loamy earth, being such as commonly abounds in the vicinity of that extensive Forest. The manure for his garden was carted from his Clay farm, and was used unsparingly for two or three seasons, during which period, the soil gradually changed from the light sand I have mentioned, to a loamy consistence. He has continued to apply the same kind of tillage, from the stable or fold-yard of the Clay farm, to the present time, and the original sandy soil of his garden, now approximates to the clay soil of his farm. I beg to observe, that the tillage referred to was applied in a rotten state, and had no appearance of being impregnated with any particle of clay, but consisted entirely of ordinary manure, the produce of clay land.

As observations on the amalgamation of soils, are very desirable and important to science, and exceedingly interesting, whether considered

as relative to agriculture or gardening; I trust the subject will speedily be resumed in the Horticultural Register, and elucidated by abler pens than mine; and I shall feel obliged to any of your philosophical correspondents who will explain the cause of the change above mentioned.

I remain, yours, respectfully,

Doncaster, Dec. 10, 1831. S. Appleby.

Article IV.—*On the Cultivation of the Chrysanthemum Indicum.* By An Amateur Gardener.

Gentlemen,

I observe in your number for November, that this is one of the flowers upon the best mode of cultivating which, you purpose to give one or more papers. Being an admirer of the flower, as it enlivens the dreariness of winter, I have long since cultivated it; and latterly, by the mode described in Loudon's "Encyclopædia of Gardening," article 6475; but the daily trouble of watering, for five months in the year, with liquid manure, although there recommended as "simple," "elegant," &c. is troublesome, and most inelegant.

The last two years, the continual rains neutralized the benefits of the liquid manure, by washing it away, and I consequently had a bad show of bloom; but observing some of the old stocks, which had been put in a bye-place, bloom abundantly, although never attened to, I was induced to seek for the cause, which I soon concluded to be, from the roots having found their way into the soil beneath; I, at once, determined to avail myself of the circumstance, this year.

In the month of April, I took cuttings, and placed them in a greenhouse, (a cucumber-frame would do) where, in about three weeks, I found them well rooted; they were then potted, some one, and others two or three in a pot,* about five inches across, filled with light rich mould. Having provided a piece of rich ground, in a damp situation, the same was dug a spit deep, and a trench made; into which, the pots, as well as the old stocks, were put, two inches apart, up to their rims, the trench filled up, and some half-rotted dung put over the pots, to the depth of four inches, in order to keep the ground moist. Here they remained until the 22nd of October, without being once watered; when the early-flowering ones being in full blossom, were removed to the greenhouse,—and by the 5th of November, in consequence of the appearance of frost, the whole were so removed. The roots that had found their way into the soil, (which they had very abundantly) were

* The union of two or three different colours, produces a most pleasing appearance.

cut off, and I find that by keeping a pan full of water to each pot, so far from their durability being less, they have remained longer in bloom, than any I have before flowered, which I attribute, in a great measure, to the grossness of the foliage,—a few only of those first put into the greenhouse, showing a disposition to fade, on the 25th of November. I need hardly say, that their luxuriance has arisen from the great extent of rich soil, into which the roots were able to find their way. I adopted the same mode with the class of exotic Salvias, and my greenhouse now presents an uninterrupted scene of brilliant flowers.

I am, Gentlemen,

Yours, &c.

December, 1831. An Amateur Gardener.

Article V.—*On Raising Auriculas from Seed.* By Mr. Thomas Warris, of Sheffield.

Gentlemen,

As a proof that I most heartily wish you success with the Horticultural Register, I here transmit to you, a detailed account of my mode of raising Auriculas from seed; and promise you, that if you judge my papers worthy of a place in your pages, from time to time, I purpose being a contributor.*

I have been a cultivator of Auriculas, for many years, and have raised a great number from seed,—amongst which, are some of the best kinds in the trade. The compost I use, consists of equal parts of fresh loam, decayed leaves, and well-rotted dung, (cow-dung, is preferable) and about one-sixth of river-sand. This compost is well mixed, and frequently turned over, for three months previous to using.

The pans I use for containing the soil, are made of the same material which garden pots are usually made of: the shape is the same as a wash-hand bason, without any hole in the bottom. Before the compost is used for sowing, I fill the bason, and place it in the oven, until it is so hot, that I cannot bear to insert my finger in it;—this destroys the seeds of any weeds, or the eggs of insects, which may be deposited in it. After taking it out of the oven, I spread the soil to cool; when quite cold, I fill the bason to about an inch and a half from the top, around the sides, but am careful to have the soil as high in

* We shall, at all times, be happy to receive communications from Mr. Warris.—Cond.

the middle as the edges of the bason, so that it gradually rises from the sides to the centre of each. The soil is then pressed by a small board, to make the surface smooth and even. The seed is sown in a regular manner, and covered with very fine sifted compost, about the depth of one-sixteenth of an inch, after which it is again pressed down even. This being done, I take a clothes, or other soft brush, dip it in water, and give it a shake, to throw off heavy drops; I then shake it over the soil till it is well moistened, after which I water close round the side of the bason, so as to keep the compost wet, for although Auricula plants, when full grown, will not endure much wet, yet the soil requires to be kept very moist, in order to get the seed to vegetate. The time I usually sow my seed, is from the first to the middle of January. When sown, I cover the bason over with a bell-glass, or a large flat piece of glass, and place it either in a window with a south aspect, or the front of a greenhouse.

About the beginning of March the plants are generally springing up; in about a fortnight afterwards the strongest are transplanted into fresh compost, as before. In taking up the plants, I use a small pair of tweezers, made of ivory, with very narrow points, so as to take up each plant by the seed leaf; likewise a piece of ivory, not more than one-eighth of an inch broad, for the purpose of making a small cleft in the soil to admit the root of the plant, which when placed, the soil is carefully closed up. I plant them about an inch apart, and water them well afterwards, as before directed.

In about five or six weeks after transplanting, they are again taken up, and re-planted in basons, at a greater distance from plant to plant. I then venture to water them, through the medium of a watering can, with a finely perforated rose. At the end of a few weeks, I again remove the plants into other basons, placing the plants at a greater distance, and in August, I place them each one in a garden-pot, of the size I use for regular blooming plants. Care is taken that the pots are well drained with broken pots, gravel, or something of this nature. The plants will bloom the following spring, which is one year earlier than is the case with any Auriculas, I have ever seen raised by any other person.

I am, Gentlemen,

Your very obedient Servant,

THOMAS WARRIS.

Sheffield, December, 1831.

Article VI.—*On Supporting Newly-Planted Timber Trees*, By Mr. Stafford, Gardener to Richard Arkwright. Esq., Willersley-Castle, near Cromford, Derbyshire.

Gentlemen,

Various have been the methods resorted to, for supporting newly-planted forest trees, but none that I have ever met with, seem to equal the system I am about to explain; all the usual methods have proved partly ineffectual, as they have invariably caused either a partial, or total destruction, of the trees they were intended to preserve. To prevent the evils arising from the friction of stakes and bandages, many plant their trees so deep, that to avoid destroying them one way, they actually do it another; by this improved method, the trees are not only freed from that danger, but the unsightliness of stakes, &c., about a nobleman's or gentleman's ground is entirely done away, the stem appearing as free from any prop, and yet standing as firm as though the tree had been planted fifty years. Nothing can give a clearer proof of the utility of this method, than the newly planted trees I observed at Chatsworth, which are six times larger than any I ever before saw removed; and yet these trees stand as erect, and are as completely covered with foliage, as though they had continued there many years,—and all this, without the least particle of a support to be seen. This, at once, gives the system a decided advantage over every other, for what could have looked more objectionable, than to have seen them propped up with a parcel of huge stakes, to say nothing of the extra expense and trouble which such stakes and bandages would cost. The method, I understand, has already been sent into the world as a new one, and I give the publishers of such a system, credit, for so doing. My motive, in writing, is to substantiate what they have made known, and to show it as plainly as I can, to your numerous readers.

About twenty years ago, I was employed to remove some trees that had been planted and supported in this way, about thirteen years before, when I found the wood perfectly sound, and the support as firm as ever. For five succeeding years, I was present at the removal of great numbers of large trees, which were planted in an open lawn, as detached objects; and I had the satisfaction of seeing every tree keep its erect position: nor did I, during the whole five years, ever meet with an instance in which the system failed. I made every enquiry as to the origin of so complete a plan, and I found that the person employed as manager of the woods, had practised it for upwards of thirty years before, at several noblemen's and gentlemen's seats, to which he went as an instructor in the art. Whether the invention

originated with Sir Henry Cavendish, of Doveridge, or not, I am not prepared to say; but he certainly introduced it into Derbyshire, about that time, and to his lasting credit, gave an entire new feature to his domain, by beautifying his grounds with large trees, as erect and independent of the storm, as if they had been raised on the spot.

I have enclosed a sketch of the support, which consists of three straight pieces of wood, laid in a triangular form, [fig. 50] These pieces must be proportioned according to the size of the tree, and the three hooked stakes, [fig. 51.] When the tree is placed in the hole, the roots spread out, and the earth after being broken and pulverized, well shaken amongst them, the three straight pieces are placed in a triangular form, round the stem of the tree, [fig. 52] on the top of the ball; and the triangle made large enough for a hooked stake to be driven in at each angle, (*a*) so as not to injure the ball of earth at the root. The support thus completed, the earth is filled in, and the tree stands perfectly fast. In some situations, it will be advisable to make holes for the hooked stakes with an iron bar. The stakes must be driven down sufficiently deep for the turf to be laid evenly over the top. It appears to me, to be of little consequence, what kind of wood the supports are made of, I have always found that any sort would last as long as it was necessary.

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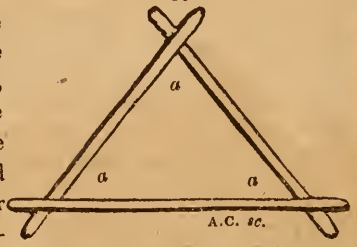

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Nothing, however, that I can advance in favor of so excellent a system, will be half so convincing as the planting of a single tree; and by properly applying the materials, no person could have the shadow of a doubt of the tree standing as securely as when growing in its original situation.

I remain, Gentlemen,

Yours, very respectfully,

Willersley, Dec. 10, 1831. GEORGE STAFFORD

Article VII.—*Remarks on Labourers' Dwellings, with a Design for the Erection of a double Cottage.* By A Bricklayers' Labourer.

Gentlemen,

Agreeably to your request, I now send you another design or a double cottage, and some cursory remarks on the erection of the same; which I hope will meet your approbation, and that of your readers.

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That labourers in general, and operative manufacturers, but more especially the peasantry, in many parts of Great-Britain and Ireland, are ill-provided with comfortable dwellings, is a point, that has long been established beyond all contradiction. That the many treatises on cottage economy, and other subjects connected with the peasantry; and the various works already published on cottage and rural architecture, from their very high prices, may not be within the reach of one-fifth of the readers of the Horticultural Register, is not only probable—but certain: these, therefore, are the apologies I offer to your readers, for touching a subject which has engrossed the attention of so many wise men; whose pens and pencils are ever devoted to the public good.

The accompanying design, [fig. 53] consists of two houses united, for the reasons before given. In each house, *a*, is the entrance; *b*, kitchen; *c*, wash-house; *d*, closet under stairs; *e*, coal or wood house; *f*, pigstye; *g*, privy; *h*, stand for bee-hives; *i*, in the smaller house, pantry. The wash-houses, &c, are lean-to's.

This building, of course, is more adapted for a situation among rural scenery, than for a manufacturing town or village; and, although, I have been frequently led to think there is a great deal of quackery about the terms, "landscape gardening," and "picturesque village scenery," at the same time, I must confess, that the design here given, is best calculated for a situation where the ground is greatly elevated above the surrounding surface; and especially in such a situation, that the irregular form of the roof may be seen against the sky.

A building, with a plain, square, horizontal roof, in order to harmonize with the adjacent scenery, should be placed in a situation where the back-ground would be seen over the roof, in a varied outline of hills or trees. In the erection of cottages, however, we should be greatly assisted in producing that harmonious and picturesque effect, so much desired, did we but pay strict attention to the beauties we find in many parts of the country—produced by Nature: these, very frequently, give a degree of characteristic simplicity, which is superior to design, and baffles Art. When the fore-ground of a cottage is well arranged with broken ascents and rugged pathways; together with something bold and expressive, such as rocks, large trees, &c. it is of much consequence in producing a pleasant effect.

Noblemen and gentlemen who spend so much money in improving their pleasure-grounds, &c. ought never to forget, that the cottages on their domains, form a part, and that too, a very interesting part, of the whole scenery, and therefore they ought not to be neglected; even were the comforts and happiness of the peasantry, a secondary consideration.

In attempting to produce a good picturesque effect, on gentlemen's estates, it has always been a lamentable oversight, that the architect

has been almost, or perhaps totally, unacquainted, with the landscape-gardener's art, and the latter quite deficient in that of the former; and until these two professions be united, so far as it regards country seats, we must always expect a degenerate taste in landscape scenery.

The walls of this cottage, may be built either of stone or brick, as the situation may require; stone is much more preferable where it can be easily procured, If the walls are to be of brick-work, a great saving might be made by leaving a vacuity in the centre of them, to be filled up with a composition of lime, sharp sand, or gravel. This sort of wall, as has been shown by different examples, is both strong and durable, when properly tied by transverse bricks at every two or three feet. If red bricks are used, or very small blue stones, forming what is called a ruble wall,—then it will be necessary to wash them over with a composition of lime, sharp sand, lamp-black, yellow ochre, and water, (of course): the walls, in the building of them, being left rough to receive it, as the durability of the composition depends greatly on this. I have seen walls studded with small pebbles, and others with small flints, which looked extremely well, when not methodically done. The roof, may be of thatch, as it is the warmest, as well as the most characteristic covering for a cottage. The trellis-work round the window, may be made of plain fillets of wood, about an inch broad; or it may be simply boughs of trees, having a seat, as shown by the plan; climbers and twiners, might be trained up this trellis-work, so as to form a handsome summer seat.

The extract inserted in your Magazine, (page 221) respecting the great advantage of keeping bees,—has induced me to show a good many hives, placed on a stand. Rabbits might be kept in the under part—I am not aware they would disturb the bees, if they did—some other place might be found for them. The advantages of a few hives, from Mr. Wallace's calculations, to the cottager, would be truly great; besides, "a bee-hive's hum to soothe his ear."

Some of your readers, I am well aware, will object to the foregoing design, as being too ornamental and fine, for the possession of hard-working people. I shall probably give good reasons for this apparent fineness in some future communication; in the mean time, suffice it to say, that I have no desire to increase the taste for plain uncouth cottages, or add to the number of miserable hovels already existing; and I expect, ere long, that the cottagers will inhabit such comfortable houses, as those I have here given.

The peasantry of this country have been a race of quite neglected people; they do not enjoy half the advantages their continental neighbours do. They will sink deeper and deeper in the scale of misery, unless something be done to raise them from their fallen degraded tate; year after year, the population, and with it the poor rates, will

increase, without something be done to prevent it. Why not give them the possession of a small piece of land, by reducing the large farms?—they have now no property to lose, and therefore do not respect that of others;—they have no characters to lose, and are therefore dangerous members of society. Give them education, that they may see the advantages of emigration to some fertile country.

I should not, however, advise "*high and equal education*," as has been recommended by some learned gentlemen, considering it to be impracticable in the present state of things; neither would I go so far as to change, (as if by magic,) the established churches into "National Education Establishments." How far those religious establishments are beneficial to the public it is not my purpose to show; but if they derive any happines from such, why not let them enjoy them? The education I would recommend, for the children of the peasantry, would be, to make the girls exactly what Mr. Cobbett recommends; and the boys might be taught reading, writing, arithmetic, English grammar, and a little natural philosophy. Those who were intended for mechanics, might be taught the rudiments of geometry; and those destined for agricultural labourers, might be taught a little natural history. The former of these, would have plenty of "*music*," from the machinery connected with his business, and the latter would have sweeter music than that of a "*guitar*," by listening to the sky-lark, while at his daily employments.

By the foregoing reflections, on the neglect of the peasantry, I do not wish, or try to make that large body of people dissatisfied with their stations. They are well aware of the fact themselves, without being told; and it is of no use to expect contentment, from a body of the community who have not even common necessaries to support the requisites of nature. It is of no use to talk of education to,—to provide houses for,—or improve the moral character of,—a people that are actually starving!

It would be well, if some effectual measures could be adopted for the redemption of the labouring classes in general; and if some means could be devised that would hold out an inducement to land-owners to pay more attention to their tenantry than they have hitherto done. I say "inducement," because they *will not* enter into any action unless stimulated and excited by some sort of interested motives: man is such a selfish creature, that he must either have pecuniary interest, direct or indirectly—the praise of the world—or self approbation,—as a recompense for all his good actions.

I should like to see that friendly intercourse subsist betwixt land-owners and the peasantry, which is familiar to *us*, only by listening to the tales of our fore-fathers; and further, to see the master visiting his servants in person, at their dwellings, enquiring into their wants and

little ailments, as a father would his children—giving advice in matters concerning their welfare,—assisting those who were industrious, with the loan of small sums, without interest, to purchase a cow, pig, &c.,—and giving small premiums to those who kept the neatest and cleanliest cottages. These proceedings would stimulate the most indolent, to industry, and gain for the proprietors, the love, the respect, and the gratitude, of all around him; and above all, the satisfaction in his own breast, of having done his duty.

Happy is that man who can retire to rest with a conscious feeling, that he has used all his interest, influence, power, and means, (committed but for a short time to his care,) for the benefit, comfort, and happiness, of his fellow men.

The well-disposed proprietors, might set to work industrious unemployed labourers, in many ways, and by so doing, improve and enhance the value of their estates;—such as road-making, draining, fencing, planting, thinning, felling, &c. &c. Each of these would require a longer discussion, of the advantages which would arise from them, than the pages of your Magazine would admit of.

In conclusion:—let the land-owner ever remember, (if any such should honour my humble communication with a perusal,) that the wealth he possesses was given him, as much for the benefit of his fellow men, as for his own immediate good. And further, when we look at a building or geometrical elevation, the horizontal lines are all of course parallel; when the same is viewed in perspective, no two of them run on the same plane, or are parallel to each other, but they all radiate to the same point: exactly so with man. We are all travelling on different levels, making for the same distant point, and whether high or low, rich or poor, the grand search of all our lives is happiness! Therefore let it never be forgotten, that,

"True happiness, when understood,
"Is only labouring to do good!"

I remain, Gentlemen,

Yours, very respectfully,

London, Nov. 25, 1831. A Bricklayers' Labourer.

Article VIII.—*On the Cultivation of the Camellia, and its varieties.* By An Amateur.

Gentlemen,

The Camellia, is justly esteemed one of the finest, if not actually the finest, of our exotics, and indeed, there are few of the beauteous denizens of the greenhouse and conservatory, that can lay equal claim to our attention. Unlike most of its compeers, this lovely genus,

at all seasons, whether it be in blossom or not, excites our admiration. During the summer and early winter months, we are pleased with its bold and elegant form, and with the deep glossy hue of its beautiful foliage; whilst from Christmas to May, the various varieties delight and charm by their fine and showy flowers, of white, buff, striped, and red, of every shade, from the deep crimson to the soft tint of the maiden's blush. The Camellia may in truth be called, "the most beautiful of the beautiful," for what, in the whole range of our exotic flora, is more beautiful than a fine specimen of the Old Double White, having, perhaps, one or two dozens of splendid blossoms fully expanded? or what more delicate than the bloom of *C. sasánqua*, now called *C. maliflòra?* The Old Single Red, *C. japónica*, appears to have been introduced into England, in the year 1739; and according to Messrs. Chandler and Booth's Camelliæ, the Old Double White was brought to England in 1792, by Sir John Slater, of the East India House; and the Old Double Red imported in 1794, by Sir Robert Preston, of Vallyfield: since which time, many fine varieties have been imported from China, and many fine seedlings have also been raised in this country, within the last few years, more particularly at the Vauxhall Nursery. The names of one hundred and fifty, or one hundred and eighty varieties, might now be collected from the various catalogues of the London nurserymen, but nearly two-thirds are unworthy of notice, and many are mere repetitions of each other.

Stocks, upon which to inarch, graft, or bud, the double sorts, are obtained from cuttings of the Single Red: the cuttings may be taken at any period, after the wood of the present year is ripe. They should be planted in pots of fine white sand, about forty or fifty cuttings to a pot of eight inches diameter; the pots should be well drained, being nearly half filled with pieces of broken pot. Two or three leaves should be left upon each cutting, at least, no more must be removed than is absolutely necessary to allow of the cutting being firmly fixed in the sand. After the pots are filled they should be placed in a shady part of the greenhouse for five or six weeks, and then, if convenient, they ought to be plunged in a gentle hotbed;—a bark bed will do, but not quite so well. By their thus having bottom heat they will strike root in one half the time they would do, if left in the house. As soon as rooted they should be potted off into small pots, and afterwards kept, if possible in a hotbed or hothouse, where they will make fine strong wood, and be fit for use in fifteen or eighteen months.

Inarching, or grafting by approach, [fig. 54 *a*] is generally resorted to for the propagation of the Double Camellias; and not unfrequently, grafting* or budding. The former is by far the safest, and may be per-

* When it is inconvenient to inarch in the usual way, the best method of grafting, is that adopted a few years ago, by Mr. Pike, Gardener to W. J. Brereton, Esq., of Brinton, Norfolk, and noticed in the Gardener's Magazine, vol. 2, p. 33. It is, detaching a shoot from a plant, of the kind intended to be propagated, and inarching it upon a single stock, leaving a piece at the bottom of the cutting, sufficiently long to thrust in a phial, [fig. 54 *b*] kept constantly supplied with water.—CONDUCTORS.

formed during the summer and autumn, after the ripening of the wood, or early in spring, before the plants begin to grow. The scions may be cut from the parent plants in about eight weeks. There is no necessity

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to use clay in the operation of inarching, but if independent grafting be resorted to, clay must be used, and the wood must be quite ripe. The method called side-grafting is usually followed, but the tongue, if any, must be very small; both in this operation, and that of inarching, care must be taken not to cut the stock or scion, too deep. With regard to budding, see the Horticultural Register, p. 144. The grafted and budded plants, as soon as the operations of insertion and claying are finished, should be kept under a hand-glass, in the greenhouse, or in a cold frame, until the scion or bud has grown for the first time; and not till then, can the heads of the stocks be cut off, without great risk of failure, because an exuberance of sap is thus thrown into the scions or buds, before they are established to receive it without injury,—just as too great a supply of nutriment injures the infant of the human race. Nor should the ligatures and clay be removed before that time, (these and the foregoing remarks are also applicable to the young inarched plants,) after which, all the plants should have their tops nipped off, to two or three buds, or they may be removed by inarching or grafting them, if it be wished to increase the stock of the variety; but unless one of these precautions be followed, the plants will very probably run up with a single stem, and instead of being bushy and pyramidal, will be loose and rambling, and must eventually be cut down. The young plants, after being thus decapitated, should be treated, if possible, in the same manner as recommended above, for the young stocks, viz., to be

kept in a gentle hot-bed, or kept in a cool part of the hothouse, they will soon become fine plants; but if any are still inclined to be of a straggling growth, the side shoots should be shortened. No plant bears the knife better than the Camellia; and here I would recommend to those of your readers, who have large and ugly grown plants, to prune them freely, re-pot them, and then place them in a little heat of some kind; and however old the wood may be which is left, it will soon be covered with young shoots.

The general management of the Camellia is simple and easy; the chief points are to protect it from the scorching sun, and to prevent its roots from matting around the sides of the pot. Should it be exposed during the spring and summer to the influence of the sun, the deep dark green of its foliage soon fades, and is followed by a sickly yellow hue, therefore, I would recommend, that from the beginning of April to the middle of September, the plants should be wholly shaded from the sun, or at least, exposed only to the early morning sun;—if this recommendation be once followed, it will never afterwards be neglected. However, in recommending that the Camellia should be protected from the sun, I do not advise that it should be deprived of light; yet, it is worthy of remark, that even during the winter months, this plant will thrive in the darkest parts of the greenhouse and conservatory, where most others would be soon destroyed. Except, during the growing season, when a liberal supply of water should be given, the Camellia requires to be kept rather dry; but if the roots are allowed to become matted, the water will run down the sides of the pot, and escape by the hole in the bottom, without penetrating the ball of the earth, the roots will be impoverished, and will not imbibe a sufficiency of moisture for the support of the plant, and the first symptoms of this will be the sudden dropping of the leaves and buds, although they may appear green and healthy; the death of the patient soon follows, unless the remedy be instantly applied, by pruning, re-potting, and the application of artificial heat.

"Some cultivators grow the Camellia chiefly in peat. Messrs Loddiges who have the most numerous collection of the genus, formerly used loam, with a little sand and peat, and they are grown in similar soil, in the Hammersmith Nursery. Of late, Messrs. Loddiges, find light loam alone, to answer as well, if not better. In the Compte de Vande's garden, at Bayswater, rotten dung is mixed with loam and peat. Sweet, recommends sandy loam and peat. Henderson, of Woolshall, is one of the most successful growers of the Camellia, in Scotland; his compost is as follows,—take one part of light brown mould, one part of river sand, and one half-part of rotten leaves; mix them well together."—(Loudon's "Encyclopædia of Plants," London, 1829.) For my own part, I agree with Mr. Sweet, and use about one-third peat, and two-thirds sandy

loam. The peat and loam should be turfy, and ought not to be sifted, but chopped together with a spade, and should be rather coarse and lumpy; this will secure a free circulation to the water, and prevent, in some measure, the mischief arising from the matting of the roots. Mr. Sweet, has justly observed, that when the mould is sifted, it often bakes as hard as a brick, so that it is impossible for the roots to get through it.

The best time for shifting the Camellia, is during the month of February, and the beginning of March; and if it be advisable not to give the plant a larger pot, it should, however, be turned out, and a little of the earth taken from the top, bottom, and sides, of the ball,—then returned, and the pot filled with a little fresh compost, having first put some broken pot at the bottom. The earth must be removed gently from the ball, with the fingers,—not a root taken away, unless it be dead,—no cutting and paring the ball with the pruning-knife. In potting, they must always be well drained. A top-dressing, would be of much benefit to the plants,—if given at the time of fixing them in their domicils for the winter. The surface should be often stirred with some instrument, that will not injure the roots,—this will keep the earth light, and prevent the moss from collecting.

A little artificial heat, during the growing season, would make the plants push strong and fine shoots;—and if they are again put into a little heat, in the month of November, it will greatly forward the blossoms, and they will expand finer and better, than they might otherwise do; but in no case, should the plants be kept in heat, during the flowering season;—if so, the flowers will much sooner drop, than they would do in the temperature of the green-house or conservatory, in which, they would continue in full beauty for a considerable time.

The Camellia, like the Orange, but in a much less degree, is subject to the Scaly Bug,—the only *effectual* remedy, is to *pick* them off one by one with the nail, and rub the parts affected, with a little soft soap. The Green Fly, will sometimes attack the young green wood; here, immediate smoking with tobacco, is the remedy. By frequently syringing the leaves during the summer, and washing them with a sponge, two or three time in the course of the winter, the health of the plants will be improved, the attacks of the insects prevented, and the beauty of the foliage shown to more advantage.

I have now, Gentlemen, laid before you the results of my experience in the cultivation of this beautiful genus; and at the risk of being considered tedious, I have been rather minute;—but in a communication of this kind, elegance and conciseness, should give way to simplicity and clearness of detail.

If it be agreeable to you, I will forward to you in the course of a few weeks, a list of the varieties most worthy of cultivation, accompanied with a few observations on some of them.

I remain, Gentlemen, yours, &c.

A Young Amateur,

December 9, 1831. G. A. L.

Further Observations on the Cultivation of the Camellia,

By Joseph Paxton, F.L.S. & H.S.

Note.—The Camellia has been in this country nearly a century, being introduced from China, in 1739, and although it is admitted to be the most beautiful plant in cultivation, the means necessary to be used in order that it may be made to flourish, and flower to perfection, appear so very little known, that we feel a pleasure in being able to add to the statement of our esteemed correspondent, some actual observations of our own, on the culture of this splendid plant.

As soon as the usual flowering season is over, (about the end of March,) we have the plants, that require it, potted in a well prepared compost, of

One barrow-full of rich hazel loam,
One-third ditto fine sand,
Half ditto peat earth,
Half ditto good rotten dung.

These ought to be incorporated together at least twelve months before using, and be repeatedly turned during that period. After the plants are potted, we place them in a house, and subject them to the temperature of from 65 to 75 deg. Fahr. by day, and from 55 to 60, by night. This heat we consider far preferable to a greater, during their time of growth, as too much heat, at that period, has a tendency to render the growing shoots both weakly and short. We make it a rule to syringe them every morning, when in a growing state, and if the sun shines powerfully, shade them slightly, both at this time, and when they are in flower; indeed we have invariably found them to flourish and look far better, when not too much exposed to the sun's rays, during any period of the season. At this time, as well as when in flower, we water them pretty freely, and give as much air as the weather will admit of. As soon as the young shoots have done growing, (which is easily perceived,) we raise the heat to 80 or 85 degrees by day, and from 70 to 75 by night: this increase of heat, enables the plants to form their flower-buds with greater facility, more strength, and in far greater quantities. It should be particularly observed that this increase of heat, ought to be applied immediately on the plants perfecting their shoots, before they become of a woody texture, for if delayed until the wood becomes hard, it has not the desired effect, of producing an abundance of blossom buds.

When they have completely set their flower-buds, which will be in about three weeks after they are subjected to this increased temperature, we gradually decrease the heat, until the end of June, when they are sufficiently hardy to stand out of doors. We are careful to place them in rather a shady situation, for if placed where fully exposed to the sun, the leaves are not only liable to be blotched and unsightly, but the plants are apt to push their buds prematurely into flower.

The great reason why the flower-buds very often fall off, without properly coming into bloom; is, the too sudden changes in the temperature, to which

they are exposed, for instance, when the buds are nearly ready to expand, a sudden heat causes them to push forth too rapidly; and on the contrary, a decrease of warmth at that time, checks their growth;—and in both cases, causes them to fall. It is astonishing, how very easily the flower-buds, when nearly ready to expand, are acted upon by either heat or cold; the variation of only a few degrees, will considerably affect them, it is therefore absolutely necessary that great attention should be paid to them at that time, particularly if it be in the winter season; in the spring so much care is not required, as in general each succeeding day is a little warmer than its predecessor; but in the winter months, when the weather is so changeable, and the plants are only excited by artificial means, the greatest care is requisite, in order to keep them from advancing too much, and also to not allow the temperature to decrease, for fear of the flower-buds falling off.

If it is desired to flower them only at the natural time in the spring months, they ought to be kept as cool as possible during winter; but as the Camellia is so easy of culture, if a moderate attention be paid to it, no flower can be better adapted to blow during the whole of the winter months, when but few plants cheer us by their expanding blossoms. Last season we had a plant of the Double White, in flower for six months successively: the temperature of the house it stood in during that time, was kept at about 55 to 60 degrees Fahr. by day, and from 50 to 55 by night.

Every precaution is necessary to prevent worms from effecting an entrance into the pots; if any do find their way in, as soon as it is observed, water the soil in the pot once or twice with a weak solution of lime and water, which will speedily cause them to come out.

If the weather continues pretty favourable, that is, without frost or excessive rains, we do not take them into the house again until the latter end of September, or the beginning of October. We keep them in a cool situation till the blooming season.

The foregoing observations apply to plants that are to produce flowers at the usual season, but if they are wanted to flower in autumn or winter, it is necessary to put them in a growing state at least a month earlier in the spring. They should be got out of doors as early as possible in June, when they will be ready to be brought into the greenhouse or conservatory, to flower by the latter end of August. The heat required to expand the blossom buds is about 60 degrees Fahr. by day, and 50 degrees by night. If this be attended to, and the air never allowed to have a much greater or less degree of heat, the plants will continue in flower for a great length of time. It should also be mentioned, that by this heat the plants are not excited to grow.

The Camellia is so universally admired, that most persons who have a taste for flowers, are anxious to cultivate it, but many are deterred from doing so, by a supposition that unless they have a greenhouse or conservatory, they cannot possess so desirable an object with any degree of satisfaction. Although this idea is very prevalent, it is by no means correct; as any person having only a two-light frame, may grow it to perfection. It is well known, the Camellia is nearly hardy; some plants at Wortley Hall, have stood the intense frosts of several winters, with no other covering than a common garden mat, as also at several places in the north of England, they have stood some years with a similar protection. There is no doubt but in Devonshire, and other places, either in the south or west of England, it would succeed pretty well, if trained against a wall, but as an open shrubbery plant we think it will never flourish in this country; besides, if it were to succeed so as to form flower buds, at the time it would come into flower the wea-

ther is so boisterous that a flower could scarcely be open a day before it would be destroyed. We think it much more adapted for a conservatory or greenhouse plant where its beauty is become proverbial, than for the open air, where it would scarcely do any more than drag out a miserable existence. As I before stated, they may be grown to perfection in a common frame, if moderate attention be paid to them. In the summer months, the frame could be used for growing a crop of Melons or Cucumbers. All the attention that would be requisite in this situation, would be to give them plenty of air in mild weather, throughout the winter, protect them well during severe frost with common litter, old hay, or any kind of covering that would prevent the frost from penetrating, and attend to keeping the temperature of the frame higher at the time they are growing, and forming their flower buds as pointed out before. A few plants might be taken out of this frame, about Christmas, and put into a warm window, where they would afterwards flower for a long time; these might again be succeeded by others from the frame. By this management, Camellias may be kept in flower several months.

If the system we have recommended be attended to, an excellent bloom may be depended upon. We have practised it for three years with perfect success, and out of two hundred plants we have not had a single failure, even amongst our very small ones.

Chatsworth Gardens, Jan. 3, 1832. JOSEPH PAXTON.

ARTICLE IX.—*Scale for regulating the Heat in Pineries.* By VIGORNIENSIS

GENTLEMEN,

I SEND you for insertion, should you deem it worthy of a place, in your Horticultural Register, a scale for the regulation of the heat of a Pinery, both as relates to the bark bed, and the temperature of the house.

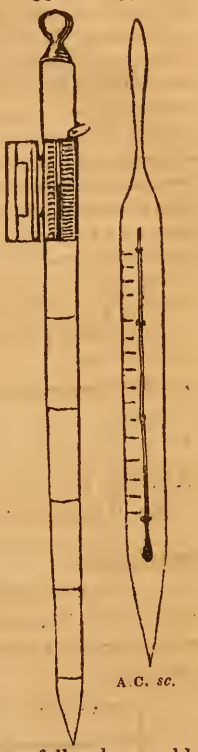
TEMPERATURE.

	FIRE HEAT.				AIR.			BARK BED.		
	Ev. & Nt.		5 a.m	Day	Morn	Noon,	Shut			
	min.	max.	min.	max	giv.at	more	up at	min	max	not to exc.
January,.....	58	63	56	60	70	75	70	80	85	90
February,.....	60	63	58	63	70	80	70	80	85	90
March,.....	60	63	60	63	76	85	74	80	95	100
April,.....	60	63	60	63	80	85	75	80	95	100
May,.....	60	63	60	63	85	90	80	80	95	100
June,.....	60	63	60	63	85	90	80	80	95	100
July,.....	NO	FIR	E H	EAT	90	95	85	80	95	100
August,.....					95	100	80	80	95	100
September,.....					90	95	80	80	90	95
October,.....	58	63	58	60	80	85	75	80	90	95
November,.....	56	61	56	58	65	72	68	75	85	90
December,.....	56	60	55	58	65	70	68	75	85	90

It will be perceived that the minimum only, is given for the Morning, as when the heat does not exceed that point the fire is intended to be made. The maximum only is stated for the Day, as it is proposed in cold and gloomy weather alone, to attain the degree given by fire heat. Of course, in catching and severe seasons, a sudden declension must be

guarded against, by fires apportioned to the size of the house, and its capacity for heat. Bragazzi's Bark-bed Thermometer, [fig. 55] described by Loudon, in the Gardener's Magazine, (I think of last year,) is recommended as a simple and accurate instrument for the measuring the heat of the bark bed. It may easily be constructed, by fixing the tube of a common thermometer, in a piece of wood, (box or yew tree,) thus, [fig. 56] and copying the scale accurately on the flat side. I will only add upon this subject, that being myself a novice in Pine culture, and having arranged the above scale for a working gardener, with a view to regulate a small house, in which fruiting and succession plants are grown, I shall be glad of the remarks of your more experienced correspondents.

55 56



A.C. *sc.*

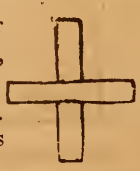
Before I conclude, perhaps you will allow me to trouble you with a few hints on the following subjects, which have fallen under my observations, and may be useful to some of your readers.

1st, I have found that coal ashes, so generally recommended, in old books on gardening, for covering Sea-kale in winter, causes canker at the roots, and if continued for many years, will destroy the plants. Saw dust or leaves, are far preferable.

2nd, I find that washing the plants of early Cucumbers every morning, with a syringe, very effectual in preventing canker and corrosion from the steam which gathers on them at night. If done carefully, the mould need not be much wetted.

3rd, I also find that draining-tiles, laid thus, [fig. 57] on any flat surface, (say, a thick sugar mat,) under the hills of Cucumber plants, will effectually prevent them from over heat. The mould may indeed be kept to any degree of heat, by closing one, or more of the apertures, as required. If the dung is sweet, a bed made upon this plan may be earthed immediately.

57



A.C. *sc.*

You allude, in your last number, for December, to Mr. Knight's plan of planting potatoes. Can you furnish us with a summary of it, in a future number.*

I am, yours, &c.,

Worcester, Dec. 7, 1831. VIGORNIENSIS.

* We will do so, at an early opportunity.—CONDUCTORS.

PART II.

HORTICULTURAL AND RURAL SUBJECTS.

ARTICLE I.—*Reviews of, and Extracts from, Works on Horticulture, &c.*

1.—FLORA AND POMONA. By C. MC.INTOSH, C.M.H.S., &c. 8vo. coloured, 1*s.*8*d.*

PART 27, FOR JANUARY, CONTAINS

The Black Tartarian Cherry.—This fruit is identical with the Black Circassian, of Hooker's Pom. Lond., No 31; and Frazer's Black Tartarian, and Ronald's Large Black Heart, of Forsyth. Treat., 3d Edition, No. 14 and 15, &c. This very excellent cherry, is said to have been introduced into this country in 1796, from Russia, by the late Mr. John Frazer, and in 1794, from Circassia, by Mr. Hugh Ronalds, of Brentford, author of that excellent work, the "Pyrus Malus Brentfordiensis."

Brunswick Fig.—This is the Madonna Fig, of Forsyth and Miller; and the Hanover Fig, of many gardens. The foliage of this variety is larger than that of any other, very deeply cut into five narrow lobes. This is one of the most useful and hardy kinds in cultivation, not only ripening on east and west walls, but on standards, in moderately sheltered situations. It is supposed to have been brought into this country, from Italy, by Cardinal Pole, in 1526, and planted by him in the gardens attached to the palace at Lambeth.

There is also a list of the most approved kinds of fruits, not figured and described in the Flora and Pomona; and an index to the fruits already figured in the work.

ARTICLE II.—*Reviews of, and Extracts from, Works on Botany, &c.*

1.—EDWARDS'S BOTANICAL REGISTER, &c. (New Series) By JOHN LINDLEY, F.R.S., &c. Monthly. 8vo. 4*s.* coloured.

NO. 11, FOR JANUARY, CONTAINS

Hibiscus palústris, Marsh Hibiscus.—(Malvàceæ.)—A perennial plant, with fine rosy blossoms; a native of the swamps of North America. *Vernónia axilliflòra*, Axillary-flowered Vernonia.—(Compósitæ.)—A light purple flowering stove plant, flowering all the year round, and propagated with the greatest facility from cuttings, which will blossom when only a few inches

high. It is supposed to be a native of some part of Brazil. *Brasavóla nodòsa*, Knotty Brasavola.—(Orchídeæ.)—This very rare plant has long been known as a native of trees in different parts of the West Indies. It has flowers of a livid yellow colour, and requires a damp stove, where it grows freely among moss and decayed vegetable matter. *Sóllya heterophylla*, Various-leaved Sollya.—(Pittospòreæ.)—A purple flowering greenhouse climber. A native of the south-west coast of New Holland. *Escallònia montevidénsis*, Monte Video Escallonia.—(Escallònieæ.)—This plant is almost hardy; its light-lilac flowers are produced in large corymbose panicles, at the extremity of almost every shoot; they are very fragrant, the smell not unlike that of the common hawthorn. *Gompholóbium Knightiànum*, Mr. Knight's Gompholobium —(Leguminòsæ.)—A delicate rose-flowering greenhouse plant, obtained by Mr. Knight, from New Holland. *Audibértia incàna*, Hoary Audibertia.—(Labiátæ,)—Mr. Douglass found this plant on the plains of Columbia, in 1826. It is perfectly hardy; and has flowers of a blue colour.

2.—Curtis's Botanical Magazine, &c. (New Series) Edited by Dr. Hooker. 3*s.*6*d.* coloured; 3*s.* plain.

No. 61, for January, contains

Láthyrus decaphyllus, Ten-leafletted Everlasting Pea.—(Leguminòsæ.)—This is a very ornamental species, and well merits a place on every flower-border. *Gerànium albiflòrum*, White-flowered Crane's-bill.—(Geraniàceæ.)—This plant was introduced from North America, by Mr. Drummond. *Cèreus Royèni*, Van Royen's Cereus.—(Cácteæ.) *Eriocaùlon decangulàre*, Ten-angled Pipewort.—(Restiaceæ.)—A stove perennial, grown in pots of peat-earth, set in pans of water. *Verbèna venòsa*, Strong-nerved Vervain.—(Verbenàceæ.)—This is a very handsome stove plant, bearing purple flowers. It is a native of the Pampas of Buenos Ayres, whence seeds where sent by Dr. Gillies, its discoverer. *Michaùxia lævigàta*, Smooth Michauxia.—(Campanulàceæ.)—A white flowering plant, a native of the north of Persia; introduced in 1829, by Dr. Fischer. *Anthéricum semibarbàtum*, Half-bearded Anthericum.—(Asphodéleæ.)—The flowers of this plant are of a bright yellow colour; it was lately introduced from Van Dieman's Land.

3.—Botanical Cabinet. By Messrs. Loddiges. Monthly. 4to. coloured, 5*s.*; 8vo. partly coloured, 2*s.*6*d.*

Part 177, for January, contains

Hulránthus robústus, Robust Habranthus.—(Amaryllideæ.)—Flowers of a delicate rose colour: it is a native of Chili and Peru. *Erìca sulphùrea*, Sulphur Heath.—(Erìceæ.)—A well known yellow flowering plant, a native of the Cape of Good Hope. *Erìca metulæflòra*, Nine-pin Heath.—(Erìceæ.)—An old inhabitant of our greenhouses, bearing deep crimson flowers. *Ceratóchilus Oculàtus*, Eyed Ceratochilus.—(Orchídeæ.)—Messrs. Loddiges, received this extraordinary plant, in 1829, from Mr. Deppe, at Xalapa, in New Spain. It flowered in June, 1831. The flowers, which hang down, are most curiously formed and fragrant; they are sprinkled over in almost every part, with innumerable spots. Near the base of the labellum, on a bright yellow ground, are two very large spots, like eyes, which add greatly to its beauty.

Lagerstræ'mia Indica, var. *rósea*, Rose-coloured Indian Lagerstræmia.—(Salicàriæ.)—It is a native of China, deciduous, and nearly hardy. *Lithospérmum purpùreo-cœrùleum*, Purple and Blue Lithospermum.—(Boragínaæ.)—This is a pretty little perennial, found in many parts of Europe, and in some parts of Britain. *Pleurothállis Lanceána*, Mr. Lance's Pleurothallis.—(Orchídeæ.)—Messrs. Loddiges received this stove plant from Mr. Lance, of Surinam, in June, 1831. Its flowers are a greenish-yellow colour. *Leucocóryne odoràta*, sweet scented Leucocoryne.—(Irídeæ?)—The flowers of this plant are white, with a slight shade of blue; it is a native of the mountains of Chili. Messrs. Loddiges received it in 1831, from Mr. Cumming, of Valparaiso. *Phycélla ignèa*, Fiery Phycella.—(Amaryllideæ.)—Another Chilian plant, received by Messrs. Loddiges, along with the last. *Penæ'a mucronàta*, Pointed Penæa.—(Epacrídeæ.)—A neat little greenhouse plant, with rose coloured and yellow flowers, well deserving a place in any collection.

4.—The British Flower Garden. By Robert Sweet, F.L.S. 8vo. Monthly. 3*s*. coloured; 2*s*.3*d*. plain.

No. 32, for January, contains

Oxalis crenàta, Crenate-petalled Wood Sorrell.—(Oxalídeæ.)—Flowers of a rich golden colour; a native of Peru, and is cultivated in the gardens about Lima, as a salad. *Víola suàvis*, Fragrant Violet.—(Violarieæ.)—It is distinguished from *V. odoràta*, by its paler green herbage, and by its larger and paler flowers. *Dactylicápnos thalictrifólia*, Berry-bearing Fumitory.—(Papaveràceæ.)—A hardy annual, with yellow flowers. *Rhododéndron Indicum*, var. *ignéscens*, Fiery Indian Rhododendron.—(Ericeæ.)—This splendid variety was imported by Mr. Tate, from China; its flowers are of a very bright crimson colour.

5.—The Botanic Garden, &c. By B. Maund, F.L.S. Monthly. Large paper, 1*s*.6*d*.; Small, 1*s*.

No. 85, for January, contains

The Index to Vol. 7, and figures of *Maurándia Barclayiàna*, Barclay's Maurandia.—(Scrophularìnæ.)—This beautiful greenhouse climber is a native of Mexico, and was introduced in 1826. It has, within these last two or three years, become so general an inhabitant of our greenhouses, that any description would be superfluous. *Lupìnus mutábilis*, Changeable Lupine.—(Leguminosæ.)—The flowers of this handsome Lupine are delightfully fragrant. Their inconstancy of colour is probably not fully known: they generally open white, attain afterwards partial shades of yellow, and ultimately, tints of purple. It is a native of Bogota, and was introduced in 1825. *Œnothèra speciòsa*, Showy Œnothera.—(Onagràriæ.)—This plant with showy white flowers, is a native of North America, and was introduced in 1821. *Diclytra exímia*, Choice Diclytra.—(Fumariàceæ.)—This is a desirable herbaceous plant for the flower border, not in reference to its rose-coloured blossoms alone, but also for its compact and neat foliage. It was introduced from North America, in 1812.

PART III.—NATURAL HISTORY.

ORIGINAL COMMUNICATIONS.

ARTICLE I.—*On the Æstivation of Flowers; and on Irregularity in Flowers.* Communicated by J. RENNIE, Esq. M.A., A.L.S., Professor of Natural History, King's College, London.

M. ADOLPHE BRONGNIART, has just published a curious paper in the Annales des Sciences Naturelles, upon "The relative insertion of divers pieces of each floral whirl, and its influence on the regularity and irregularity of flowers." He considers "a complete flower as formed by a succession of many whirls of different organs, nearly approaching at their points of insertion, the lower successively enveloping those above." We cannot spare room for his minute illustration of these curious views, but shall content ourselves with giving the table he has drawn up as the result of his enquiries.

Relation of the Æstivation, with the Regularity or Irregularity of the Flower.

VALVARY ÆSTIVATION.

		Form of the Corolla or Calyx.
Rhamneæ,	Calyx and Corolla,	Regular.
Ericineæ,	Corolla, for the most part,	Regular.
Campanulaceæ,	Corolla,	Regular.
Rubiaceæ, (Stellated.)	Corolla,	Regular.
Lobeliaceæ and Goodenovieæ,		Irregular, divided.
Compositæ,	Corolla,	Regular and irregular, divided.
Aristolochiæ,	Calyx,	Irregular.
Tiliaceæ,	Calyx,	Regular.
Asclepiadeæ,	Corolla,	Regular.
Passifloreæ,	Calyx,	Regular.

CIRCULAR.

Rubiaceæ,	Corolla,	Regular.
Apocyneæ,	Corolla,	Regular.
Polemoneaceæ,	Corolla,	Regular.
Convolvulaceæ,	Corolla,	Regular.
Primulaceæ,	Corolla (for the most part)	Regular.
Cistiniæ,	Corolla,	Regular.
Caryophylleæ,	Corolla,	Regular.
Malvaceæ,	Corolla,	Regular.
Byttneriaceæ,	Corolla,	Regular.

ÆSTIVATION IMBRICATED, QUINCUNCIAL, OR OTHERWISE.

		Form of Corolla or Calyx.
Thymeleæ,	Calyx,	Regular.
Laurineæ,	Calyx,	Regular.
Polygoneæ,	Calyx,	Regular, or irregular.
Borragineæ,	Corolla,	Regular, or slightly irregular.
Labieæ,	Corolla,	Irregular.
Verbenaceæ,	Corolla,	Regular and irregular.
Solaneæ,	Corolla,	Regular, or slightly irregular.
Personneæ,	Corolla,	Irregular.
Jasmineæ,	Corolla,	Regular.
Bignoniaceæ,	Corolla,	Irregular.
Acanthaceæ,	Corolla,	Irregular, or nearly regular.
Gesnerieæ,	Corolla,	Irregular.
Valerianeæ,	Corolla,	Regular, and irregular.
Umbelliferæ,	Corolla nearly valvary,	Regular, or irregular.
Crassulaceæ,		Regular.
Violaceæ,		Regular, or irregular.
Rosaceæ,		Regular.
Leguminosæ,		Irregular, or regular.
Terebinthaceæ,		Regular.
Geraniaceæ,		Regular, or irregular.
Tropeoleæ,		Irregular.
Balsamineæ,		Irregular.
Papaveraceæ,		Regular.
Fumariaceæ,		Irregular.
Capparideæ,		Regular, or slightly irregular.
Resedaceæ,		Irregular.
Cruciferæ,		Regular, or irregular.
Ranunculaceæ,		Regular, or irregular.
Rutaceæ.		Regular, or irregular.

Irregularity in Flowers.

M. Dutrochet, lately addressed a letter to the Academie des Sciences, of Paris, in which he explains the irregularity of form in flowers, as dependent on the same cause to which he attributes the irregularity of the interior organs in animals,—that is, to the abortion of some of their parts. "This idea," says M. Dutrochet, "belongs originally to M. Cassini; but I have observed several facts, which confirm its accuracy. Irregular flowers are always *lateral;* if by chance they become terminal, they resume their original regularity, because their developement operates then, with equal liberty on every side."

That *irregular regularity*, mentioned under the name of *Pelorie*, must have been observed in different species of flowers. But M. Dutrochet first had an opportunity of proving the fact on a papilionaceous plant, the *Cytisus*, of the Alps. A terminal flower, exhibited to his notice six petals, four of which were disposed crosswise, and above, two other contiguous alternating petals, The manner, in which these petals

were placed, attested the abortion of the two others, "Thus," says M. Dutrochet, "the papilionaceous flower is originally a regular flower, with eight petals, disposed in two alternate rows. Three of these petals constantly miscarry, and the remaining five form the *pavillon*, the two wings, and the two pieces of the *carena*."—*Annales des Sciences Naturelles.*

J. RENNIE.

ARTICLE II.—*On the Study of Entomology, as suitable for young Gardeners.* By RUSTICUS.

GENTLEMEN,

IT has been said, and not without reason, that "few studies are better calculated to expand the mind, and gratify our natural thirst for knowledge, than the study of Natural History; and as your work is designed to be the vehicle of conveying instruction to the minds of young gardeners, and lovers of Nature, I conceive, that a rough outline of the system, by the means of which your young readers may commence a scientific study of any one of its branches, may not be found wholly without its uses; particularly as I conclude there are many, like myself, not over-burthened with either cash or scientific knowledge, and are, therefore, glad to catch at any-thing which is in any way calculated to throw light on such subjects.

You very justly remarked, in page 38 of your Register, that a "studious mind would find in every step, something to pleasingly divert." Such studies however do not stop at mere diversion, but the heart of the student is almost instinctively led to pay a "grateful homage" to the Great Author of Nature. The first, and I believe, most necessary study in Natural History, for a young gardener, is *Botany;* but next to this, nothing is more fascinating to the mind, or necessary to be understood, than the study of *Insects:* want of knowledge in this branch of science, is the main cause, why so many gardeners remain ignorant of the causes which are daily producing effects before their eyes; and as Mr. Rennie observes, in "Insect Miscellanies," p. 380, the number of British Insects amount to more than 10,000,—that is, about six times as many as our species of British Plants, or about six species of insects to each species of plant. It will appear plain, that not only is the study of such a host necessary, but some order of systematic arrangement is requisite also.

Having introduced the subject so far, I shall next inform your readers what an insect is defined to be:—Insects, (from *insectus*, cut, or notched,) are so termed, according to Johnson, "from a separation

in the middle of their bodies, whereby they are cut in two parts, joined by a small ligature." The descriptions and history of insects, constitute what scientific men term Entomology; derived from the Greek *Entoma*, insects, and *logos*, a discourse. Before this science was brought to any degree of perfection, it was generally supposed by most of the ancient philosophers, that maggots, flies, and insects of various kinds, were generated or bred from putrefactious substances. This belief originated in their having always found them existing in animal bodies, when in a state of decomposition; the true fact has, however, latterly been established, that all insects come from eggs as plants do from seed. This erroneous opinion was not merely confined to the ancients, but has been transmitted by tradition, from one generation to another; and even in the present day, there are many to be found, who actually hold the opinion as firmly as ever, and these are not merely confined to persons wholly ignorant of the nature and economy of insects in general. There are many, however, in these enlightened days of science, who discover the absurdity of such opinions; but amongst these, are to be found individuals, who hold opinions almost equally as erroneous,—I mean that of insects, as caterpillars, aphides, and indeed, most garden insects, being carried about by a dense copper-coloured cloud, erroneously called "the blight," and lighting on trees by millions, in the form of a shower called the honey dew. I find the eminent Dr. Good, in the third edition of his "Study of Medicine," vol. 1, p. 339, published in London, 1829, says "the atmosphere is freighted with myriads of insect eggs, that elude our senses," and that such eggs, when they meet with a proper bed, are hatched in a few hours, into perfect forms; this, he concludes, is clear to any one, who has attended to the rapid and wonderful effects of what, in common language, is called a blight, upon plantations, and gardens, &c. &c.: and similar views to these are given in Hope's "Origin and Prospects of Man," quoted by Mr. Rennie, in page 122 of your Register. If it be asked, if this is not the truth, how is it, that so many thousands appear in a garden in one day, when previously none, or scarcely any, were before seen? Mr. Rennie's answer, I would adopt as mine.—By the eggs being nearly all hatched at one time. It is impossible for the eggs to fly in the air after the manner they are said to do, were we to suppose them to be deposited loose, and at perfect liberty, which they are not, particularly the species found in gardens.

As the study of the nature and economy of insects is persevered in, these errors will gradually give way: if we look back, only to the 17th century, we find opinions of philosophers, on the generations of reptiles, equally as fabulous; but these have now disappeared. For

instance;—snakes were supposed to be bred by merely watering the ground with a certain prepared liquid; and such notoriety did this error gain, that Kircher, one of the most learned men of his day, actually published a recipe for the manufacture of them. Redi, however, who flourished about the same time, and published a work on insect generation, about the latter end of the century, informs us, that he acted up to Kircher's recipe, to a nicety, for a many times, but produced no living snakes; however, he discovered a number of small maggots to exist on the spot where the experiments were tried; these were found, from observation, to be blown by a brilliant green fly, not improbably the *Músca Cæ'sar*, of Linnæus. These, and many other such-like errors, long prevailed; and as many errors still do prevail, particularly amongst such persons, who have not sufficient means to purchase the scientific works of the present day, it becomes necessary to adopt some method within their reach, to inform the mind, and obviate the apparent difficulties;—this is my chief view in writing the present paper, a series of which I intend to continue, until I have proceeded through the whole arrangement;—and first, I shall commence with informing your young readers, of the different systems adopted and followed from the early ages; and then, proceed to simplify the *Eclectic* or *Modern* system, which originated with M. Clairville, and was followed by Latreille, Dr. Leach, and Mr. Stephens, so as to enable any person, however previously ignorant of the nature of Entomology, to ascertain to what order, and family of insects, those belong to, he may at any time capture.

Mr. Rennie remarks, that "Aristotle seems to have been the first naturalist, who distinguished insects by their wings:" this system, however, has been followed with greater minuteness in recent times, by Linnæus and De Geer. The next system, in order of time, reckoning from Aristotle, originated with Ulysses Aldrovand, "the eminent naturalist of Italy," who arranged them according to the places they frequented,—this method was followed by Vallisnieri, Fabricius, and Latreille. The third system, was adopted by Swammerdam, about the middle of the 17th century, and was arranged according to the nature of their transformation;—this method, Ray and Willoughby followed. Fabricius, a Danish writer of high celebrity, conceived the idea of classifying them, from the structure of their mouths, or feeding organs; this is called the *Cibarian*, *Maxillary*, or *Mouth* system, which has been adhered to by Cuvier and Lamarck. Sir Everard Home arranged them according to the structure, &c. of their eggs, which is called the *Ovary* (from *ova*, an egg) system. Mr. Mc.Leay proposes to arrange groups of fives, so as to place those, which have the nearest resemblance, contiguous to one another, in

their several circles; this is called the *Quinary* system. There has, also been an attempt made, to arrange them according to their food. M. Clairville adopted the method of uniting the principles of several of the former systems; this is called the *Eclectic*, or *Modern* system: this is followed by Latreille, Dr. Leach, and Mr. Stephens; the last of which I intend to explain, not because I conceive it superior to every other system, but because I am the most acquainted with it. The first division, or sub-class, he makes, is called *Mandibulata*, including all insects with *mandibles*, or teeth; this division has seven orders.

Order I.—COLEOPTERA, (from *koleos*, a sheath, and *pteron*, a wing,) because they have wings in *elytra*, wing-cases, or sheaths. This is again divided into sections, and sub-sections.

Section 1.—ADEPHAGA, Voracious. Sub-section 1.—GEODOPHAGA, Ground Beetles, or such as feed on land. These sub-sections are again divided into families; the first of which is, *Cicindelidæ*, or such as resemble, in general structure or habit, the Scale-Beetle, or Sparkler, *Cicindela;* the only genus at present this family contains. The most remarkable species is the *C. Campestris*, one of the most beautiful Beetles this country affords: the whole upper part of the body is green, tinged with blue; underneath is a mixture of yellow, red, or copper, and the *elytra*, or wing-cases, are delicately marked with small white spots; it is to be found in sandy soil, on warm sunny banks; the *larva*, or grub, is long, cylindrical, soft, whitish, and furnished with brown scales, a square head, and six or eight eyes; it has strong jaws, and is exceedingly rapacious, being a cannibal. M. Desmarest informs us, that with great labour the animal digs in the earth, to the depth of 18 inches, to form a trap to catch its prey; to effect this, it carries out small masses of earth on its large concave head, and having often occasion to rest in ascending, it fixes itself to the side of its burrow, by two hooks, fixed on two fleshy tubercles on the eighth joint of its body; having arrived at the top of its hole, it casts off its burden. While these insects lie in wait for their prey, the head, and the first segment of the body, is supposed to stop up the mouth of the burrow, so as to form a level with the surrounding soil, and insects walking carelessly, within reach, are seized and devoured without mercy, in a moment. When it is about to undergo its transformation into a pupa state, it carefully closes up the mouth of its den, and retires to the bottom.

To be Continued.

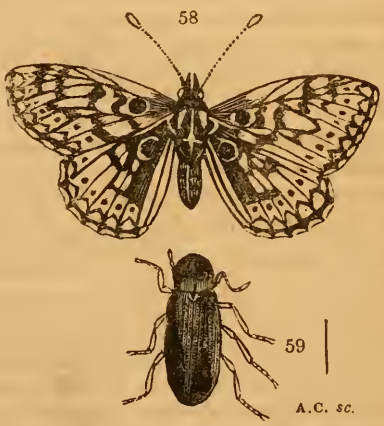
PART IV.—NATURAL HISTORY.

REVIEWS AND EXTRACTS.

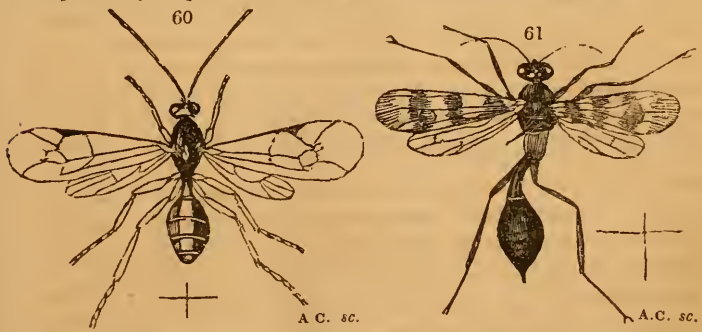
1.—British Entomology. By John Curtis, F.L.S. Monthly. 8vo. 4*s*.6*d*. coloured.

No. 97, for January, contains

Melitœa selène, Small Pearl-bordered Fritillary Moth, [fig. 58]—Order, *Lepidóptera;* Family, *Papilionìdæ*—This species is common in woods and on heaths & waste grounds; it is supposed to be double-brooded. The wings are tawny orange, with numerous black dots and markings. It is accompanied by a specimen of the *Viola hírta*, (Hairy Violet) on which, it has been supposed by some the caterpillar feeds.



Anóbium pértinax, the Obstinate Death-watch. [fig. 59]—Order, *Coleóptera;* Family, *Ptinìdæ*.—This insect is of a chesnut-brown colour, and is very rare in England: specimens of it have been taken beneath the bark of a pollard oak, near Bridgenorth. It is accompanied by a figure of the *Parietària Officinàlis*, Pellitory-of-the-wall.



Stílpnus dryàdum, [fig. 60]—Order *Hymenóptera;* Family, *Ichneùmonidæ*.—This insect has been taken on oak trees, in Galway, Ireland, by Mr. Haliday. The plant is *Sherárdia arvénsis*, Little Field-Madder.

Argìoty'pus armàtus, [fig. 61.]—Order, *Hymenóptera;* Family, *Ichneùmonidæ*—For specimens of this fine nondescript, Mr. Curtis informs us, he is indebted to Henry Walker, Esq, who took them on the Clyde, near Lanark. The plant is *Scutellària galericulàta*, Common Skull-cap.

PART V.

MISCELLANEOUS INTELLIGENCE,

ON NATURAL-HISTORY, HORTICULTURE, AND RURAL AFFAIRS.

I.—QUERIES, ANSWERS, REMARKS, &c.

REMARKS.—Gentlemen, I think the Horticultural Register would be more generally useful if you would devote a sheet, (or more or less, as may be required,) to each subject;—Planting, Farming, Gardening, and Natural History,—putting every information relating to these subjects, under their respective heads, and not blending the various subjects on the same page.

By this method your work, at the end of the year, might form, if agreeable to the taste of the possessor, four distinct volumes, one on gardening, another on planting, &c. &c. An index, published yearly, under these four distinct heads, with reference to the page, would likewise be very useful.

I am, gentlemen, your very obedient Servant,

December 12, 1831. C. B. & B.

REMARKS.—Gentlemen, as a subscriber to your Horticultural Register, which I hailed with much pleasure on its first appearing, on account of its useful matter, (having taken in a magazine for a long period, which I have discontinued, it having greatly fallen off on the subject of Horticulture,) I have to observe, that I derive, with some friends, much satisfaction from the mode in which you have conducted it as yet; but in regard to your proposal of giving Portraits of Gardeners and Naturalists, with an account of their lives, we think it will, in the first place, be of no utility, and in the next, be subjecting yourselves to much offence in some quarters, and thereby endangering the success of your work. Allow me to propose, in lieu thereof, that you give us at times, an increase of food on the subject of Horticulture, with also, as a treat, a figure of some fine new plant, in colours. By this plan I am sure you will meet with the public's views, far more satisfactorily than by portraits.

Suffer me, also, in a friendly manner, to propose that you should make your Register more generally known, by its appearing in the different seed shops, and booksellers, monthly; this plan would bring it into note, and be the means of greatly increasing its sale.* I remain, gentlemen, yours, respectfully,

December 1, 1831. AN ADMIRER OF GARDENS.

PORTRAITS.—Gentlemen, you will, I suspect, be in the predicament of the man in the fable, who, in trying to please every body pleased nobody. I consider the giving the Portraits of eminent Horticulturalists and Naturalists, if faithfully

* We have endeavoured as much as possible to adopt the very method our correspondent proposes, and in addition to this, we have issued Shop-boards, to exhibit in the booksellers' and seedmen's shops, in every town in the kingdom.—Any person, who may wish to sell the Register, can have a Board and Numbers, by sending their orders to our publishers.—COND.

executed, would be a very pleasing feature in your periodical, and add much to its value; and I am, consequently, sorry to hear it is your intention to relinquish your design. I trust you will reconsider the matter. I would suggest your making some endeavour to learn the opinion of the majority of your subscribers on the point. When do you commence the series of treatises which you promise?* It would seem to be offering an insult to buy a book, and then write to abuse the author, by disparaging it, for you may justly retort—then pray keep your money in your pocket, if you think it so unworthily bestowed: but I certainly should belie myself were I to reiterate the praises and compliments of some of your Correspondents. I confess that these two promises have mainly induced me to continue it. You have, however, progressed, and really at the low price, one is not entitled to expect extravagantly.

You have my best wishes for your success, however, so believe me, yours, &c.

Levant Lodge, Dec., 1831. I. C. K.

Enquiry.—Gentlemen, in reference to your very useful work, I beg to suggest, your communicating, for the information of your readers, the particular number, which, with the preceding, will constitute the first volume, with an index to be attached to the same. I am the more particular on this point, as it is my intention (in common I make no doubt with others,) to have the same bound in volumes, as the work advances. I am, Sirs, yours, very truly,

A Subscriber.

Answer.—The 12th number will contain an Index to the First Volume.—Cond.

Wild Plants and Birds.—Gentlemen, I beg leave to make a few congratulatory remarks on the appearance of the Horticultural Register.

On looking over the advertizing pages of a periodical, which accidentally came before me, I was agreeably surprized on seeing a "New Magazine of Gardening," announced for publication. I read the prospectus over and over, and found that the Horticultural Register was to treat on all subjects connected with Gardening and Natural History. I was quite overjoyed with the idea of such a work, and pronounced it to be the "one thing needful;" For why? Because its low price has enabled me and many others to become subscribers, whose limited means would not allow of paying the high price which is charged for works of a similar character. You have opened a channel of communication and instruction to the young Gardener and Naturalist, which I hope will prove a lasting benefit to that respectable and useful class of men. On perusing the last number of your Register, I see you have kindly received hints and suggestions from various correspondents, respecting the plan of your periodical, and as I am wishful for its establishment, I beg also, to offer a few suggestions.

In the Natural History department of your work, I would recommend that you give an account of all the subjects in natural history, found in each district or county, such as all the plants found in the neighbourhood of P——, and all the birds, &c. with their English and scientific names, accompanied by such accounts as might be considered useful or interesting, with occasionally a drawing; and I have no doubt, but the liberality of your correspondents will enable you to do this, without changing the original plan of your valuable Register, and would, no doubt, increase its circulation. I should be very happy to become a contributer in this way.†

* By a reference to the numbers already out, our correspondent will observe we have already commenced them.—Cond.

† We shall always feel happy to receive any thing of the kind.—Cond.

I am exceedingly glad to see, that it is your intention to give memoirs of the lives of Gardeners and Naturalists, it will form a valuable feature in the Register, and it may be done without changing the character of your Magazine, as your correspondent, "a Lover of Gardens," supposes it would do. The portraits which you propose giving, might, certainly, give place to figures of new and rare plants. It would be a sort of Flora to such of your readers as could not afford to pay for the Botanical Magazine, Botanical Register, or Loddiges' Botanical Cabinet. J. M.

P. S.—I have sent you a few seeds of a Cucumber, which I have this year grown; it was recommended to me by the seedsman, who supplied me. He gave it the name of "Prolific House Cucumber, and said it had been raised at Sion-House. It is a beautiful, smooth, and green fruit, measuring from 17 to 20 inches. I suppose it to be the "Serene." In the course of next summer, you will be able to ascertain what sort it is. Also, a few seeds of a bulbous-rooted plant, which in every respect resembles an Allium, but has not the scent peculiar to that tribe of plants.

Frame for Tender Annuals.—Gentlemen, a subscriber to your very amusing and instructive publication, wishes for some information on the following subject, and he thinks, that if given with your usual perspicuity, it will be highly prized by many, like himself, young amateur gardeners with small means.

Would it suit your design to give some plain directions, as to the construction and management of a small frame, for the purpose of raising such tender annuals as cannot be produced in the open ground? Whether, after sowing the seeds, striking a few cuttings, and propagating the Dahlias, in the manner you recommend, such frame could be made applicable to growing a few Melon plants? Whether it should be made of tanner's bark or manure? And lastly, What sort of mould would best suit all purposes?

If you should be disposed to answer these questions, you would perhaps subjoin a list of such flowers as occur to you as easiest raised, and making most show in the open ground, and what a packet containing a small quantity of the seeds of each, would cost as also where they should be bought.

Many will act upon this hint if you think it worth while throwing it out, and the directions you issue every month will be attended to by more disciples than you may imagine Excuse all these questions, which, however, would never have suggested themselves, but from perusing your pleasing work.
Owersby, Lincolnshire, Dec. 15, 1831.

On Destroying Sparrows.—In page 277, J. S. appears to think my method of exterminating House Sparrows dangerous, and when completed, very disadvantageous to the country This I conceive quite improbable, for so well are their destructive habits known, that nine parishes out of ten, throughout the Kingdom, give a reward for every Sparrow's head taken to the overseer. The other remark respecting the destruction of the Earth Worm, rendering the ground sterile, is erroneous. How many thousand acres of the most fertile land, have we in this kingdom, where scarcely a worm is to be found,—for instance, all meadows irrigated by rivers and brooks have scarcely any worms; this arises from two causes, first, they cannot exist long under wet, and second, such earth contains a considerable degree of sand, the points or angles of which acting on the body of the worm, would cause its death by friction. The only way worms appear to me to contribute to the fertility of the earth, is this, they collect to their holes a quan-

tity of partly decayed vegetables; on these they feed, and thereby hasten their decay, which however, would take place in their absence. Amongst the thousands of pots containing plants, subject to the care of a gardener, he always considers it a misfortune to find any of his pots infested with worms. I am no advocate for cruelty, but on the contrary, I only find the necessity of reducing the numbers of any creatures, when their increase proves injurious to the interests of man.

Willersley, Dec. 5, 1831. GEORGE STAFFORD.

DESTROYING ANTS.—Gentlemen, having been a subscriber to your Horticultural Register, since its commencement, I beg to say that I highly approve of it, as a useful work to gardeners and others. Observing in the Natural History department of your last number two queries respecting Ants, and having suffered in a similar manner to your correspondents, and like them tried many things in vain; I have at last hit upon an expedient of driving them away, and that is merely by anointing their runs with gas tar, which article we procure from Mr. Thomas Spinney's Gas works, Cheltenham, at the low price of £1. 10s. ℔ Hhd. We use large quantities of it here for painting doors and fences. I have also found it useful in preserving the bark of fruit trees from hares and rabbits. It should be put on very lightly with a paint brush. I am, gentlemen, yours, respectfully,

Northwick Park, Dec., 1831 GEORGE FULTON

BUDS DESTROYED BY BIRDS.—In your January number, p. 335, you quote from the "Companion to the Almanac," a remark of mine, that birds are erroneously accused of destroying buds, when they in reality are only searching for the insects which lodge in the buds. I beg leave, however, to qualify the generality of that remark, for though it applies most justly to such birds as the Tomtit, *Parus cæruleus*, and the Golden-crested Wren, *Regulus cristatus*, RAY, yet there are many others which feed on buds alone, and would not touch an insect;—such as most Finches, (*Fringillidæ.*) I observe, for instance, that the buds of my currant bushes have been extensively destroyed this winter, by the House Sparrow, *Passer domesticus;* and tame Greenfinches and Canaries, will feed, I find, upon buds, or almost any vegetable substance which they can manducate, but refuse all insects.

Lee, Kent, January 8, 1832. J. RENNIE.

CANAL OF WATER IN HOTHOUSES.—Gentlemen, your Horticultural Register for the month of September, contains a dialogue between Mr. Loudon and Mr. Paxton, during their walks through the gardens at Chatsworth, the seat of His Grace the Duke of Devonshire; I am much pleased with that part of their conversation respecting the hothouse flues, wherein Mr. Paxton says he has an open "canal of water at the front of his flues, to give out moisture according to the heat required;" May I, therefore, beg the favour of you, to insert in your next number, how long Mr. Paxton has made use of the above canal of water, whether it is of his own invention, or from whence he copied it? This will oblige, Gentlemen, your humble Servant,

A SUBSCRIBER.

ANSWER.—We cannot divine for what reasons our correspondent asks these questions; but if an answer will in any way gratify him, we can assure him that the practise is by no means new. Some, have the flue-covers hollowed out for the purpose; others use feeders when necessary; but the peculiar kind of canal we have, is very dissimilar to anything of the kind, we have ever hitherto seen In

a small vinery at Derby, (we forget the person's name to whom it belongs) there is a canal which covers the entire front cavity of the flue; this system, however, we think objectionable. CONDUCTORS.

PINE APPLES.—It is stated, page 336, in the Horticultural Calendar of January, that "the plants, by receiving a check, (owing to any declension of the heat,) will most of them start prematurely into fruit, in the spring." How does this agree with Mr. Knight's most successful practice? He withholds water, very nearly, and employs a very low temperature in November and December; rarely wishing to see the heat above 48 in the night, and from 50 to 60 in the day, unless in bright sunshine. He never plunges, and therefore has no bottom heat; and aims, during the dark season, at keeping his house, and the soil of his large pots, dry. Still he has succeeded to the utmost extent. Of this success (now of thirteen years standing) I hold the most direct and positive assurances. Let other able cultivators, of opposing opinions, stand forward,—I call on them; for nothing tends so effectually to elicit truth, and extend sound information, as the collision of science, and the arguments of its able advocates.

G. I. T.

EMINENT FLORISTS.—I think it would be very desirable, if your correspondents would furnish you with the names of the most distinguished Florists, living in their immediate neighbourhood. Such names, put together, would form a list, which I conceive, would be of very great service to Florists generally. I beg to say, by way of commencement, that Mr. Cundy, of Lancaster, has the finest collection of Carnations and Auriculas, of any person in the neighbourhood of this town. Yours, &c.,

Pomological Garden, near Lancaster, October 7, 1831. M. SAUL.

II.—COLLECTIONS AND RECOLLECTIONS.

HORTICULTURE.

GOOSEBERRIES.—Gentlemen, I send you an account of the heaviest Gooseberries grown in 1831, which I have selected from the Register, and beg you will give them insertion in your next number, viz :—

	dwts.	grs		dwts.	grs.
REDS.					
Lion,.....	27	6	Squire Hammond,....	26	18
Royal George,.....	26	21	Young Wonderful,....	26	1
YELLOWS.					
The Leader,.....	26	17	Teazer,.....	24	15
Gunner,.....	23	14	Rockwood,.....	22	11
GREENS.					
The Peacock,.....	23	15	Providence,.....	22	0
Angler,.....	19	21	Favourite,.....	19	6
WHITES.					
The Eagle,.....	25	18	Ostrich, ...	22	21
Delamere, ...	22	6	Fleur de lis,.....	21	6

Lancaster, M. SAUL.

ON SETTING POTATOES.—The following singular mode of setting Potatoes is said to have been witnessed on the Continent, and may, perhaps, lead to some improvements in the mode of planting, or setting them here :—

After the ground was prepared, a boy dug out a spadeful of earth, about eighteen inches separate, leaving a hole, which was filled up with a mixture

of light earth and manure; a hole was then made with a dibble, and the eyes of the Potatoe dropped in; then manure, in a liquid state, was poured in, and the rake applied to the surface. The eye of the Potatoe was scooped out, the size of a nut, by an instrument for the purpose. In this way no waste was made of the Potatoe, and it was expected to yield half as much more by this mode, than by the common mode of cutting them.

F. I. G. W.

RURAL AFFAIRS.

METHOD OF DESTROYING RATS.—Gentlemen, on looking over the Brighton Gazette, I saw an expeditious mode of Rat-catching, or rather of exterminating them from buildings &c., which might, I think, be useful to some of the readers of the Horticultural Register, if you think it worth insertion, as it does away with the objection of laying baits of poison. Although rats, as well as sparrows, are no doubt, designed as useful subjects in their places, but are very often found out of place by the kitchen-serving-gardener, still, I believe, a few rats may reasonably be spared by those who are over stocked, though I am no advocate for cruelty.

"A gentleman in the neighbourhood of Lewes, whose premises were much infested with rats, tried every means to effect their extermination, but without avail, till Baxter's Library of Agricultural Knowledge (page 227) having found its way into his library, he sought the remedy mentioned. According to the directions, he procured a sugar hogshead, poured about five inches of water into it, and in the centre placed a brick; he then covered the top with a piece of parchment, on which he placed enticing food for the rats; here they feasted themselves for a few days, when he made several openings through the parchment, sufficiently large for a rat to drop through; the baits being again laid, no sooner did one of the rats get on the top than he fell into the water; he, of course, swam to the brick, where he moaned most piteously. The whole community of rats were alarmed, and their curiosity led them in great numbers to the spot; they got on the parchment head, where they had often before been, and in they dropped, in quick succession. Now came the sport, if so it may be termed. There being only one brick in the hogshead, a war ensued for its possession; they fought most desperately, and the longer the battle continued, the greater became the number of forces; for all the rats about the premises ran to see what was the matter, and sharing the fate of those who preceded them, dropped into the hogshead. The war lasted some hours, and was not quite silenced even by the morning, when at length, all became still;—the gentlemen removed the parchment, and discovered the number of rats he had caught, to be much larger than he had supposed to be on his premises. He has since recommended the same plan to all his neighbours, and it has been found equally efficient. I am, &c.

Snelston, near Ashborne. J. SMITH.

III.—HORTICULTURAL AND FLORICULTURAL SOCIETIES.

STIRLING HORTICULTURAL SOCIETY.

THIS Society is now patronised by the Rt. Hon. Lord Abercromby, and the greatest part of the surrounding gentry. Its Office-bearers are,—President, Capt. G. Galbraith; Vice-President, Mr. R. Campbell; Secretary, Mr. R. Young; Treasurer, Mr. P. Drummond; and Collector, Mr. R. Kay. Its meetings for exhibition, and the distributing of prizes, will be held on the 8th and 29th of May, on the 12th of June, and on the 13th of Sept., 1832; the last of which is a general meeting. To these the members are admitted gratis, and the public by tickets at sixpence each. This Society possesses a Library for the use of its members, and of their journeymen and apprentices; and from the liberal manner in which the whole is conducted, we have the greatest hopes of its utility.

We also feel a decided pleasure in noticing the AGRICULTURAL EXHIBITION in the same place. We can do no more than notice for want of room, but a lengthened detail will be found in the Stirling Advertiser, for the 9th December, 1831. This was set on foot by Messrs. Drummond and Sons, Nurserymen, &c., of that place, and promises to be of incalculable benefit. This exhibition consisted of Turnips, Carrots, Mangold Wurzel, Potatoes, Grain, including Wheat, Barley, Oats, Beans, Peas, Vetches, Rye, &c. Also garden produce, and a variety of other things, including Improved Agricultural Implements, &c. The meeting was not attended by a great proportion of the Practical Agriculturalists, but by most of the nobility and gentry in the neighbourhood.

IV.—NATURALIST'S CALENDAR,

FOR FEBRUARY.

BOTANY.

THE delightful labours of the Botanist, (if labours they may be called) have now again commenced, and for many months to come, he will find full occupation for the powers of his mind, in examining and arranging the various and almost endless variety of vegetable productions, by which he will be surrounded.

Though the ascertaining of the Genera and Species of Plants, must be considered an essential part of the study of Botany; yet it is not to be pursued as the *end* of the Science, but merely as a *means* of acquiring a knowledge of their structure, properties, and uses. The attaining of this knowledge, should be the chief object of the student;—he should not content himself with merely examining their external characters, but should minutely investigate the internal arrangement of their parts. He should also, as far as possible, make himself acquainted with their virtues, and the uses to which they can be applied; and indeed, no part of their natural history, should be neglected.

The manner in which the leaves are folded in the bud, (VERNATION, or GEMMATION,) and that in which the Petals and Calyx are folded in the flower-bud, (ÆSTIVATION, or PRÆFLORATION,) will form an interesting branch of his study.

He may, even at this early period of the year, find examples for all the grand divisions of Vegetables, as follows:—

VASCULARES.	Dicotyledones, or Exogenes.	Dichlamydeæ.	Thalamifloræ.	*Erophila*, &c.
			Calycifloræ,	*Leontodon*, *Ulex*, &c
			Corollifloræ.	*Veronica.*
		Monochlamydeæ.		*Daphne.*
		Achlamydeæ.		*Salix*, *Corylus*, *Populus.*
			Coniferæ.	*Taxus.*
	Monocotyledones, or Endogenes,	Petaloideæ, ...		*Galanthus.*
		Glumaceæ.		*Poa.*
CELLULARES.	Foliaceæ.	*Polytrichum*, &c.		
	Aphyllæ.	Various species of *Lichens* and *Fungi.*		

This Table, it is hoped, may be useful to those who are commencing the study of the Natural System of Plants; as they will have an opportunity of comparing the principal divisions of that arrangement.

This month is naturally the commencement of Spring; the more hardy plants begin to put forth buds and flowers. The Snowdrop, *Galanthus nivalis* is now in full beauty; and the fertile-blossoms of the Hazel, *Corylus avellana*, appear like small crimson stars, on the summits of the buds. The structure of this flower is well worth attention.

The diminutive Willow-cress, *Erophila vulgaris*, (*Draba verna*, LIN.) is frequently to be found in flower this month, and makes a very pretty appearance on old walls. The Whin, Furze, or Gorse, *Ulex europæus;* Mezereon, *Daphne Mezereum;* Field Speedwell, *Veronica agrestis;* Dandelion, *Leontodon Taraxacum;* and the Common Daisy, *Bellis perennis;* may frequently be found in flower this month. The first of these, is proverbial for flowering the whole year.

The fertile catkins of the Alder, *Alnus glutinosa;* the flowers of the Yew, *Taxus baccata;* and the catkins of many species of Willow, (*Salix*) and Poplar, (*Populus*) begin to show themselves. The leaf-buds of the Elder, *Sambucus niger;* Gooseberry, *Ribes Grossularia;* and some species of the Rose, &c. begin to unfold their leaf-buds.

Many Mosses are now in perfection, as Heath Moss, or Moor-silk, *Polytrichum commune;*—this sometimes grows to a considerable length, and was formerly used in some parts of Derbyshire, for making brooms for sweeping carpets, &c. Lesser Water-Moss, *Fontinalis minor;* Greater Water-Moss, *Fontinalis antipyretica;* Field Grimmia, *Grimmia controversa;* and Dwarf-Broom-Moss, *Dicranum pusillum.*

ZOOLOGY.

INSECTS.—Insects, like plants, begin to feel the influence of Spring, and many are now to be found in their usual haunts. The Ditch Beetle, *Hydrophilus caraboides*, and the Lurid Pool Beetle, *Berosus luridus;* may be found in ponds, ditches, and stagnant waters. The Dark Carrion Beetle, *Silpha opaca*, on decaying animal substances, and under the rotting bark of trees. The Bacon Beetle, *Dermestes lardarius*,—the insects of this genus are very destructive in collections of Natural History, as they feed on skins, furs, and other dried animal substances.

The Brimstone Butterfly, *Goneptery.x rhamni*, is usually found from April to June, though sometimes, when produced in the autumn, it lives through the winter, and is met with in this month. In the same manner, the Peacock Butterfly, *Vanessa Io*, and the Painted Lady Butterfly, *V. cardui;* having lain torpid during the winter, revive earlier or later in the spring, according to the temperature of the atmosphere. The Moths now to be found, are the Pale Chequered Brown, *Capillaria tessserella;* the Clouded Lead, and Rosy Day, *Diarnea tortricella*, and *salicella;* the Small Egger, *Eriogaster lanestris;* the February Carpet, *Aplocera caesiata;* the Orange Upper-Wing, *Xanthia croceago;* the Small Brindled Beauty, *Amphidasis hispidaria;* the Spring Usher, *Anisopteryx leucopheaaria;* and the Dark-bordered Usher, *A. leucophearia*, var. *nigricaria.*

The Hive Bee, *Apis mellifica*, leaves its hive in search of honey, in the few flowers which are now to be found.

BIRDS.—The approach of spring, and the excitement it causes, are now apparent in the feathered creation, and their songs may be heard in every direction. Many birds begin to pair, and to look out proper situations for nestling.

The Rook, *Córvus frugilegus*, Lin.; the Kingfisher, *Alcèdo Ispìda*; the Partridge, *Pérdix cinérea*; and the Tawny Owl, *Strix aluco*, begin to prepare their nests. The Raven, *Córvus Córax*; sits.

The Skylark, and Woodlark, *Alaùda arvénsis* and *arbòrea*; the Wren, *Sylvia Troglòdytes*; (Anorthùra communis, Rennie.) the Chaffinch, *Fringilla cœlebs*, (F. spiza, Ren.) the Throstle, *Túrdus músicus*; the Blackbird, *Mérula vulgáris*; and several other birds, commence their song.

The following birds begin to leave their winter haunts, on the sea-shore, &c., and to retire to their breeding places; the Curlew, *Numènius arquata*, to heaths and bogs; the Golden Plover *Charadrius pluvialis*, to the mountains and open heaths; the Knot, *Tringa Canùtus*, and the Wild Goose, *Anser palustris*, (Anas Anser, Lin.) to the fens; the Goosander, *Mérgus Mergánser*; the Bernacle Goose, and the Brent Goose, *Anser Bernicla* and *Bréntа*, (Anas Erythròpus and Bernicla, Lin.) to the most northerly parts of Europe, Asia, and America.

BATS.—*Vespertilio murinus*, and other species, revive from their torpidity, which seems not to be so perfect as that of some other animals; a fine day or two, in any part of winter, being sufficient to bring them forth in the evening.

SNAKES.—The Slow-worm, or Blind-worm as it is commonly called, *Anguis frágilis*, revives from its torpid state.

METEOROLOGY.

Barometer.—Mean Height 30,067. Highest 30,820. Lowest 29,170 inches.
Thermometer.—Mean Temperature 38 degrees. Highest 53. Lowest 21 degrees.
Rain.—Mean quantity 0,746 inches.
Evaporation.—Mean quantity 0,733 inches.

Duffield Bank, January, 1832. O. Jewitt.

V.—MONTHLY HORTICULTURAL CALENDAR,

FOR FEBRUARY.

The exceeding openness of the weather during the past month, has greatly forwarded Horticultural operations. Most of the ground will now be trenched; and what is not finished, may be speedily proceeded with. When the weather is thus fine and open, February becomes a very important month to the gardener. All planting of trees, shrubs, &c. not performed in the autumn, may now be forwarded at the earliest convenience. Begin to make up hot-beds, for the first general crops of Cucumbers and Melons, and get a good supply of dung, for the purpose of lining, thrown together. As this month is proverbial for wet, it would be wisdom to make use of every fine day, to get in the crops necessary, and clear every part planted, of weeds. Any new work may be proceeded with, such as laying turf, &c., &c.; and towards the latter end, if the weather is fine, begin to trim the box and other edgings of walks, filling up their deficiencies. About the end, or in the beginning of March, is the time for grafting Apples, Pears, Plums, Cherries, &c., where the sorts are wished to be changed. Be careful to keep a regular heat in the Pine pits.

FRUIT DEPARTMENT.

Finish pruning and nailing all the wall trees yet unfinished. In pruning Peaches, Nectarines, and Apricots, be careful always to have a good supply of young wood from the bottom of the trees. We prefer having the buds of Peaches and Nectarines advanced a little before the knife is used, so that in the north we may calculate to be a fortnight behind the south. The sooner in the month Apples, Pears, and Cherries, are finished, the better. Gooseberries, Currants, and Raspberries, if not done before, must be set in order as soon as possible.

Plant Raspberries, if not done in the autumn. Let them be placed in rows, five feet apart between the rows, and four feet from stool to stool in the rows. We prefer planting about three plants in a triangular form, for each stool, cutting them down to about two feet high.

Peach Houses must be paid strict attention to. Where the trees are in flower, or setting their fruit, admit air as early in the morning as possible, and shut up early in the afternoon; the less fire used in forcing the better. Moisten the air by steaming, whenever the flues are sufficiently warm for the purpose—say two or three times in a day; and look narrowly after the appearance of the Red Spider, (Acarus,) or Green Fly, (Aphis.) To destroy the former, syringe the trees with a mixture of sulphur and water, or wash the flues with a mixture of soft-soap, sulphur, and water. Fumigating with tobacco is the most efficacious method of extirpating the fly.

Cherry Houses will now require much attention. Be particularly careful to admit abundance of air in the day time. Examine the leaves as they begin to show themselves, and if any are observed to be curled, you may be assured that grubs are enclosed in every curled leaf. Go over your trees, and carefully pick them off with your hands. As soon as the trees are out of flower, let them be frequently syringed with clear water.

Vineries. The Grapes that were set last month will require thinning and syringing occasionally, with clear water. The young shoots of the Vines must be kept carefully tied up, and stopped where necessary. For further particulars, see pages 6, 185, 193, 293. 337 to 350.

Strawberries in pots, should be continued to be brought in every week or fortnight, as before recommended, and plentifully supplied with water. Pick off all mouldy or decayed leaves, or they will soon render the other leaves they come in contact with, unhealthy, and consequently, incapable of performing the part assigned to them by Nature.

FLOWER DEPARTMENT.

Dahlia seed should now be sown, and a few old roots may be plunged in a little old tan. See page 145 to 147.

Mignonette and Ten-week Stocks should now be sown in pots, and placed in a slight hot-bed, as recommended last month.

Auriculas should now be top-dressed. See page 57.

Polyanthus seed should now be sown, and the old plants top-dressed with light maiden-soil, mixed with a little new horse-dung.

Ranunculuses and Anemones should be planted about the end of the month, or beginning of March, on the beds prepared, as recommended in page 196.

Hardy annuals. The latter end of the month sow a few of the earliest flowering sorts in pots, to turn out in the borders. The general sowing should not take place until the end of March, or beginning of April.

Tender annuals may be sown about the end of the month, in pots, and placed on a slight hot-bed, or on the flues of the stove.

Forcing. Continue to take into the stove, Roses, (see p. 245—253) Pinks, Carnations, Hyacinths, &c., as recommended last month.

VEGETABLE DEPARTMENT.

Peas should be sown in the beginning of the month, and towards the end, in rows five feet apart. The sorts most proper are Early Frame and Charlton. It would be also advisable to sow a few in boxes, and place them on the flues, in either the Peach house or Vinery. We have found that rotten dung, laid about two inches thick at the bottom of the box, has a good effect, for when they are planted out, the roots having run in the dung, are not injured by dividing.

Beans should be sown twice in the month, observing to sow in boxes, as directed for Peas. Mazagans are the most proper for an early crop. The most economical method of growing Peas and Beans is, to sow in drills, from ten to twenty feet apart, and fill betwixt the rows afterwards with such crops as are requisite

Cabbage, Broccoli, Savoy, &c. As early in the month as possible, sow a few seeds for use in August, and also plant Cabbage plants for use in June and July.

Plant Potatoes on a hot-bed, for an early crop, and under walls or other warm situations.

Celery should be sown on a slight hot-bed in the beginning of the month.

Cauliflower seed should be sown in the beginning of the month.

Radishes and Lettuce should be sown twice in the month.

Early Horn Carrots should be sown in the beginning of the month on a hot-bed, for an early crop; and towards the end, a few on a south border to succeed them.

Spinach. Sow some round-seeded, in a sheltered situation, to succeed the winter crop.

Onions. If the weather be favourable, and the ground prepared, about the end of the month sow the main crop, in beds of four feet and a half broad, and drilled six inches apart in the beds; as when they are sown in drills it is much easier to clean and hoe amongst them.

Parsley may now be sown.

Mustard and Cress may be raised in boxes placed on the flues, or it may be sown on the soil of the peach-house.

Rhubarb. Continue to force as recommended last month: plants two years old are preferable to any others for producing fine stalks, and also in much greater abundance.

Kidney-beans. To force, take small pots about three inches in breadth, and the same in depth; fill them with soil of an old Cucumber bed, or other light mould, nearly to the top; afterwards sow about half a dozen beans, covering them at the same time, giving them a gentle watering, and place them on the warmest part of the flues in the stoves, until they come up. When they have made the first rough leaf, turn them out of the pots carefully, with the balls entire, and place them in pots 10 inches deep, spreading the plants round the pot as equally as possible, raising the earth about them as high as the Cotyledons. From 65 to 75 degrees is the most proper temperature for Kidney-beans, with plenty of air: avoid stopping the plants, and sow once a week where a regular supply is wanted.

Jerusalem-artichokes. Make new plantations of them in suitable situations.

Cucumbers and Melons will require particular attention this month. Give air when practicable, and keep up a good heat in the bed; also keep the internal air hot and wholesome.

Asparagus for forcing. Continue to take up as directed in former months.

Parsnips. Sow the main crop about the end of the month.

Pot-herbs may be sown about the end.

G. Jewitt, Printer, Duffield, near Derby.

THE

HORTICULTURAL REGISTER.

March 1st, 1832.

PART I.—HORTICULTURE, &c.

ORIGINAL COMMUNICATIONS.

ARTICLE I.—*On the Cultivation and Management of the Fig.* By MR. WILLIAM DEAS, Gardener to his Grace the Duke of Norfolk, Arundel-Castle.

GENTLEMEN,

THE Fig is a low tree, a native of Asia and Barbary, naturalized in Italy and the south of France; but it may be successfully cultivated in England, even as a standard or an espalier tree, when it enjoys the protection of a wall, or southern exposure.

The Encyclopædia of Gardening, says, that the Fig tree in France and Italy, grows as large as our apple tree, but in this country it seldom exceeds two yards high. The Fig forms an important article of culture in the Isles and borders of the Mediterranean sea, and especially in Greece, Italy, and Spain; it is also much cultivated for drying, in the south of France, and for the table at Argentuil, near Paris. The earliest notice we have of its culture in England, is by Turner, in 1562. The first trees were brought over from Italy, by Cardinal Pole, in 1525, during the reign of Henry VIII., and yet exist in the gardens of the Archbishop of Canterbury, at Lambeth Palace.

The Author of the "Domestic Gardener's Manual," at page 256, says the history of the Fig comprises a very extended period of time; by some the tree is considered to have been known to the inhabitants of the East even before the various species of corn. Mention of it is frequently made in the Scriptures: it was highly esteemed by the Jews, and by most of the eastern nations, among which, it evidently was regarded as an important, if not a primary article of food. It is a curious fact, not perhaps generally known, that our word "Sycophant," which Johnson defines "a tale bearer, a make-bate, a malicious parasite," and

to which the French attach the idea of a calumniator, and adroit trickster, (un calomniateur, un miatre fourbe,) has been derived from two Greek words, whose simple meaning conveys no idea of the modern acceptation of the compound word. (*Sukou*, a fig; and *phano*, show, make appear, or manifest) In Athens it was applied to persons, who gave information of the clandestine exportation of Figs. It is inferred from this fact, that the Athenians considered Figs as a fruit of such great importance, as to cause the prohibition of their export from Attica.

VARIETIES.—I am of opinion, that there are not so many varieties as there are names. If the Horticultural Society of London, would publish a descriptive list of all the Figs known in this country, together with their synonymes, it would be of great benefit to the lovers of that inestimable fruit, in this and even in other countries.

PROPAGATION.—Figs may be propagated by seeds, cuttings, layers, suckers, &c. I consider cuttings and suckers the best and most expeditious methods. *By Cuttings*,—about the middle of March, take off what you may want, with about an inch of the old wood; cut the end square across with a short knife, not shortening the tops, plant them singly in pots, No. 48's, in a mixture of loam and leaf soil, with a little sand, firm the soil well about them, plunge them in a frame with a gentle bottom heat, shade them in bright sun-shiny weather, till they have made a few roots, and by the middle of May, or beginning of June, the pots will be full of roots, when they may be planted in nursery rows, or where they are to remain; or shifted into larger pots, and put in the houses, when you will have a little fruit the first year. *By Suckers*, if you can get them any size, I consider very good; even although the most eminent Horticulturalists say it is bad, and that the trees are apt to retain the vicious habit of throwing up an unsightly crowd of suckers from the roots, but I do not find it so. There are a number of trees here, raised from suckers about eight years ago, which do not show the least sign of suckers. I find that trees grown in pots, throw up suckers, whether raised from cuttings or suckers.

SOIL.—The Fig tree will grow in almost any soil, provided it is not very wet at bottom. I agree with Miller, that they bear best upon chalky land, where there is a foot or more of gentle loamy soil on the top. They also love a free open air, for although they will shoot and thrive very well in close confined places, yet they seldom produce any fruit in such situations.

SITUATION.—In the southern counties of England, I consider dwarf standards preferable to planting against a wall. There are growing in this garden, several large standards, three of which, according to the best authority I can find, have been planted 150 years; one of them is about twenty feet high and sixty feet in circumference, the stem at the

ground is six feet ten inches in circumference; about a foot from the ground it divides into two leading branches, one of them at four feet from the ground, measures four feet, the other, three feet five inches in circumference. There are also two others, which have been planted forty-five years, one of them is twenty-feet high and one hundred feet in circumference. Last year, I had a temporary frame erected over the last mentioned tree, and completely enclosed it with worsted netting, to keep the birds, wasps, and flies from the fruit: it had the desired effect, for no bird could get in, and very few wasps or flies found their way to the fruit. The fruit ripened excellently under the net. I am considerably under the number when I say a hundred dozen ripened on that one tree. The fruit of this tree is middling sized, of a greenish yellow colour, white within, very sweet and rich, and ripe from the beginning to the latter end of September; it is called here "White Marseilles." Three of the other large trees are of the same sort; the other one of the old trees is a large purple Fig, the skin is a dark purple, with a beautiful bloom, the grains are large, and the pulp sweet and high flavoured; it ripens in ordinary seasons about the middle of August—it ripened two crops last year.

Pruning and Training.—Most gardeners (even Miller) observe that the Fig trees should never have much pruning, or at least, that they should always be suffered to grow very rude from the wall to some distance. A pruned Fig tree never bears, is a common saying, nor, according to Wickham, can its truth be denied, when applied to the most common method of pruning these trees, *i. e.* by cutting away, or shortening the last year's shoots, instead of cutting away old wood, and training those shoots to the wall in its place. Wickham, in the Horticultural Transactions, vol. 3, page 74, says, to procure abundance of midsummer shoots, which in this climate alone are to be depended upon, break off the spring shoots about the period that the flow of spring sap abates, taking care to leave unbroken enough of each shoot to admit of its being nailed close to the wall at the next winter-pruning, and to secure one, at the least, uninjured by the fracture. The shoots are to be broken, but not cut, (and the operation causes the protrusion of two or three midsummer shoots, by which the supply of bearing wood is greatly increased,) always preserving a quantity unbroken, to keep up a supply of branches and wood. Keeping this object in view, he adds, the knife cannot be used too freely in cutting away the old wood.

Knight, disapproves of the branches of the Fig being trained perpendicularly, as encouraging too much the prolongation of the shoots; he approves of Wickham's mode in warm situations, but in high cold situations he radiates his branches from the top, and parts near it, of a single stem. The Rev. G. Swayne recommends rubbing off as they can

be seen, all the Figs which are produced after midsummer on the same year's shoots, the object is to prevent exhaustion, and to promote the preparation of new embryo Figs for the succeeding year. The Author of the "Encyclopædia of Gardening," No. 4860, very justly remarks, that the above practice, in connection with Mr. Knight's mode of training, must, we think, effect an important improvement in the culture of this fruit, Wickham's mode appears to excite the powers of the tree too much. By training the trees on walls, as riders, and the branches formed in a radiating star-like order, and pinching off all the embryo fruit after midsummer, would probably effect every thing that can be desired of this tree in this country.

Forcing.—The Fig tree may either be forced in a house appropriated or the purpose, or in pots. There is a small house here appropriated for the forcing of the Fig tree, [fig. 62] the house is thirty-five feet long, nine feet high, and seven feet wide, there is a fire-flue which runs along a few inches from the back wall, the trees are planted inside, about a foot from the front wall, and trained in the fan manner, on wires, about a foot from the glass. I generally commence forcing about the end of January. As soon as the strongest shoots have made about six or eight leaves they are pressed between the finger and thumb, without letting the nails come in contact with the bark, till the soft succulent substance is felt to yield to the pressure; such branches cease to elongate, and the sap is repulsed to be expended where it is more wanted. A fig ripens at the base of every leaf, this forms the second crop, (the first crop makes its appearance on the wood of last autumn,) and during the period the fruit is ripening one or more of the lateral buds shoots, and is subjected to the same treatment, the shoots are carefully examined every two or three days, and pressed with the finger and thumb ; from all such shoots as have attained to six or eight eyes by this treatment, I am able to gather three or four dozen of ripe fruit, every week, from the middle of May to the end of October, when the third crop is almost all gone. I make no doubt but four crops might easily be obtained, but I think it would exhaust the trees too much: as the third crop is ripening, water is withheld from their roots, to throw them into a dormant state They are pruned in December, cutting out as much old wood as pos-

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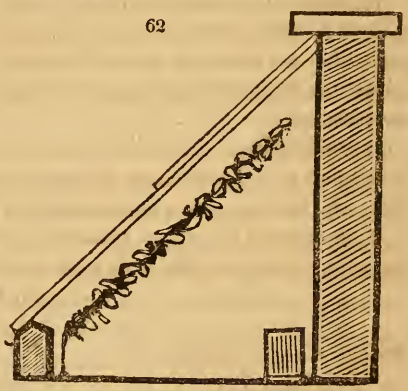


sible, they are then tied to the wires; about a week before commencing to force, the soil is stirred up, and abundantly supplied with water which holds sheep manure in solution, this is likewise used all through the season. The house is kept at from 50 to 55 degrees, till the trees begin to show signs of life; when the heat is increased to 60 and 65 degrees, they are syringed and steamed every morning, by pouring water on the flue, till the first crop begins to ripen: plenty of air is admitted when the weather will permit. There are three trees in the house, one is the White Marseilles, the other two are called here the Polack Ischia; very little of the fruit drops off when about full grown, which I think is accounted for, by keeping the house very moist. The soil which the trees are planted in is a mixture of loamy black earth, and a little small chalk, the sub-soil is a bed of natural chalk.

There are a few trees grown here in pots, which are forced earlier than those in the house; there were ripe Figs gathered from them in March, last year; they are treated in the same manner as those in the house, only subject to a higher temperature, as they are trained on the back wall of an early vinery.

I entirely concur with Monk, in saying the Fig tree, of all other fruit trees which we cultivate in our gardens, is the least understood; but to those who have acquired a knowledge of its habits, the most tractable.

If you consider the above remarks of any service, for your valuable Register, you are welcome to do what you think proper with them.

I am, Gentlemen,

Yours, &c.

Arundel Castle Gardens,
Dec. 13, 1831.

WILLIAM DEAS.

ARTICLE II.—*On Pruning, as connected with the Improvement of Forest-Tree Plantations.* (Second Paper.) By THE AUTHOR OF THE DOMESTIC GARDENER'S MANUAL, a Corresponding Member of the Horticultural Society.

GENTLEMEN,

THOSE of your readers who have read with attention the first article on Forest trees, page 241, of your Register, must, I think, be startled on perusing the paper at page 252, "On Pruning Forest Plantations, by an Arborist;" they will be inclined to believe, that when writers totally differ in their opinions, as to the results of one and the same operation, little reliance ought to be placed either

upon the theories they advance, or the facts they adduce. It would ill become me, Sirs, who profess to be your sincere friend, to introduce disputes into your pages; sooner than do so, I would be content to remain merely a quiescent reader. When, however, I feel thoroughly convinced of the truth of a position, I should be false to my own principles, and unjust to those readers, whose aim it is to found their opinions upon physiological observations, were I to withdraw from the field at once, and thus abandon the support of those principles which I believe to be supported by the evidence of a thousand facts.

Many of the remarks of an "An Arborist," are quite judicious; his experience during thirty years, has enabled him to arrive at very just conclusions. Thus he has observed, that "plantations which have been well attended to, in respect to enclosing, draining, and properly planting, have thriven well for the first twelve or fifteen years," and then have, through neglect, deteriorated; the Scotch Fir, and Larch, "which had been judiciously planted for shelter," overwhelming and ruining the Oak, Ash, Elm, &c., which were originally intended to constitute the permanent plantation.

It ought to be generally known, that it was a custom formerly, and probably remains so to the present day, to plant various trees as nurses of young forest plantations: these nurses consisted chiefly of the Scotch Pine, the Larch, and the Mountain Ash; they were interspersed among the more valuable timber trees, in order to (as it was supposed they certainly would) protect and nurse up such as are more tender, but ultimately, more valuable. Mr. Pontey, author of the "Profitable Planter," is in favour of planting three temporary trees, at the least, as nurses to one of the principal trees; and Mr. Sang, as appears in his "Planter's Calendar," "adopts the proportion of three nurses to one principal, and employs chiefly the resinous tribe, and looks to them for reimbursement, till the hard timber has attained to a foot in diameter, under which size hard timber is seldom of much value. His principals are planted from six to ten feet apart, according to the soil and situation." See also, "Loudon's Encyclopædia of Gardening," page 945.

A great error appears to have existed in thus arranging the nurses, which surely ought to have been planted as screens, in rows, to the north or north-east boundaries of the permanent plantation: so situated, they would have screened the young advancing trees, instead of intercepting the atmospheric influence and light, which are the life and soul of the vegetating plant. When by indolence or neglect, the nurses are suffered to remain too long, their branches out-top and overshadow the slow growers; and while they thus impoverish those they were intended to protect, their over-hanging branches whip and

lash the summits, producing a scene of desolation, of which the master pen of Sir Walter Scott has produced the following description:—

"In modern times we rarely see those melancholy wrecks of woods which have once been promising, but where the nurses have been allowed to remain, until they have choked and swallowed the more valuable crop, which they had been intended to shelter; and where the former existence of Oaks, Elms, and Ashes, is only proved by a few stragling bushes, which being near the verge of the plantation, have, by straggling, and contracting their boughs, contrived to get as much of the atmosphere as is sufficient to keep them alive, whilst the interior of the wood presents only a dull and hopeless succession of spindle-shanked Scotch Firs, which, like a horde of savages, after having invaded and ruined a civilized and wealthy province, are finally employed in destroying each other. Timely thinning, commenced in the fifth season after planting, and repeated from time to time as occasion requires, effectually prevents this loss of hopes, plants, and labour."

It is with great reason that your correspondent says, that "too great a partiality for trees often occasions an error, which defeats the object of the planter and improver," also, that "The progressive works of thinning and pruning, demand a skilful, and if possible, a master's hand." He appears however, to have somewhat confounded the operations of *pruning* and *thinning:* the latter is a process, by which the trees left standing are essentially benefitted, but the former is one of very doubtful utility at the best. It affects the individual tree upon which it is performed; for by it, the leaves, the buds, spray, and branches,—all of them being (or containing organs) engaged in the performance of vital functions,—are amputated and severed from the trunk, which thus is deprived, to a greater or less extent, of its means of nutriment, and increase in bulk.

"All trees," observes An Arborist, "are patient of the knife." *Patient* they are, it is true; that is to say, trees being unresisting beings, not endowed with any loco-motive or combative faculty, are incapable of giving instant proof of shrinking from the knife, or of resenting its inflictions; but it is a gross mistake to imagine, that the vital principle of the plant remains wholly passive or insensible, under such severe treatment. I conceive, Gentlemen, that I cannot—while on the subject of pruning,—do your readers a greater service, than by quoting a few pages from the letters of one or more of the correspondents of Mr. Withers of Holt, published in that gentleman's address to Sir Walter Scott.

"*Pruning,*" observes one, "if done at all, should be done at an early period, and no larger boughs should be taken off, than the

growth of the bark will cover in a year or two, to protect the wood from the atmosphere; and even then, when the trees are cut, bad knots will appear. It is a mistaken idea, that *by pruning, you accelerate the growth of trees;* for more than twenty years I have witnessed its bad effects. The tree that is left to Nature, invariably increases faster than one subject to lopping and pruning. I do not condemn cutting off the very small twigs which shoot off in a lateral direction from the stem, to give *a more sightly appearance;* but I do protest against pruning for the purpose of improving the growth. *If you deprive a tree of its leaves or mouths, the roots are unable to obtain that which enables them to perform their functions.* Nature is true to herself. The single tree sends out its branches to catch and inhale everything conducive to its productive powers. Where trees are thickly planted, Nature directs them upwards, to obtain that which their situation prevents their getting in a lower medium; consequently, you observe the lower boughs are thin and weak within, and fall off, whilst in a young healthy tree, the topmost shoots exhibit vigour, and will make more wood upwards in a given time, than trees that stand singly; and hence, the great length that trees obtain in woods."

Another correspondent offers the following remarks:—"The advocates for pruning pretend, that by cutting off what they are pleased to call superfluous branches, you occasion the trunk to swell, and the tree to thrive in a great degree more than it would if let alone."

"This idea," says Miller,* "is erroneous, for every one knows, or ought to know, that the branch of a tree, with its foliage, contributes as much to its nourishment and support as the root itself. Let any one," says the above quoted author, "take the trouble of trying the experiment upon two trees of equal age and size, by lopping one of them, and suffering all the branches on the other to grow, and he will soon find the latter to exceed the former in growth every way."

Mr. Nathaniel Kent, who wrote the "Survey of Norfolk," speaking of pruning, designates it "an *infamous custom*," and adds, "when a plant is very young, it is sometimes allowable to a certain distance, but should always be done with caution; but when trees have *begun to form* themselves, it is a *sort of murder*. It stops the growth, and produces extreme deformity; for the sap, in the spring of the year, being checked in its natural diffusion into the number of branches into which it used to flow becomes distorted.

> "'As knots, by conflux of the meeting sap,
> "'Infect the sound pine, and divert his grain,
> "'Tortive and errant from his course of growth.'—*Shakspeare.*"

* The celebrated Author of the "Gardener's Dictionary," (folio,) and Curator of the Gardens of the Apothecaries' Company. He was born in 1691, and died in 1771.

It now only remains to present the reader with one more extract, from the able work which has furnished those already laid before him; I shall then endeavour to elucidate the striking facts recorded, by a cursory view of the structure of the vegetable organs, and of the agency of electric chemistry in the laboration of the juices, and the final developement of buds and branches.

A fourth correspondent, has favoured Mr. Withers with a very conclusive set of observations, on the effects of pruning the Black Italian Poplar; and he adds, "These observations have confirmed me in the opinion, that after the vessels of a tree are filled with sap from the roots in spring, *every bud at the time that it shoots externally, sends forth innumerable fibres downward, between the bark and the wood,** constituting, as it were, a number of independent plants, deriving their nourishment from the juices deposited there, (which may be compared to the chyle of the animal body) in the same manner as the whole tree derives its grosser nutriment from the earth; and that it is *this constant accession of fibrous matter, which causes the increase of trees in bulk.*"

In order to ascertain the causes of the injury that trees receive from the loppings and prunings of their branches, it will be needful to direct the reader's attention, in the first place, to the origin and progress of the *buds or germs.* Each bud may be considered as an entire system in itself, capable of becoming, under favourable circumstances, a complete plant or tree; it is separate, or independent of the parent, in as much as respects its individual constitution, but connected with, and dependent on that parent, as to its source, and medium of nutrition. I shall not here pretend to decide between the conflicting opinions of philosophers, as to the origin of buds. Du Hamel, concluded, that they existed in a pre-organised state, and were originally *formed from the pith,* because, "having taken the trunk of a Lime tree, of about four or five inches in diameter, about the middle of which there was a bud; and having examined the section with great care, he thought he could trace a ray, of a whiter shade than the rest of the wood, extending from the pith to the bud."

The author of a treatise on "Vegetable Physiology," published in the "Library of Useful Knowledge," contends, that "every germ is a distinct insulated individual, the lateral progeny of the plant, generated at the period of the developement of the stem, or the branch on which it appears as a bud;" that "all branches proceed from germs formed in the *earliest unfolding of the parts in which they appear,* although the buds produced from these germs may not be protruded until the tree be greatly advanced in age." This writer also has

* Dr. Aikin, in his "Kalendar of Nature," advances a similar opinion.

noticed the course of the bud, as being traceable from the medullary sheath (the pith) to the surface on which it appears, *by a pale stream of parenchymatous* (pithy) *matter, traversing each concentric ligneous layer.* But this track, he observes, "only marks the advancement of the vital speck or germ, to the surface of each annual belt, on the surface of which it is seated; with the life of which, indeed, its vitality is intimately connected: *destroy this, and the germ becomes extinct:* augment its vital energy, and the germ is unfolded into a perfect bud and branch; but leave things as they are, and the germ will advance to the surface of the next year's belt of wood; and so on progressively, until it be ultimately unfolded, or perish with the destruction of the tree."—See pages 19 and 20, of the treatise, with illustrative plates.

I also, have noticed the track of whitish matter, on making the section of a two-year-old branch of the Ash, at the point of inter-section of another smaller branch, and at the seat of a protruded bud.

That able physiologist and close observer, Mr. Knight, in consequence of a series of experiments upon Sea-kale, (*Crámbe marítima,*) and the tuber of the potatoe, among herbaceous plants; and upon the Apple, Pear, and Plum, among trees; concluded, that the *alburnum* (or newly formed stratum of woody matter, immediately adjoining the bark) has the power of *organizing and re-generating buds.*

Whatever may be the origin of buds,—whether they exist at the moment of the first developement of the plumelet from the seed, and remain to be protruded at different periods, more or less remote; or whether the vital energy of the plant is exerted in a continuous formation of new buds, from the laboration of the nutritive juices; certain it is, that each bud is a vital, or at least an essential organ, connected with the energy and progressive improvement of the tree. And therefore we must, I conceive, admit, that although by pruning we cause the protrusion of fresh buds and branches, the tendency of the operation is to produce debility, and not strength. Fresh buds, fresh verdure appear, but the appearances are deceptive; for, in order to supply the places of those members which have been removed by the knife, the vital energies of the tree are taxed, and put to the expense of unnecessary efforts, in order to bring about the *premature developement* of those buds, which would, at a more advanced period, be protruded by the due operation of the great natural agents.

I perceive, Sirs, that I have exceeded my limits: with much regret, therefore, I must defer my further remarks upon the nature and progress of the sap, the vital functions of the leaves, and the electro-chemical agency of the sun and atmosphere in the laboration of the circulating juices. But if this paper be favourably received, and

opportunity be afforded, another shall be offered to your notice at a period not very remote.

I shall conclude now, by laying it down as a position founded on facts, that although it is admitted that prunings may, and do, mould trees to a form and size adapted to man's convenience, they are, to all intents and purposes, operations of debility, and not tending to produce strength or full growth; that by effecting premature developements they shorten life, and eventually lead to the destruction of the tree. Let any close observer, who has opportunities of viewing park and woodland scenery under various modes of treatment, compare the spindle, may-pole-like trunks of trees subjected to the saw and hand-bill, with the beautiful masses of luxuriant branches and foliage, proceeding from the enormous healthy trunks of trees, that—having, in the first instance, been carefully planted in soil duly prepared by deep tillage,—are subsequently left to Nature's maturing hand. Let any one, who may have seen the spot, retrace the magnificent growth of the trees,—of the Lime in particular,—at Lord Bathurst's Estate, near Cirencester; their noble branches suspended like candelabra, with masses of luxuriant foliage feathering to the ground!—let him, I entreat, compare these glorious objects with the wretched victims of mutilation, by the hand of art; and after that, let him remain an advocate for pruning if he can.

With great respect, and sincere good wishes,

I subscribe myself, Gentlemen,

Your obliged Friend,

December 17, 1831. G. I. T.

Article III.—*On Forcing the Strawberry.* By Mr. G. Harrison, Under-Gardener at the Earl of Egremont's, Petworth-House, Sussex.

Gentlemen,

At this place we annually force from two to three thousand pots of the Strawberry, and I venture to state, that we have not a single pot but what is very productive; such being the fact, I here send you the method we practice in the cultivation of the fruit under consideration, and if you judge it worthy of a place in your Register, it is at your service.

In June, small pots (three inches wide, and three deep,) are filled with strong rich loamy soil, they are then taken to the strawberry

beds, and placed firmly upon the ground, along the sides of the beds. The first new runners that issue from the mother plants are then placed upon the pots, and fastened to the soil by small wood or fern pegs; and afterwards are well watered. In this manner they remain till they are well rooted; each plant is then cut off from the wire, and the pots are removed to a northern aspect, behind a wall or hedge. The plants are kept free from weeds and runners, and are plentifully supplied with water,—drainings from the dunghill are often used.

As soon as the plants have got well established in these pots, they are removed into pots two inches larger, keeping the balls entire, and using the same kind of compost as before.

About the 1st of October, the pots are removed from the north to a south aspect. Previous to placing the pots on the ground, coal ashes are spread upon it in order to prevent worms from entering the pots.

The first week in January, as many plants as are desired for the first crop of fruit, are again shifted with entire balls, into pots two inches larger than those last grown in. After being well watered, they are taken into a pine-stove or vinery, and placed as near to the glass as circumstances will admit of. Previous to the blossoms expanding, the plants are well washed with the following mixture, applied with a syringe:—To a gallon of soap-suds, add a pint of tobacco water. This keeps the plants free from insects. A repetition is necessary, after the fruit is set.

From the time of taking in the plants to their going out of blossom, the heat is from 55 to 60 degrees Fahrenheit, and afterwards from 65 to 70.

When the fruit is set, the plants are syringed every evening, using water in a tepid state, and when the fruit begins to change colour this is given up.

The plants are not permitted to get droughted, as that would, if allowed, cause the blossoms or fruit to drop off. The pots of plants are not kept in pans of water, as is customary, but watered by pouring over the soil, and allowing all the super-abundant moisture to drain away. The application of fresh water over the soil, is far more congenial to the vigorous growth of the plants, than stagnant water, which tends to sour the soil. Plants are taken into the houses at intervals of fourteen days.

In the above practice, not only is an abundant crop ensured, but the fruit will be fine. Some of the pots of plants here, have produced from sixty to eighty fine strawberries, each.

I remain, yours, &c.

Dec. 30, 1831. GEORGE HARRISON.

Article IV.—*On the Propagation of Balsams by Cuttings.* By The Author of the Domestic Gardener's Manual, a Corresponding Member of the Horticultural Society.

Gentlemen,

Your querist, G. A. L., (in No. 7, page 327, of the Horticultural Register,) was not mistaken when he expressed his assurance that I should not "hesitate to gratify the admirers of the Balsam, by an early communication on the subject of its propagation *by cuttings*." I hasten to meet his wishes, and at the same time, to afford all the information, I, as yet possess, on this interesting horticultural fact. At the same time, observing, that as the discovery appears to have been altogether novel, insomuch that the committee of publication of the London Horticultural Society, has done me the honour, through the medium of the secretary, to announce that the paper addressed to that Society will be printed in the "Horticultural Transactions," I do not feel at liberty to furnish a copy of the original communication.

It may now, however, suffice to mention, that in the month of April, 1831, I received a packet of seeds of the Balsam, from a scientific friend, whose son had produced them in the preceding year, at Madras, and forwarded to his father. The seeds were, to all appearance, most perfect in their texture, and state of maturation; and I believe, that of all I sowed, scarcely one failed to produce a lively and healthy plant. I sowed the seeds in a pot of light sandy earth; I plunged this pot in the earth of a melonry, which was a glazed pit, containing a bed of leaves, chiefly oak and beech. The pit was constructed, on three of its sides, of nine-inch brick work; the fourth, that to the south-west, having a glazed sloping light. The bottom heat of the leaves, at the depth of 12 inches, might be about 80 degrees; but as a stratum of melon earth, full fourteen inches thick, was placed on the leaves, the heat at the bottom of the pot scarcely exceeded 64 degrees.

The young plants rose, were potted out, re-potted, kept near the glass, and finally, kept in the open air, according to the customary routine; still, however, they evinced (with one exception only) not the slightest indication of producing blossom, although some had attained the height of three feet or more. At the close of the month of August I became impatient, and as I felt interested in the final result of my exertions, I determined to try how far I might be successful, in an endeavour to extend the period of the growth of my plants into a second year, by attempting to propagate them by cuttings. My direct object was, as it is stated, to convert one of the members of the plant into a perfect vegetable body, possessed of roots, and capable, under auspicious circum-

stances, of exerting its various vital functions throughout the winter, and finally, as I hoped, of producing perfect flowers and seeds in the ensuing spring. On referring to my diary, I find, that on the 28th of Aug., 1831, one cutting was placed under a glass, such as a tumbler, or small bell-glass. This cutting was about three inches long; it was taken off at the axilla of a leaf, that is, at the angle formed between the foot-stalk of the leaf and the main, or other principal stem of the plant. The soil in the pot was composed of very light sandy loam and peat earth, and the pot was immersed in the mould of the melonry. This cutting evinced certain signs of the formation of perfect roots, on the 12th of Sept. and on the 18th, four other cuttings were placed in a similar situation; all of them succeeded, and each became covered with blossoms, though it was scarcely four inches in height. On the 12th October the cutting of Aug. 28th, was eleven inches high; the stem was somewhat slender, and drawn up, owing to the absence of sunlight, but it was furnished with nine perfect semi-double flowers, the ground colour of which was a pale French-white, and this was beautifully striped with a deep pinkish scarlet. When I witnessed the unexpected result of my experiment, I communicated it in a paper addressed to the Horticultural Society, without delay.

It remains only to remark, that Balsams may be forced into flower at the close of the autumn;—that the cuttings of the young shoots at the axillæ, or angles of the leaves, of the length of two, three, or four inches, will almost invariably produce rooted, flowering plants, provided they be placed singly, an inch deep, in small pots of rich light earth, and then plunged in a very gentle bottom heat, under glass. These are horticultural facts, which I believe to be decidedly established; and I also consider, that in all probability such plants, if every flower-bud be timely removed, can be preserved during the winter, in a dry stove, or well-aired and warm greenhouse. I am not, however, enabled to speak unhesitatingly on the latter particular, because I was not prepared to afford the required shelter during November, and the early part of December, as my house was in an unfinished state, and the pit in which the young plants were placed, was far too much exposed to early damps and hoar frosts. I have fully succeeded, however, in securing a succession of other tender herbaceous and annual plants, by cuttings taken off in September or October; among which I may mention particularly, one of the *Coreópsis tinctòria*: this is now as fine and healthy a young plant as I ever beheld. I only wait for a favourable opportunity of prosecuting my enquiries, in order to furnish that information which may enable other horticulturalists to extend their researches, which, if pursued with patience, and in a spirit of true philosophical investigation, may, at no remote period of time, lead to discoveries as interesting to

the lovers of science, as they will be gratifying to those, whose chief object it is to add to, or extend, the beauties of the greenhouse and flower garden.

I remain, yours, respectfully,

G. I. T.

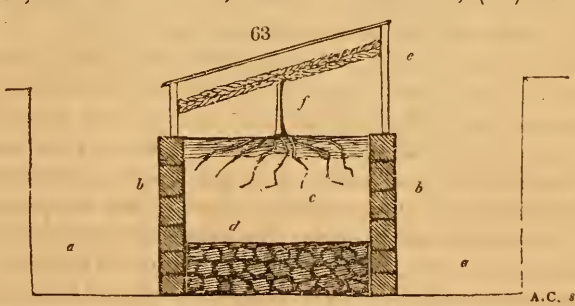
Article V.—*Method of Forcing Grapes, Peaches, Nectarines, Cherries, Figs, Gooseberries, Currants, or any other kind of Fruit.* By Mr. James Waldron.

Gentlemen,

I herewith send you a rough sketch of a plan for early forcing fruit-trees of any description in a common frame; which, if you think worth a page in your Register, you may insert it. The system I am perfectly satisfied, will answer, and the fruit be as fine and high flavoured as it can possibly be grown any other way; and the same bed will endure forcing for several years successively. This method, is one of the best both for early and late crops of cucumbers and melons, and is attended with but little trouble and expense.

First, a trench, (fig. 63, *a*) is opened in the ground, to the depth of four feet, and about nine feet wide. A quantity of thick turf is then prepared, and with this turf, walls are constructed, (*b b*) six inches

63



thick, paring them with an old hay-knife, and forming a square in the centre of the trench, of about three feet six inches wide, and as long as may be required for containing the soil, (*c*) in which the trees are to be planted. Previous to putting in the soil, a quantity of stones, or rammel, (*d*) should be laid at the bottom, about twelve inches thick. The wooden frame, (*e*) is then placed on the top of the turf walls, and a tree planted in the centre of each light, (*f*) to be trained in the manner shown in the plan. The remainder of the trench is then filled up with good linings, either of dung and leaves mixed with hops from a brewery, or leaves and tan; this lining should be pretty often renewed, and there

will be no difficulty in commanding a temperature of from eighty to ninety degrees, which will be found quite sufficient for maturing any fruit you may wish.

I intend, the first opportunity, to send you a plan of a hot-water apparatus, with the particulars and price of erection, on the best and most approved system.

I remain, Gentlemen,
Yours, &c.

January, 1832. JAMES WALDRON.

ARTICLE VI.—*On Raising the Tigrídia Pavònia from Seed.* By J. M——, of Penwortham, Lancashire.

GENTLEMEN,

IN answer to your correspondent, C. N., I sow the seeds of *Tigrídia Pavònia* about the last week in March, in pots or boxes, and place them in a cucumber-frame, where the heat is not above 60 degrees of Farenheit's thermometer. As the plants appear, air should be admitted pretty freely in the middle of the day, when the weather will permit. By the middle of May they will be ready for transplanting. A slight hot-bed should be prepared in the usual way for cucumbers, except that the heat required is not so great. In three days the bed should be covered to the thickness of six or seven inches with soil that is not too wet. In three days more, the bed will be ready to receive the plants. They should be planted in rows four inches apart, and two inches in the row; after which they should have a gentle watering, and the lights put on, shading them from the mid-day sun, until they have started to grow again. As soon as they are well established, plenty of air must be given, to prevent the plants becoming weak. About the beginning of July, the lights may be entirely removed, and the plants left exposed to all weathers, till the leaves begin to decay, at which time the roots should be taken up, and laid to dry, in the manner practised with tulips, &c. When dry, they should be put into paper bags, and kept out of the reach of frost during winter. In the beginning of April following, a bed should be prepared, by having the ground dug and well broken—this should be done in fine weather. The situation should be one that is warm and well sheltered, and the roots should be planted in rows eight inches apart, and four inches in the row, covering them to the depth of three inches. Nothing more is wanted than keeping them free from weeds, till the leaves begin to decay, when they should be taken up, and

treated as before. At the second year's planting, the largest bulbs should be selected, and planted on a separate bed, as many of them will flower the third year.

Where it is desired to have them to flower early in the spring, it may be done by planting them in pots, and placing them in a vinery, or cucumber-frame, about the beginning of February.

The soil should be composed of one-sixth of rotten dung, one-sixth of leaf mould, one-third of fresh light loam, and one-third of fine white or red sand, but not river sand.

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The accompanying figure of the *Tigrídia Pavónia*, [fig. 64,] may perhaps, be acceptable to some of your readers.

I remain,

Yours, most respectfully,

Penwortham, Jan. 14, 1832. J. M——.

PART II.

HORTICULTURAL AND RURAL SUBJECTS.

REVIEWS AND EXTRACTS.

ARTICLE I—*Reviews of, and Extracts from, Works on Horticulture, &c.*

I.—TRANSACTIONS OF THE LONDON HORTICULTURAL SOCIETY. Vol. I, Part II. Second Series.

A Report on the Varieties of the Pine-Apple, cultivated in the Society's Garden. By MR. DONALD MUNRO, F.L.S., Gardener to the Society. Read, December 7th & 21st, 1830, and January 4th, 1831.

AFTER a few preliminary observations, Mr. Munro proceeds to give the following classification of them:—

Species I.—ANANASSA BRACTEATA.

1 Scarlet.

II.—ANANASSA DEBILIS.

2 Wave-leaved.

III.—ANANASSA LUCIDA.

3 King. 4 Fisherwick Striped Globe.

IV.—ANANASSA SATIVA.

* *Leaves spineless.* a *Flowers purple.*

5 Havannah. 6 Smooth Havannah.

b *Flowers lilac, nearly white.* *Fruit globular.*

7 Green Antigua.

Fruit pyramidal.

8 Striped Smooth-leaved Sugar-loaf.

** *Leaves with minute spines, (about* 11 *in an inch on an average.)*

a *Flowers purple.* *Fruit oval.*

9 White Providence. 10 Green Java. 11 Black Jamaica.

Fruit cylindrical.

12 Orange Sugar-loaf. 13 Downton Havannah.

Fruit pyramidal.

14 New Jamaica.

b *Flowers lilac.*

15 New Demerara. 16 Striped Surinam.

**** Leaves with middle-sized spines, (about 6 or 7 in an inch on an average.)*

a *Flowers purple. Fruit cylindrical.*

17 Sierra-Leone. 18 Anson's. 19 Montserrat. 20 Trooper's Helmet.

Fruit pyramidal.

21 Green Providence. 22 St. Vincent.

b *Flowers lilac. Fruit cylindrical.*

23 Globe. 24 Lemon Queen. 25 Otaheite. 26 Surinam.
27 Buck's Seedling Globe.

Fruit Pyramidal.

28 Brown-leav'd Sugar-lf. 29 Brown Sugar-loaf. 30 Mealy-leav'd Sugar-lf.
31 Black Sugar-loaf. 32 Strip'd-leaved Sugar-lf. 33 Trinidad.
34 Buck's Seedling. 35 Enville. 36 New Enville.
37 Spring-Grove Enville. 38 Lord Bagot's Seedling. 39 Blythfield Orange.

***** Leaves with large rigid spines, (about 4 in an inch on an average)*

a *Flowers purple.*

40 Black Antigua. 41 Welbeck Seedling. 42 Ripley.

b *Flowers lilac. Fruit globular.*

43 Russian Globe. 44 Russian Cock's-comb,

Fruit cylindrical.

45 Queen. 46 Ripley's Queen. 47 Green Queen.
48 Moscow Queen. 49 Striped Queen. 50 Silver-striped Queen.
51 Antigua Queen. 52 Blood Red.

2.—Observations on the Methods now in use for the Artificial Growth of Mushrooms, with a full explanation of an Improved Mode of Culture. By Edward Callow. 8vo. *7s.6d.* boards.

Our readers will probably recollect that we noticed the forth coming of this work some time ago, and although we are somewhat disappointed with its contents, we are far from wishing that any observations of ours may prevent Mr. Callow from being handsomely remunerated for his long practical experience as a gardener, but as we professedly commenced the Horticultural Register with the view of bringing before the public a cheap miscellany, placed within the reach of all, we cannot but think had Mr. Callow published his Treatise at *2s. 6d.* instead of *7s. 6d.*, he would have been far better remunerated, because hundreds would have purchased his little work, who, at the present high price will not. We are borne out in this opinion, by the very limited circulation all dear works meet with. Mr. Oldacre's Treatise on the German mode of cultivating the Mushroom, published 15 or 16 years ago, at £1. 1*s.* may illustrate what is here advanced; had it been published at *5s.* it no doubt would have paid well, because, then the circulation would have been extensive; instead of which, ten or twelve gardeners, in most districts, subscribed to buy the work, and as soon as it appeared each took a copy of it in writing. Mr. Baldwin's Treatise on the Pine Apple also shared the same fate.

We are sorry we cannot recommend our readers to purchase the work, on the ground of value, for we conscientiously believe it ought to have been one-third cheaper. The main feature of Mr. Callow's improvement is, using

dung instead of fire heat. This we are perfectly satisfied will answer well. Numbers of gardeners in small places introduce a little spawn into their cucumber and melon beds, and after the cucumbers and melons are over, by putting a little new lining, abundant crops of Mushrooms are produced throughout autumn and winter.

Mr. Callow's observations and descriptions are explicit and satisfactory: he introduces the subject, by stating that the Mushroom has been cultivated a long time with various success, he proceeds to observe, that in autumn the Mushroom is produced in greater abundance and with more certainty than at any other period. This he very justly attributes to the humid state of the atmosphere at that period. On the system Mr. Callow has recommended, we are satisfied excellent crops may be obtained, but we conceive the expense will be greater than on the system of fire heat, as in the first place, there must always be a regular supply of hot dung, which is very often difficult to be met with; and secondly, the price of dung, and the consequent labour of turning &c. of the linings, will eventually be found to over-balance the expense of coal, and trouble of attendance on the fire.

Mr. Callow lays great stress on the undue exhalations which beds heated by fire are subject to. This might be remedied by a canal of water placed on each side of the flue, or a simple hot-water apparatus might be adjusted, and the pipes left open in various parts, which would keep the air of the house as damp as would be necessary.

"The uncertainty in the produce from dung ridges made in the open ground, and from beds made in cold sheds, arises from a deficiency of bottom heat, and from damp, and from other causes; whilst the loss of crops, which often occurs in forcing Mushrooms in houses warmed by fire, may be attributed to the arid state of the atmosphere, which the fire necessarily creates, and this being uncongenial to the habits of the vegetable, it consequently does not flourish in such situations. The fire-heat also causes too great an evaporation from the bed, which renders it so dry that it soon ceases to produce; and if water should not be supplied in the most careful manner it will destroy the spawn. This difficulty often occurs, and from it, with a fire heat, there is no possibility of escape. Nor is to be denied, that Mushrooms, forced with the aid of fire are much tougher, and also less juicy, than those which are produced on ridges of very warm dung."

"The atmosphere, which, at first view may not seem to be of much consequence, and has escaped the notice of writers who have treated on the subject of Mushroom growing, is nevertheless of the first importance; and a damp, heated air, seems in fact, to be the desideratum so long required to insure luxuriant crops throughout the year; for while this moist air is congenial to the habits of the plants, so at the same time it remedies the evil of undue evaporation, from the bed on which they grow."

"When a large supply of Mushrooms is required, two houses at least are necessary. These should be so situated that the one for summer use, should slope towards the north, or north-east; and the other for winter use, should slope towards the south, or south-west. If the ground on which the houses are built be wet or damp, the earth must be removed two feet deep, and the space filled up with loose stones or rubbish, [fig. 65 & 66, *a*] for it is absolutely necessary that the floor of the bed should be dry. The back, and end walls, (*b*) are built of stone or brick. The front (*c*) is to be boarded up with inch boards, and plastered on the inside with a thin coat of mortar. The roof (*d*) should be covered with a thick coat of thatch. An aperture with a door is to be left at each end of the house,

for the admission of air, when necessary. In the upper part of the roof, there should be two or more windows of a small size, with sliding boards to exclude the light when not wanted. The door-way should be of a small size, and if the house is from thirty to forty feet long, it should be placed about the middle of the front side, (*e*) and secured with litter in cold weather. From the door way to the back wall should be a trench, (*f*) 18 inches wide, and two feet deep, to be filled with hot dung, to secure the heat of the house. Shelves (*g*) two feet broad, may be set up against the back and end walls.

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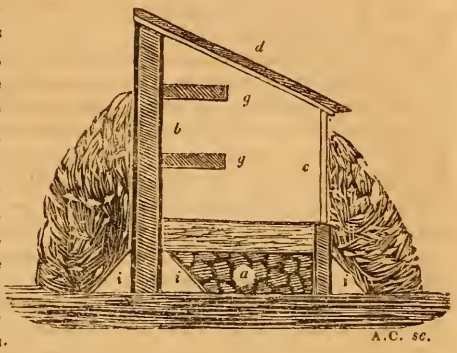

A.C. *sc.*

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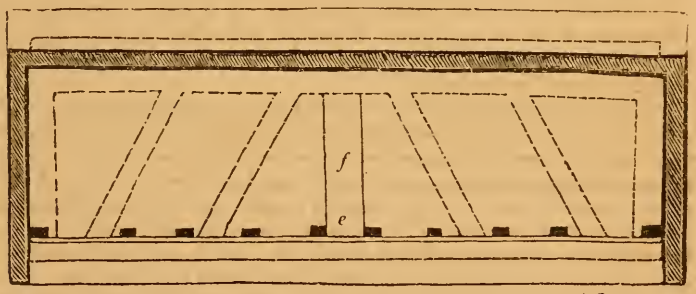

A.C. *sc.*

It will also be necessary to lay flues in, 2 feet deep and 18 inches wide, formed of boards or flat stones. (*h*) Those which run against the walls can be made by simply placing in an inclined position boards or flat stones against the wall. (*i*) The bed is made entirely of dung, prepared by turning for about three weeks or a month. The beds are to be made about 14 inches thick, and as close and compact as treading and ramming can make them. When they have settled two or three days, again beat and tread them, until reduced to 10, and not more than 12 inches thick. The beds on the shelves must be (after they are well beaten down) about five inches thick."

"Those who are inexperienced in the culture of the Mushroom should plunge a thermometer into the middle of the bed, and if a higher temperature is indicated than 80 or 85 degrees Fahrenheit, the bed must be suffered to remain until the heat has subsided to that point, which is the best temperature for spawning. If, however the heat indicated by the thermometer, be less than 80, which is not very likely to happen, it will be proper to add a little more fresh dung to the surface, which must be finished off as before."

"For earthing the bed, equal parts of strong loam and rotten dung should be used. It should be laid in a heap, and by frequent turnings be thoroughly incorporated. Before using the compost, a sixth or eighth part of leaf mould may be added, and the whole passed through a fine sieve."

"The earth should not exceed an inch and a half, nor be less than an inch in thickness, after it has been fully pressed down; it should be just moist enough to remain fixed, but not so moist as to stick to the hands."

"As the moisture of the linings will enter the interior in the form of vapour, and condense against the roof, the beds must be protected from the droppings of wet which in this way will be produced. Mats must therefore be provided, and a stage for walking over the bed must be constructed. For this purpose let pieces of wood be fastened to the back wall and the front boarding; upon these lay other cross pieces at intervals, sufficiently close to support the mats, and of sufficient strength to allow of walking upon. These cross pieces should not touch the surface of the bed by about four inches. In three weeks after spawning, the Mushrooms will sometimes appear. The mats must then be spread over the stage, so as to entirely cover the bed; these mats may be doubled in severe weather, with advantage. This covering will be found useful, not only by protecting the bed from the droppings of wet which fall from the roof, but it also serves to promote the growth of the Mushrooms, keeping up a more uniform heat and moisture, and preventing undue exhalation from the bed. The success of the crop now depends upon a heat of between 55 and 65 degrees, or when in full bearing, of 70 degrees, being kept up in the house, and by preventing the bed from becoming too dry."

The management of the house during the period of gathering the crop, consists in keeping up a uniform temperature, by occasionally adding fresh dung, leaves or grass, to the linings;—these should be turned and watered whenever they become too dry to produce the requisite heat; taking up decayed Mushrooms, removing mouldy or damp parts of the bed, paring off with a sharp knife, those parts of the surface where the Mushrooms have been cut, laying on a little fine dry mould, and filling up the cracks as soon as they appear.

3.—British Farmer's Magazine.

For November, 1831, contains

A few Practical Hints on Pruning Forest and Hedge-row Timber Trees, addressed to Mr. Coke's Tenants, on the Holkham Audit-day, July 12, 1831. By Mr. Blaikie.

"When side-branches of thriving timber trees, not being of the Fir tribe, are cut off close to their stems, the bark soon closes over the wounds, and too frequently misleads injudicious pruners, who vainly imagine the stems or boles of such trees become perfect, and remain sound, after having been subjected to such barbarous treatment. Whereas, trees so mangled are in general totally spoiled, for the stumps of the close pruned branches, after being covered over with new bark and sap wood, or as it has been called by the advocates of the measure, 'sealed up,' invariably rot in a few years after the pruning operation, and communicate the disease to the hearts of the trees. The marks of the saw, and cut of the bill-hook, are distinctly seen on the ends of the rotten stumps, and clearly prove that the trees from which these specimens were taken, had been pruned artificially.

"No union or adhesion takes place between the stumps of pruned branches and the new wood which grows over them, at least, none such has been observed in any of the numerous specimens which have been inspected at Holkham.

"Forest and hedge-row timber trees should not be pruned, in any case, where that practice can be beneficially dispensed with. Natural pruning is much pre-

ferable to artificial; as the upper side-branches of trees extend themselves over the lower ones, the latter dwindle away, and drop off from the boles of the trees, hence the term 'natural pruning,'

"The stems of forest trees seldom sustain any injury from the side-branches decaying, and dropping off in the natural way. In these cases, Nature provides antidotes for the seeming defects; the branches decay gradually, and the stems of the trees increase in size proportionably. The decayed branches are ultimately pushed out, or pinched off by the increase of sound timber. The stems of the trees are then perfect in reality, and not deceptively so, as in artificial close pruning."

"Trees which do not grow from stubs, and have not been pruned and mangled, are called 'maiden trees,' in the timber trade, and are in high estimation with timber merchants, who reject close pruned trees.

"The only rational excuse for pruning forest or hedge-row timber trees is, where they have over-luxuriant side-branches, which draw too much sap or nourishment from the stems, and do injury to the underwood in copses, and to bushes in hedge rows, and corn crops adjoining thereto. Such trees do sometimes require to be pruned, and that operation may be performed, and the desired effect obtained, without damaging the timber, or injuring the trees in any way, by the process called 'fore-shortening,' that is, by cutting off the tops of over-luxuriant branches immediately above where lateral shoots spring from them.

"By this method of pruning, the currents of sap are checked and diverted from the strong side-branches into more profitable channels—the boles of trees; these increase in size in proportion to the extra quantity of sap thrown into them by pruning operations. The upper branches of the trees then expand wide, and overtop the lower branches, which have been shortened; these dwindle and decay gradually, until they are ultimately pushed out of the stems, and pinched off, as before described in the operation of natural pruning.

"The branches should be shortened at a greater or less distance from the stems in proportion to the size; a due proportion of live branches should be left upon the stumps, sufficient to draw sap or nourishment in that direction, and thereby prevent the stumps from premature decay, and causing rot in the hearts of the trees."

4.—The Cottager's Friendly Guide in Domestic Economy. Compiled for the use of the industrious poor, by An Economist. Price *6d.*, or *5s.* per doz. for general distribution.

Perhaps at no age were the calls for benevolent and charitable exertions more loud than in the present day; so great, in many districts, is the depression amongst the labouring classes of society, that many an industrious man can scarcely, with all the economy he is master of, make both ends meet, or even in some cases, escape from real distress. Epidemic diseases rage around, and threaten at once, to sweep off the father or mother, or both, from the bosom of an infant family; and only by the intervention of Divine Providence in their behalf, through the means of the benevolent exertions of individuals, can the fatal effects be in any measure mitigated. With something of a view like this, we conceive, the author of this little work has taken up the matter, and brought together a fund of useful knowledge, on almost every thing essential to the welfare of the labouring poor. And if all those who have it in their power, would give this little book, and as far

as possible, promote the means necessary for a practical use of its contents, the beneficial results would soon become visible.

After the author has given a few plain, practical remarks concerning cows, pigs, &c. &c., he proceeds to lay down some directions for the management of a cottager's garden, of 25 rods of ground; this he divides into $2\frac{1}{2}$ rods for early potatoes, $5\frac{1}{4}$ late potatoes, $2\frac{1}{2}$ early cabbages, $2\frac{1}{2}$ late cabbages, $1\frac{1}{4}$ savoys, $2\frac{1}{2}$ greens, $2\frac{1}{2}$ leeks and onions, $2\frac{1}{2}$ peas, $1\frac{1}{4}$ beans, $\frac{1}{2}$ carrots, $\frac{3}{4}$ early turnips, 1 late turnips. He says, "no vegetable answers better to the cottager than good potatoes, and one great reason why people have bad potatoes, is, because they take their sets from the small potatoes, thinking they will do as well to set; but to have fine crops of potatoes, you should always take the eye from the middle of the best and finest potatoes."

We conceive the failure originates, in a great measure, in the sets taken from small potatoes not being allowed a sufficient body to support the eyes during the various changes of wet and drought, until they become established. To remedy this, take out all the inferior eyes from the small potatoes, and plant them whole, for we have found from repeated experience, that a perfect eye from a small potatoe, if it has a sufficient body, and is not planted too deep, will grow equally as good a crop as from a large one. We have been in the habit of planting a considerable quantity for a number of years, and never yet failed of a good crop; and we have found that a little quick lime, dug or ploughed into the land, will always insure them of a good quality.

"With respect to laying up potatoes, the following method has been found to answer well:—As early in October as they are ripe, dig them up as dry as possible, and lay them in a heap, ridged up and covered with stubble or straw, and then again cover it with earth."

If they are covered a good thickness with soil, and in very severe frost, a quantity of litter, or rubbish of any kind is laid over the hill, to prevent the frost penetrating, the second thatching may be entirely dispensed with.

"The following are good sorts of potatoes:—for *first early*, Fox's Seedling, and Early Manly; for *second early*, Nonsuch, and Early Champion, particularly the last. Perhaps the best sort of all is a new one, called the Bread-fruit potatoe, with which Heligoland beans may be profitably cultivated, by sowing them in the channels with the potatoes; they ripen at the same time without injuring the crop of potatoes. While potatoe plants are small, any quick growing crop may be planted in the spaces they will occupy when full grown. Early potatoes should be planted in the second or third week of March. Some late potatoes should be planted at the same time, and the rest in April."

We conceive Early Kidneys would be among the best for early planting, and to succeed them, Champions and Bread-fruits; and if the winter crops should not be got in till the middle of May, there need be no fear of a crop if properly managed. We conceive, the directions for sowing and planting, which follow, are upon the whole very good.

The sorts of Apples recommended are "Hawthorndean, Royal Codlin, Pearmain, Grey Russet, and Ribstone Pippin." This last, though an excellent fruit, we have found in many soils and situations, to be a very shy bearer; we should rather recommend either the Keswick Codlin, Fearne's Pippin, or Minshul Crab instead. The former of these, though no keeper, will yet bear very heavy crops, and the two latter are not bad keepers, and bear well in any situation.

Many useful recipes of different kinds fill up the remainder of the work, and render it a very useful tract for general distribution.

5.—Flora and Pomona. By C. Mc.Intosh, C.M.H.S., &c. 8vo. coloured, 1*s*.8*d*.

Part 28, for February, contains

Isotóma Axillàris, Axillary-flowered Isotoma.—(Lobeliàceæ.)—This is a very pretty greenhouse annual, with purple flowers, a native of New Holland. *Bignónia grandiflòra*, Large-flowering Trumpet-flower.—(Bignoniaceæ.)—This handsome plant was introduced from China, as long ago as the year 1800. It requires the shelter of a greenhouse, although Mr. Mc.Intosh conceives it might do in the open air trained to a wall, in a sheltered situation, if a little protection was afforded it in severe weather.

Mr. Mc.Intosh next proceeds to inform us, that having determined to complete the Flora and Pomona, in its present form, he presumes he could not better close his labours than by offering a list of choice or rare plants; which selection, added to those already recommended in his work, will, if properly managed, produce a succession of bloom throughout the whole year. There is also an index to the plants already figured and described in the work.

Article II.—*Reviews of, and Extracts from, Works on Botany, &c.*

1.—Edwards's Botanical Register. (New Series) By John Lindley. F.R.S., &c. Monthly. 8vo. 4*s*. coloured.

For February,

Contains the Index to the present volume, being the 4th of the New series, and the 17th of the whole work; also figures of the *Stemòdia Chilénsis*, Chilian Stemodia.—(Scrophularineæ)—A perennial with purple flowers, a native of Chili, where it was gathered by the late Mr. M'Rae. *Ribes inèbrians*, Intoxicating Red Currant.—(Grossulàceæ.)—This was sent from New York, by Messrs. Floy, under the above name, without any account of its quality. Mr. Lindley supposes its berries to possess some narcotic property. *Brownlòwia elàta*, Lofty Brownlowia.—(Tiliàceæ.)—A yellow-flowering stove plant, with fine showy broad leaves. *Peréskia Blèo*, Rose-coloured Pereskia.—(Cacteæ.)—A very handsome stove plant, with deep rose-coloured flowers; a native of the hottest parts of America. *Gompholòbium tomentòsum*, Downy Gompholobium.—(Leguminòsæ.)—A little slender-growing greenhouse plant, with pale yellow flowers, a native of Van Dieman's Land. *Osbéckia Nepalénsis*, var. *albiflóra*, White-flowered Nipal Osbeckia.—(Melastomaceæ.)—This variety was raised by Messrs Whitley and Co., of Fulham, and flowered with them for the first time, in August last. *Calceolària Chiloénsis*, the Chiloe Slipper-flower.—(Scrophularineæ.)—This fine yellow-flowering Calceolaria, Mr. Lindley remarks, will probably become one of the most valuable species in our gardens, not only on account of its intrinsic beauty, but because of its being more hardy than others of the half-shrubby kind.

2.—Botanical Cabinet. By Messrs. Loddiges. Monthly. 4to. coloured, 5*s.*; 8vo. partly coloured, 2*s.*6*d.*

Part 178, for February, contains

Habránthus pùmilus, Dwarf Habranthus.—(Amaryllideæ.)—This species grows but to about the height of six inches, and produces bright red flowers; it was lately introduced from Chili. *Escallònia floribúnda*, Flowery Escallonia.—Escallonieæ.)—A white flowering evergreen shrub, nearly, or quite hardy, introduced from Monte Video, in 1827. *Polygàla micrántha*, (*Muráltia micrántha*,) Small-flowered Milkwort.—(Polygaleæ.)—A well-known delicate greenhouse plant, introduced from the Cape of Good Hope, in 1800. *Carallùma crenulàta*, Round-notched Caralluma.—(Asclepiàdeæ.)—This is a very handsome species; the flowers have velvetty-brown streaks, on a yellow ground. It was discovered on sandy mountains, on the right of the Irawaddi river, by Dr Wallich; it grows about six inches high, and requires the stove heat. *Aceras anthropóphora*, Man-bearing Aceras.—(Orchideæ.)—This plant is found in England, in old chalk pits, or dry pastures; it is called Man Orchis, from the resemblance of the labellum to the human arms and legs. *Zygopétalon maxillàris*, Maxillaria-like Zygopetalon.—(Orchideæ.)—This beautiful stove plant was received by Messrs. Loddiges from Mr. F. Warren, in 1829; it is a native of Rio Janiero. The flowers richly display the colours of yellow purple, and velvetty brown. *Erìca Celsiàna*, Cels's Erica.—(Ericeæ.)—An old inhabitant of our greenhouses, being introduced about the year 1810, from the Cape of Good Hope, by Mr. Rollisson. *Erìca Linnæàna, supérba.*—This delicate variety was raised about 1806, from Linnæus's Heath; it is now pretty generally cultivated. *Hunnemània fumariæfòlia*, Fumaria-leaved Hunnemania.—(Papaveraceæ.)—This is a native of Mexico, introduced in 1827, by the late Robert Barclay, Esq. It has splendid yellow flowers, and flourishes best in the greenhouse. *Oxàlis Mauritiàna.*—This purple flowering species, is a native of the Isle of France, and was introduced in 1810; and although hitherto it has been commonly considered a stove plant, Messrs. Loddiges have ascertained that it does equally as well in the green-house.

3.—Curtis's Botanical Magazine, &c. (New Series) Edited by Dr. Hooker. 3*s.*6*d.* coloured; 3*s.* plain.

No. 62, for February, contains

Coccolòba uvífera, Round-leaved Sea-side Grape.—(Polygoneæ.)—This plant is a native of the West Indies, and grows to a tree 20 feet or more in height; its flowers are fragrant, the fruit pear-shaped, and of a purple reddish colour, have a sweetish acid taste, and are not much esteemed. *Geitonoplèsium cymòsum*, Cymose Geitonoplesium.—(Asphodeleæ.)—A yellowish green flowering plant, introduced from New Holland. *Piper Bètel*, Betel Pepper.—(Piperaceæ.)—A native of the East Indies, and introduced as long ago as 1804. To the description is appended an interesting account of the uses made of it by the natives. *Grevíllea calèyi*, Blechnum-leaved Grevillea.—(Proteaceæ.)—A red-flowering greenhouse plant; the young foliage and young branches are also beautifully tinged, which gives the plant a peculiar richness of

colour. *Gratiòla tetragòna*, Four-sided Hedge-Hyssop.—(Scrophularineæ.)—A blue flowering stove plant, newly introduced from Buenos Ayres. *Sálvia strictiflòra*, Erect-flowered Sage.—(Labiatæ.)—A red flowering stove plant, found in Peru, by Mr. Cruckshanks. *Stylídium scándens*, Climbing Stylidium.—(Stylideæ.)—A greenhouse plant, with lilac-coloured flowers.

4.—The British Flower Garden. By Robert Sweet, F.L.S. 8vo. Monthly. 3*s.* coloured; 2*s.*3*d.* plain.

No. 34, for February, contains

Lachenàlia mutábilis, Changeable-coloured Lachenalia.—(Asphodeleæ.)—A native of the Cape of Good Hope, imported by Mr. Synnot. *Calceolària Wheelèri*, Wheeler's Hybrid Slipperwort.—(Scrophularineæ.)—A very handsome plant, bearing flowers of a crimson-velvet colour; it was raised by Mr. G. Wheeler, nurseryman, at Warminster, from the seed of a hybrid, produced from *C. purpùrea*, fertilized with *C. Corymbòsa;* this was again fertilized by *C. purpùrea*. *Sparáxis lineàta*, Red-lined Sparaxis.—(Irideæ.)—This is a very pretty species; the flowers are yellow, marked with pink. The Editor says that he has found all the Cape, Mexican, and Chilian bulbs, succeed quite well in a warm dry border, in a mixture of sandy loam and peat, and to be covered with a mat in very wet or sharp frosty weather. *Narcissus stellàris*, Starry Narcissus.—(Amaryllideæ.)—A delicate white flowering species having the crown margined with bright scarlet.

5.—The Botanic Garden, &c. By B. Maund, F.L.S. Monthly. Large paper, 1*s.*6*d.*; Small, 1*s.*

No. 86, for February, contains

Erythræ'a aggregàta, Aggregate Erythrea.—(Gentianeæ.)—This is a very pretty plant, either for rock work or pot culture; it requires a little protection during very severe weather—its flowers are bright rose-colour. *Erpètion renifórmis*, Spurless Violet.—(Violarieæ.)—A little perennial, introduced from New Holland, in 1825. *Anagállis Webbiàna*, Webb's Pimpernel.—(Primulacea.)—This is a very neat purple flowering species, becoming pretty general in most gardens; it was discovered by P. B. Webb, Esq., in the south of Europe, in 1828. *Claytònia Sibírica*, Siberian Claytonia.—(Portulaceæ.)—This little white-flowering plant is an old inhabitant of this country, being introduced in 1763.

PART III.—NATURAL HISTORY.

ORIGINAL COMMUNICATIONS.

ARTICLE I.—*On the Management of the Silk-Worm; and on growing Silk, as a means of bettering the condition of the labouring classes.* By A HORTICULTURIST.

GENTLEMEN,

As you dedicate a few pages of the Horticultural Register to Natural History, perhaps a short account of the rearing of the Silk-Worm, with a few observations respecting the growth of Silk in this country, may not be unacceptable.

The repeated trials that have taken place in this country, in the hope of establishing the growth of silk as a source of profit, and more particularly the failure of the British, Irish, and Colonial Silk Company, of late years, might silence any attempt to prosecute any scheme of the like, again. Although I am aware of these failures, still I am confident (as I have had some experience in rearing the Silk-worm in this country) that they will ultimately be successful, if prosecuted in the way I shall point out. I have no idea that it would yield a profit to any company, however persevering, whose establishments must necessarily be expensive: but it might yield a profit to the labourer, who could not meet with labour otherwise.

It has rarely happened of late years, that the labourer and all his family have been in constant employ. It is with a view of employing the unemployed, that I venture to lay this before you, that it may induce the landed proprietor to find Mulberry plants to produce food for the labourer's Silk-worms, and the labourer's unemployed family might find labour at their own risk of remuneration, according to their success in the rearing of the Silk-worm.

Before the period for hatching the Silkworm arrives, the cottager should erect stages around the apartment intended for the Silk-worms. Few cottagers have much spare room, but they must put themselves to a little inconvenience for about a month, when they have a prospect of being repaid for it. High posts of wood should be fixed round the apartment, about three feet apart, with others exactly opposite, about two feet and a half from the wall; across these should be nailed pieces of wood, about twenty inches, or two feet apart. These are intended to support the trays—they are made as follows: Nail four

pieces of board together, to form an oblong square, three feet by two and a half, and three inches deep; across the bottom, nail small reeds, or thin laths, about an inch apart. These trays are to be covered with cartridge paper, when wanted for the Silk-worm. A small thermometer is also necessary to regulate the heat.

The method herein detailed in rearing the Silk-worm, is nearly the same as recommended by Count Dandolo, in his excellent work on that subject, and is proved by experience.

Previous to the hatching of the Silk-worms, the eggs should be detached from the linen cloth, or paper, upon which they were deposited. The cloth, or paper, should be put in a pail of cold water, and remain for six or eight minutes, to dissolve the gummy substance by which the eggs are stuck to the cloth. They are then taken out, held up to drain a little, and then spread on a table. The eggs are scraped off with a table-knife, with great care, otherwise you may injure them. Put them in a basin with cold water, stir them about to wash off any of the matter remaining deposited by the Moths, pour off the water, and spread the eggs on a cloth to dry. Observe to skim off the eggs that swim on the top of the water, and throw them away, as they are not good. After the eggs are perfectly dry, spread them on a plate, about half an inch thick, and place them in a dry, cold, airy place, until the time you wish to hatch them, arrives. You must stir them about occasionally. They may be hatched without taking them off the cloth, but the above method is preferable.

The greatest obstacle we have to contend with in this country is our variable climate, in its sudden transitions from heat to cold; and the great danger is, that the Worms hatch before there is a proper supply of food for them. To guard against that, is of the utmost consequence; they ought to be kept in as cold a place as possible, and free from damp, as it is very pernicious, and not brought into the warmth to hatch before the middle of June,—the weather then, is generally more settled, and there will be no difficulty in getting a plentiful supply of food for them.

About half-an-ounce of eggs, which will produce nearly 20000, will be as many as any cottager can have conveniency for rearing. The above quantity should be put on a paper tray, (a piece of paper folded up at the sides) about five inches square; the heat required for hatching them is about 70 degrees.—It is impossible to say the exact time that will be required in the hatching of them, as that depends on the degree of temperature they have been kept in previously. The first day's hatching should be thrown away, as they are generally few in number. A piece of writing paper pierced with numerous holes, should be put over the eggs, for the Worms as they hatch, to crawl through;

and on the paper, small twigs of mulberry with the leaves on, should be spread. As soon as the Worms get through the holes, they immediately get on the twigs, which, when covered, remove to another paper tray, about fifteen inches square; more twigs should be placed over the eggs, and removed as soon as loaded with Worms, all the time they continue to hatch for the day:—the time of hatching is generally from 5 to 9 o'clock in the morning. In about three days, the principal part of the eggs will be hatched, and each day's hatching should be placed on a separate tray, observing to place them in the middle of the tray so as to occupy about one-fourth; the day of the month on which they were hatched, should be noted down, so as to prevent confusion afterwards.

As soon as the Worms have done coming forth for the day, and are removed, they should have a little food given them, viz.—a few young leaves chopped very fine, and sprinkled over them,—it must be given to them in very small quantities. They ought to be fed at least four times a day,—the first meal, at four o'clock in the morning, then at nine, again at three in the afternoon, and lastly, at nine in the evening; between these times of feeding, a sprinkling may be given; as a little at once, and often, is the best way of feeding the Silk-worm.

If I were to enter minutely into the subject, it would be necessary to state the quantity of leaves required for each day's consumption, but that would swell this paper to a greater length than is necessary; suffice it to say,—the quantity of leaves given, should increase at every feed, up to the fifth day, and the chopped leaves should be spread a little wider every time they are fed, so that as the Worms increase in size, they may have more room to feed; on the sixth, a less quantity of food should be given them; on the seventh, little will be required; and on the eighth, they will become torpid, and cast their skins; probably, it will be the next day before they are fit to remove to another tray. Great care must be taken in giving them dry leaves,—they ought to be gathered some hours before they are used.

I may here observe, that the time of moulting or casting their skins, depends entirely on the temperature in which they have been kept; in the above time, the thermometer should range between 68 and 72 degrees; but if kept up to 75 degrees, they would cast on the sixth or seventh day, in fact the hotter they are kept, the more rapid their growth, and they consequently go through their changes more quickly; but the risk is greater.

The time taken, as stated above, will nearly correspond with the degree of heat that the cottager may command in this uncertain climate, and as low as they can be reared in with any degree of success.

The Second Age,—the 9th day of rearing.

On the morning of this day they will have cast their skins, and require food. As on the beginning of the former age, twigs should be laid over them, and as soon as they get loaded with Worms remove them to clean paper trays ready prepared for them. In this age they will require double the space to grow in, as they increase so much more in size; they must be laid in squares, about one-fourth the space they will fill during this age; and care must be taken to enlarge the squares every time they are fed. Due attention must be paid to increase the quantity of food given, up to the fourth day; on the fifth day they will require but little, and on the sixth little or none, as they will become torpid: in this age the leaves need not be cut quite so fine.—They will consume double the quantity, and in less time. The temperature of the apartment should be kept as regular as possible, and it must be well ventilated, but no strong current of air should be allowed to pass over the Worms; and when the sun shines, a blind should be hung up against the window, as the rays of the sun are very hurtful to them.

The Third Age,—the 15th day of rearing.

In this age, the Worms increase so much in size, that more than double the space will be required to what they had last age, and four times the quantity of food. As soon as the Worms are revived, remove them to clean trays, as explained in former ages: increase their food up to the fifth day. The sixth day, half the quantity will suffice as given last day; and on the seventh little ' none, as they will begin to cast their skins, and enter upon their urth age.

The Fourth Age,—the 21st day of rearing.

In this age they will consume about three times the quantity of leaves as given last age; they should be older, and not cut so fine, and will require rather more than double the extent of tray. Remove them as in the last ages, on clean trays, and every time they are fed increase the quantity of food up to the fifth day. The sixth day, about half the quantity, and on the seventh day little or none, as they go through their last moulting, and enter upon their last and most precarious stage as Silk-worms.

If the weather be cold, a fire should be kept up; but be careful of smoke, as it is very hurtful. If the weather be favourable, blazes of wood shavings, or light wood, should occasionally be had recourse to, to agitate and renew the air within, and to check any bad unpleasant smell, and carry off any damp.

The Fifth Age,—the 27th day of rearing.

This is the commencement of the longest and most dangerous age of the Silk-worm, and the greatest attention must be paid not only to the feeding, but to the ventilating, to keep up a regular temperature, and prevent dampness and noxious air. Strict attention must be paid to clean the trays of the excrement of the Worm and the refuse leaves every morning; for cleanliness is of the greatest consequence.

The thermometer should be kept up to 68 degrees, or perhaps varying from 65 to 75 degrees, but not under 65 if possible. A Hygrometer is a most useful instrument to measure the humidity of the apartment, as a dry atmosphere is of great importance, and dampness may be considered the greatest bar to success in rearing the Silk-worm in this country. If a hygrometer cannot be had, a little salt placed in a dish will show when there is any appearance of dampness; when there is the least indication, blazes of wood-shavings, or small wood, should be had recourse to, until the dampness disappears; or if a fire is required to maintain a heat as well, billets of wood, or coal, must be used. If ventilating and blazing fires are not sufficient to carry off the noxious air arising from diseased Worms or other causes, recourse must be had to kill it, which may be done with the following ingredients: with 2 oz. of salt, mix 1 oz. of powder of black oxyde of manganese; put this mixture in a wine bottle, with 2 oz. of water, stir it about, then cork it well, until you want to use it; procure also about half-a-pound of sulphuric acid. Care must be taken not to place it near the fire. When it is required to kill the noxious air, pour a little of the sulphuric acid,—say about a tea-spoonful, into the bottle containing the mixture of black oxyde of manganese; a light vapour will issue from it. The bottle should be moved up and down the apartment: this should be repeated perhaps two or three times a day. The bottle must be well corked when not in use. Always when the cork is drawn, hold it as far from you as you can, as the vapour is very searching, and rather dangerous: when you fumigate, add a little of the sulphuric acid, but not so much as at first. Should the substance in the bottle harden, add a little water, and stir it about.

In this last age, the Silk-worms should be fed with full grown leaves, and given whole; the quantity they will require, if they succeed well, will be about four times what they consumed the last four ages. They must be given perfectly dry, and a stock of leaves should be kept always on hand, in case of wet weather. If they are two days old they will answer very well, but must be kept dry, a little spread out, and turned occasionally, to prevent them from sweating, and the top leaves from shrivelling. Up to the sixth day they will consume an immense quantity of leaves, increasing the quantity every time you feed. On the morning

of every day they should be removed to clean trays: the best time to remove them is immediately after the first feed. As soon as they get upon the leaves or twigs, remove them to the clean trays—it may be necessary to remove a few of the large worms with the hand, or it is better to take them up with a quill, as the less you touch them the better, our hands being so much warmer than their bodies, are very hurtful to them.—The paper trays used the first day, will answer for the third, and so on. For the seventh day, a less quantity of leaves will be required than on the former day, and the eighth day, still less; the ninth day very few will be required, but observe to give them as much as they will consume at all times, now in particular: on the tenth day a sprinkling of leaves may be given. On this day most of the Worms will shew symptoms of rising; they become of a transparent colour, restless, move about without eating, rearing their heads, as if looking out for something, and get along the sides of the trays. When such is the case, it is a sure sign that they are going to prepare to spin their silk. As soon as they show the above signs, small twigs of birch, or bunches of heath, should be got in readiness, and stuck round the sides and backs of the trays, meeting at the top, so as to form an alcove: the front should be left open that you can sweep up the litter, and assist some of the Worms to rise; but most of them will get upon the branches without any assistance. Some of the Worms may be two or three days later than the others in rising: if any remain after the third or fourth day, they should be collected and put on a tray by themselves, or otherwise thrown away. From the hatching of the Silk-worm to the time they rise, will occupy about thirty-six days.

Various are the diseases incident to the Silk-worm, through bad management, but I cannot go into particulars, as it would take up too much space. As soon as any diseased Worms appear, they should be picked out immediately and thrown away.

The sixth age of the Silk-worm.

About the eighth or ninth day after the Worms begin to spin, the cocoons may be gathered. The bunches of birch or heath, should be taken down, and the cocoons picked off and put in a basket: at this time also the floss, or loose silk, that attaches the cocoon to the branches should be picked off. The cocoon should be sold, or the silk immediately wound off; or if they are to be kept some time, they should be steamed, to kill the chrysalis, otherwise on becoming a moth it will eat through the silk, and of course spoil it. Before the cocoons are steamed, a few of the best should be picked out for seed. There is no sure sign of distinguishing the cocoon that contains the male from the female moth: the only way is to pick out the most compact and well formed. It takes nearly 200 moths, male and female, to produce one ounce of eggs.

About 10 or 12 days after gathering the cocoons, if the thermometer stands about 70 degrees, the moth will appear. The male and female will immediately couple. The next day the female should be placed on linen (it is preferable to paper) to deposit her eggs. In about four or five days she will have finished her work, and terminated her short but eventful life. The linen with the eggs should remain in a dry airy place, for about a fortnight; and then be folded up and put away in as dry and cold a place as possible, but out of the reach of frost.

The following is the most simple method of steaming the cocoons:— Take a tin saucepan about 18 inches deep, and 10 in diameter, and fill the same with water, to the depth of 4 or 5 inches; over that should be hung, to reach within about five inches of the water, a division of tin, perforated with numerous holes, to allow the steam to escape above, wherein a basket made to fit the upper division, should be placed, filled with cocoons; it should be covered over with a lid, made to fit tight, so that little or no steam should escape. The water should be made to boil before you place the basket of cocoons in it; it should remain about eight minutes, the water kept boiling all the time, but not violently. Another basket-ful should be in readiness to replace the one taken out, and so on till you complete the whole. After remaining a few minutes in the basket they should be spread out to dry, and in about ten days or a fortnight they will be sufficiently dry to put away.

The space that will be required for the rearing of the produce of an ounce of eggs, will be,—

For the First age,.....about 7 square feet.
Second age,.....14 ——
Third age,.....50 ——
Fourth age,.....120 ——
Fifth age,.....360 ——

The quantity of leaves which will be required, is—

For the First age,.....about 6 pounds weight.
Second age,.....12 ——
Third age,.....50 ——
Fourth age,.....150 ——
Fifth age,.....1000 ——

As this is intended for the cottager I give it in as plain and economical a way as possible, so that every article used, may be within the reach of the most humble.

I now come to make a few observations with respect to the supply of food to be obtained, to rear this singular and most useful insect, which I have no doubt can be very easily accomplished.

Many have been the experiments to find out a substitute for the Mulberry, but none as yet has been found to answer the purpose. We must therefore look to the Black Mulberry, (*Morus nigra*,) or the White Mulberry, (*Morus alba*,) as the only trees likely to answer.

The Black Mulberry is well known to be but of slow growth, (most of the large Mulberry trees about London are supposed to have been planted in the reign of James I., when he attempted the growth of silk in this country,) and indeed, cultivated in very few countries, for the sake of its leaves as food of Silk-worms,—Spain and Sicily excepted.

The White Mulberry is much preferable to the Black, as being of much quicker growth, comes earlier into leaf, and the Silk-worms when fed upon it, produce much finer silk. It is therefore the White Mulberry that we have to look to for a supply of food for our Silk-worms.

With respect to its growing vigorously in this country, there is not the least doubt, as various experiments have been tried of late years, and where they have made shoots in one season, in many instances, from 6 to 8 feet in length. They are of easy culture, and will grow in any dry loam, or light sandy soil; but the richer the soil the more vigorous their growth. They make excellent hedges, and in that case I call the attention of landed proprietors, that where they plant hedges, to substitute the White Mulberry in the place of Quick, (particularly in favourable situations,) it will bear the same treatment, and would yield a supply of food for the cottagers' Silk-worms. It may be asked, Where can a supply of White Mulberry plants be had, but at a very great expense? In answer, they can be supplied at a price not much greater than that of Quick. Suppose a landed proprietor should procure a quantity of one, or two-year-old seedlings from France, where they can be purchased for about the price of Quick in this country. The carriage would be the principal difference, and that would be no great sum. The strongest might be planted at once, in the same manner as Quick, and the smaller bedded out in the nursery for a year or two; also seed might be had and sown in the natural ground, or in a slight hot-bed, and transplanted; by that means a quantity of plants might be obtained at a cheap rate. The landed proprietor might supply his tenants with Mulberry plants, to plant hedges where wanted, in favourable situations, and the labourer might root out the Quick hedges that surround his garden, and plant the White Mulberry. There are many improved varieties of the White Mulberry cultivated in France and Italy, that produce very large leaves, but it is unnecessary here to enter upon their merits, as they would not suit this climate so well as the common seedling White Mulberry.

I therefore conclude, that I sincerely hope some spirited land-holder will try the experiment, as there is a prospect of much good to be done at a very trifling expense, and of opening a new road to industry among the labouring classes of this country.

A Horticulturist.

ARTICLE II.—*On the Study of Entomology, as suitable for young Gardeners.* By RUSTICUS.

Continued from page 374.

FAMILY II.—*Brachinidæ.*—This family contains 9 genera, divided into 34 different species. The most remarkable, is the Bombardier, *Brachinus crepitans.* [fig. 67] It is known by its head and thorax, (fore-part of its body) being brick-red, and the rest part of the body, of a deep blackish-blue. When any person attempts to catch it, a discharge is given, resembling the sound of a pop-gun, accompanied by a kind of smoke, of which it is furnished with a bladder containing sufficient (according to Rolander) to fire off as many as 20 shots successively; and when pursued by its deadly enemy, the *Calosoma inquisitor*, so much its superior both in size and strength, it uses this, as the only means in its power, to escape from its destroyer.—If this smoke gets into a person's eyes it makes them smart as if bathed with brandy. The *B. displesor*, can direct its smoke, according to M. Dufour, to any particular point, by bending itself in the required direction. M. Dufour also informs us, in his "Annales de Museum," 18, page 70, that the smoke has a pungent odour, similar to nitric acid, that it is caustic, and reddens white paper.

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A.C. *sc.*

FAMILY III.—*Scaritidæ.*—Contains 5 genera. They are to be found in various situations, some of them burrowing to a considerable depth into the ground, and others getting under rubbish, &c. The *Dyschirius inermis*, (CURTIS) [fig. 68] is very rarely to be met with: Mr. Curtis has no recollection where he obtained his specimen.—British Entomology, vol. 8, page 354.

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A.C. *sc.*

FAMILY IV.—*Carabidæ.*—Characterised by cetaceous or bristly antennæ or horns, and by the shape of the thorax, which resembles a heart with the point cut off, and margined.—Syst. Nat. page 668. Their eggs are deposited under ground and in decayed trees, where the larvæ reside until they are metamorphosed; they are prejudicial to gardens, during the caterpillar state; feeding on the roots of different sorts of vegetation. The perfect beetles of several species of *Carabus*, may be occasionally met with in celery trenches. They are subject to change colour, particularly the *C. arvensis*, which is sometimes to be met with of a copper colour, at others, resembling brass, at others green or blue, and even

sometimes black. The insects of this family, like their predecessors, do not confine themselves to vegetables, but destroy and eat all kinds of insects they can overcome; and the *C. auratus*, is supposed to destroy more Cockchaffers, (*Melolontha vulgaris*) than all its other enemies put together; it attacks and kills the females at the time of oviposition, or egg-laying,—thus preventing the birth of thousands of young grubs. The *C. nitreus*, chiefly inhabits heath. This family contains 8 genera, all of similar rapacious habits, amongst which are the famous *Calosoma sycophanta*, and *inquisitor*, [figs. 69 & 70]

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A.C. *sc.*

The larvæ of the former, not only devour—to a degree of gluttony, other insects that fall in their way, but likewise show a disposition to eat one another, and when their appetites are satisfied, to wantonly destroy each other; they are universally allowed to be the most voracious grubs upon record; and the latter one, is most remarkable for its determined manner of hunting its prey, (particularly the little Bombardier, (*Brachinus crepitans*,) when in the perfect, or beetle state.

Family V.—*Harpalidæ*. (Imps, Sun-shiners, &c.)—This family contains 40 genera. The species that has created the most alarm amongst agriculturists, is the *Zabrus gibbus*, [fig. 71] which was supposed, both when in its grub and perfect state, to be a great destroyer of corn.—In 1813, no less than 230 acres of young wheat were said to have been destroyed by it. It was also supposed to be the same insect which caused such great destruction amongst the corn in Italy, in 1776. Mr. Stephens, however, in his Illustrations, Vol. 1, pages 4 and 140, thinks it unjustly blamed,

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A C. *sc.*

and in its vindication proves it to be a cannibal or insect-eater, and therefore conceived it probable that it fed on the real destroyer, which is a Chafer, *Melolontha ruficoanis*, a considerable number of which, were found to infest the corn fields, in company with the *Zabrus*, the latter of which, Mr. Stephens thinks, instead of being depredators, actually prevented the Chafer from becoming more numerous, and consequently more destructive. Another interesting insect in this family is the *Anchomenus prasiner*, which, like the Bombardier, combats its enemies with both smoke and noise.

Family VI.—*Bembiididæ*.—Contains 10 genera. The genus *Bembidium*, may be found in humid places, as the banks of rivers, and ponds.

Family VII.—*Elaphridæ*.—Contains 3 genera. The *Blethiza multipunctata*, or Many-Spotted Blethiza, may be met with in morasses.

(*To be Continued.*)

Article III.—*On the Causes of Sterility in some species of Cherry.* Communicated by Professor Rennie.

M. Dutrochet, presented to the Academie des Sciences, of Paris, Reflections on the cause which occasions barrenness in certain species of Cherry. "These species," says M. Dutrochet, "are true hybrids, which issue from the Common Cherry, (*Prunus cerasus*,) and the Black-heart Cherry, or Mazard, (*Prunus Avium*,) and in all hybrids there is in general a tendency to sterility. This is not less true in the vegetable kingdom than in the animal kingdom, although the fact is not so generally known." M. Dutrochet has been occupied in searching into the immediate causes of this sterility in Cherry trees, the fruit of which is subject to fall off, and has discovered, that, for the most part, the flowers of these trees have stamina unprovided with pollen,—that their antheræ form a compact and clammy mass, which does not pulverize into a fertilizing dust, as is the case in productive species.—*Annales des Sciences Naturelles.*

J. R.

PART IV.—NATURAL HISTORY.

REVIEWS AND EXTRACTS.

1.—British Entomology. By John Curtis, F.L.S. Monthly. 8vo. 4*s.*6*d.* coloured.

For February, 1832, contains

Œdemèra sanguinicóllis.—Order, *Coleóptera*; Family, *Cantháridæ.*—This handsome insect is found in the blossoms of the white-thorn; the thorax is of a deep-orange colour, and the elytra or wing-cases, are of a dull olive-green. *Damophila trifólii,* Trefoil Thick-horned Tinea.—Order, *Lepidóptera*; Family, *Tínèidæ.*—This is of a shining metallic golden-green. Mr. Curtis conceives it to be indentical with Mr. Stephens's *D. trifólii,* but does not appear certain. *Cicàda ánglica.*—Order, *Homóptera*; Family, *Cicàdiidæ.*—The *Cicàdæ,* observes Mr. Curtis, are very interesting, from their having attracted the notice of the most celebrated ancient poets and writers; and it is remarkable enough, that whilst the Greeks loved and extolled them for their song, Virgil (as well as more modern writers) execrated them for their noise. The species of this genus, are distributed over a vast portion of the globe, from Europe to Brazil, the Cape of Good Hope, New Holland, China, and the intermediate countries. Mr. Curtis believes that no other species has been found so far north, as the *C. ánglica.* He suspects the larvæ to feed on the roots of fern, and supposes the perfect insect to be without song. *Phytómyza laterális,*—Order, *Díptera*; Family, *Múscidæ.*—The larvæ and pupæ of this insect were discovered in the flower of the Corn Feverfew, (*Pyrèthrum inodórum,*) by the Hon. C. A. Harris. The flies were produced, from the beginning to the end of October.

2.—Edinburgh New Philosophical Journal. By Robert Jameson, Regius Professor of Natural History, Lecturer on Mineralogy, &c. Quarterly. 8vo. 7*s.*6*d.*

Vast Extent of the Earthquake, in 1827.

On the 16th of November, 1827, a violent earthquake was felt at Santa-Fé-de-Bogota, in Colombia, and on the same day at Ochotsk, in Siberia.—It is stated November 17th, in Siberia, which however, considering the relative geographical situation, is the same day as at Santa-Fé-de-Bogota. It is worthy of remark, that the direction of the earthquake, in Colombia, was from SE. to NW., and that this direction points towards Siberia. Not less interesting is the circumstance, that the line from Colombia to Siberia, strikes the most remarkable volcanic region in Mexico, and is parallel to the principal range of American mountains.

This may be viewed as a proof that the operation of earthquakes is propagated in a linear direction; it may be in great rents, or according to the arrangement of chains of mountains, strata, or rocks. It affords a striking proof of the great depth at which the process which gives rise to earthquakes, is carried on.

PART V.

MISCELLANEOUS INTELLIGENCE,

ON NATURAL-HISTORY, HORTICULTURE, AND RURAL AFFAIRS.

I.—QUERIES, ANSWERS, REMARKS, &c.

Annual List of Fruit-Trees and Flowers.—Gentlemen, observing in your last number of the Horticultural Register, in answer to a question there asked, that the 12th number would complete the First Volume, and contain the index; and finding on reference to the introduction in No. 1, page 3, that you propose "furnishing your readers, at the end of each volume, with a list of all fruits and flowers which have been previously named in it, and which you consider most worthy of attention, in addition to which, you propose giving a general list of all the best fruits and vegetables in cultivation;" and I hope you will include flowers whether old or new, as well annuals as others, "so that any one wishing to make a selection for a small or large garden, will see at once which are considered most desirable." I certainly think with you, an annual list of this kind, will be a great acquisition, particularly to amateurs, and those who keep the management of their little spot of garden-ground in their own hands, like myself; but as a subscriber to your Register from its commencement, and intending to continue so, give me leave to say, I think the time the lists &c. will come out with the 12th number, in June, this year, and consequently the same every year, (as I suppose each volume will be of the same size, 12 numbers,) a most inconvenient one, as most seeds will be provided and in the ground before that time; it will throw any person, wishing to make a selection from your lists, a season back, when he would wish to reap the earliest possible advantage from the lists. Now give me leave to suggest, that I think the December number would be much preferable for completing the volume, and containing the list, &c., as we should then be enabled to make a selection, and provide seeds, plants, &c., in good time before the season commenced, when they would be required. If you could therefore manage to give the promised lists, &c., and index for the first 6 numbers to the beginning of this year, in your next month's Register, or if the time would not permit, even in the one for April, I think it would be very desirable to many, and no inconvenience to any one, as the first six numbers might be bound up in a thin volume, or the lists and selections might be given in either of these two numbers, and the general index deferred till the end of the present year, and the whole 18 numbers bound up as one volume, which would not be an inconvenient size, being very little thicker than Loudon's Gardener's Magazine. In giving the lists of flowers, or the selection of the most desirable, (particularly annuals,) I suggest it would be an improvement, (if not your present intention of doing so, and not causing you much extra trouble,) to give the height, time of blowing, continuance in bloom, colour of the flower, and whether hardy or tender, annual or perennial, and how raised; this I think might be easily done, somethiog after the manner of Loudon's Encyclopædia of Plants.

As a correspondent, I. C. K., has suggested your endeavouring to learn the opinion of the majority of your subscribers in respect of giving portraits, I beg to say, I am one of those who would prefer seeing a coloured figure now and then (if it could be compassed by so cheap a publication as yours,) of some fine plant, or a plate of Florists' flowers, like the one in London's Gardener's Magazine, No. 11. page 332, or if more economical, two or three flowers grouped together, to that of portraits.

I think the idea of your correspondents, C. B. & B., on keeping each subject distinct, (even if bound up in one volume,) if it could be accomplished, a good one. I think it would also be an acquisition to many, if, in your reviews of Botanical works, the continuance in bloom of those flowers you would recommend as showy and ornamental, was given, as persons having only small collections, are anxious to have those that continue longest in bloom; and perhaps it would be a little improvement if the month was printed at the top of the pages devoted to the Naturalist's and Horticultural Calendars, as well as at the beginning of these articles, for easier reference when bound up.

Merely throwing hastily together the above hints, as points for the consideration of your superior judgment, and with every wish for the success of your work,

I am Gentlemen, your obedient servant,

February 9, 1832. G. W. E.

Remarks.—Gentlemen, as in your introduction, you invite communications, I proceed without further ceremony to state what occurs to me on a regular perusal of your work. I take No. 1, commencing at page 22, I find little more than a list of names,—what advantage you expect Horticulture will derive from such lists, without any explanation of the nature and quality of the plants contained in them, I know not.

In your introduction to the Monthly Horticultural Calendar, you state your intention to give instructions where it is found necessary, as to the mode of performing the operations. To men of your acquirements, few instructions would be required, but to men like myself, (retired tradesmen) instructions how to do the work, is as important as the knowledge that the work ought to be done.

Since I left my shop in the Strand, gardening has been my greatest amusement. I employ a gardener and two assistants. The gardener has been 35 years in the garden, and whenever I ask him to raise anything that he does not understand, I am always met with this reply,—"The soil wo'nt answer." I took your second number in my hand, and made one of the assistants dress one of my Asparagus beds, as directed at page 73, which gave the old man great offence, but we shall see. Your obedient servant,

A Retired Tradesman.

Answer.—Our correspondent is aware that one reason for giving little more than the names of plants in our Reviews of the Botanical Works, is to save room. Our wish is, to inform our readers of all new plants as soon as they appear, with the colour of the flower, &c., and whether they are worthy of cultivation,—which were we to do at full length, such accounts would of themselves fill up the numbers. With regard to the Calendar, any information wanted, we shall be happy to communicate through the pages of our Register.

Conductors.

Remarks on No. 6.—Gentlemen, I have got and read the 6th number of your Register. I do not like it so well as your preceding numbers. Your leading

article is a very misleading article, and ought not to be called original communication; it is little else than extracts, which I have read and criticised long ago. Neither Mr. Withers nor his friends are at all friends of mine. They are not the friends of science. So far as concerns forest timber, they can, according to their own language, "believe and assert anything." They believe that the frothy Fir, &c., grown on the rich fields of Essex, &c., is as good as the Highland or Norway Pine. They believe and assert, that pruning a tree deteriorates the growth of the timber!—as well may they say that the pruning of fruit trees checks the swelling of the fruit.

Your correspondents, Rusticus, article 2nd, and a Practical Gardener, article 3rd, are very good, and the 4th article, by an Arborist, is capital; he speaks my sentiments the same as if I had written the article myself. I shall say nothing of article 6th; but the propagating pot is not to my mind—a slit from the rim down the side of the pot is much more convenient for laying in branches full of leaves. Arthur Fitz-Arthur is a beautiful writer, and speaks a deal of good sense; he can write well, I think, on any subject.

The Letters from the Swan River, are not very interesting to me, having made up my mind never to travel so far, and if possible never again to leave my own dear little Island of Britain. Your Reviews and Extracts are very good. (Pray have you heard whether my old friend, Robert Sweet, has recovered from his malady?) Your Spider and your Mole are both poor simple creatures, and poor simple articles. Geology, by Mc.Gillavray, is pretty well, but he does not go so far as I could wish him. The best article on geology was published in the Magazine of Natural History, by Sir J. Byerly, a few months back. With respect to insects, I take no notice of them. I shall endeavour to answer most of your queries in my next letter.

The Yorkshire Scientific Meeting is worth its weight in gold. Such meetings are just what are wanted to make England wise. Public meetings and the public press are the only things to raise a man or a nation from obscurity.

But to return to Mr. Withers and your correspondent, G. I. T. I should like to give them another *pruning*, and also a *top-dressing*, or may be, a *trenching about their roots*. They are advocates for trenching the land for forest timber, which I think is not only useless, but prejudicial. Does any of our good timber come from land that has been previously trenched? What should we think of trenching the Highlands of Scotland, or the mountains of Norway, Russia, or America? The whole of the Pine, or Fir tribe, if planted on trenched or manured land, would not only be worthless timber, but would actually be rotten before it attained its proper size. Three inches of poor soil is better than three feet of good soil, for the fir tree;—I appeal to facts: I have had many men for the last six weeks, stoking up trees for roads, &c., through the plantations. The healthiest and largest of these trees are those whose roots do not run into the soil at all, but creep upon the surface almost like the ivy, only covered with moss and leaves of their own dropping. Such as were planted deep, are nothing but underlings, and chiefly dead. Again, some years ago I laid a quantity of soil about some Larch trees, for the purpose of leveling the ground. The trees lived till this year, but made no progress. When they were grubbed up they had made some fresh roots near the surface, but the former roots were all rotten, as was also a great way up the hearts of the trees.

I shall speak about pruning in my next letter. Believe me, Gentlemen, with great respect, yours, &c,

JOHN HOWDEN.

HORSE-RADISH.—Gentlemen, will you, or any of your correspondents, have the goodness to state what mode there is (if any) of destroying that noxious weed, Horse-radish? for such I must call it, notwithstanding its culinary virtues. I have lately come into possession of an old neglected garden, full of all kinds of weeds, and amongst the rest, an old bed of Horse-radish. I trenched the ground two spades deep, and picked it, as I thought, clean, but in a very short time it came up again as flourishing as ever. I then, as an experiment, dug six feet deep, and found that I had not got to the bottom of the roots, and as the smallest bit left in vegetates, I find this mode will scarcely avail, although I would continue it, heavy as the expense would be, if I thought it would answer. My sub-soil is a stiff clay, some hundred feet deep. I have sunk 300 feet for a well.

I hope Mr. Stafford will have the goodness to comply with the wishes expressed by Electricus, in your last number, relative to the mode of pruning and training his Vines in pots. I remain, Gentlemen, a sincere admirer of your work,

Feb. 6, 1832. M. E. S.

CULTURE OF PLANTS IN ROOMS.—I am an enthusiastic lover of flowers, and when the weather no longer permits my having these pets in the garden, I like to have a few in the house. You will therefore greatly oblige me, if you will in your next number, give a few hints on the best method of managing plants in a room, with regard to soil, watering, &c. &c. as notwithstanding all my efforts, mine have a drawn-up and weakly appearance. I am aware that there are one or two works on this subject; but they are rather expensive, and a little of your valuable information on the subject will very much oblige your friend and subscriber,

Coniston, Dec. 22, 1831. J. B.

NOTE.—Our correspondent shall have an Answer in our next.—COND.

SUBSTITUTE FOR GLASS.—Gentlemen, a correspondent of the Gardener's Magazine recommends Tale as a substitute for glass, in greenhouses, &c. and describes it as answering every purpose of glass. No hail storm, nor even the stroke of a hammer, can break it,—fire has no effect on it,—that it may be cut with scissors; and that it is cheaper than glass. I shall feel particularly obliged by you, or any your correspondents informing me, through your valuable work where it is to be procured and the price. I am, Gentlemen, your obedient servant,

Hastings, February 9, 1832. A SUBSCRIBER.

CITRONS.—I should be very glad to be informed by some one of your numerous correspondents, the best method of cultivating the genus *Citrus*, more particularly that part which relates to pruning; and whether the first luxuriant shoots generally produced after receiving them from abroad, should be shortened the following spring, in order to bring them into bearing. Yours, truly,

AURANTEUM.

SPUR-EYES OF VINES—are recommended in the Gardener's Magazine, to be by far the most effectual method of procuring early and strong vines. How are these to be selected—and of what age and size should the spurs be? Ought they to be planted in small pots of rich mould, and plunged in a gentle hot-bed—as of leaves and tan, or how otherwise should they be treated?

February 14, 1832. ELECTRICUS.

II.—NOTICES AND ANTICIPATIONS.

The Natural History of the Birds of Africa, Translated from the French of F. Le Vaillant, with copious Notes and Synonymes, by J. Rennie, A. M., Professor of Natural History, King's College, London, will, we understand, shortly appear. 8vo.

A Conspectus of Butterflies and Moths, with descriptions of all known British species, amounting to nearly 2000, by the same Author; is also nearly ready.

A Translation of Le Vaillant's Birds of Paradise, and the Parrot; uniform with Montagu's Ornithological Dictionary, is in preparation.

III.—COLLECTIONS AND RECOLLECTIONS.

NATURAL HISTORY.

Abstinence of Fish.—If you think the following worthy of insertion, I can vouch for the truth of it:—A fisherman caught two Chars, (*Salmo alpinus*,) and a Trout, (*Salmo fario*,) in Coniston Water. He put them into a Minnow-can, the lid of which was perforated, and placing it in a *Beck*, (one of the feeders of the lake,) left it there. The night proved wet, and the quantity of rain which fell caused a very high flood. The can was carried away, and never seen again for rather more than a year. When it was found, the fish were in it, and alive! One Char was much emaciated, the other and the Trout were in tolerable condition. All the food they could possibly have obtained, must have been a few insects or larvæ, which might have occasionally washed in through the small holes with which the can was pierced. I ought to add that there were a few Minnows in the can at the time it was lost.

Coniston, December 22, 1831. J. B.

The Date Tree.—*Phœnix Dactylifera*, (Date or Dactyl Tree,) is a very durable tree; but if it happens to be injured by some instrument so as to cause a decay, it is cut down at the root, and is then burnt on the spot, and its ashes are covered with a layer of earth; from the middle of which, a new shoot soon arises, and becomes strong in a few years. As the Greek word for this Palm, is Phœnix, it is probable that the fabulous history of the Arabian bird of that name reviving from its ashes, is founded on this circumstance.—*Travels by the Abbé Mariti.* It is remarkable, that where Date Trees grow, water is always found near.

F. J. G. W.

HORTICULTURE.

The Pink-eyed Potatoe of Wales.—Both the early and late are common in Glamorganshire, and better varieties of this valuable esculent do not exist. The *Early* variety admirably succeeds the Early Prolific and the Ash-leaved Kidney; the *Late* variety should not be used until towards the return of spring: they are excellent bearers, are very mealy, and last until June, when young potatoes take their place.

IV.—SOCIETIES,

CONNECTED WITH HORTICULTURE AND NATURAL HISTORY.

OXFORD BOTANICAL AND NATURAL HISTORY SOCIETY.

Established August 31st, 1831.

"The object of this Society is to promote the Study of Natural History in general, and more particularly, Botany and Horticulture. This object it will endeavour to accomplish: 1.—By reading Original Communications, or Extracts from works of value and utility on these subjects. 2.—By occasional Lectures. 3.—By the purchase of periodical and other books relative

to these departments of knowledge. 4.—By the formation of a Library, Herbarium, &c. for the use of the Members. There is a Meeting every Wednesday evening, at the Botanical Garden, for the purpose of mutual instruction, either by conversation,—by reading lectures, or papers,—or by exhibiting specimens, &c. The subscription is one shilling per month."

Any further particulars may be obtained from the Secretary, Mr. Baxter, the excellent and indefatigable botanist, with whom the Society mainly originated, assisted by some members of the University, and gentlemen of the city. There are already above sixty Members, among whom we observe the names of the Professor of Chemistry, the Reader in Mineralogy and Geology, the Librarian of the Bodlean Library, and many other members of the University and professional gentlemen, as well as practical gardeners.—There can, therefore, be do doubt whatever of the success of the Society, and we think it likely to become eminently useful.

MEDICO-BOTANICAL SOCIETY.

THE following Resolutions, signed by the Secretary, have lately been circulated by order of this Society:—"At a Special Meeting of the Council of the Medico-Botanical Society of London, holden on Friday, the 6th day of January, 1832, Humphrey Gibbs, Esq., F.H.S., Treasurer, in the chair. It was Resolved,—That the Gold Medal of the Society should be offered for the best Essay in the English, French, German, or Latin Language, on the question 'What is the vegetable substance which could be employed with the greatest success in Cholera?' And that the Silver Medal of the Society should be offered for the best Essay 'On the analysis of any vegetable substance, the proximate principle of which may be employed in the cure of disease,' provided that such Essay possesses sufficient merit; and that they should be received till the close of the year 1833, and that the Medals should be bestowed at the Anniversary, January 16th, 1834.

"And it was further Resolved,—That as the question, 'What is the vegetable substance which could be employed with success in Hydrophobia?' is a subject of great importance, that the time for receiving Essays on the same be extended to the last day of December, 1832.

"That each Essay shall be accompanied by a sealed paper, containing the names and address of the author, and marked in the same manner as the Essay; and that each Essay to which a Medal is not awarded, shall, according to the wish of the author, be restored to him, or submitted to the Council, in order to its being read at a General Meeting.

"By order of the Council, G. G. SIGMOND, Secretary."

V.—CHOICE OR BEAUTIFUL PLANTS,

FLOWERING THIS MONTH, IN THE PRINCIPAL NURSERIES ROUND LONDON.

AT MESSRS. C. LODDIGES & SONS', HACKNEY.

STOVE.

Govènia supérba.
Kúnthia Lagunénse.
Seaforthia élegans.
Ruéllia Sabiniàna.
Oncídium bifòlium.
Zàmia pygmæ'a.
Epidéndrum venústum.
——— cochleàtum.
——— elongàtum.
——— ellipticum.
Cypripèdium venústum.
Prescottia plantaginea.
Blètia verecúnda.
Jasminum paniculàtum.
Justícia aspérula.
Mùsa discolor.

GREENHOUSE.

Acàcia Brównei.
Eriostèmon cuspidàtum.
Epàcris impressa.
——— variábilis.
——— paludòsa.
Grevíllea sulphùrea.
Hòvea longifòra.
Borònia pinnàta.
——— serrulàta.
Styphèlia longifòlia.
Caméllias, many kinds.
Acàcias, ditto.
Ericas, ditto.

AT MESSRS. YOUNG'S, EPSOM.

HOT HOUSE.

Begònia semperflòrens.
——— ulmifòlia.
Brunsfèlsia unifòra
Calánthe veratrifòlia.
Dionæ'a muscipula.
Phlectránthus carnósus.
Ruéllia brasíla.
Sinníngia Hellèri.

GREEN-HOUSE.

Acácia Brównei.
——— lunàta.
Chilòdia chelonòides.
Diósma crenàta.
Dillwynia ericifòlia.
Hemiclídia Baxtèri.
Kennédia longiracemòsa.
Grevíllea arenària.
——— Bauèri.
——— planifòlia.
——— rosmarinifòlia.
Lachenàlia péndula. (2 var.)
——— quádricolor.
——— rùbida.
Ulex provinciàlis
Ericas, upwards of 70 species amongst a collection of nearly 400 species and varieties.

HARDY.

Claytònia longifòlia.
——— polyphylla.
Cory'dalis bracteàta.
Leucòjum vérnum.
Crócus argénteus.
——— batavínus.
——— præ'cox.
——— stellàris.
Crócus bifòrus Parkinsòni.
——— stigmatòsus.
——— lagenæflòrus.
——— pusíllus.

VI.—NATURALIST'S CALENDAR,

FOR MARCH.

BOTANY.

MARCH is a month of promise; vegetation is almost universally in motion, and the presence of spring is every-where manifest. The hedges present a cheerful appearance with the catkins of the Hazel and Willow, and the snowy blossoms of the Sloe; the banks are adorned with "the sweetest of all flowers, the Violet," and towards the end of the month, with the Primrose and Pilewort; the fields are studded with the Daisy, and the gardens are brilliantly decorated with the Crocus, the Snowdrop, the Hepatica, and the Arabis.

The wild plants in flower are too numerous to allow of a complete list of them being given here; among them, however, may be mentioned the following: Marsh Marigold or Gowan, *Cáltha palústris;* Bear's-foot, *Helléborus fœtídus;* Pilewort, *Ficária vérna,* Hairy Lady-cress, *Cardámine hirsúta;* Yellow Alpine Whitlow-cress, *Drába aizóides;* Mountain Dittander, *Hutchínsia petræ'a;* Sweet Violet, *Viola odoráta;* Little Mouse-ear, *Cerástium semidecándrium;* Sloe, *Prúnus spinósa;* Barren Strawberry, *Potentílla Fragária,* (Fragaria sterilis;) Coltsfoot, *Tussilágo Farfára;* Spurge Laurel, *Dáphne Laureóla;* Wood Spurge and Red Spurge, *Euphórbia amygdaloides* and *Characias;* several species of Elm, *Ulmus;* and Willow, *Sálix;* Dwarf Ixia, *Trickonéma Bulbocódium;* Spring Crocus, *Crócus vérnus,*—this plant now presents a most beautiful appearance in the Meadows, at Nottingham; many acres being entirely covered with it, and appearing to the eye at a short distance, one vast sheet of purple. The flowers are generally stronger and finer than those grown in gardens, and mostly of various shades of purple or white. Daffodil, *Narcissus Pseúdo-narcissus;* Two-leaved Squill, *Scilla bifólia;* Butcher's Broom, *Ruscus aculeátus;* Hairy Wood Rush, *Lúzula pilósa;* Hares-tail Cotton-grass, *Eriophorum vaginátum;* Least Bent-grass, *Chamagróstis minima;* Heath Broom-Moss, *Dicranum scopárium;* and Yew-leaved Broom-Moss, *D. taxifólium.*

ZOOLOGY.

INSECTS.—The Humming-bird Hawk-Moth, *Macroglóssum stellatárum,* may frequently be found in gardens, and in lanes near woods. Its flight is swift and remarkable. The caterpillar is found on stellated plants (*Stellatæ*) The Great and Small Tortoise-shell Butterflies, *Vanéssa polychloros* and *Urticæ,* and the Red Admirable, *V. atalánta,* having lived through the winter, now come forth. The Sprinkled Wood Butterfly, *Hippárchia ægéria;* the Oak Beauty Moth, *Bíston prodromárius;* the March Moth, *Anisópteryx æscularia;* and the Orange Underwing Moth, *Brépha Parthínias,* may now be met with. The caterpillars of that scarce butterfly, the Plantain Fritillary, *Melitæa cínxia;* leave their winter nests in the beginning of the month, to feed on the leaves of the Mouse-ear Hawkweed, Plaintain, and Grass. They are blackish, with rows of spines alternately white and red.

The larvæ of the beautiful Rose Beetle or Chafer, *Cetónia aurata.* may now be found among the roots of Rose-trees,—they are of a cream-colour with brown heads and feet.

"It is now the proper time to collect many species of Wild Bees, and *Diptera,* not afterwards to be met with; and various other insects begin now to emerge from their winter quarters, or are produced from the pupa."—KIRBY & SPENCE.

BIRDS.—The Woodcock, *Scólopax rusticóla;* the Snipe, *S. Gallinágo;* and the Jack-Snipe, *S. Gallinúla;* leave their winter haunts for the sea-shore, previous to their departure for their breeding places in more northwardly climates, though some remain the whole year, and breed in this country.

The Merlin, *Fálco Æsalon;* the Woodcock Owl, *Strix brachyótus;* the Hooded or Royston Crow, *Córvus Córnix;* the Redwing, *Turdus iliacus;* the Wigeon, *Mareca fistulária,* (Anas Penélope, LIN.); the Pochard, *Nyróca ferina,* (A. ferina, LIN.); the Teal, *Querquédula crécca,* (A. crécca, LIN.); and the White-Fronted Goose, *Anser álbifrons;* also migrate northward

A few of the summer birds-of-passage begin to arrive; the first is the Wheat-ear, *Saxícola Œnánthe,* which arrives about the middle of the month, and is found generally on stone walls on moors, or unfrequented places. The Stone Curlew, *Œdicnémus crépitans,* (Charádrius Œdicnémus, LIN.) arrives in the southern counties. The Lesser Pettychaps, or Chiff-chaff, *Sylvia Hippolais,* may towards the end of the month be heard in the woods It takes its station on the tops of the highest trees, and there repeats in a deliberate and monotonous manner, the simple call from which it takes its name, "chiff-chaff chiff-chaff," its sameness rendered more remarkable, by the full choir of voices with which it is surrounded.

Many birds are now busy in building, or preparing for it, their songs are every-where heard, and a general bustle and activity seem to pervade their whole race

QUADRUPEDS.—The Squirrel, *Sciúrus vulgáris;* and the Dormouse, *Myóxus muscardínus* or *avellanárius;* awaken from their winter sleep and leave their retreats; though in mild seasons this sometimes takes place earlier.

REPTILES.—The Common Viper, *Víperа commúnis;* and the Toad, *Búfo commúnis;* revive from their torpidity.

METEOROLOGY.

BAROMETER.—Mean Height 29,843. Highest 30,770. Lowest 28.870 inches.
THERMOMETER.—Mean Temperature 43,9 degrees. Highest 74. Lowest 21 degrees.
RAIN.—Mean quantity 1,440 inches.
EVAPORATION.—Mean quantity 1,483 inches.

Duffield Bank, February. 1832. O. J

VII.—MONTHLY HORTICULTURAL CALENDAR,

FOR MARCH.

In this month a considerable increase of business takes place in the garden, such as sowing and planting many of the principal crops. The general openness of the weather in the past month has pretty well forwarded all operations of preparing the ground, for notwithstanding February is proverbial for wet, it has this year been on the whole very fine. The few sharp frosty days at the latter end have been of essential service in retarding the progress of the sap, and preventing a premature opening of the buds. The first crops of Cucumbers and Melons will, by this time, be ridged out in the frames, and will require plenty of air when the weather is fine, and but a thin covering at night, whilst the bed retains a strong heat, unless it be a severe frost. If the fruiting Pines have been kept through the winter in a growing state they will now begin to show fruit pretty strong: those that came up in December and January will now begin to swell. The back beds will also require replenishing with new bark. Tie up the leaves of the plants, and take them out, after which fork up the old bed from the bottom, mixing with it a sufficient portion of new tan; then scrape off with the fingers a little of the old soil from the top of each pot, and add a little new rich mould, after which plunge them about half the depth of the pot, until you see that the bed does not heat too violently. This is also a proper time to shift the successions. Greenhouse plants will now require an increase of both air and water. In fine weather if they were syringed over the leaves about once a week, it would make them stronger, and more healthy.

FRUIT DEPARTMENT.

Finish Pruning and Nailing.—See Calendar for February.

Protect Wall Trees in blossom from frost, as Peaches, Nectarines, and Apricots. This may be done best by canvas or woollen netting, which may remain suspended before the trees until the fruit is well set; but if this cannot be conveniently obtained, mats or other covering will do. See page 19. It will however, be necessary, if mats are used, to roll them up, and expose the trees in fine days, or the blossom will set weakly, and the crop be endangered.

Grafting may now be performed in general, on Apples, Pears, Plums, Cherries, &c. &c.

Raspberries. If new plantations are wanted, and were not planted last month, the sooner they are done the better.—See Calendar for February.

Peach Houses will now require constant attention. When the fruit is set, and swelling up, syringe the trees, and steam every day. Admit plenty of air when the weather will permit, and keep the temperature from 65 to 75 by day, and 60 to 65 by night. For the succession houses also use the same precautions as recommended p. 287, 336, and 383. If Ants become troublesome, use with great care the means recommended by Mr. Joseph Thompson, Jun., Welbeck, page 17

Cherry Houses started in the beginning of January will now be in blossom. Give abundance of air; do not allow the thermometer to range higher than 65 degrees by day, and 60 by night; examine the opening leaves as recommended last month, and syringe the trees well when the fruit sets, to wash off all dead flowers, and keep the internal air very moist.

Vineries. As the grapes swell, thin them out properly, and tie up the shoulders of the bunches to give the fruit room to swell to perfection. Continue to syringe and steam occasionally till the fruit begins to ripen; keep the young branches carefully tied up; stop all laterals at one joint, and all other shoots at two joints above the fruit, except those intended for leaders. When it is wished to grow them in pots, see p. 6 and 185, and for growing them in houses, frames, &c., p. 193, 209, 337 to 347, and 399; also for blotching of the berries see page 280.

Strawberries in pots. For forcing, as recommended last month, see page 395.

Fig Houses, and Fig trees on the open wall, see page 385.

Pine stoves.—See page 364.

FLOWER DEPARTMENT.

Dahlia roots should now be potted or plunged in a little old tan in the stove, or a frame, to forward them for planting out at the end of May.—See p. 145 to 147.

Mignonette and Ten Weeks' Stock.—Those sown last month must have as much exposure to the air as the weather will allow, and superfluous plants thinned out, of the former to about 12 in a pot, and the latter about 6.

Auriculas will now begin to show their flower buds. Let them have plenty of air during the day, but shut them closely down at night.—See p. 56.

Polyanthus seed, if not sown last month should be done as early in this as possible, and the old plants top-dressed as recommended last month.

Ranunculuses should be planted early in the month.—See page 196.

Carnations. About the end of the month plant the last year's layers into large pots to bloom. See page 199.

Tigridia Pavonia. Sow the seed at the end of the month, in pots or boxes.—See p. 400. Also the old bulbs may be planted in warm situations at the end of the month, if the weather is fine.—See page 187.

Triverania coccinea will now require attention.—See page 50.

Tulips will now be up, examine them to see if any are cankered.—See page 104.

Pelargonium Cuttings should now be put in.—See page 102.

Hardy Annuals. If the weather be very fine, commence sowing for the general blow, at the end of the month; but if the weather is cold or wet, defer it until April.

Tender Annuals. Commence sowing in pots, and place then in a frame on a slight hot-bed; or on the flues of the vinery, for Cockscombs and Balsams.—See pages 69 and 70.

Forcing. Continue to take into the stove, Roses, (see page 245 to 253) Pinks, Carnations, &c. for the final bloom, previous to the succession in the open air.

VEGETABLE DEPARTMENT.

Peas, of all kinds, may now be sown, at different times; that the crops may succeed each other (see Calendar for February) As soon as the last sowing appears above ground, sow again. Those sown in boxes last month, should be planted out in the beginning of this, if the weather is favourable, in a warm situation, for a first crop.

Beans. Plant full crops of Long-pods, Windsors, &c. twice during the month; also, plant in a warm situation, those sown in boxes last month, for the first crop

Carrots. Orange and Altringham Carrots, should now be sown for the main crop. They thrive best in a deep rich light earth;—the best way of sowing them, is in shallow drills about nine inches apart.

Parsnips for the main crop, should now be sown, (if not done last month) in the same way as recommended for Carrots.

Spinach sown last month, will now begin to appear; as soon as this is observed, sow another crop to succeed, and continue to sow about every fortnight afterwards.

Cabbage, &c. Plant out from the winter beds, all the strong Cabbage plants, to come into use in June; and sow seed of the Early York, and Van Ack, &c. to come in for autumn. Red-Cabbage plants should now be planted out, if not done before; and seed sown in the beginning of the month, for autumn and winter use. Sow a pretty good supply of Brocoli, Savoy, Borecole, &c. about the latter end of the month, for use in winter and spring.

Cauliflower plants, wintered in frames, should be planted out on the quarters intended for them, at about the distance of two foot six inches apart. Also, not later than the middle of the month, sow some seed for a crop to succeed those sown last month.

Celery sown last month, if large enough, prick out towards the end of this month on a bed of rich soil, (see pages 289 to 291) or on a slight hot-bed; and sow more seed in a warm situation.

Lettuce plants that have been sheltered in frames, should now be planted out about a foot apart, and seed of the different kinds sown twice during the month.

Radishes. In the beginning of the month sow full crops of the Scarlet, Short Top, &c. and about the middle or latter end, a few White and Red Turnip Radishes.

Parsley. Sow about the end of the month, for the principal supply, chiefly in drills.

Scorzonera, Salsafy. &c. Sow in shallow drills about ten inches apart, towards the latter end of the month, for the main crop.

Leeks. Sow a good crop in the beginning of the month.

Onions. Sow the main crop early in this month, if not done in the last.—For directions, see Calendar for February.

Potatoes. Begin about the middle of the month to plant out the principal early crops.

Sweet Basil and Sweet Marjoram, should now be sown on a slight hot-bed, or on a bed of rich light earth, in a warm situation.

Mustard and Cress. Continue to sow in boxes, &c. as recommended last month, and towards the end sow in a warm situation out of doors.

Jerusalem Artichokes. Make new plantations of them in suitable situations, if not done before.

Turnips. Sow a few Early Dutch, about the 20th of the month, and a larger quantity at the end, to succeed them.

Beet. Sow the main crop, of the Red, for its roots; and a small quantity of White and Green for the leaves.

Kidney-beans Continue to sow for forcing, as recommended last month.

Artichokes. Give the proper spring-dressing towards the end of the month, and dig and level the ground between the plants.

Asparagus, for forcing, continue to plant for the final crop. (see page 240) About the end of the month, fork and spring-dress the productive beds This too, is the best time for planting new beds;—select a piece of good mellow ground for the purpose, dung it well, and trench it to the depth of eighteen inches or two feet; then form beds of four feet and a half wide, and make in them four narrow trenches or drills, six inches deep, and lengthways of the bed, with a spade, which will leave one side of the trench or drill upright; against this upright side insert one-year-old plants, eight inches apart, and so deep that the crown of the root will be about two inches below the surface of the bed; cover in each drill carefully, and then rake the bed slightly over to level it. If a light crop of Onions were sown on the beds the first year, they would not injure the Asparagus plants.

Cucumbers and Melons will now require considerable attention in giving air and water, and in earthing-up, as may be requisite.

Strawberry beds should now have their spring-dressing, and if new plantations are wanted, this is the best time to make them,—take off the strongest runners nearest the parent, (see page 329) and plant them on the beds or borders prepared for the purpose, in rows about twelve inches apart, and six inches from plant to plant in the rows,

Mint. New beds may be planted by drawing up the young spring shoots for the purpose, and planting them in beds six inches apart.

Garlic and Shalots should be planted in the beginning of the month, in drills six inches apart, and about two inches deep.

G. Jewitt, Printer, Duffield, near Derby.

THE

HORTICULTURAL REGISTER.

April 1st, 1832.

PART I.—HORTICULTURE, &c.

ORIGINAL COMMUNICATIONS.

ARTICLE I.—*On the Cultivation of Celery.* By JOSEPH HARRISON, one of the Conductors of this Magazine.

CELERY, in its wild state, is found growing in marshy ground. When found in stagnant wet situations, the soil being sour, is less favourable to its growth; but where there is a frequent renewal of fresh water, it grows proportionably more vigorous.

In its cultivated state I have observed, that when planted in a strong soil, retentive of moisture, ("but upon an open sub-soil,") and the soil kept moist by fresh water, it always grows much more vigorously than when planted in a situation where the sub-soil is very wet, although the trenches in which it is planted are prepared alike, as to soil, in both situations. Where there is the advantage of a strong loam, as described, upon a favourable sub-soil, and the trenches are prepared as hereafter directed, and the plants treated in the manner stated, Celery may be grown so as to have the heads weighing from ten to twelve pounds each.

To have successive crops, it of course requires seed to be sown at different periods. For a crop to use from August, sow the first week in February; and for a crop to use from November, sow the first week in March. It however often happens that the smallest plants of the first-sown crop will answer instead of the March sowing.

The method I pursue in raising the plants, and in their subsequent culture, is as follows:—

The seeds are sown in a box filled with light rich loam, the top soil very finely sifted, for the seeds readily to strike root into. After the seed is sown, the box is placed in a vinery, or pine-stove, kept at

from 65 to 70 degrees of heat. In so warm a situation, the soil at its surface is very liable to dry, and when the seeds have vegetated in part, drought destroys them; to prevent which it is necessary once or twice, or more, each day, to sprinkle the surface with water of the temperature of the house, until the plants are up.

When the plants are about an inch high, the box is removed to a peach or green-house; and when two inches high, they are pricked out into a frame, placed upon a slight hot-bed, which had been made a week or ten days previous. The day before the plants are to be pricked out upon the bed, the surface is made even, and some hard turf about an inch thick is laid over the bed, the grass-side uppermost, and beaten as firm as possible. This prepared sub-stratum prevents the roots from entering much into it, and thereby causes the plants to make tufts of fibres, which are very essential to the future progress of the plants. The tap-root is also checked, and generally prevents the plants from running whilst in that situation. Upon this prepared sub-stratum, two inches deep of well-rotted dung is spread, and the surface smoothened; then about an inch deep of finely-sifted rich soil is laid on, and the plants are pricked out at about four inches apart. All possible air is admitted to prevent their being drawn.

I have observed that when the prepared compost of dung and soil, which is laid upon the turf, is much deeper than above stated, a great proportion of the plants run, but they rarely do so, when the manure is good and as deep as stated, provided plenty of air and water be given.

When the plants are six or eight inches high, a piece of ground is prepared upon a border in a sunny situation; the soil is thrown out four inches deep, and turf is laid over the interior of the excavation, and prepared in other respects as directed for the hot-bed. When the dung is properly levelled, the plants are taken up, dividing the soil and manure with a knife, so as to have a square ball with each plant: they are then placed upon the dung at about eight inches apart. The spaces between the balls are filled up with rich soil. The plants are then well watered, to settle the soil about the roots.

When they are from twelve to eighteen inches high, they are removed with entire balls into the trenches, prepared in the following manner: the trenches are marked out five feet apart, centre from centre, and the soil is thrown out eight inches deep and twenty wide. The trenches are then filled up with the following compost: two parts of good rotten dung, and one part of stiff bog soil, with bone dust sprinkled amongst it in a small proportion. The plants are then carefully removed, with balls entire, and placed in rows at eight inches apart,

upon the compost. After the plants are placed, they are made firm in their places, by earthing them up with equal proportions of soil and manure.

The method of planting the Celery as high as directed, is very far preferable to the plan in general use, viz., of digging out a deep trench, and then after laying in manure, to dig it in with the sub-soil of the trench,—such soil in general being poor and cankery, and very unfit for the growth of anything. But not only have the roots, in the method I practise, the advantage of extending through the prepared compost in the trenches, but of proceeding forward into the fertile soil of the surface of the garden.

The Celery is earthed up very frequently, doing a little at each time. The leaves of the plants are folded together, and soil drawn by the hand round each plant, to prevent it getting to the hearts, which if allowed to do, would prevent the leaves in the centre growing straight and free.

At the final earthing, the soil is brought to a point at the top of the ridge, and beat closely together, in order to shoot off wet as much as possible. This is more particularly requisite with crops to stand the winter, in order to prevent the plants from rotting.

When Celery of the largest size is desired, I find that to take ground-bones, bone-dust, or horn-shavings, and boil them, and pour the water to the roots of the plants, increases the size very much. In order to get the water to the roots, holes are made along the sides of the ridges with a pointed stake, at a foot apart. Water from the drainings of a dunghill applied in the same manner, also materially assists the growth of Celery.

If the water, either from the bones or manure, is applied by pouring it down the stems of the plants, it often injures the foliage and checks its growth.

The sort of Celery I find the best both for size and flavour, is Bailey's Solid Red Gigantic; next, the Large Solid Red.

The distance at which the Celery is planted apart, and the trouble in preparing and planting the plants, is far more than compensated by the increased size of the heads; and the weight of useable Celery in the mode I practise, is much greater upon the same extent of ground than can be produced in the customary manner.

JOSEPH HARRISON.

Article II.—*On a New Method of Training the Fúchsia.* By G. A. L.

Gentlemen,

It is not my object in this paper, to write a panegyric on the Fuchsia, or to give directions for its general treatment, both being too well known to require any comment; but I wish to draw the attention of your readers to the advantages of training these plants with a single, straight, and naked stem, to the height of three, four, or five feet, according to circumstances and taste, and then allowing them to form a bushy and pyramidal head; because, as the coral flowers of the Fuchsia are produced at the points of the branches, these are bent into a graceful and elegant arch by the weight of the flowers; thus giving the plants, when in flower, a beautiful and picturèsque effect, far surpassing the loose and rambling ones we often see in our green-houses and conservatories. Let it not be supposed that I lay the least claim to originality or novelty for what I have here recommended, for this training of the Fuchsia has been in practice for some years, but not to the extent I think it deserves. I recollect seeing, about three years ago, in the splendid domical conservatory of Mr. Knight, of the Exotic Nursery, Chelsea, two splendid specimens of the *Fúchsia grácilis* trained in this manner, and judging from the thickness of their stems, and from the size of the tubs in which they were planted, they must have been many years old.

It were idle to give directions for the training of a plant, that will readily occur to the mind of every gardener, but I must be allowed to observe that, during the progress of training, one third of the whole length of the stem, must be covered with branches, and consequently with leaves, and as the plant gradually increases in height, so, in exact proportion, gradually remove the lower branches, by cutting them off close to the stem.

The more scientific of your readers will readily see the reason of this caution, for the leaves being, as it were, the lungs of the vegetables, when too great a number of these are removed, the whole economy of respiration is interrupted, and if the plant be not allowed to recover, (which it will strive to do,) and preserve the quantity of leaves necessary to carry on the vital functions, it soon dies. For instance, I have so trained the Fuchsia, that in three or four feet of stem there has not been a single branch, and only a few leaves at the top of the stem: the plant tried to recover the requisite supply of air, by throwing out fresh shoots and leaves—these I had constantly removed; and at length, after a vain struggle, nature yielded,—the plant withered and died—I may literally say, with the vulgar expression, "for want of breath."

The *F. grácilis* and *F. virgàta* are more suitable for training, than some of the other species. I would particularly recommend the *F. virgàta* to the notice of your country readers; it is now well known about London, and far surpasses, in my opinion, all the other species; excepting one, the flowers of which I saw for the first time last summer.—I have no reason to think it a very new one, but understand it is difficult to propagate.—It was shown to me by the name of *F. tenélla*, but I rather think that this name is incorrect, the real *F. tenélla*, being another species.

The *F. microphylla*, when trained with a naked stem for eight or ten inches, has also a very pretty effect.

In conclusion let me add, that the *F. grácilis*, *F. virgàta*, and some others, stand the winter well in the open ground, in the neighbourhood of London,—dying to the root in winter, and shooting up again in spring, thus forming a beautiful addition by their pendant scarlet blossoms, to the flower garden, during the latter part of summer and through the autumn. If the frost is particularly severe in the winter, it would be well to put a good sized flower-pot over the spot in which they are planted.

I remain, yours, &c.

A Young Amateur,

February 14, 1832. G. A. L.

Article III.—*On the Cultivation and Management of the Sálvia Spléndens.* By Sage.

Gentlemen,

After a careful investigation of your valuable Horticultural Register, I find no mention made of a most beautiful plant, producing in rich profusion its elegant scarlet blossoms, in spikes from 6 to 8 inches long, in the months of October, November, and December, and growing from 4 to 8 feet high—I mean the *Sálvia Spléndens*.

I hope you will insert in an early number, the following method, by which I have succeeded in growing this beautiful production of the Mexican clime to great perfection. The compost should be composed of

One barrowful of fresh loam,
One ditto of sandy peat.
One ditto of rotten dung.

The above ingredients should be well ameliorated with the frost, broken to pieces, then sifted through a coarse sieve, and well incorporated together, which will form what florists term a light rich loam.

PROPAGATION.—In the middle of March, take some of the young shoots of your old plants off, at a joint, put them into pots filled with the above compost, and make them quite firm; give them a gentle watering, and place them in a strong hot-bed.

CULTIVATION.—After your cuttings have taken root, and begin to grow, bring them into the hot-house for a few days, to harden their wood, and then pot them off singly, always using the above compost; give them a good watering, and replace them in the back of your frame, shading them for the first week. If the sun is powerful, let them remain there till they have grown nearly to the glass, when they must be taken back to the hot-house, and be grown as fast as possible, giving at all times, plentiful supplies of water. They must be re-potted in the months of April, May, July, and September, or else they will be stunted in their growth.

As the *Sálvia* is frequently, nay always, attacked by the Red Spider, *(Acárus,)* and as this destructive insect disfigures the plants to a great degree, by causing the leaves to be spotted and discoloured, I would advise them to be well syringed four times a week, after their being re-taken to the hot-house.

If any gardener were to follow the above method, he would find his endeavours crowned with success.

I could furnish the Register with some more methods for cultivating other exotics, if they would be thought worthy of receiving.*

The Conductors of the Register, or any of their numerous readers, would much improve the work by inserting plans of metallic hothouses, of houses worked by steam or hot water, and also of flower gardens and pleasure grounds.

Wishing success to your undertaking,

I remain, Gentlemen,

Yours, &c.,

February 6, 1832. SAGE.

P. S.—Will any of your correspondents inform me how the *Gloriòsa supérba* should be treated, to cause it to flower?

ARTICLE IV.—*Method of Destroying the White Blight, or American Bug.* By A PRACTICAL GARDENER.

GENTLEMEN,

NOTWITHSTANDING the "thousand and one" recipes for the destruction of what is called the "White," or "American Blight," *(Aphis lanata,)* I am persuaded the injury to apple trees caused by this

* We shall be happy to receive anything our correspondent may deem worthy of insertion. CONDUCTORS.

noxious insect becomes more serious and extensive in each succeeding year.

Now as the very number of cures for this mischief is quite sufficient to perplex the inexperienced, it will be expedient to give more extensive publicity through the medium of your popular Register, to remedial measures already published, and practised in Gloucestershire with great success, rather than add to the list of recipes extant.

In furtherance of this view of the subject, and because spring is the season recommended for commencing the operation of destroying Blight, I now quote the following, from the most interesting work on rural subjects that has appeared since the publication of White's Natural History of Selborne.

"Many remedies," says our accomplished author, "have been proposed for removing this evil, efficacious perhaps in some cases upon a small scale; but when the injury has existed for some time, and extended its influence over the parts of a large tree, I apprehend it will take its course, and the tree die. Upon young plants, and in places where a brush can be applied, any substance that can be used in a liquid state, to harden into a coat, insoluble by rain, will assuredly confine the ravages of the creature, and smother it. Hard rubbing with a dry brush crushes many, but there are crevices into which the bristles cannot enter: thus some escape, and propagation continues. I have very successfully removed this Blight from young trees, and from recently attacked places in those more advanced, by an easy application. Melt about three ounces of rosin in an open pipkin; take it from the fire, and pour into it about three ounces of fresh oil; the ingredients perfectly unite, and when cold, acquire the consistence of honey. A slight degree of heat will liquify it, and in this state paint over every node or infected part in your tree, using a common painter's brush. This I prefer doing in spring, or as soon as the hoariness appears. The substance soon hardens, and forms a varnish, which prevents any escape, and stifles the individuals. After this first dressing, should any cottony matter appear round the margin of the varnish, a second application to these parts will, I think, be found to effect a perfect cure.

"The prevalence of this insect," adds our author, "gives some of our orchards here the appearance of numerous white posts in an extensive drying ground, being washed with lime from root to branch;—a practice, I apprehend, attended with little benefit: a few creatures may be destroyed by accident, but as the animal does not retire to the earth, but winters in the clefts of the boughs, far beyond the influence of this wash, it remains uninjured, to commence its ravages again when spring returns."—*Journal of a Naturalist*, page 352.

On the last paragraph, however, I must observe, but with great deference for the writer's opinion, that the efficacy of the lime-wash,

which he doubts, and the statement "that the animal does not retire to the earth," are, at least in my estimation, moot points, and worthy of further investigation. Certainly, on transplanting young apple trees in spring, I have observed the roots of a few of them infested with this destructive insect.

It is remarked in the work above quoted, that these insects "give a preference to certain sorts, but not always to the most rich fruits; as cyder apples, and wildings, are greatly infested by them, and from some unknown cause, other varieties seem to be exempted from their depredations. The Wheeler's Russet, and Crofton Pippin," says the author, "I have never observed to be injured by them."

I remain, Gentlemen,

Your obedient Servant,

Newport, Isle of Wight, A PRACTICAL GARDENER.
Jan. 30, 1832.

ARTICLE V.—*On the Cultivation of the Leek.* By ONE OF THE UNPOLISHED.

GENTLEMEN,

I AM happy to congratulate you on the success of your widely circulated, and justly esteemed periodical, and should you consider my trivial communication, on the Culture of the Leek, worthy of a small space in your Magazine, I shall feel happy in its insertion, convinced from the seeming neglect paid to this vegetable, that a few hints on my successful mode of its treatment, may at least not be lost on some of your readers.

Sow the seed the latter end of February, or the beginning of March, on a warm open border to the south. When the plants have attained the height of about six or eight inches, take them up carefully with a trowel, or other suitable instrument. Having cut or cropped a portion of their straggling roots and tops, make a puddle, which may be done by taking some of the drainings of a dunghill, and stirring it up with some of the soil of the quarter where the Leeks are about to be planted, until it has the consistence of mortar; draw the roots through the puddle, and having the ground previously prepared by digging in plenty of well-rotted dung, (this is an essential requisite to the Leek,) draw out drills with the garden hoe to the line, 3 inches deep, and 15 inches between the rows. Having drawn the drills, make holes with the dibble to the depth of 3 inches, and 6 or 8 inches apart in the drill: put in the plants at the same time as proceeding with the dibble, leaving the holes open.

By this method, and always planting out on the same piece of ground for a number of years, I never fail to obtain Leeks, regularly measuring nine or ten inches round the white or blanched part.

I am, Gentlemen,

Yours, very sincerely,

Hereford, Feb. 7, 1832. ONE OF THE UNPOLISHED.

ARTICLE VI.—*On the Culture of Potatoes.* By THE AUTHOR OF "THE DOMESTIC GARDENER'S MANUAL," a Corresponding Member of the Horticultural Society.

GENTLEMEN,

YOUR correspondent, Vigorniensis, has intimated a wish to be informed of Mr. Knight's method of planting Potatoes; and you, in in a note, have stated your intention shortly to furnish the desired information. I am far from wishing to trespass on your province, or to deprive your readers of that instruction which cannot fail to be derived from the perusal of papers written by Horticulturalists of your high practical attainments. But as I have long since apprised you of my intention to send you a paper on the culture of Potatoes, at a proper period;—as that period is now at hand,—and particularly, as my correspondence with our enlightened President, Mr. Knight, has placed me in possession of directions for planting that noble root, in his own hand-writing;—for these reasons, I am inclined to believe that you will permit your friend to become your substitute on the present occasion, and to place before your readers a faithful and verbatim extract from Mr. Knight's letter. The object of that illustrious man has always been, to give publicity to every species of really useful information, and therefore I do but further his views, when I give extent to those directions with which he personally honoured me; and you, Gentlemen, are doubtless in possession of facts whereby to substantiate that which I now adduce.

Mr. Knight's general rules, as I find them in a letter now before me, are these:—

He first observes, "I obtained from the Ash-leaved Kidneys, last season, (a bad one, 1830,) a produce equal to 670 bushels, of 80 lb each, ℔ statute acre; and I entertain no doubt of having as many this year. To obtain these vast crops of the Ash-leaved Kidney, I always plant whole Potatoes, selecting the largest I can raise; and for a very early crop, those ripened early in the preceding summer, and kept dry. I usually plant them on their ends, to stand with the crown-end upward, and place them at four inches distance, from centre to centre, in the rows,—the rows two feet apart, and always pointing north and south."

"I plant my large Potatoes much in the same way, but with wider intervals, according to the height which the stems attain; thus, one which grows a yard high, at six inches distance from centre to centre, and three feet six inches, or four feet between the rows, never cutting any Potatoe; nor planting one of less weight than a quarter, but generally half a pound. By using such large sets, I get very strong and large plants, with widely extended roots, very early in the summer.

"The blossoms take away a good deal of sap, which may be better employed in forming Potatoes; and whenever a Potatoe affords seeds freely, I think it almost an insuperable objection to it. As a general rule, I think Potatoes ought to be planted in rows, distant from each other in proportion to the height of the stems. The height of the stems being full three feet, the rows ought to be about four feet apart; and the sets of the very largest varieties planted whole, never to be more distant from centre to centre than six inches. By such mode of planting, the greatest possible quantities of leaf (the organ, by which alone, blood is made) are exposed to the light."

The philosophy of these able and simple directions may be shortly explained: it consists in the exposure of the utmost possible surface of the respiratory organs (the leaves) to the agency of the electrising principle of the solar light,—and of corresponding breadths of soil, to the influences of air and heat; so that the roots may be enabled to extend right and left, to a distance somewhat exceeding that of the height of the stems and foliage.

That astonishing crops have been produced under such a method of planting, has been ascertained by many. I too, have experienced its efficacy, as the following results will testify.

The Potatoe, called the *Early Champion*, was that with which I began my experiments, early in March, 1831. The soil was that of a pasture—a deep brown sandy loam, upon a chalky sub-soil, approaching to marl. This soil had been trenched in the autumn to the depth of two feet, and the turf was inverted at the bottom of each trench. About 80 lb of these Potatoes were planted whole, in rows two feet asunder, running north and south, the sets about six inches apart crown from crown; but as I could not obtain a sufficiency of the variety at the time, I was constrained to employ such as I had, and therefore the size of the potatoes was not attended to. The rows were weeded early, and the stems advanced regularly till the fatally destructive 6th of May, when the frost destroyed and blackened every leaf that had fairly emerged from the surface. Thus I lost all the benefit that would have been otherwise derived from the early developed leaves; and consequently, a considerable weight of the advancing crop. In a week or ten days, however, fresh shoots were protruded; and as the stems advanced they were deeply earthed up, that is, till the whole piece of ground had the appearance of

so many ranks of ridges, the intervening spaces being 12 inches deep in the centre. This one effectual earthing-up sufficed; and the crop attained perfect maturity in due time. The total yield of potatoes (which were, for the greatest part, of a fair average size, and of most excellent quality, mealy, and fine in flavour) was 576 lb.

The Early Frame Potatoe, planted the first week in March, was the subject of the second experiment. I had procured one peck, weighing 14lb, and the tubers were cut into small sets, with from one to three eyes each. The sets were planted in rows, pointing north and south, two feet asunder, the sets being four inches apart in the rows. The site was a garden-plot, four yards by seven yards and a half, *i.e.* 30 sq. yards. The sub-soil was a strong stiff loam, and this was brought to the surface by deep trenching, just before it was cropped. This plot suffered also from the frost above alluded to. The final yield was very great, (259lb) but the Potatoes were far from being regular as to size: a great portion were small, weighing little more than one or two ounces each, occasioned I doubt not, by cutting the tubers into small sets.

The third experiment commenced on the 25th of March, when I was enabled to procure a small supply of a variety styled *Early Champions*, but which was evidently far from true to its kind. The Potatoes were planted by the side of the first plot of Champions, in rows, two feet six inches asunder; the sets six inches apart, crown from crown. The total yield, digged up between August 25, and September 18, 1831, was 1029lb. *

General deductions from facts:—First, I find that little or nothing is gained by planting before the middle of March; for if a frost destroys the leaves as it did those of my first-sown Champions, a great loss in the product of the tubers must inevitably be experienced. Second, early ripened Potatoes will yield an earlier crop than others of the same variety, which have come to maturity at a later period of the preceding season. My first Champions were produced by myself, from a few roots given to me by a neighbour, in June, 1830, when I obtained possession of the property that I now occupy. The land required to be trenched, and therefore the Potatoes were not in the ground until the last week of the month; hence they scarcely ripened before the frosts set in. The 84lb planted in April had been produced at the usual season by a farmer; and they came in very early, and yielded almost double the quantity of those first planted. It is but just, however, to state that we commenced digging the latter as early young Potatoes, in July; and therefore, scarcely two-thirds of the crop remained to attain perfect maturity. Third, Ash-leaved Kidneys, above all others, require to be planted whole. If they are not, many of them may never germinate at all. I tried an experiment during last year, and it was decisive in its result.

* The blossoms of every sort which produced any, were mostly pinched off as they appeared.

Henceforward I never intend to plant a cut set of this Potatoe, nor a whole one of very small size. I trust that my experiments on each variety that I plant, during the current season, will be conducted with a degree of precision and exactitude that may enable me, on a future occasion, to announce their particular routine and final results in a way that shall leave no doubt of the efficacy of Mr. Knight's mode of culture.

With all good wishes,

Believe me, Gentlemen,

Your sincere Friend,

February 13, 1832. G. I. T.

ARTICLE VII.—*On the "Bygrave Slug-Preventer;"—the "Bygrave Pink-Hoop;"—on Supporting Dahlias;—and on Bone Manure.* By A PRACTICAL GARDENER.

GENTLEMEN,

REFERING to a former communication of mine, on the subject of the "Bygrave Plant Preserver," (page 150) I have now the satisfaction of informing you, that by a new application of the principle of that invention, Miss Louisa Bygrave has rendered the protection of whole beds of plants, from slugs and snails, a matter of easy accomplishment, at a moderate expense. Models of corner and side-parts of the contrivance, accompany this letter, in the hope, that with your usual liberality, you will give an engraving of them in the Horticultural Register.

By way of distinction from the former invention, this has been named the "Bygrave Slug Preventer," [fig. 71, *a*] and may be described in words, as a leaden gutter (*b*) an inch and a quarter broad, having a keel an inch and a half deep, and made in pieces of any desired length; which when set completely round the edges of a bed, and staunched at the joints with soft-solder or putty, and filled with salt, forms a barrier impassable by slugs or snails.

When the article is used, either slices of turnip, peas-haulm, cabbage-leaves, or pieces of board, tile, or slate, should at the same time be placed here and there on the ground inclosed, for the vermin to harbour under,—from whence, they ought every morning to be hand-picked, or destroyed by sprinkling a little powdered quick-lime over them. Persevering thus for a very few days, would completely clear the space within the boundary of salt, of those mischievous creatures, and leave it secure from fresh incursions. Of course, these means should when practicable be pursued previous to sowing seed, or putting in young plants.

The value of this invention, I imagine will, after a fair trial, be appreciated by every description of gardener, from the amateur who carefully watches his favourite ranunculus or carnation bed, to the market-gardener, whose profits are affected by the success of his lettuce or cabbage plants.

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The "Bygrave Slug Preventer," is manufactured by Mr. Forster, plumber, Newport, Isle-of-Wight. Any considerable number of feet could be made at about three-pence half-penny per foot; for a small order, probably a half-penny a foot more might be charged, but I may observe that the thing will last for an age.

To the talented young lady whose name has been mentioned above, florists are also indebted for the invention of a new support for the blossoms of plants, which is particularly well calculated to display pinks to advantage, but would answer for numerous other flowers. It consists of a ring of wire six inches in diameter, run through the tops of two strips of wood, about fifteen inches long, and as thick as a man's little finger, which are placed in opposite positions on the ring, for legs. Fifty of these wires cost half-a-crown, and the little strips or sticks for that number, and painting of them green, might come to another

NOTE.—The plants introduced into the engraving, are—

c Sparáxis lineàta.—A bulbous plant, requiring a pit or a warm border of sandy loam and peat. The flower is white, with a yellow throat marked with brown; each petal marked with a red line.

d Vieusseùxia glaucòpis.—See pages 266 and 279. CONDUCTORS.

shilling, making the cost altogether three shillings and six-pence for a half hundred;—an expense very trifling, when the convenience and exceeding neat appearance of the "Bygrave Pink Hoop," is taken into account.

For supporting the Dahlia, the best way I have seen, is driving into the ground close by it, a stout stake, having three or four sticks put transversely through holes bored at the upper end, six or eight inches apart, in the manner of a cock-a-too or parrot's perch. As the plant advances in growth, the stem and branches are tied with mop-yarn to this stake and its cross-sticks, which are soon hidden by the leaves, and the whole remains secure from injury by the wind.

Allow me here to enquire of your correspondents, whether any of them have used Bone-dust as a manure for fruit-trees; and, if they have,—how, and with what success? I have incidentally heard that the result of an experiment of the sort, made by a gentleman in this neighbourhood, was an abundant crop of fruit. The mode of application, as stated to me, was this:—the roots to some distance round the tree were bared, sprinkled with the bone manure, and then covered over again by re-placing the mould.

I beg to forward you, a parcel of seeds, which were sent to Engand, from Candy, by Captain Firebrace, of His Majesty's 58th regiment.

I am, Gentlemen, your obedient servant,

A Practical Gardener.

Newport, Isle-of-Wight,
Dec. 23, 1831.

Article VIII.—*On an efficacious mode of Destroying the Turtle Insect.* (Cóccus lanigèra.) By Mr. Wm. Brown, Prestwold Gardens.

Gentlemen.

I have perused with pleasure your entertaining numbers on Horticulture, &c. and observing on your cover, that you request communications, however trifling, I have ventured to send you the present, which if you think worth notice, I shall feel obliged by your giving it insertion in your very useful work.

In the beginning of January, 1828, slight fires were made to heat the back-wall of a fruiting pinery, on which vines were trained, they were well established, and annually bore excellent crops of grapes. Towards the end of February or beginning of March, there appeared

several substances of the Turtle Insect, (*Cóccus lanigèra*) and they kept increasing daily, both on the new and old wood, harbouring beneath the foliage. We occasionally destroyed them, but they kept constantly increasing as the temperature of the house was augmented; until their numbers became very great, and the vines began evidently to suffer from the effects of the glutinous honey-dew with which the leaves were covered. We used sulphur and water, and every means that our imaginations could suggest, but to no purpose; for their numbers increased daily, until both fruit and leaves became mostly covered. The honey-dew hung in drops at the extremity of the leaves, and the fruit appeared as if had been dipped in a glue-pan; and on being touched, it adhered to the hands in the same manner as glue. Although I washed it off continually, every succeeding morning it had again assumed the same appearance. Very few bunches fit for table, were gathered that season.

I should here remark, that the wall, previous to its being white-washed in autumn, was almost as black as a coal, from one end to the other; and we were obliged to have it new drawn.

We could scarcely account for the disaster,—we never before had perceived anything of the kind; the Red Spider, (*Acàrus tellùrius*) had often been very troublesome. We hardly knew what course to take, but resolved to adopt some effectual means either to kill or cure; and for this purpose, we made a mixture of—

Two pounds of sulphur,
One pound of soft-soap,
One quart of strong tobacco water,
One pint of water of quicksilver.

These we mixed well together, and when we had pruned the vines, we dressed both old young wood with it; (having previously brushed them well with clear water) this we found a most effectual remedy, not only against the Turtle Insect, but also against the Red Spider, or anything else. We have anointed our vines with it every year since, and have been entirely free from any insects; and so far from it being injurious to the vines, they grow exceedingly luxuriant, and are very prolific.

It is well known, that vines in vineries are less annoyed by insects, than those either in succession or fruiting pineries;—this may arise in some measure, from the air in the vinery being altered as circumstances may require, whilst in the latter, the pines being the chief consideration, the temperature is regulated so as to be most suitable for them.

Wishing every success to the Horticultural Register,

I remain, yours, respectfully,

Prestwold Gardens,
Dec. 10, 1831.

W. Brown, Jun.

Article IX.—*On the Cultivation of the Polyanthus.* By Mr. John Revell, of Pitsmoor, near Sheffield.

Gentlemen,

Seeing by your cover that you intend inserting papers on the culture of the Polyanthus, I have forwarded you my opinion on that plant.

In the neighbourhood of Sheffield, we grow it to a great degree of perfection. The compost made use of is a light maiden-soil, mixed with a little new horse-dung. About the latter end of May is the potting season,—be careful to examine the roots and break off the greater part of the carrot-stump, leaving no more than that which contains plenty of young fibres. Crop the outside of the leaves, but leave the heart of the plant untouched. In November, they should be placed for protection in a pit;—the best sort for the purpose, is one built of brick, and instead of glass-lights to cover them, use wooden doors, set them open during fine weather, but shut them close down at night during frosty weather, to prevent them being injured. Allow them to receive the benefit of gentle rains now and then, throughout February and March.

When the trusses of flowers are formed, which will be about the end of March, or beginning of April, thin out all the inferior and middle buds, after the same manner as recommended for Auriculas, p. 56 of your Register. At this time, great care will be requisite, to protect them from slugs, &c. The system I have generally followed with success, is, laying a good floor of ashes from the smithy, for the pots to stand upon; but I should recommend "The Bygrave Plant Preserver," described in your Register, page 151, as far preferable, both for a neat, simple, and efficacious means of preserving them.

About the latter end of April, they will be in full blow, and must be carefully sheltered from the sun's rays; for if exposed to them, the colour of the flower will be damaged, if not totally spoiled. Shade them in the same manner as I recommended for the Auricula.

The properties of a good flower, are, having bright and rich colours; the eye must be perfectly round, and the markings on the edge of the petals, of a bright lemon colour, and the tints or shades of a very dark crimson or scarlet, which must be in proportion to the pips; and the whole flower must be a complete circle, as *Waterhouse's George the Fourth*, &c. The sorts most esteemed as possessing the best properties, are,—*Waterhouse's George the Fourth,—Pearson's Alexander,—Crawshaw's Invincible,—Cox's Prince Regent,—Billington's Beauty of Over,—Park's Lord Nelson,—Turner's Emperor Buonaparte,—Turner's England's Defiance,—Buck's George the Fourth,—*

Crawshaw's Countess,—Turner's Princess of Wales,—Hattersley's Invincible, &c.

When the plants have done flowering, they should be taken out of the frames and set upon the borders, that the seed may be able to ripen; which it will do in June or July. As soon as the seed-pods begin to change colour, and open at the top, be careful to cut them off directly, or you will be liable to lose the seed.

The seed should generally be selected from the most compact and best kinds, as *Park's Lord Nelson*, &c. It should be sown in the February following, in a box or pan, filled with light new mould; covering the seed about a quarter of an inch deep. In the course of a month or five weeks, they will be up, and will require a little water occasionally in a morning; covering them down closely with a bell or hand glass in the evening.

In May, they will be sufficiently strong to transplant into small pots, or upon a warm border, to remain for flowering the following spring. When they are in flower, you may select such as are valuable flowers. *Pin-eyes*, (or those that show the pistillum) may be thrown away, or else planted in the borders, for although they are generally the brightest colours, they are considered to be worth little. Those called by florists *Moss-eyes*, having a fine yellow edge and good ground colours, are esteemed the best.

We have a very choice collection of fine seedlings, raised after this manner; and last year I raised above four hundred,—many of which, I have no doubt, will produce excellent flowers.

I am, Gentlemen, yours, &c.

JOHN REVELL.

Pitsmoor, December, 1831.

ARTICLE X.—*On the Management of Plum Trees trained against a Wall.* By MR. J. MEARNS, of Presteigne.

GENTLEMEN,

I HAVE for many years adopted the method of training all my wall-plum trees exactly as I do my Peaches, &c., *i. e.* by a judicious and regular succession of young wood; upon which they form blossom-buds as freely as the young wood of those trees which we are all in the habit of training by a regular succession of young wood. The Plum tree, by this method, instead of being one of the most unsightly on the wall, certainly becomes one of the finest and handsomest trees, as well as one of the most important, in the garden. It can be trained in the fan form, (the best method for the young-wood system) to a greater

successful extent (the Pear excepted,) than any other fruit tree; and if the soil is loamy, fresh, and good, it will reach its destination in much less time than that of any other tree; and by an ordinary course of judicious management, a very regular supply of fine young fructiferous wood may be retained in every part, but which it is often difficult to do with the Peach tree. There is another very great convenience attending the Plum tree, from the circumstance (which is too much appealed to, as it fails of success) of its free production of fruit-spurs upon the older wood:—where a young shoot is not conveniently at hand, the spurs are not formed far off, so that there is always the easy means of having a very regular supply of blossoms over every part of the tree; but upon no account, suffer the incumbrance of spurs to remain where the young shoots are sufficient. Those that are found necessary to be retained ought only to be upon the sides of the branches, so as to bring the blossom and fruit into contact with the wall, and to receive all the benefit of it; but, for neatness' sake, and to do away with an incumbrance, the retained spurs must be kept as short as possible. Upon some of the two, three, and four-year-old wood, it is often found necessary, in some parts of the tree, to retain some of the front spurs; but if so, let those be as close to the shoot as possibly can be done, so as to bring the blossom and fruit to the wall, as upon that very circumstance depends the success of wall-training, as much as all others. Too frequently we see the Plum-tree after being finely clothed with blossoms, and trained upon a favourable aspect, in the usual spurring manner, with but very little fruit set;—or if set, it either drops off prematurely, or else is small, stunted, or ill-shapen. By the young wood method, where the tree is neither over-burthened by too much useless wood, nor too heavy a load of blossoms and young fruit,—where the blossoms and fruit have the advantage of the wall,—I have rarely failed having abundant crops of Green Gages and Mirabelles, upon a north aspect, with a very low and wet cold border; and to have the fruit well ripened, particularly fine, and of good flavour.

Trees trained upon the old spur method, are readily and without loss of time, reduced to the successional young wood system; and while they are forming, the act of so doing, renders them much more productive than they were previously; and will continue to do so, from the commencement of the operation till the system is complete.

In the commencement, numbers of the incumbering fore-right branches of long spurs, must be cut away, and only such are to be retained as will ply up to the wall,—all others to be cut clear out; and those that are left must be considerably reduced in their spurs, and none left unless they be close to the wall. By such a reduction of incumbrance, and the remaining fructiferous wood laid in so as to receive every advantage from the wall, there will be plenty of fine fruit the *first* season, and the

fairest prospect of a continuance of it. Plenty of fine young wood will soon break forth in all parts of the tree, so that in about three or four years, if judiciously attended to, (cutting out the spur as a well placed shoot is produced to take its place) but few persons could tell that the tree had ever been spur-trained.

Trees so managed, are pictures which every one who is fond of seeing well-trained trees, would delight in; and from their vigorous growth, and being less liable to casualties and disease, that any other of our fruit trees, it is a pleasure to manage them, and they are soon made *permanently* fine and most useful trees.

It is but doing justice, to state here, that I received the first suggestion of my favorite method, from T. A. Knight, Esq. the very amiable and able President of the London Horticultural Society, about twenty years ago. He has confined himself much more to the short spurring; whilst I have taken more to the young wood system;—as, by that method, I find I can produce a larger and a handsomer tree.

If it is not trespassing too much on the pages of your very useful Register, by so long a communication, I should be glad to see this inserted in one of your earliest numbers; as I flatter myself, that to young gardeners, it will not be a subject of the least importance which you have published.

Wishing the Register every success,

I remain, Gentlemen, your sincere well-wisher,

JOHN MEARNS.

Presteigne, Jan. 29, 1832.

ARTICLE XI.—*On the Cultivation of the Jerusalem Artichoke*, (Helianthus tuberosus) *as a Food for Pheasants.* By MR. GEORGE STAFFORD, Gardener to Richard Arkwright, Esq., Willersley-Castle, near Cromford, Derbyshire.

GENTLEMEN,

I HAVE long been aware that the Jerusalem Artichoke, might be cultivated to great advantage as a winter food for pheasants; having once had an opportunity of witnessing its effects in drawing these desirable birds to a suitable situation, where I had left the roots in the ground for the winter, as is mostly the case.

The premises where these roots were grown, were so destitute of pheasants, that the spring previous to this occurrence, a few birds were procured, to turn out for breeding. Towards the approach of

winter, I observed them feeding on the roots of the Jerusalem Artichoke; and as the severe weather advanced, the number of visitors greatly increased. A neighbouring gentleman had abundance of them on his grounds, and although he took every precaution to feed them regularly with buck-wheat and other grain, I have great reason to believe, that his birds were greatly attracted by the roots of the Artichoke. I had but little opportunity of observing the birds during summer; but as the winter drew near, I found they re-visited the spot where the roots grew.—And so numerous had they become, that two gentlemen going out shooting one morning, killed no less than eighteen brace close to the habitation. Since then, I have never heard of any scarcity of birds.

The root in question, is perhaps better adapted as food for these birds, than any other article that can be grown, as scarcely any bird or quadruped feeds upon it. And the pheasant being a very handsome bird, and ever resorting where it can find protection, might, I think, be so accommodated with this food in woods and plantations, that the poacher would scarcely ever be able to find it. Whereas, if fed on grain, they congregate together and roost for the night, and so fall an easy prey to the poacher's gun.

By a little careful attention, the whole of a gentleman's estate might be planted with a sufficient quantity to secure a winter stock for almost any number of birds. When once planted, they would require no renewal, but would increase to a very great degree, in almost any situation in which they were placed. The roots are always pretty well secured from frost by their own leaves:—so much so, that I have observed even in the most severe winters, when the instinct of the birds led them to displace the dead leaves, they were able to feed equally as well, to all appearance, as in open weather. This led me to conclude that cultivating them for the above purpose, would be of decided advantage.

I am aware that considerable pains are taken to grow buck-wheat, and other kinds of grain, &c., for them; but when this is done, a large portion of it falls to the share of other birds: and unless the keepers pay very great attention to feeding them during the spring months, the birds are almost sure to stray from the premises in search of food, and generally meet with their destruction.

I have no doubt, that pheasants in their native wild state, feed upon roots in winter; indeed it has been often observed, that they prefer the roots of the Bulbous Crowfoot, (*Ranúnculus bulbosùs,*) to grain.

I have had correspondence with several of my friends, in different parts of the country, on the subject of introducing Jerusalem Arti

chokes, as a food for these birds: they all agree, that the birds are without doubt very fond of them, and they appear to be unanimous as to the practicability of planting them for this purpose,—and some have within these few years, been the means of their introduction into the woods and plantations of several gentlemen. I conceive that scarcely any root will be found more congenial to the constitution of the pheasant, as it contains a considerable portion of saccharine matter. And I also think, that on trial it would be found to be an excellent food for poultry generally,—equal, if not superior, to grain.

I remain, Gentlemen,

Yours, respectfully,

GEORGE STAFFORD.

Willersley, February, 1832.

ARTICLE XII.—*On the Culture of the Passiflora.* By P. D. of Chelsea.

GENTLEMEN,

YOUR correspondent, T. H., (at page 230 of your Register) is desirous of a paper on the Culture of the Passiflora; and as I am acquainted with the cultivation of that genus of plants, I will endeavour to answer that enquiry, as far as I am able.

This genus is pretty extensive, there being upwards of 70 true species, besides a many hybrids, some of which I have little or no knowledge of. Most of the species require stove-heat. The *P. quadranguldris*, in particular, will thrive best if placed in a corner of the bark-bed:—form a little partition with bricks, a foot square, and 2 or 3 feet deep, in which place the plant; and every succeeding autumn if the roots be reduced and new soil added, and the plant cut down in a similar way to that of cutting the vine, it will grow vigorously and fruit abundantly. All the species grown in stoves, appear to require plenty of room for their roots, as well as branches. Some of them, as the *P. vespertiliònis*, &c. do well in large pots;—others, thrive best when planted out in the pit, and trained against the back-wall or end lights, where there is plenty of room. They will grow very well under the path-way, if good soil be placed under the stone, and a hole cut sufficient to allow the stem room to strengthen without injury. I should recommend cutting them in, every autumn; as I have found by experience that they grow with renewed vigour, and look much better than long naked stems, seven or eight years old.

They appear to me, to prosper best in a good rich loam mixed with one-half leaf-mould. They require a considerable quantity of water whilst in a growing state; and it is necessary to attend to training the branches as they grow, or they soon become entangled, and in loosening them, not unfrequently either tendrils or branches are broken.

There are not many green-house species, although the *P. incarnàta*, *P. palmàta*, *P. édulis*, *P. maculàta*, and *P. Chinénsis*, will do very well in it; as also some excellent hybrids, which are very free flowerers, as *P. rùbra*. *P. cœrùleo-racemòsa*, *P. angustifòlia*, and *P. Colvillii*, all of which, are of easy culture, and highly ornamental in a conservatory; and if they have plenty of room, they will flower nearly all the year round.

If they are to be grown in a common green-house, I would plant them for the roots to grow under the path-way, as I recommended for those in the stove. I conceive, a gardener cannot introduce a better plant for climbing up small painted wires.

Some of the more hardy-growing sorts would do for a vinery, and when the lights were taken off in the winter, the branches might be cut in, and the whole plants matted up until the commencement of forcing again.

If none of your more able correpon dents take up the matter, I will try to comply with the request of T. H., respecting the culture of greenr house plants. *

Should these hasty lines he thought worthy of notice, I shall feel obliged by their insertion.

I am, Gentlemen, yours, respectfully,

P. D——

Chelsea, Jan. 20, 1832.

* We shall be very happy to receive any communication on this, or any other subject, which our correspondent may favour us with.

CONDUCTORS.

PART II.

HORTICULTURAL AND RURAL SUBJECTS.

REVIEWS AND EXTRACTS.

Article I.—*Reviews of, and Extracts from, Works on Gardening, &c.*

1.—A Treatise on the Propagation, Cultivation, and General Treatment of Cape Heaths. By W. McNab, C.M.H.S. Superintendant of the Royal Botanic Garden, Edinburgh, &c. &c. 2*s*.6*d*., with a coloured engraving.

We have peculiar satisfaction in recommending this little pamphlet to all gardeners, and other persons, who are admirers of this beautiful tribe of plants; and although we are apt to be sanguine, we cannot avoid conceiving that the perusal of it will be a great means of stimulating many persons to cultivate Heaths, who have hitherto been afraid to venture, on account of a multitude of apparent difficulties in their propagation and culture: all these difficulties Mr. Mc. Nab has, in this pamphlet, proved to be merely imaginery, and has satisfactorily shown that Ericas may be grown to perfection with as little, if not less difficulty than any other Cape plants inhabiting our greenhouses.

The excellent practical experience of the author is so well known, that it would be useless to introduce this is an argument in favour of the work. It contains 43 pages of plain directions,—on the propagation of Heaths, and the treatment of them while young,—the soil best suited for their growth,—the different shiftings necessary,—and the general treatment when in the house or out of doors.

We cannot forbear extracting from some of the most prominent parts of its contents;—this we do, to show our readers something of its excellence; but all who can conveniently spare the money to purchase it, may sit down under the impression that it is a half-crown well spent. We are also very anxious to give the greatest publicity to Mr. Mc. Nab's xecellent directions, for we believe them to be undoubtedly the best that have ever yet appeared on the subject of Heaths.

"The general mode (and, indeed the best mode) of propagating Cape Heaths in this country, is by cuttings: the greater portion strike root freely when the young wood is taken, after it has become sufficiently firm so as to prevent its damping off. The pots for their reception should be about nine or ten inches in diameter at the mouths; fill them to within an inch and a half of the top, with broken pot, or coarse ashes, the upper part of which should be of a smaller size than those below; over which should be placed a thin layer of Fog, (*Hypnum*) a moss so called, to prevent the sand from working down amongst the draining, then the

remainder of the pot should be filled with fine sifted pit-sand, as free as possible from earthy or irony matter, to the level of the edge, and the sand pressed down very firm. After being well watered, the pot is then fit to receive the cuttings, the length of which must depend on the habit of the species. Some of the free growing sorts may be about an inch and a half long; and others that are of a more stunted growth, may not exceed half an inch: in both cases they should be taken from the plant at the part where the young cutting sets off from the older wood. The leaves should be stripped off about half the length of the cutting, and the end should be cut clean with a sharp knife or scissors; the cutting is then fit to be inserted. Let the kinds selected for the same pot be as near of the same habit as can be judged, for instance, plant *E. melastôma, Petiveriàna, Petivèria, Scbàna, penicillàta, &c.* in one pot, and *E. pinea, pinifòlia, vestita, grandiflòra, purpùrea, &c.* in another pot; *E. ventricòsa, prægnans, Linnæàna, Linnæoides, coloràns, &c.*, in another; and *E. Aitoniàna, jasminiflòra, ampullàcea, Irbyàna, inflàta, &c.*, in another; for unless this be attended to, one sort will strike root in a much shorter time than others in the same pot, which makes it very inconvenient when potting them out. When the pot is filled with cuttings it should be well watered with a fine rose-watering pot, and placed in a close shady part of the stove, admitting as little air as possible near to where the cutting-pots are placed, and taking care to water them every day. Bell glasses are not necessary for Heaths in general; some species, as *E. glàuca, ùtrea, táxifolia*, and a few other species more difficult to strike, may be put under bell glasses, and placed in the stove beside the others. Where no stove is at hand to put the cutting-pots in, and where the situation in which they are to be placed has much air, then bell-glasses are absolutely necessary. The glasses will require to be wiped occasionally, to prevent any damp from injuring the cuttings; and when they have struck root the glasses should be removed gradually, some time before the cuttings are potted out. Cuttings of Heaths will strike root when put in at any season, if the cuttings are in a proper state; early in the spring, however, is the best time for them. When the cuttings are rooted, they should be potted into the smallest sized pots, and kept for ten days or a fortnight, in a close shaded place; then expose them gradually to a more airy part of the house, shading them from the sun till they are able to bear it. The soil for the first potting should be one-half peat and one-half sand: drain the pots well with broken pots or cinders. The second potting must depend much on the season of the year; if the first potting be done in spring, the second should be as soon as the young roots appear round the insides of the pots; but if the first potting be done in summer, then the second will not be necessary until the following spring. The soil for the second potting should be about two-thirds peat and one-third sand; and in all the pottings the soil should be a black peat, taken from a dry heath or common, which is never overflowed with water. In general, it should not be taken more than five or six inches deep; and where sand is not intermixed with the soil in its original state, about one-fifth of coarse white sand, free from irony matter, should be mixed with it. In shifting Heaths from one pot or tub to another, any time from March till August may be taken, as opportunity permits, or the state of the plants require. Before beginning to shift I have a quantity of the soil already mentioned, riddled through a very coarse or wide meshed riddle,—if the plants are small, of course the riddle should be smaller. Either broken pot or cinders, may be used for draining, whichever is most convenient: there is scarcely any danger of giving too much draining. The plant should be raised a little higher in the pot at each shifting than it had been before, so that after two or three shiftings the old ball about the stem of the plant should be raised two or three inches above the level

of the edge of the pot or the tub, keeping sufficient depth between the old ball of earth and the edge of the pot or tub, to hold water. Besides the compost and draining, a quantity of coarse soft freestone, broken into pieces, of from one inch to four or five inches in diameter, is introduced amongst the fresh earth in the pot or tub, and pressed down amongst the soil round the ball. The quantity of the stone used to a large sized Heath in shifting, would, if broken down to sand, and added to the sand previously in the soil, form about one-third of the whole mass. When stones are introduced among the earth in this way, Heaths will never suffer so much in the summer from occasional neglect in watering them, as they would do if the stones were not introduced, because these stones retain the moisture longer than the earth; and in the winter they allow a more free circulation of any super-abundant moisture which may be given through the mass.

"When I mention the treatment Heaths should have when in house, I must be understood, that if I have sufficient accommodation under glass, I never would take Heaths out of doors, unless it were for the purpose of shifting, or taking them from one house to another. My practice would be, to keep them in the house in the summer, giving them plenty of air, and to keep them cool during winter. It is a pretty general opinion that by turning them out of doors for four or five months in summer and autumn, the plants are made hardier, and better able to endure the winter, than they would be if kept within doors during summer. From this opinion I must take the liberty of differing, as I know of no species that will not bear as much in winter, without suffering from it, if kept in the house during the summer, as they would do if they were turned out of doors; and many of them (perhaps all) I know will bear more cold in the winter, if kept in the house during the summer, for by the latter practice the young wood gets better ripened, and better able to resist cold in the winter. I would advise every one to keep as many of their best specimens and best kinds within doors, during the summer as they can, without having them crowded close together. I cannot give better directions than to say that one should not touch the other when in the house, in summer; and if the nearest part of one to the other is two or three inches apart, so much the better. The house, however, should be well ventilated at all times, and except in cases of high wind and heavy rain, both top and front lights should be open both night and day; and besides watering the earth in the pots freely when they require it, they should be well watered over head with the garden engine every day, and if the weather is hot and dry, this operation should be performed twice every day, namely, both morning and evening.

"It is seldom that Heaths are attacked with any insect: the Green Fly, (*Aphis Ericeæ*,) is the only one I have observed, and this very seldom; but when it does happen, a little tobacco smoke for a night or two, when the house is shut close, will destroy them, and when this is necessary, it is always better to apply it for two nights in succession, in a small quantity, than to give too much at once.

"If the weather is favourable, a part of the plants may be turned out towards the end of April, if a sheltered shady situation is at hand to place them in. I may mention, that at this season they should always be placed in a situation well protected from the easterly wind, for they will suffer much more from it after being turned out of the house in spring, if not well protected, than what they will do from a sharp frost late in the autumn. Another part may be taken out in May, and by the middle of June the whole that is intended to be removed for the season, Choose, if possible, a dull moist day for the purpose; or if this cannot be got, place them in a shady situation till they can bear the sun's rays without injury; let them then be plunged in the ground from two to six inches deep, according to the size of the pots,—this saves much trouble in watering, and keeps the plants

from being blown over: care, however, must be taken to keep the bottom hole in the pot open, so as to let the water pass freely through. Any of the plants out of doors that may come into flower late in the season, should be removed into the greenhouse, as the heavy rains and high winds injure their appearance when in flower.

"Although I have never seen Heaths injured here (Edinbro') when fully exposed to the weather, till after November, it is then necessary to have them removed into the house; and to prevent the Heath-house being crowded too early, a part of the duplicates may be left in an open shed, until the thermometer falls 7 or 8 degrees Fahrenheit below freezing; it is then necessary to move the whole into the house that is intended for them. In all cases, in the middle of winter, Heaths will sustain no injury in the house, with the front-lights open day and night, until the thermometer falls more than 8 degrees Farhenheit below freezing. I would not, however, advise this to be practised in the spring, in case of the same degree of frost happening at that time; for we have often mild weather in February and March, and so much sun that the Heaths are forced into a more vigorous state of growth than they are in winter, and when in such a state they will not bear so much cold without suffering from it, as they will do in the early part or middle of winter. I have had the whole Heaths in the house, frozen for days together, so hard that the pots could not be removed from their places without breaking them, and fresh air constantly admitted at the time, and I have never seen one of them suffer in the smallest degree from it; but on the contrary, found them to thrive better than under any other treatment.

"It is an excellent practice in dull weather in winter, and even in frosty weather, if much damp is in the house, to throw in a little heat during the day; but this should never be done unless the weather is such that plenty of air can be given to the house at the same time, or even when frost is in the house; and the heat should always be stopped before the air be taken off. Very little water should be given during frost, indeed none, except to those which seem to suffer from want of it; but in mild dry weather they should be watered freely with the watering pot, and the engine should also be used once or twice a week, according to the state of the weather. that is, when it is dry and mild with much sunshine."

In pits, covered with glass, if we had the power of keeping them free from damp in such a situation, we could keep Heaths perfectly well without fire heat, by covering the glass during severe weather with straw or mats. The glass covering is quite sufficient to protect them from injury until the thermometer falls more than seven or eight degrees below freezing, and then it is advisable to apply some additional covering. The woolly-leaved kinds are very liable to suffer in such situations.

2.—Gardener's Magazine. Edited by J. C. Loudon, F.L.S., &c. Published every two months, price 3*s.* 6*d.*

No. 36 for February,

Is a notice by a Correspondent, stating that at the garden of Sir John Hay, Bart, at King's Meadows, Peebleshire, Carrots were grown to very great perfection in peat earth, (not heath mould.) This garden, he informs us, is situated upon a sub-soil of cankering gravel, mixed with a substance having a near affinity to iron-stone. The soil is light and sandy, but produces vegetables (carrots excepted) to equal, if not excel, any in the county. Mr. Sherare, the gardener, has had the garden under his management for above 31 years; and during that period he

has never obtained a crop of Carrots worth anything, although he has tried every means his judgment could suggest, or others recommend. In the autumn of 1830, being engaged in preparing a suitable soil for evergreens and American plants, the thought struck him that he might try the effects of the same soil in growing Carrots. The sort of peat used, is called *Moss-lag*, that is, pure decayed vegetable matter, without any mixture of sand, &c. The ground was trenched about two feet deep, and a little dung added. The first frost was taken advantage of, for the purpose of wheeling on the peat, which was laid regularly on, about eight inches thick, with a slight dusting of lime. In this state it lay till spring, exposed to the frost, when it was dug in,—the seed was sown in the usual manner,—it received the common routine of culture,—and the success was most complete.

Loudon's New-Invented Boiler.

After Mr. Loudon has stated that a *great improvement in the construction of Boilers of every description*, has just been made by Mr. Perkins, the celebrated engineer, particularly applicable to the heating of hot-houses, by hot water,—he proceeds to give a few ideas of a very simple construction for a boiler; and he says, suppose we have a common boiler, such as is used in common wash-houses, and which Mr. Kewley uses in the siphon mode of circulating hot water; then place another boiler within it, of such a size as to leave only a few inches between the inner boiler and the outer boiler all round, and support it in this position by stays. (fig. 72) Let this inner boiler have a hole in its bottom, about one-third of its diameter, and let its rim be two inches below the level of the water to be heated. These arrangements being made, and heat applied below, a circulation instantly takes place, and continues; the water coming into contact with the heated bottom and sides of the outer boiler, rising rapidly to the surface, and descending through the inner boiler, which thus necessarily contains the coldest portion of the liquid. One great advantage of this construction is, that the bottom of the outer boiler, having its heat constantly carried off by the liquid, is not liable to burn out. For the siphon and level modes of circulating water in hothouses, this boiler promises to be a great improvement.

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3.—Transactions of the London Horticultural Society.

A Report on the Varieties of the Pine-Apple, cultivated in the Society's Gardens. By Mr. Donald Munro, F.L.S., Gardener to the Society. Read, December 7th & 21st, 1830, and January 4th, 1831.

Continued from page 403.

SPECIES I.—ANANASSA BRACTEATA.

1. Scarlet Pine.—*Brazilian Scarlet*, of the Horticultural Society's Catalogue. And *Ananassa bracteata*, of the Botanical Register, vol. 13, fol. 1081.

Leaves remarkably long and flat, rather broad and flaccid, of a yellowish green, often tinged with pale brown, and almost destitute of mealiness, spines very strong, far asunder, and rather regular. *Flowers* large, dark purple, contrasting beautifully with the scales, which are of a brilliant scarlet at that stage of growth. *Fruit* pyramidal, before ripening of a dullish yellow colour, on its

approaching to maturity it changes to a pale green and becomes a little mealy, when ripe it is a palish yellow. *Pips* small and slightly prominent, being half-covered with the scales, which terminate in very long, broad, reflexed points, of a dull scarlet colour. *Flesh*, very pale yellow, slightly fibrous, very juicy and soft, slightly acid, without much flavour. *Crown* large, leaves rather numerous and erect. Size of the fruit, from 3 to 5 lb.

SPECIES II.—ANANASSA DEBILIS.

2. WAVE-LEAVED PINE, of the Horticultural Society. *Ananassa debilis*, of the Botanical Register, and Pomological Magazine.

Leaves large, flaccid, spreading, wavy, dark green, slightly mealy above, and stained with deep purple; teeth reddish, small, equal sized;—the full-grown leaves are about three feet long, and a well grown fruiting plant occupies a space of about three feet in diameter. *Flowers*, pale purple. *Fruit*, oblong, or tun shaped; before ripening, of a very deep green; when ripe, dull yellow with a greenish cast on one side; almost destitute of mealiness. *Pips* projecting, middle sized, pointed, as long as the scales, the uppermost of which are nearly destitute of points,—the lowermost, have withered deeply-toothed points. *Flesh*, yellow, transparent, very tender, delicate, and juicy; flavour extremely pleasant with a slightly perceptible acid. *Core*, woody. *Crown*, large, not disposed to become cock's-comb shaped, or to be proliferous. It fruits in about two years from the sucker.

SPECIES III.—ANANASSA LUCIDA.

3. KING PINE, of Speechley's Treatise, 2nd. ed. page 15. *Grass-Green King*, *Common King*, and *Old King*, of the Horticultural Society's Catalogue. The *Havannah*, of Nichol's Gardener's Kalendar, 4th ed. page 304. And *Ananassa viridis inermis*, of the French.

Leaves, rather long, somewhat broad and keel-shaped; margins destitute of spines, and sometimes a little undulated, of a clear, shining, yellowish green, and entirely free from mealiness:—its growth is also very peculiar, the centre leaves embrace each other very closely, and require considerable force to separate them. *Flowers*, purple. *Fruit*, cylindrical, inclining to ovate, of a bright olive colour before ripening, bright orange when ripe. *Flesh*, yellow, opaque, firm, and free from fibres; sweet and pleasant, with only very little acid. *Crown*, large, leaves embracing each other in the centre. The fruit generally weighs from 3 to 4 lb. This as well as the other smooth-leaved varieties, requires less water and more heat than the other sorts.

4. FISHERWICK STRIPED-GLOBE PINE, of the Horticultural Society's Catalogue.

This is readily distinguished from all others, by its leaves, which somewhat resemble the King Pine, but differ in having weak irregular spines on their margins; and are of rather a darker green, slightly tinged with pale brown, more particularly in the centres of the plants; also somewhat thickly interspersed with silvery specks on the under surface.

(*To be Continued.*)

Article II.—*Reviews of, and Extracts from, Works on Botany, &c.*

1.—Edwards's Botanical Register. (New Series) By John Lindley. F.R.S., &c. Monthly. 8vo. 4*s.* coloured.

Vol. V, No. 1, for March, contains

Aphelándra cristàta, Crested Aphelandra.—(Acanthàceæ.)—A handsome tender stove plant, thriving well in peat, loam, and sand, in a high temperature, with an atmosphere well filled with moisture. It is but little known, although it was introduced in 1733. It flowers in tufts, of a bright scarlet or rather crimson colour. *Potentílla laciniòsa*, Jagged-leaved Cinquefoil.—(Rosaceæ.)—A yellow-flowering hardy herbaceous plant, native of dry sandy fields in the southern part of the district of Pesth, in Hungary; it was introduced by Baron Jacquin, in 1829. *Œnothèra anisolòba*, White Upright Evening Primrose.—(Onagràriæ.)—This is a native of the Island of Chiloe; it thrives in the open border, but requires a little shelter from frost during the winter. *Fúchsia bacillàris*, Rod-branched Fuschia.—(Onagrariæ.)—This is an elegant deciduous shrub, bearing bright rosy-red flowers; it grows freely in any kind of light soil, and continues to flower all summer. *Westríngia longifólia*, Long-leaved Westringia.—(Labiatæ.)—A pretty little greenhouse shrub, with pale blue flowers, having the habit of some slender variety of our Rosemary. It is a native of New Holland, where it was found by Mr. Brown and Dr. White. *Pyrus salvifólia*, Sage-leaved Pear.—(Pomaceæ.)—This is the *Poirier à Feuille de Sauge* of the French; it is found wild about Orleans, where it is also cultivated for making perry. *Barléria lupulìna*, Hop-flowered Barleria.—(Acanthaceæ.)—This is a beautiful yellow-flowering stove plant, forming a bush about two feet high. It is almost always in flower, and is very remarkable for its deep green leaves, marked with a bright red mid-rib.

2.—Botanical Cabinet. By Messrs. Loddiges. Monthly. 4to. coloured, 5*s.*; 8vo. partly coloured, 2*s.*6*d.*

Part 179, for March, contains

Calathéa macilénta, Slender Calathea.—(Canneæ.)—A little stove plant, with pale flowers; a native of Rio Janeiro. *Oxális Bowieàna*, Bowie's Wood-Sorrel.—(Oxalideæ.)—This is a magnificent species, lately introduced from the Cape; its flowers are of a brilliant rose-colour. *Calceolària bìcolor*, Two-coloured Slipperwort.—(Scrophularinæ.)—This species, Mr. M'Nab, of the Edinburgh Garden, received from Peru, in 1829. Its flowers are pale blue and yellow. It will bear the open air, but requires shelter in an airy greenhouse throughout the winter. *Dorstènia tubicìna*, Tubed Dorstenia.—(Urticeæ.)—Messrs. Loddiges received this curious stove plant in 1831, from Mr. Lockhart, of Trinidad; the roots are fragrant. *Hedychium urophyllum*, Tail-leaved Garland Flower.—(Scitamíneæ.)—This is a native of India. It requires stove heat. Its flowers are produced in September, they are of a bright orange colour, showy and fragrant. *Olea frágrans*, Sweet Scented Olive.—(Oleinæ.)—The fragrant flowers of this well-known greenhouse plant are said to be used in China for scenting Tea. It is increased by layers and cuttings. *Erica reflèxa*, Reflexed Heath; and *E. elàta*, Tall Heath.—(Ericeæ.)—Are two well-known species; the former introduced from the Cape, in 1800, and the latter in 1793. *Ornithógalumlon gibracte-*

àtum Long-bracteaed Star of Bethlehem.—(Asphodèleæ.)—A slender greenhouse plant, with green and white flowers, introduced from the Cape in 1812. *Frankènia pauciflòra*, Few-flowered Sea Heath.—(Frankeniàceæ.)—This is a slender shrubby plant, growing about a foot high; it requires the protection of the greenhouse in winter. Its flowers are pale rose-coloured.

3.—Curtis's Botanical Magazine, &c. (New Series) Edited by Dr. Hooker. 3*s*.6*d*. coloured; 3*s*. plain.

No. 63, for March, contains

Cleome gigàntea, Gigantic Cleome.—(Capparideæ.)—A green flowering stove plant, with but little beauty; introduced by Dr. Fothergill, in 1774. *Lobèlia robùsta*, Thick-stemmed Lobelia.—(Campanulàceæ.)—A purple-flowering plant, introduced in 1830, by Dr. Fischer. *Piper nigrum*, Black or Common Pepper.—(Piperàceæ.)—To which is attached an interesting account of the manner of its uses, culture, &c. in its native country. *Lilium tenuifòlium*, Slender-leaved Lily.—(Liliàceæ.)—A handsome plant, with deep orange-red coloured flowers. *Ceràsus sphærocàrpa*, Noyau Cherry.—(Rosaceæ.)—An evergreen tree, bearing purple fruit about the size of our Common Bird Cherry. *Arthrostémma nìtida*, Shining Arthrostemma.—(Melastomaceæ.)—Introduced by Mr. John Tweedie, from Buenos Ayres, in 1829; the flowers are of a lilac colour. *Doróniсum Caucásicum*, Caucasian Leopard's-Bane.—(Compósitæ.)—It is a native of the Caucasian Alps, and was introduced by Dr. Fischer; it thrives in the open air, and has flowers of a bright yellow colour, in April.

4.—The British Flower Garden. By Robert Sweet, F.L.S. 8vo. Monthly. 3*s*. coloured; 2*s*.3*d*. plain.

No. 31, for March, contains

Camèllia japònica, var. *Sweetiana*, Sweet's Painted-flowered Camellia.—This is a very handsome hybrid; the flowers are variegated with white, blush, and a deep rosy red. It was raised from seed, at Mr. Colvill's, by Mr. Sweet, some years ago. *Tropæ'olum peregrìnum*, Canary-bird Flower,—(Tropæoleæ.)—This is a hardy annual of considerable beauty, having bright yellow flowers. If kept in the greenhouse, it will flourish for several years. *Hésperis speciòsa*, Beautiful Rocket.—(Cruciferæ.)—The flowers of this species are of a rosy-purple colour. It is a beautiful little plant, quite hardy and perennial. *Hélena grácilis*, Slender Helena.—(Amaryllideæ.)—This is the *Narcíssus grácilis* of the Botanical Register, t. 816, and is well deserving of cultivation.

5.—The Botanic Garden, &c. By B. Maund, F.L.S. Monthly. Large paper, 1*s*.6*d*.; Small, 1*s*.

No. 87, for March, contains

Prímula Auricula, Auricula, variety, Fletcher's Mary Ann.—(Primulaceæ.)—This is one of the green-edged varieties. It was raised by Mr. J. Fletcher, near Birmingham. *Hedysarum ròseum*, Rose-coloured Hedysarum.—(Leguminosæ.)—This plant is ornamental, and perfectly hardy; it is nearly allied to the *H. onobry'chis*, or Saintfoin. *Málva Mauritiàna*, Mauritanian Mallow.—(Malvàceæ.)—It is supposed this was introduced in 1768, from the Mauritius, by John Earl of Bute. *Sédum Aizòon*, Yellow Stone Crop.—(Crassulaceæ.)—Introduced from Siberia, in 1757, and has long been known as a great ornament to our artificial rock-work.

PART III.—NATURAL HISTORY.

ORIGINAL COMMUNICATIONS.

ARTICLE I.—*Observations on Animalcules.* By MR. JOHN SMITHURST, of Lea.

GENTLEMEN,

THE smallest animated body which the unassisted human eye is considered capable of surveying, is the mite. The vastly magnifying power of the microscope has, however, discovered to us numberless minute organized living creatures, which are totally invisible to the naked eye. These curious little beings, which are, by naturalists, termed Animalcules, are found to exist in water, and other fluids. There is not the least doubt but they exist in the air, and also upon the surface of the earth, as well as in water; but there is a difficulty in ascertaining this with accuracy, because they cannot be brought under the examination of glasses with that facility of which water admits. Water being transparent, and confining the creatures in it, a drop can be applied to the glass of a microscope, and all that it contains, to a certain degree of smallness, discovered.

Some of these animalcules seem natural inhabitants of water, others appear only to be passing the first stage of their existence in it, and ultimately (after having undergone a transformation,) become inhabitants of the air.

The most singular of all the animalcules are the Vorticellæ, or Wheel Animals, found in rain water that has stood in leaden gutters. They are furnished with a pair of instruments on the anterior part of the body, which in figure and motion somewhat resemble wheels. These wheels are projected from tubular cases, into which the animal can withdraw them at pleasure. When in search of food it protrudes its wheels, and by the motion of these rotary organs, causes an eddy in the water, sufficient to attract into its vortex such animalcules of a smaller species as happen to swim near; these the little creature seizes by suddenly contracting its tentacula, and enclosing them in the midst. All its actions indicate great sagacity and quickness of sensation.

Clear and pure water will, after standing some time in the open air, contain animalcules; but they are not so numerous as when vegetable bodies have been steeped in it, for perhaps no creatures, however

small,can live upon water alone; but when it is stored with proper food, the microscope will exhibit to the admiring eye myriads of living creatures in every drop. New made hay, cut into small lengths, and put into water, will in a few days, produce a whitish scum on the surface, which, when examined by the microscope, will be found to contain inexpressible numbers of animalcules. The most general among them is an oval sort, somewhat in the shape of an ant's egg; these are extremely nimble, and in a continual swift motion backwards and forwards: but sometimes they stop on a sudden, and turn round on their own axis many times, with surprising velocity, first one way, and afterwards the contrary. Another sort, common to this infusion, is clear and transparent, but curiously ribbed, in the manner of a melon. Others are transparent at their extremity only, and in these neither legs nor fins are discernable.

Vinegar, after standing a few days uncovered, especially in the summer season, will abound with animalcules in the shape of eels.

It is common in summer for the water that stands in ditches, to appear sometimes of a greenish, and at other times of a reddish colour. This on examination with the microscope, has been found to be entirely owing to the millions of animalcules crowded together on the surface.

"Where the pool
"Stands mantled o'er with green, invisible
"Amid the floating verdure, millions stray."

"Nor is the stream
"Of purest crystal, nor the lucid air,
"Though one transparent vacancy it seem,
"Void of their unseen people."

Leewenhoeck calculates, that a thousand millions of animalcules observed in common water, are not altogether so large as a grain of sand! Eminent naturalists have discovered not less than 30,000 in a single drop! Every animalcule being an organized body, how delicate and subtle must be the parts necessary to constitute it, and preserve its vital actions! How inconceivably small, and yet a perfect animal! In animalcules we discover the same multiplication of parts, diversity of figures, and variety of motions, as in the largest animals. How amazingly curious must be the internal structure of these little creatures,—how minute the bones, joints, muscles, tendons,—how exquisitely delicate the veins, arteries, nerves,—what a number of vessels and different circulations must be contained in one of them! It is difficult to conceive how, in so narrow a compass, there should be contained a heart, as the fountain of life, propelling the circulating fluid,—veins and arteries, as the conductors of the

blood,—a brain to supply nerves in every part of the minute structure,—muscles necessary to its motions,—glands for the secretion of its fluids,—stomach and bowels to digest its food,—eyes to direct its progress,—and a mouth to take in its nourishment!

"How sweet to muse upon His skill, display'd
"(Infinite skill!) in all that He has made.
"To trace in Nature's most minute design,
"The signature and stamp of Power Divine;
"Contrivance exquisite, expressed with ease,
"Where unassisted sight no beauty sees;
"The shapely limb, and lubricated joint,
"Within the small dimensions of a point;
"Muscle and nerve, miraculously spun;
"His mighty work, who speaks, and it is done!
"Th' invisible in things scarce seen revealed,
"To whom an atom is an ample field."

It is the opinion of several eminent naturalists that many animalcules found in water are not natural inhabitants of that element, but are only passing the first stage of their existence in it; and after changing their form, become inhabitants of the air. It seems highly probable that those minute and invisible little flies, which doubtless are every-where floating in the air, when they find a fluid stored with proper nourishment for their future offspring, may be supposed to resort to it in swarms, and there deposit their eggs.—These eggs being soon hatched, the infant brood swim about and live in it, till grown to their stated size; they then in due time change their forms, and fly away. Mr. Baker, whose observations on this subject were the most accurate, took every method to ascertain this fact; and he says, that after carefully noticing some kinds of animalcules in several fluids, to be grown to a certain size, on a sudden he found they were all gone, and only a much smaller, and consequently a younger race, of the same species remaining: these also, when grown to a like size, took their departure. When the infusion was covered, (though with but muslin or fine lawn) he constantly found that few animalcules were produced in it; but upon taking off the covering it was in a few days full of them. This certainly goes to prove, that the eggs from which these animalcules proceed, must either be brought there by their own parents, or be brought with the air. Perhaps, indeed, it may happen from both ways, for, as the eggs of such minute creatures are lighter than air, and so small as not even to intercept the rays of light from the eye, millions may, in their proper season, be floating almost every-where; in places unsuitable to their natures, they will perish, but if they fall into a situation adapted to their support, they will hatch and come to perfection. I must however say, that I consider it the most probable that the eggs are deposited by the parent.

If we reason from analogy, this hypothesis carries with it the highest degree of probability, for as water contains myriads of organized living creatures, invisible to the naked eye, so in like manner may the air also be filled by them. And why not these aërial animalcules deposit their eggs in a fluid, stored with proper nourishment for their offspring during the first stage of their existence,—when the gnat lays its eggs in the water, where they are hatched, and its infant brood, after a series of transformations as an inhabitant of the water, assumes its winged form, and becomes an inhabitant of the air?

I will not, Gentlemen, trespass longer upon your attention, but conclude by subscribing myself

Yours, respectfully,

JOHN SMITHURST.

Lea, Jan. 18, 1832.

ARTICLE II.—*On Rust in Corn, &c.* By JAMES RENNIE, Esq. A.M., A.L.S., Professor of Natural-History, King's College, London.

GENTLEMEN,

LAST season, wheat crops were extensively infested with a parasitical fungus, popularly termed the *Red Rust*,—and as usual in such cases, the most improbable and impossible causes were assigned for this, such as blighting winds, which could no more generate this fungus, than they could have generated a crop of the wheat which was infected with it. A notion like this is injurious, in so far as it paralyses the efforts of the farmer to obviate the evil, "it being impossible to prevent a blighting wind from blowing through his crops," and having made up his mind that this is the cause, and the only cause, he thinks it would be lost time, and folly, to search after any other. It would be hopeless to reason with those who obstinately persist in holding such an opinion; yet this does not appear to me to be so bad as another opinion to which I shall briefly call your attention, as injurious, by leading to extensive practical error.

This opinion, or rather theoretical fancy, being, that the *Red Rust* which infests grain, is identical in species with numerous other fungi found on the leaves of other herbaceous plants, and even on the leaves of trees; and this fancy has been extensively propagated in books on agriculture and on botany, by those who either servilely copy from others, or what is much the same, make their observations with their

minds biassed by the opinions of others, and of course shut their eyes to whatever is adverse to such opinions. According to this fancy then, the seed from which the *Red-Rust* springs, is wafted into the corn-fields from trees, bushes, and weeds, and hence it is supposed to be obvious that much good may be done by destroying the trees, bushes, and weeds, from whence this baneful parasite is propagated and spread. The trees usually accused, are the Maple, *Acer campéstre;* the Ash, *Fráxinus excélsior;* and the Elm, (*Ulmus*);—the shrubs, are the Barberry, *Bérberis vulgàris;* the Rose, (*Ròsa*); and the Bramble, (*Rùbus*);—and the weeds, are the Coltsfoot, *Tussilàgo Farfàra;* the Ladies' Mantle, *Alchemílla vulgàris;* the Nettle, *Urtica dioìca;* the Groundsel, *Senècio vulgàris;* the Dandelion, *Leontòdon Taráxacum;* and numerous others.

Now the veriest tyro in Cryptogamic Botany, knows that the *Rust*, as it is popularly called, of these plants, is as different in species as the plants themselves, and therefore it would be no less rational to maintain that a field of wheat would spring up if you should sow barberries, or coltsfoot seed, than that the seed of the funguses growing on these, should produce the corn fungus. Should it be said that it is the difference of the nutriment of the fungus which causes the difference, I would ask, whether a difference of soil would produce rye or oats where wheat seed only had been sown?

It may be useful to some of your readers, who may have been misled by books or other authority, into the belief of such absurd fancies, to point out a few of the differences of these species of parasite fungus. [fig. 73 to 78.]

These differences in construction, I conceive will be abundantly sufficient to convince any person not obstinately prejudiced, that the Rust in corn, though it may be propagated from the grass in hedges and headlands, could not by possibility arise from trees, bushes, coltsfoot, or other plants, which therefore it would be labour thrown away to extirpate with this view.

I remain, Gentlemen,

Yours, respectfully,

JAMES RENNIE.

Lee, Kent, Jan. 14, 1832

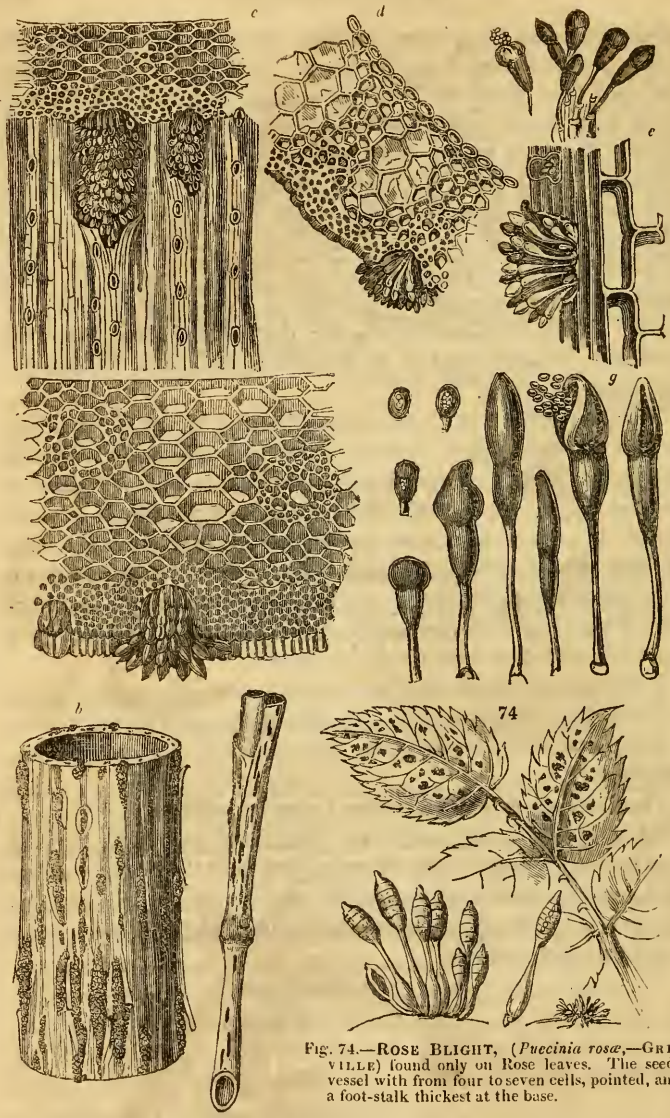


Fig. 73.—Red Rust of Corn, (*Puccinia graminis*,—Persoon) found on all the grasses, but never on other plants or trees. The seed vessel with two cells, the upper the shortest, on a thread-shaped foot-stalk. Yellowish-black or brown.

- *a* A piece of Wheat-straw, with the Fungus growing upon it.
- *b* The same, magnified.
- *c* A small portion of Straw, magnified.
- *d* A transverse section of a portion of the sheath of the Straw, highly magnified.
- *e* An upright section of the Straw, highly magnified.
- *f* A transverse section of the Straw, highly magnified.
- *g* The Fungus, highly magnified.

74

Fig. 74.—Rose Blight, (*Puccinia rosæ*,—Greville) found only on Rose leaves. The seed-vessel with from four to seven cells, pointed, and a foot-stalk thickest at the base.

O. Jewitt *del. et sc.*

Fig. 75.—BRAMBLE BLIGHT, (*Puccinia rubi*,—DECANDOLLE) found only on Bramble leaves. The seed-vessel with four or five cells, not pointed as in the Rose Blight, and the foot-stalks not so much thickened.

Fig. 76.—GOOSEBERRY BLIGHT, (*Æcidium grossulariæ*,—DECANDOLLE) found only on Gooseberry leaves. The upper surface of the leaf opposite the fungus, is of a fine red. The seed-vessel splits with an indented border of yellowish-white teeth.

Fig 77.—COLTSFOOT BLIGHT, (*Æcidium tussilaginis*,—PERSOON) found on Coltsfoot leaves, and on no other plant or tree. The seed-vessel very short, bursting with an indented border of white teeth rolled outwards. The seed pink-orange.

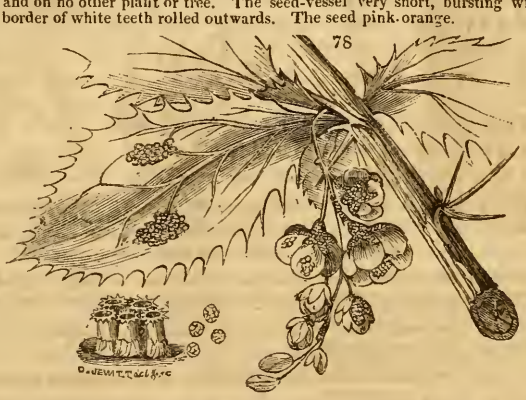


Fig. 78.—BARBERRY BLIGHT; (*Æcidum berberides*,—PERSOON) found on Barberry leaves or flowers, and on no other plant or tree. The seed-vessel without a foot-stalk, one celled, and bursting, with an indented border, fine orange.

PART IV.—NATURAL HISTORY.

REVIEWS AND EXTRACTS.

1.—Time's Telescope for 1832; or a Complete Guide to the Almanack, &c.; with Notes of a Naturalist, by Professor Rennie. 8vo. 9*s.*

Although this annual has appeared eighteen successive years, it is still far from having lost its interest or good character; indeed the present one is far superior to any that have before appeared. It is divided into three parts,—the first being Accounts of Remarkable Days, &c.—the second Astronomical Occurrences, very interesting,—and the third, (which comes more immediately under our observations) Notes of a Naturalist, by Professor Rennie. This part contains much pleasing information, partly original, and partly quotations. These are disposed into twelve chapters, a chapter for each month. Surrounding the title of the "Notes of a Naturalist," is a beautiful engraving of a chain, in the form of an ellipsis; and in each link is included some interesting object of Nature. The whole volume is interspersed with beautiful copper-plate and wood engravings; those connected with cometary astronomy are particularly interesting.

2.—A Manual of Land and Fresh-Water Shells of the British Islands; with coloured plates of every species. By W. Turton, M.D. 8vo. 10*s.*6*d.* London. 1831.

This deserving little work we intended to have noticed some time ago, but have hitherto been prevented, by a press of matter; we still, however, can do no more for want of room, than just give our opinion in a few words. To all British Conchologists this volume, we conceive, will be found an acquisition. The shells are classed on the most approved system of the present day;—the descriptions of the species are brief, but satisfactory;—the engravings are excellent, and coloured in a superior style;—indeed the book is got up in a manner that does credit to the author.

3.—British Entomology. By John Curtis, F.L.S. Monthly. 8vo. 4*s.*6*d.* coloured.

No. 99, for March, contains

Spércheus emarginàtus.—Order, *Coleóptera;* Family, *Hydrophílidæ.*—An insect now very rare in England; it must however, formerly have been taken round the metropolis in abundance, as specimens were preserved in most of the old London cabinets. The plant is *Ranúnculus lingua,* (Great Spearwort. *Encyrtus vitis,* Vine Encyrtus.—Order, *Hymenóptera;* Family, *Eynípidæ.*—Mr. Curtis has given both male and female figures of this genus, on account of their great dissimilarity to each other; the male being of a dull black colour, and the female of a reddish orange. It receives its specific name from frequently being found on vines; indeed Mr. Stevens bred them from the *coccus* of the vine. *Ino státices,* the Green Forester.—Order, *Lepidóptera;*

Family, *Zygæ\nidæ*.—This insect frequents meadows, the margins of woods, sides of mountains, &c. It is abundant round London, appearing even in Kensington Gardens. Like the *Zygæ\næ*, they fly in the sunshine, but not very briskly. In May and June they make their appearance, and are fond of the Thrift, (*Státice arméria*,) from whence the specific name. The larva feeds on Sorrel, (*Rùmex acetòsa*,) a specimen of which is given. *Drapètis aterrìma*.—Order, *Diptera;* Family, *Tachydrómidæ*.—Mr. Haliday says, "it is distinguished from *D. éxilis* by the abdomen being entirely deep glossy black in the living insects of both sexes. The sea coast seems its peculiar habitat, it having been seldom seen a hundred yards from high-water mark.

4.—The Entomological Cabinet. By G. Samouelle, A.L.S. Monthly, with coloured plates, Foolscap 8vo. 2*s*.6*d*.

The Author of this little work informs us, that he intends the results of his thirty years' experience to be the means of rendering this periodical a "Handbook to the Juvenile, a Text-book to the Tyro, and a Magazine to the Scientific." Each number contains six engraving, coloured according to nature. The whole is written in plain simple language, and entirely free from the multitude of technical terms, such works generally contain. And we think from the style in which it is got up, that it is far from being dear, and is well worthy of receiving encouragement.

5.—Magazine of Natural History; edited by J. C Loudon, F.L.S., &c., published every two months, 8vo. 3*s*.6*d*.

No. 23, for January, 1832,

Contains among other matters an interesting article on "The habits of the Barn Owl, or Screech Owl, (*Stríx flámmea*, Linn. *Alùco flámmeus*, Flemming,) and the benefits it confers on man, by Charles Waterton, Esq." in which the writer, after detailing the method he took to induce the Owls to settle on a ruin of an old gateway, on his premises, states the following facts:—

"Buffon and Bewick err, (no doubt unintentionally) when they say that the Barn Owl snores during its repose. What they took for snoring was the cry of the young birds for food. I had fully satisfied myself on this score some years ago. However, in December, 1823, I was much astonished to hear this same snoring kind of noise, which had been so common in the month of July. On ascending the ruin, I found a brood of young owls in the apartment. This year (1831) a pair hatched their young, September 7th.

"If this useful bird caught its food by day, instead of hunting for it by night, mankind would have ocular demonstration of its utility in thinning the country of mice, and it would be protected and encouraged every where. It would be with us what the Ibis was with the Egyptians. When it has young, it will bring a mouse to the nest every twelve or fifteen minutes. But in order to have a proper idea of the enormous quantity of mice which this bird destroys, we must examine the pellets which it ejects from its stomach in the place of its retreat. Every pellet contains from four to seven skeletons of mice. In sixteen months from the time that the apartment of the Owl on the old gateway was cleaned out, there has been a deposit of above a bushel of pellets."

The writer also mentions an instance, which came under his own observation, of this bird catching fish.

PART V.

MISCELLANEOUS INTELLIGENCE,

ON NATURAL-HISTORY, HORTICULTURE, AND RURAL AFFAIRS.

I.—QUERIES, ANSWERS, REMARKS, &c.

HINTS FOR THE REGISTER.—Gentlemen, a thought has just occurred to me which may be of use to you. I perceive an erratum in your last number, and I frequently see on the cover of the Register, (as well as on the covers of many other periodicals,) information that relates to the body of the work: now, it would be a great improvement, I think, if such matters as refer to communications were printed on white paper, and nothing whatever inserted upon the green cover, but that which we could at any time easily part with. When the numbers that shall form the first volume are bound together, we must of course lose the green cover, and with it, all the information that has been printed thereon. I would likewise suggest, that each of your correspondents should examine their respective communications, and make any alterations that might improve them, or correct any mistaken ideas, or rectify any little errors (if necessary) that may have escaped your notice; and let the same be sent to you in time for the printing of the number that shall complete Vol. I, (and also each succeeding volume,) to be subjoined to the glossarial index, with reference to page and line. This would render the Horticultural Register more perfect than any work of the kind.

I am, Gentlemen, &c.

A BRICKLAYERS' LABOURER.

REMARKS.—Gentlemen, I have derived much pleasure, and a considerable quantum of valuable information, from the perusal of your publication;—most heartily do I wish you success in the undertaking. To ensure this, the interest which your subscribers now take in the work must be kept up; this can only be effected by a succession of information, useful as well as amusing.

Your publication is read by many, but more particularly by those, who being tyros in the art of horticulture, &c. are anxious to obtain the best information on such subjects at a cheap and easy rate. For instance, I know several working gardeners who are your subscribers, and who have not had the advantages of noblemen's gardens to give them experience; to such men, and I think, to your readers generally, your proposed memoirs will afford little amusement, and no useful information. If I might be allowed to offer advice, I would recommend in lieu, articles on the best varieties of our common out-of-door fruits, such as Peaches, Nectarines, &c., with the most approved way of cultivating and pruning them, to be illustrated by correct plans, with references, showing how the pruning should be performed. I lay much stress upon this latter point, as I feel confident that, excepting among first-rate gardeners, pruning is but little understood. I have conversed with a great many gardeners, very few of whom could give me any good reason for the use of the knife on any specific branch; and I need hardly point out the advantages resulting from a correct and more diffuse knowledge of this particular subject.

Would it not also be more generally useful, if in your publication the common names of plants and flowers were put with their botanical ones?

If your correspondent, Electricus, (see February,) would have the goodness to show by estimates and plans, how small forcing houses, for grapes, &c., can be built, of the dimensions, and for the sums he states, I am sure he would confer an obligation on many of your readers, myself amongst them; and as Vigorniensis has given a scale by which to regulate the heat in pineries, perhaps he, or some other of your correspondents, would favour us with a similar one, not only for Vines, but for Melons and Cucumbers. May we also enquire what is the peculiar method of pruning, &c., adopted by Mr. Hoare, of Siddlesham, by which he obtains the Black Hamburgh Grape in perfection on an open wall?—here we cannot get the fruit to ripen. The Common Sweet Water, and the Black Cluster, seldom fail.

Have any of your correspondents, or readers, cultivated the Verbena, or Lemon plant, (I know not that I am correct in the name) out of doors, if so, would they have the kindness to inform me of their mode, the soil most suitable, and the easiest way of propagating it? By so doing they will confer a favour upon,

Gentlemen, your obedient Servant,

Feb. 27, 1832. SUFFOLK.

PROPAGATING BALSAMS, &c. BY CUTTINGS.—When I lived as foreman at the late Duke of York's, Oatlands, 27 years ago, we had some fine Double Balsams. I was desirous to retain some of them genuine, as they were; consequently I put in some cuttings of the choicest kinds into pots, in a hot-bed, and they all struck root freely. They were not struck under bell glasses, but in pots filled with maiden loam, to within something more than the height of the cuttings from the top of the pot, to allow room for the extension of the cuttings whilst striking; and then covering the top of the pot with a flat glass. The sides of the pots act as a sufficient shade for the cuttings, and turning the glasses upside down every morning, prevents the condensed vapour upon the glass from injuring the cuttings. The strong sweet steam of a hot-bed is the best to strike them in; and if a little fine pure pit-sand is put upon the top of the loam, there is a much greater chance of success. The Balsam is as easily propagated by cuttings as the Cucumber and the Melon; and few good practical gardeners are ignorant how readily those will strike in a steam, and a fine bottom heat, having the pots plunged nearly to their brims in the soil of the bed.

Most gardeners of extensive and enthusiastic practice, have used their utmost endeavours to keep the Balsam, Cucumber, and the Melon, by cuttings through the winter months; but with very little success. I have kept all of them till after Christmas, but after that period till the middle of February, it is very difficult to preserve them, especially if the Thrips and Red Spider be in the houses. Therefore G. I. T. will only find the importance of propagating from cuttings for his late crops of Cucumbers and Melons, and for such as he intends to retain in pots for the hothouse, and to continue in bearing till Christmas, and as long afterwards as skill, attention, and well adjusted machinery will do. We could accomplish every thing as in the summer months, if we had the power of light from the middle of December to the middle of February; but I fear, amongst all our wonderful and important inventions, nothing will ever be discovered to retain, or act as a substitute for light.

J. MEARNS.

Date Tree.—Sirs, having observed a singular notice respecting the Date Tree, at page 428 of the Horticultural Register, the same purporting to be an extract from the Travels of the Abbe Mariti, I beg in reply to state, that I have been in Africa, and am well acquainted with the Date Tree, which I have raised, not however in the manner described in that extract, (which being so opposite to the ordinary course of nature, merits not the smallest credence,) but as other trees are propagated, from seed.

W. M. M,

Propagating the Cactus by Seed.—In answer to your correspondent, S——, page 227, as to what method he should pursue with the seed of the *Cactus Jenkinsonia*, I beg to inform him that I sow the seed in the wet state, immediately after being gathered from the plant, and rubbed out of the husk; in a pot filled with a mixture of equal parts of peat-earth and sand, and plunged in a hot-bed, and if the seed is good, it will make its appearance in a month afterwards.

C. Mackay.

Pine Apples.—In answer to G. I. T., page 380, we would say our reason for stating in the Calendar for January, "Be careful that the pine-pits experience no declension of heat, &c.," is, that if pines are allowed to be kept in too low a temperature in January and February, they not unfrequently all start into fruit by their being subjected to an increased bottom heat at the spring shifting, in March. Mr. Knight's Pines, we conceive, have quite a different constitution to plants grown in bottom heat.

Conductors.

Couch Grass.—Gentlemen, I shall feel much obliged if any of your correspondents would inform me, through the medium of your interesting Register, of the best and easiest method of eradicating from a lawn, what we in Cambridgeshire call "Twitch Grass." Some years since we cleared away, by means of a fork for the purpose, all the daisies, but the parts once occupied by them, now appears covered by this unsightly intruder. I have tried boiling water, in which salt was dissolved, but although apparently successful for a time, the noxious plant re-appeared in full vigour. Taking up the roots one by one seemed equally ineffectual.

On the Culture of the Tigridia Pavonia.—In answer to a query respecting the management of the Tigridia Pavonia, I wish to inform your correspondent, C.N., that I have found this beautiful flower succeed admirably, by being planted in a warm situation, in front of a vinery, where the earth is richly manured on account of the vines. I had during the summer, the pleasure of seeing a succession of flowers, sometimes 13 at a time, and averaging 6 or 7 daily. As the flowers remain open several hours longer during the autumn than in the summer, I conclude they like moisture. Many seedling plants which had survived the winter re-appeared, and should they be preserved during the present season, will probably flower in the summer; but the roots (although our original stock was very small and unhealthy) have by this management increased so abundantly, that we have taken no care of the seedling plants. Upon the approach of frost the roots of the Tigridia Pavonia were taken up, and carefully planted in pots or boxes with their leaves on; they were preserved from frost, and occasionally watered during the winter. In the spring they were divided, and those intended to be brought forward by heat were planted in pots or boxes, and when all danger of their being injured by frost was over, they were planted in the situation I have

mentioned above; and although some of the roots decayed in the winter, the plan, on the whole, entirely succeeded—we have tried it for several years. It would be ungenerous in me not to acknowledge that I am indebted to an early number of the Gardener's Magazine for the method of preserving them during the winter, upon which the success so much depends.

Wishing your publication to prosper, I remain, &c.,

FLORA.

ON CUTTING THE LEAVES OF PEACHES AND NECTARINES.—Gentlemen, in looking over the Horticultural Calendar for October, you assert, or in other words, wish to impress on the minds of your readers, that October is the best month in the year to plant fruit trees. You observe that trees receive great advantage if planted with their leaves on, "for it must be remembered the leaves are vital organs, and so long as deciduous plants retain them, circulation is still in operation." If I understand it rightly, you mean by the observation to say that the co-operation of the leaves with the roots will enable the plant to establish itself in its new habitation much sooner than in any other way. If the leaves are vital organs, and absolutely necessary for the welfare of trees in general, whilst the sap is in circulation, have you not erred when you state on the same page, under the head "Peaches and Nectarines," "to accelerate the ripening of the wood, it is necessary to go over the trees, and carefully shorten the leaves one-half to admit the sun's rays?" If the perfect leaf is useful in planting, I should think it much more so in ripening the wood; and do you not, by cutting the leaves in two, destroy that very power the leaves, as "*vital organs*," are intended by the Author of Nature to perform, in maturing both wood and buds? Yours, &c.

NOCTURA IN THE DESERT.

VINES IN POTS.—Gentlemen, in the first number of your truly valuable Register, which contains Mr. Stafford's mode of training vines in pots, you remark that some of his grapes exceeded in flavour those trained on rafters. If this is the case, why is so much stress laid on the formation of vine borders, which Mr. Harrison, in his book on fruit trees, says should be two feet wide, when a little earth is sufficient to produce superior flavour in a pot? I ask merely for information, without the smallest wish to cavil.

HEATING CONSERVATORIES.—Is not F. T. O.'s mode of heating conservatories by hot water an indirect advertisement from Messrs. Graham and Sons? It is certainly the cheapest I have met with.

GOOSEBERRIES.—You strongly recommend Mr. Muscroft's mode of training Gooseberries. Is not flavour sacrificed to size? and are not some of the old small hairy Gooseberries of much superior flavour? An answer to this would oblige

Jan. 10, 1832. M. D.

An Answer will be given in our next.—COND.

CUCUMBER FRAMES.—What is the best mode, and the expense of constructing, a Frame for Cucumbers, which without using stable-dung, would enable me to have them on the table all the winter through? And who would you recommend to erect it?

Q. V——

An answer will appear shortly.—COND.

II.—NOTICES AND ANTICIPATIONS.

New Dahlias, or Georginas.—"Among Georginas, two varieties of great interest are expected to be in much request in the ensuing spring; one, the King of the Whites, was imported in 1830, and has excellent properties. The second, (raised in 1830,) is Miss Wright, so denominated in compliment to the American authoress of this name, by the Conductor of the Gardener's Magazine, who was requested to name the flower by the possessor of the stock, Mr. Michael Brewer, Cambridge, who raised the Cambridge Surprise. The Miss Wright Georgina, is a delicate and distinct flower, of moderate size, possessing considerable depth and fullness of petals, which are elegantly quilled, and of an exquisite rose colour." —*Gardener's Magazine, for February.*

Another elegant variety, has been raised by Mr. Levick, of Sheffield; which will we think, surpass any that has yet appeared. It is a very perfect flower, of a beautiful red colour, and each petal is tipped with clear white; a coloured figure of which will shortly be given in the Register, prepared for the purpose at Mr. Levick's expense.—Conductors.

III.—COLLECTIONS AND RECOLLECTIONS.

Destruction of Weeds in Paths.—The following method of destroying them is adopted at the Mint, in Paris, with good effect:—100lb (or 10 gallons) water, 20lb quick lime, and 2lb flour of sulphur, are to be boiled in an iron vessel; the liquor is to be allowed to settle, the clear part drawn off, and being more or less diluted, according to circumstances, is to be used for watering the alleys and pavements. The weeds will not re-appear for several years.—*Morning Herald*

This is doubtless a good desideratum to the gardener, but it is evident that it requires great care in the application, for if it will destroy the weeds, it will also destroy the Box, or other edging.

Feb. 14, 1832. G. A. L.

Preservation of Seeds.—The late M. Zea, the Peruvian Botanist, asserted that the most delicate seeds of American plants may be sent to Europe in the highest preservation, by being enveloped in that kind of raw brown sugar which always retains its humidity. When the seeds are to be sown, it is only requisite to immerse them in lukewarm water, which will take off the sugar.

W. M. M.

The Crocus.—There are curious phenomena exhibited in flowers, by the expansion and contraction of their parts of fructification, yielding protection from wind and rain, and the dews of the night. The Crocus is constantly influenced by atmospheric changes, and may also be acted upon in a similar manner by artificial means. The following results, among others, arose out of experiments to which the Yellow Crocus was submitted, in the spring of last year. The flowers having been gathered at night, when their corollas were perfectly closed, were placed at the distance of nearly a yard from two lighted candles, and in a temperature of 50 degrees of Fahrenheit's thermometer. In this situation and warmth they remained two hours, but their petals remained nearly closed. Other flowers were gathered at the same time, and being entirely excluded from light, were submitted to a warmth of 95 degrees; the temperature being very gradually raised from 65. Their continuance during two hours in this situation occasioned but very little change in them. Others were also gathered, and placed between two lighted candles, at about four inches from each, and in a temperature of 70 to 75 degrees. These flowers, in rather less than an hour, were as fully expanded as in the mid-day sun.

IV.—SOCIETIES,

CONNECTED WITH HORTICULTURE AND NATURAL HISTORY.

LONDON HORTICULTURAL SOCIETY.

ACCOUNTS of the Horsforth Seedling Vine, by Mr. T. Appleby; of the Cannon Hall Muscat Grape, by Mr. Lindley; on the sowing, &c. of the Shiraz Tobacco, by Dr. Riach, of Shiraz, transmitted by Sir H. Willock; and descriptions of various modes of treating Hothouses, &c., by Mr Stothert, of Bath, have formed the subjects of the different papers which have been read to the Members at the Meetings of this Society lately. The two last awakened the strongest interest, and were very valuable on account of the extent to which they may become beneficial. The communication from Mr. Stothert, was accompanied by very strong recommendations from Mr. Miller, of Bristol, at whose fine establishment the atmosphere of 17 houses, containing upwards of 12,000 superficial feet of glass, is heated according to one of the methods detailed. The exhibitions, especially of Camellias, have been extremely good.—We have also noticed as worthy of commendation, a Seedling Pine-Apple, from Mr. Daniel Money;—Horsforth Seedling Grapes, illustrative of the paper read from Mr. T. Appleby;—Charlesworth Tokay Grapes, from Mr R. Buck, of Blackheath;—Enville and Queen Pine-Apples, (fine specimens of winter-grown fruit) from Mr. Fielder, gardener to W. Linwood, Esq.;—flowers of the Strelitzia regina, Strelitzia ovata, Daphne hybrida, Saxifraga ligularis, and Bryophyllum calycinum, from Mrs. Marryat, of Wimbleton;—and specimens of Rheum undulatum, from the Society's Garden. Grafts of the Elton, Belle de Choisey, and Knight's Early Black Cherries, and of the Washington and Reine Claude Violette Plums, have been distributed to the Fellows. On the 21st of February, Mr. Smith, of Mulgrave-Castle, was elected a Fellow, with the privileges of a practical gardener.

BRISTOL HORTICULTURAL SOCIETY.

THE Bristol Horticultural Society held its anniversary on Wednesday, February 29th, at the Institution, in Park-Street. The Report was read by Mr. Miller:—it congratulated the Society on the fact, that upwards of 650 friends of science, had been enrolled, in the short period since its establishment; and that a laudable emulation had been excited among the meritorious cottagers by distributing fifty prizes among them during the last season. It was agreed that the prizes for nurserymen, should not exceed £25; and that an application should be made for the use of the Merchants' Hall, for future exhibitions. Thanks were voted to Mr. Miller, (who exhibited the medal presented to him by the London Society,) for his gratuitous services.

DORSET HORTICULTURAL SOCIETY.

WE understand that the general annual meeting of this Society, held at the Guild-Hall, Dorchester, on Thursday, February 22nd, was numerously and very respectably attended; when Augustus Foster, Esq. the Vice-President, took the chair. At this meeting, the accounts were produced, by which it appeared that this excellent Society is at present in a very flourishing state, and holds forth the most auspicious prospects of continued usefulness and interesting results. It was suggested and ultimately resolved, that for the furtherance of the objects of the institution, FOUR meetings of the Society, for exhibition, and distribution of rewards, should be held this year; as follows,—At Sherborne, in April; at Blandford, in June; at Dorchester, in August; and at Sherborne, in September.

V.—CHOICE OR BEAUTIFUL PLANTS,

FLOWERING THIS MONTH, IN THE PRINCIPAL NURSERIES ROUND LONDON

AT MESSRS. C. LODDIGES & SONS', HACKNEY.

STOVE.

Ruéllia Sabiniàna.
Oncídium bifòlium.
Epidéndrum ellípticum.
——— cochleàtum.
——— umbellàtum.
Calánthe veratrifòlium.
Stèlis tubàta.
Pleurothállis racemiflòra.
Pholidòta imbricàta.
Chamæ'rops hùmilis,
Justícia aspérula.
Jasmìnum paniculàtum.
Francíscea uniflòra.
Hibíscus rosa sínensis. (vars.)
Kæmpfèria rotúnda.

GREENHOUSE.

Acácias, many sorts.
Chorizéma Henchmánnii.
——— rhómbea.
Eriostèmon cuspidàtum.
Epácris impréssa.
——— plaudòsa.
——— variábilis, &c.
Grevíllea sulphùrea.
——— rosmarinifolia.
——— pubéscens.
Hòvea latifòlia.
——— longifòlia.
Leucopògon polystáchys.
Kennèdia coccínea.
Polygala attenuàta.
——— stipulàcea.
Pimelèa diosmæfòlia.
Borònia pinnàta.
——— serrulàta.
——— alàta.
Styphèlia longiflòra.
Camélias, many sorts.
Eucalyptus cordàta
Elichrysum, many sorts.
Diósma, ditto.
Dillwynia juniperìana.
——— cinerascens.
——— parvifòlia.
Andrómeda rigida.
Saxífraga ligulàta.

VI.—NATURALIST'S CALENDAR,

FOR APRIL.

BOTANY.

THIS is one of the most delightful months of the year, the alternation of heat and moisture, of bright and sunny, with showery days, give a strong stimulus to vegetation, and numerous plants begin to expand their flowers; most of our timber trees, and many fruit trees blossom this month, the fields are enlivened with those beautiful flowers, the Primrose, the Cowslip, and the Oxlip, and the woods and shady places with the Wood Anemone.

Among the plants in flower the following are the most remarkable:—Vernal Starwort, *Callitriche vérna*, which gives a beautifully fresh green appearance to ditches and ponds in the spring; it is one of the few examples of the Linnæan Class, *Monándria*; Pasque-flower *Anemône Pulsatílla*; Wood Anemone, *A. nemorôsa*; Yellow Wood Anemone, *A. ranunculoides*; Blue Mountain Anemone, *A. appenîna*; Wood Crowfoot, *Ranúnculus auricômus*; Green Helleborc, *Helléborus viridis*; Bulbous Fumitory, *Coryˈdalis bulbôsa*; Common Lady-cress, *Cardámine praténsis*—Bitter Lady-cress, *C. amara*, two beautiful plants, the latter grows on the edges of rivers; Early Winter Cress, *Barbaréa præcox*; Common Wall-cress, *Arabis thaliâna*; Hairy Violet, *Viola hirta*; Marsh Violet, *V. palústris*; Umbelliferous Jagged-Chickweed, *Holósteum umbellâtum*; Common Wood Sorrel, *Oxalis Acetosélla*, a delicate and elegant little plant, which offers one of the best illustrations of the "sleep of plants," the leafets closing round the petiole at night, and rising again in the morning; Water Blinks, *Móntia fontâna*; Moschatel, *Adóxa Moschatéllina*; Purple Saxifrage, *Saxífraga oppositifólia*; Rue-leaved Saxifrage, *S. tridactylites*; Bullace, *Prúnus insititia*; Spring Cinquefoil, *Potentilla vérna*; Wild Pear-tree, *Pyˈrus communis*; Gooseberry, *Ríbes Grossulária*; Long-stalked Colstfoot, *Tussilâgo hybrida*; Butter-bur, *T. Petásites*; Ash, *Fráxinus excélsior*; Spring Gentian, *Gentiâna vérna*; Ivy-leaved Cyclamen, *Cyclamen hederifólium*; Primrose, *Primula vulgâris*; Oxlip, *P. elátior*; Cowslip, *P. véris*; Fingered Speedwell, *Veronica triphyllos*; Vernal Speedwell, *V. verna*; Toothwort, *Luthræa squamária*; Yellow Bugle, *Ajúga Chamæpítys*; Common Birch, *Bétula álba*, and Weeping Birch, *B. péndula*; several species of Willow, (*Sálix*;) the Beech, *Fágus sylvática*; the Common Oak, and the Sessile-fruited Oak, *Quércus Róbur*, and *sessiliflóra*; Early purple Orchis, *Orchis máscula*; Spider Orchis, *Ophrys aranífera*, found in dry, chalky, or gravelly pastures; Two-flowered Narcissus, *N. biflórus*; Fritillary, *Fritillária Meleágris*; Wild Tulip, *Túlipa sylvéstris*; Yellow Bethlehem-Star, *Gágea lútea*; Common Bethlehem-Star, *Ornithógalum umbellâtum*; Vernal Squill, *Scilla vérna*; Early Sedge, *Cárex præcox*; Cotton Grass, *Erióphorum augustifólium* and *polystáchion*; and Blue Moor-grass, *Sestéria cærúlea*.

ZOOLOGY.

INSECTS.—The following Butterflies may now be found:—the green-veined White, *Póntia nâpi*; the Early Turnip, *P. Mætra*; the Turnip, *P. rápæ*; and the Early Cabbage, *P. Cháriclea*; about gardens, the caterpillars feeding on various species of *Brassica*; the Orange-tip, *P. cardámines*, on the various species of Lady-cress, (Cardámine): the Azure-Blue, *Polyómmatus Argiolus*; the Small Copper, *Lycæna Phlæas*; and the Wall Butterfly, *Hipparchia Megæra*. The Marvel-de-Jour Moth, *Misélia aprilina*; the Angle-shades Moth, *Phlogóphora meticulósa*, the larvæ of which feed on the Wall-flower); the Gamma Moth, *Plúsia gámma*; the Emperor Moth, *Satúrnia pavónia*; and the Twenty-plume Moth, *Alácita hexadáctyla*; may now also be met with

The Least Dragon-Fly, *Libéllula virgo*; makes its appearance about the end of the month.

The Mole Cricket, *Gryllotálpa vulgâris*; may be heard about the middle of the month singing his love-lorn ditty in a low dull jarring uninterrupted note, not unlike that of the Night-jar, *Caprimulgus europæus*, (Nyctichélidon europæus, *Rennie*,) but more inward.—KIRBY AND SPENCE.

The larvæ of the Water Beetles (*Dyticidæ*) leave the water and conceal themselves in the banks of ponds and ditches.

The Garden Beetle *Cárabus horténsis*; and the Catchweed Beetle, *Timárchia tenebricósa*; and numerous species of Coleopterous insects (Beetles) may now be met with.

BIRDS.—This month is one of peculiar interest to the Ornithologist; Birds are now seen to the greatest advantage; those which stay permanently with us, are actively engaged in the great business of building or hatching, while others, which were migratory in the winter, begin to return to us as the weather grows warmer. To those who are fond of Nature, few pleasures can be more delightful than a walk in the fields on a fine warm sunny morning this month; everything is full of life and joy,—plants are expanding their blossoms,—insects are resorting to them to feed on their juices,—while the birds are flitting from spray to spray, and exulting in the return of spring. The arrival of the summer birds is also an object of interest to every one; there are few who can view without pleasure the return of the Swallow and the Cuckoo, those certain harbingers of summer; while those elegant little birds, the Warblers, (*Sylvia*,) enliven both day and night with their varied songs.

The "Architecture of Birds," by Professor Rennie, an amusing little work, will at this time, be found particularly interesting.

The Swallow, *Hirúndo rústica*; the House Martin, *H. úrbica*; and the Sand Martin, *H. ripária*, arrive generally in the second week, sometimes a little sooner or later, according to the season: particular winds also seem to have an effect in forwarding or retarding their appearance. The order of appearance of the different species does not seem to be regular, as sometimes one, and sometimes another of them arrives first.

The Swift, *Hirúndo ápus*, (Cypselus murárius,*) sometimes arrives at the end of the month, though seldom earlier than the 28th.

* The Synonimes refer to Professor Rennie's edition of Montagu's Ornithological Dictionary.

The Wryneck, *Yúnx torquilla*, an elegant bird, which may be known by its cry, resembling that of a Woodpecker; arrives in the first fortnight, a few days before the Cuckoo, *Cúculus canórus*; this circumstance is so well known as to have obtained for it the names of *Cuckoo's Provider*, *Cuckoo's Servant*, and *Cuckoo's Waiting-Maid*.

The Lesser White-throat, *Sylvia sylviélla*, (Currùca gárrula,) arrives about the third week, and the White-throat, *Sylvia cinèrea*, (Currùca cinèrea,) a few days afterwards. The Yellow Wren, or Hay Bird, *Sylvia Tróchilus*; the Whinchat, *Sylvia rubètra*, (Saxicòla rubètra;) and the Blackcap, *S. atricápilla*, arrive about the same time.

The Sedge Warbler, *Sylvia salicária*, (Currùca salicària,) visits us about the last week, and takes up its abode in the willows, by the water-side, and in a few days commences its imitative song, which it continues with short intermissions through the night. It may here be remarked that all the migratory Warblers continue silent for some days after their arrival, so that the precise time of their coming is not always easy to ascertain.

The Redstart, *Sylvia phœnícurus*, is occasionally found at the end of the month.

The Nightingale, *Sylvia luscínia*, commences its song in the last week.

The Sandpiper, *Tringa hypoleúcos*, (Totanus hypoleucos;) the Turtle Dove, *Colúmba Túrtur*; the Quail, *Perdix Cotúrnix*, (Coturnix major;) and the Ruff, *Tringa púgnax*, visit us towards the latter end of the month.

The Fieldfare, *Túrdus pilàris*, and a few other winter birds of passage, now leave us.

METEOROLOGY.

BAROMETER.—Mean Height 29,881. Highest 30,540. Lowest 29,200 inches.
THERMOMETER.—Mean Temperature 49,9 degrees. Highest 74. Lowest 29 degrees.
RAIN.—Mean quantity 1,786 inches.
EVAPORATION.—Mean quantity 2,290 inches.

Duffield Bank, March, 1832. O. JEWITT.

VII.—MONTHLY HORTICULTURAL CALENDAR,

FOR APRIL.

THE chief business of April, consists in finishing off the sowing and planting, many of the principal crops;—for this purpose, all the ground yet unprepared, must be got in order as early in the month as possible, by digging, dunging, trenching, and otherways making it ready for sowing and planting. If any pruning or nailing remains unfinished, it must immediately be brought to a conclusion. Green-house plants must now have more air admitted than heretofore, and also occasionally have a little water sprinkled over the leaves, either with the rose of a watering-pot, a syringe, or a garden engine. In the stove, if all the succession pine plants are not already shifted, the sooner they are done, the better. Replenish the bark-beds, as directed for last month, Cucumbers and Melons will now be showing fruit; give plenty of air, and keep up a brisk heat in the beds; give the roots plenty of water, and occasionally in a morning, sprinkle a little water over the leaves.

FRUIT DEPARTMENT.

Protect Wall Trees in Blossom. See Calendar for March.

Grafting, may still be performed; but it should be done as early in the month as possible.

Apricot Trees will require examining as soon as the leaves appear; and when the foliage is curled, or if webs are seen, caterpillars are secreted in the buds, open the leaves and destroy the grubs, or they will become very troublesome,

Mulch newly-planted Trees, with some half-rotted dung, to keep the sun and drying winds, from affecting the roots.

Peach Houses, should be well steamed every day, and the trees syringed; as recommended last month. The fruit on those trees started in December, will now be nearly over stoning,—give abundance of air, and keep the temperature much the same as recommended last month.—See pages 287, 336, 383, and 431.

Cherry Houses. The trees started in January, will now about have set their fruit;—syringe the trees well, as recommended last month, and keep the thermometer from 60 to 65 deg. by day, and from 55 to 60 by night.—See Calendar for March.

Vineries—See last month. Vines in pots,—see page 6 and 185. For growing on the rafters, in frames, &c.—pages 193, 309, 337 to 347, and 399. To remedy the blotching of the berries, see page 280.

Fig Trees. Both in houses, and on the open wall, see page 385.

Pine Stoves. See page 364.

FLOWER DEPARTMENT.

Dahlia Roots, should now be potted, (if not done before) or plunged in a little old tan in the stove or a frame, to forward them for planting out.—See page 145 to 147.

Mignonette and Ten-week Stocks, sown in February, must be exposed as much as possible, sheltering them only from severe frost or heavy rain.

Auriculas, will now be in flower.—For their treatment, see page 56.

Polyanthuses, will also be flower.—See page 448.

Ranunculuses, planted last month, will be up by the middle of this; select a fine day to press the loose soil to the roots,—as recommended page 198.

Carnations. Let the last year's layers be planted into large pots, (if not done last month)—See page 199.

Tigridia Pavonia. Sow the seed in the beginning of the month, in pots or boxes, (if not done before.)—See p. 400. Plant the old bulbs in a warm situation, in sandy soil.—p. 187.

Triverania Coccinea. Part the roots, (if not done before) as recommended at page 50.

Tulips. See page 104.

Pelargoniums, should now be propagated by cuttings.—See page 102.

Hardy Annuals of all sorts, should now be sown, with as little delay as possible. Those intended for flowering where sown, as Mignonette, Catchfly, Lupines, Sweet Sultan, Venus's Looking-glass, Flos Adonis, Lavatera, Venus's Navel-wort, Wax Flower, Virginia Stock, Candytuft, Dwarf Poppy, Nolana Prostrata, Hawkweeds, Dwarf Lychnis, Sweet Peas, Convolvulus Minor, Nasturtiums, Tall Larkspur, Snail and Caterpillar Plants, &c,. &c., should be sown in patches on the borders, each sort separate; or some, as Dwarf Rocket Larkspur, China Aster, &c. might be sown in drills if required. Those intended for transplanting, as Ten-week Stocks, Indian Pink, French, African, and Cape Marigolds, Persicaria, Convolvulus Major, &c. &c. might be sown on a border under a south wall, or on a slight hot-bed.

Tender Annuals, should also now be sown in pots, and placed in a frame, on a slight hot-bed, or on the flues of the vinery or stove.

Brompton Stocks, should be sown about the end of the month, for flowering next year.

Tuberoses should now be planted, one root in a pot, with rich light sandy soil, and the pots plunged in a hot bed or bark-bed.

Hepaticas, may now be successfully divided.

VEGETABLE DEPARTMENT.

Peas sown early last month, will now require a little earth drawing to them with the hoe, also sow more, twice this month, according to the directions given last month.

Beans. Plant Windsor, Tokay, and Long-pods, twice in the month, to succeed those sown last month; plant them in rows three feet apart.

Carrots. Finish sowing Orange and Altringham, for main crops, as early in the month as possible,—see page 432. Also, about the end, sow some for drawing young in the summer.

Parsnips, for the main crop, should now be sown, if not done last month.

Cabbage. Finish planting-out all the winter standing plants, for principal crops, in summer and autumn. Also, sow some more seed of the Early York, Van Ack, &c.

Savoy, Brocoli, Borecole, &c. Sow a principal crop in an open situation, to plant out in June and July, for autumn or winter use.

Cauliflower plants wintered in frames, &c. should be planted out without delay, if not done last month. Sow some seed about the middle of the month, for a late summer or autumn crop.

Celery. Sow a principal crop, in a light rich soil and open situation,—and prick out early-raised plants.—See pages 289 to 291, and 433.

Lettuce. Sow the different kinds twice in the month; and prick out any early raised plants.

Radishes. Sow some Scarlet, Short-top, and Red and White Turnip, twice in the month.

Parsley. Sow the principal crop, chiefly in drills; if not done last month.

Scorzonera, Salsify, &c. for the main crop, should now be sown, in shallow drills, ten inches apart; if not done last month.

Leeks. See page 440.

Onions. Sow a few Silver-skinned, about the end of the month, to draw young in summer, or for small bulbs for pickle.

Potatos. Plant out the principal early crops, in the beginning of the month; and towards the end, the late ones for winter use.—See page 408 and 441.

Sweet Basil and Sweet Marjoram, should be sown early in the month, (if not done before) on a bed of rich light earth, in a warm situation.

Mustard and Cress. Sow in boxes, &c. in the beginning of the month; also sow out of doors, once a week, in shallow drills, in a warm situation.

Turnips. Sow a moderate crop of Early Dutch, to succeed those sown in March.

Beet. Sow the main crop of Red, if not done before; also a small quantity of White and Green, for their leaves.

Kidney-Beans. About the middle of the month, sow some Dwarfs in boxes, to transplant out for the first crop; also, about the end, sow on a warm border, in drills two feet and a half apart.

Artichokes. Give the proper spring dressing, (if not done before) and dig and level the ground between the plants.

Asparagus. Fork and spring-dress the productive beds; and plant new beds, if not done before. See Calendar, for March.

Cucumbers. Pay attention to air, water, and earthing-up. Also, sow about the middle of the month, for planting out in May, under hand-glasses on ridges.

Melons, want a similar attention to Cucumbers. In watering those coming into a bearing state, be careful not to pour the water just at the root, but at some little distance from it.—See page 164.

Strawberry Beds should now have their spring dressing. Plant new beds, if required.—See pages 329 and 432.

Mint. Plant new beds.—See Calendar for March.

Garlic and Shallots. Finish planting in the beginning of the month.—See Calendar for March.

Spinach. Sow about once a fortnight.

Pot and Sweet Herbs of all kinds, may now be propagated by parting the roots. Seeds of the different kinds should now also be sown.

G. Jewitt, Printer, Duffield, near Derby.

THE

HORTICULTURAL REGISTER.

May 1st, 1832.

PART I.

ORIGINAL COMMUNICATIONS.

HORTICULTURE.

ARTICLE I.—*On Training Peach, Nectarine, and other Fruit Trees.* By MR. JOHN MEARNS, Palace Gardens, Wells.

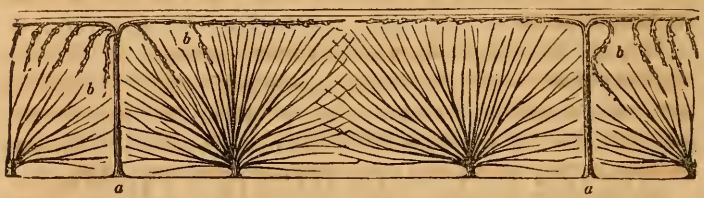
I MUST premise that it is rarely we see a Peach-wall, of the usual height, completely furnished with bearing wood on all its parts along the top; whence it suggested itself to me that it would be of great advantage to plant and to train up *riders*, as I may technically term them, at suitable equi-distances along the wall, till the stems of them should reach nearly to the coping, and afterwards to train a shoot only, each way, in a horizontal position, so that each tree might have the form of a T, and so continue the training of them till they meet those of others trained in a similar manner; and as they extend progressively, to encourage judiciously their fruit-bearing spurs. If choice Pears, Apples, Plums, Cherries, Apricots, or even the Peach, (which will produce an abundance of fruit spurs) were thus judiciously encouraged, a large supply of the finest and the best protected fruit would be obtained, at little trouble, and but a very trifling expense, upon a portion of walling too, which would be mostly useless, but for the adoption of this method.

I had a long Peach-wall, as well as others, in training, with trees in the manner described; and the experience of five years, on horizontals, (*a a* fig. 79) have proved to my entire satisfaction the importance of this system, and emboldens me to offer it for publication in the columns of your Register.

It answers at the same time another most important purpose, and which I contemplated at the first suggestion of the plan, viz., it

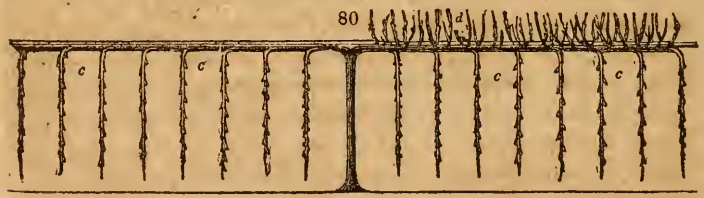
gave the ready and very easy means of training down-shoots from them, either pendant or oblique, as may be required, to fill up any blank space on the upper part of the wall; and as the tree below requires the space, such shoots can be reduced, or cut close to the horizontal branches at discretion. See *b, b, b.*

79



It suggested itself to me about five years ago, to furnish all my walls with bearing wood from the *top*, instead of from the bottom, of the wall, as is the usual practice, for none of the young shoots, or other bearing wood, having an altitudinal inclination, the wall could be furnished more regularly with fructiferous wood than upon the old fan or horizontal forms of training. If too much luxuriance is contemplated it is then readily checked, by permitting the superfluous sap to be thrown off at top, from the upper side of the horizontal limbs that are trained under the coping, (*c c c c* fig. 80) which they

80



will always be disposed to do, especially when the tree has once occupied all the space allotted for it to extend on; and such shoots can be cut out in the months of July or August, or not till the autumn, if it may be considered judicious to retain them till that time, for carrying off the extra juices, so as to check any over-luxuriance that may be considered probable to endanger a premature bursting of the fruit buds.

Such a method of training as shown by the foregoing figure, (80) is clearly much more fructiferous than the old fan or horizontal forms, for wall trees, of the spur-bearing kinds. It is undoubtedly far more scientific, and at the same time much more economical than the method we too frequently see adopted, of covering the one side of a wall to furnish the other, by bringing the branches over the top of the wall, and then hanging them downwards on the opposite side; but by

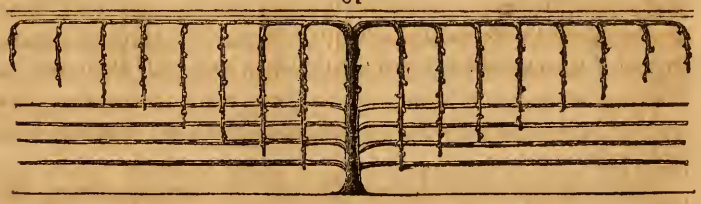
such a method both sides are sacrificed to furnish a plentiful crop only upon the one, for as soon as the pendant shoots brought over begin to produce fruit, the originals upon the opposite side become nearly barren. By re-turning each tree, as may be said, upon its own stem, as figure 80, every wall, or any part of a wall, buttress, pillar, &c., can be simply made productive, and then very easily continued so, by the above method, if only one, two, or three pendant branches can be brought down.

It is not the least, of the many important purposes to which the regular pendant forms of training is convertable, that of furnishing low walls or pailings, corners, or jets of walls, with fruitful wood; and such places in which it would be idle to plant a tree in the usual manner, as they would soon run to luxuriant and barren wood.

By training one shoot upwards to the intended height, so as to form the stem, and then re-turn the leader carefully upon its stem; and if only room for that one shoot, by continuing it downwards to within about a foot of the bottom, and by a judicious encouragement of fruit spurs, it can be readily kept in a fruit-bearing state for any length of time, by suffering all the luxuriant wood to be thrown off at the top, as *d*, (fig. 80.) The superfluous juices from the horizontals, (fig. 79 as well as fig. 80) can be carried off by the same means, so as to keep them in a bearing state.

The following figure, (81) is the representation of one of my old horizontal trained trees, all of which I was reducing, as represented, (previous to my quitting Shobdon-Court, last May twelve-months) to my pendant method;—some by inverse grafting, at equal distances, upon the under sides of the top branches, where the sorts are indifferent; and where they are good I turn down the best placed side-shoots, at equal distances, as shown in the following figure, and in figure 80.

81



It is a sufficient objection to the so much extolled French method of training *"en quenouille,"* and that of the *"upwards spiral"* forms, that such methods can remain but a short time very productive, especially if upon free-growing stocks, from the necessity of confining the head, and whilst all the top is so much inclined to the perpendicular,

and to the natural bent of the sap, and the roots are going progressively on with an increasing vigour.

I am of opinion that all those trees which produce their fruit upon a succession of young wood of the former year, would do much better by inverting the usual fan form, and to bring the fan from the top of the wall instead of the bottom. If what is called the "Peacock-tail" form be so superior to the old fan, as to have long become the favourite method of many good practical gardeners, it very naturally suggests itself, that to entirely invert the fan must very soon prove its superiority to all other forms, for such fruit trees as produce the most abundant crops upon the young wood of the former year. No part of the tree besides the stem, being directed towards the perpendicular, the sap can have no other free tendency than to distribute itself equally through every part of the branches, and thereby keep up a regular supply of fine young wood throughout.

82

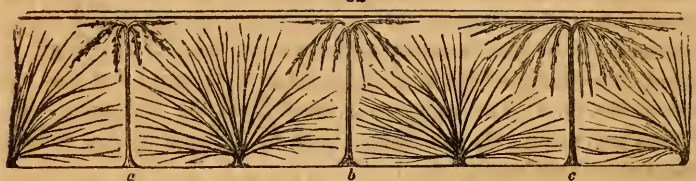


Figure 82 (*a*) is a representation of one on the above plan, established and made its first year's wood, and trained down, so as to become the rudiments of the future tree: *b*, represents the same tree after it has made the second year's wood, and trained in for the next season; and *c*, after the third season.

83

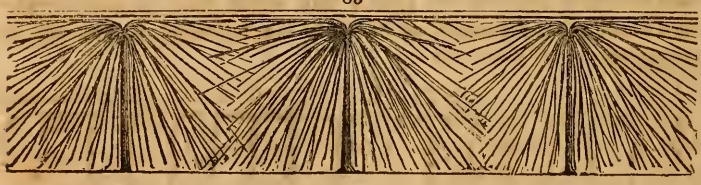


Figure 83 represents three trees full trained upon the above method. Any over luxuriance can readily be kept checked by suffering it to break out upon the upper part of those shoots inclining horizontally under the coping of the wall, the same as at figure 80, as from the tendency of the sap to a perpendicular direction it is readily disposed to do. They can be reduced or cut entirely away again in due time, when the end is obtained.

If a new wall is to be furnished with trees upon the method which I have suggested, it has no need to be lost while the trees are in

training for the top, as the standards, or technically *riders*, being planted as the permanent trees, the dwarfs can be planted between them in the usual way; but instead of their being the permanent, they become the temporary ones, and are to be cut away or removed as the "inverted fan" requires room.

84

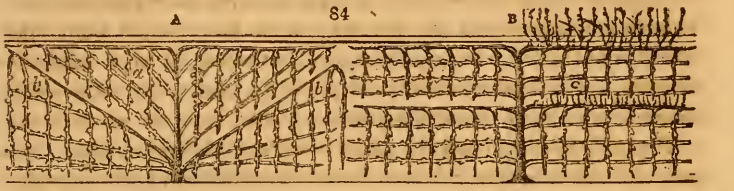


Figure 84, A, is the representation of a tree upon the old fan form, in which Pears are usually trained. I have some of them, but am reducing them to the equi-distant pendant form, by training the top of the most central branch (as at *a*) horizontally each way under the coping, and to furnish shoots to bring regularly downwards as they progressively go on. Some of them are of ordinary kinds, consequently I inverse-graft them, as represented in the figure, and that I may neither lose much time, nor walling, whilst the top shoots are in training, I select the most central branches upon each side of the tree, between the top and the bottom of the wall, as at *b b*, and insert inverse-grafts of choice varieties of Pears; and as they are annoyed by the old branches, I reduce the spurs, and eventually cut them entirely away, as is represented by one side of the figure, where they are only shown in skeleton. When the upper pendent leaders become too much crowded, by being intermixed with the grafts underneath, I lastly cut them out with the branch into which they were inserted, close to the perpendicular stem of the tree, when they will soon have the appearance of figure 80.

Figure 84, B, is the representation of a tree on the old horizontal form, which I am changing into better sorts, by the inverse method of grafting, and have made a selection of the top and central horizontals for the purpose of grafting; so by that means, and the admirable method of inverse pendant grafting, I can see no plan so well fitted for an expeditious, choice, and fruitful renovation. I cut off all the spurs about Christmas, from such shoots as I select for grafting; and insert the grafts when the sap will admit of the bark rising freely. I reduce the old horizontals as the shoots from the grafts require room, as upon figure 84, *c*. The two sets of shoots from the top and central horizontals, may remain, if thought proper, and be shortened from crowding upon those beneath, for they can be kept in an orderly and fructiferous state by letting the super-abundant

juices be thrown off at the upper side of the leaders, and reduce them again when thought fit, as directed for the foregoing.

The right hand sides of *a a*, figure 84, is represented full trained, and the original branches only shown in effigy. The left hand side represents them with the inverse-graftings completing their destination, and the original shoots retained till that time, if thought judicious, to keep up a supply of fruit, if they be worth the while to keep them nailed, and retarding the young wood. In some cases it might be discreet, but bad judgment in most; better to cut them out, as they interrupt and shade the young pendant shoots.

Probably no better plan could be devised to bring seedling fruits early into bearing than by the inverse method of grafting, and keeping the shoots trained downward, as I recommend.

85

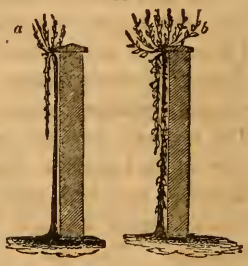


Fig. 85 represents a tree in two stages of its growth: the 1st, (*a*) in the autumn, after it has made its second summer's pendant shoot; and the 2nd (*b*) is the representation of one after completing its pendant shoot and fruit spurs, and in a state to produce a crop of fruit, either upon a pillar, a buttress, &c. or an improvement upon the French method of training "*en quenouille*" so much recommended as open garden standards: but the fructiferousness of their method can only remain for a few years upon a free stock, which I have often proved; nor will it succeed many years fruitful upon dwarf ones while the roots are going progressively on.

JOHN MEARNS.

Palace Gardens, Wells, Dec. 19, 1831.

ARTICLE II.—*On the Cultivation of Rhubarb.* By DR. BEVAN, Ferry Side, near Carmarthen.

I HAVE for a great many years cultivated Rhubarb in such a way as to excite the admiration of all who have witnessed its luxuriance. The long continued abundance of stalks which it affords have induced many persons to cultivate it in the same manner as myself.

Rhubarb requires, for the perfection of its growth, as rich a bed as Asparagus. The practice I adopt, is to appropriate a square yard of soil to each plant,—to remove a cubic yard of earth,—to fill up the pit thus made with well-rotted stable manure, treading it closely

down,—to cover the same with a mound of earth, consisting of the soil which has been removed,—and to place a single offset of Rhubarb in the centre of it: the crown of the offset (which requires to have very little root attached to it) should be two or three inches below the surface. The business should be performed very early in the year; and if severe weather supervene, a covering of raw stable manure should be laid over the mound. In the course of the first season (during which none of its leaves should be plucked)* the roots will shoot down through the soil into the manure below; and it will for many years afterwards, yield a large supply of stalks during the spring and summer months, of dimensions far beyond those which are usually seen.

The sort most worthy of culture is, I think, that with the pointed leaf; the origin of which, as it may not be generally known, and as I discovered it accidentally, I will here mention. Some seeds of Turkey Rhubarb having been saved for a friend's use, to his great surprise, produced when sown, none but the plants here referred to. The mystery, however, was soon explained;—the Turkey Rhubarb grew in the immediate vicinity of a bed of the Common Round-leaved Rhubarb, and both sorts had been suffered to seed that year. The Pointed-leaved Rhubarb is therefore the joint produce of those two varieties. Cultivated in the manner here recommended, the finest leaves will measure from three to four feet across, and the girth of the stalks be from four to five inches. In default of rotten dung, raw manure proportionally increased in height, may be employed; but in this case the superior earliness of its growth, from its lying over a small hot-bed, will strongly tempt the proprietor to pluck his Rhubarb the first season.

EDWARD BEVAN.

Ferry Side, Feb. 10, 1832.

ARTICLE III.—*On the Culture of Vines in Pots.* By MR. STAFFORD, Gardener to Richard Arkwright, Esq., of Willersley-Castle, near Cromford, Derbyshire.

WHEN I consider what I have before stated on the Culture of Vines in Pots, in page 6 of the Horticultural Register, and the queries I answered in page 185, there appears to remain but little more for me to add: however, I will just mention, that in the month of May last, I took, by way of experiment, six small plants, which I turned out of two-quart pots, and potted them in the size described at page 6; I then cut

* Cutting the stalks makes them bleed more than plucking.

them down to three eyes, and placed them in the front of the vinery: I trained one shoot up the middle of each light, to the length of five feet, and during the summer, paid particular attention in assisting them with the three principal elements, viz., air, water, and light. After they had grown to the length of five feet, and their extremities were stopped, they made efforts to grow again; however, I kept them constantly stopped,—this caused the sap to enter the axillary shoots, or those produced at the base of each leaf on the main stem. Indeed, I gave them in every respect the same treatment as vines in houses generally receive. In the autumn, the plants were placed in the open air, and the roots protected from frost.

On the 2nd of January, these six plants were placed in a house of about the temperature of 60 deg. Fahr.; when in a short time they broke, showing fruit at every eye, some two, three, or even four bunches each, being on an average about 40 bunches on each plant, or 240 collectively. And what is more surprising, the shoots are what every person acquainted with vines, would term weak, being in fact little thicker than a good quill towards the base of the stem, and not more than twice that thickness at their extremities.

It certainly becomes every one connected with the culture of the vine under glass, to devote a little attention to their growth in pots. A young practitioner will learn much by a close application to the process. How useless is the practice of bundling together ten or twelve rods under a rafter, when, with judicious management, the whole object may be obtained with one. I certainly consider that a great portion of the fertility may be attributed to the proper supply of water; for this purpose I always keep a feeder under each pot, for although this is very contrary to the practice and judgment of modern times, I am still an advocate for their use, as I am confident every plant so situated is very much benefitted by capillary attraction. If we enquire into the cause why many trees grow to such an extraordinary size, we find it to originate in the extremities of their roots, being so situated as to be able to absorb or reject the water,—analagous to a plant in a pot furnished with a feeder.

There is one more particular I would beg to name, and that is, whoever attempts to propagate the vine by cuttings, should make choice of such shoots as are upon the most productive part of the vine, otherwise their plants will partake of the bad qualities of the parent, for a person may collect either fruitful or unfruitful cuttings from the same plant; for instance, if we raise plants from a strong shoot, with the cellular texture of a dark colour, these plants will retain this appearance as hereditary.

GEORGE STAFFORD.

Willersley, March 5, 1832.

ARTICLE IV.—*On the advantages of using Cow-wash in the growth of Vegetables.* By MR. WILSON, Cresswell Hall, Staffordshire.

SOME of the readers of the Register may not altogether be aware of the benefits to be derived from the use of cow-wash, in the growth of vegetables. The market-gardeners in the vicinity of Glasgow, use it in great quantities, which they procure from cow-feeders in the city, at the rate of four-pence per barrel, (a common herring-barrel) and I can from observation, vouch for its efficacy. Cauliflower, cabbage, brocoli, celery, and asparagus, thrive amazingly with it, and I have used it myself to gooseberries, currants, raspberries, &c., with excellent effect. They apply it after this manner:—a little earth is drawn round the stem of the plant or tree in the form of a basin, into which the liquid is poured. If it be dry hot weather, this is done in the evenings, but if the weather be moist it may be done at any time. When this has been performed two or three times, the plants are earthed up, and receive no more of it. They apply it to their asparagus beds any time from the beginning of March to the beginning of April. Their celery is planted on ridges five feet wide, in rows across the ridge at twelve inches from row to row. Before planting they flood the ridge with the wash, having previously dug the bed with a little manure. Nothing answers better than this wash for turnips; I have seen most excellent crops when no other manure was used.—The ground for this purpose was well soaked with it during winter. To try the experiment I dug a plot of ground without giving it any manure; one-half of this I watered with the wash previous to sowing, and the other half was sown without: the difference was very great, the part watered bore turnips of a fine clear skin and colour, and at least a third larger than the unwatered land. Any of your readers who may wish to excel in growing vegetables, may stir up a small quantity of cow-dung with the wash, and if applied when the plants are in a growing state, I hesitate not to say it will answer their highest expectations:—this I speak from experience, as both cauliflowers, cabbages, and gooseberries, which have obtained the prizes, I have watered with my own hands. I am satisfied, if the farmers in this country were to have a barrel sunk in one corner of their cow-houses, and the wash drained into it, and with a water-cart or other means, apply it to their land in moist weather, they would find their labour would not be lost.

An old experienced gardener in the neighbourhood of Glasgow, under whom I worked three years, applied it to both vines and peaches, part of which were planted inside of the house. We made a kind of canal in the inside border, so as to contain the wash, which we stirred up with a small quantity of dung; we then poured as much as we

thought would well soak the roots, the outside border being covered with litter, we emptied it on with a bucket, the litter serving to keep it from running off. The cake of manure which the wash had left on the surface inside the house, we forked in, adding a portion of fresh earth, after which we gave the surface a sprinkling of clear water, with a common watering pot and rose, to take away any bad smell, which was soon gone. This was done in the beginning of January, and about the end of the month we commenced forcing. I shall only add, that we had a most excellent crop of fruit, and plenty of fine wood, which is what we all aim at.

JAMES WILSON.

Cresswell-Hall, March 7, 1832.

ARTICLE V.—*On the Green Moss on Trees.* By A JOURNEYMAN GARDENER.

YOU must have observed, in your walks through the orchard and fruit garden, the unsightly appearance of the trunks of the older trees, being entirely destitute of bark, and standing like skeletons;—now, pray what can be the cause of this? Is it owing to canker in the roots? or, is it a natural disease incident to old trees? I am inclined to think the latter is not the case, for I have seen comparatively young trees nearly as destitute of bark as the old ones: canker may be one cause, but I attribute it mainly to another, viz., to the bark itself. You will observe on trees, on rocks, on walls, on soil, and in fact, on every thing that is exposed to the action of the atmosphere in a fixed state, a green covering, which when minutely examined, appears like a green powder, and if allowed to remain, would form into patches of moss. This seems to be the most minute of the vegetable creation, and I believe the very foundation of it, and but for the industry of man, this would be the clothing Nature would every-where assume in our moist climate. The particles of this green powder must be exceedingly minute, as it remains invisible, until great masses are collected together. Now, it is obvious that where this adheres to a tree, it must close up its pores, and thereby prevent the vessels from being acted upon by the external air. I likewise think it receives nourishment by exhausting the sap in the bark, which will first begin to crack, and afterwards die and fall off. I am the more induced to form this opinion, by having seen an experiment tried to destroy it: this was done by using the common solution of soft soap and sulphur-vivum mixed with boiling lime-water, till it became of the consistence of paint. This, when cold, was applied with a paint brush to part of the branches of a young tree that were covered

with this green mould, yet the bark was free from cracks. The bark of the part thus dressed became in a short time clear, and entirely free, whilst the remainder of the tree was still clothed in its green garb. I would recommend all gardeners, who have trees in this condition, to give them a dressing once or twice in the winter season, and I doubt not that it will answer their highest expectations.

A Journeyman Gardener.

Article VI.—*Description of a Pit for Pines, Melons, &c. erected at the Marquis of Stafford's, Trentham, Staffordshire.* By Mr. John Woolley, Gardener there.

Having in these gardens some old forcing frames of little use, in consequence of the greater part of the pit-room being taken up with flues and cavities, I was induced to take them down and re-build them after a plan of my own, which I have found to answer extremely well for pines, melons, and cucumbers; and as by this plan, much less room is lost, and a sufficiency of heat produced with full one-third less fuel, I consider it to be an improvement upon the old system of building fire-frames.

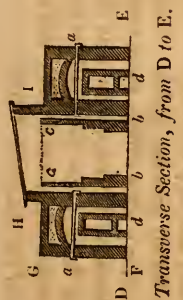
The following is a description.—Length of the frame, from B to C, 64 feet 6 inches; width, from D to E, 13 feet 6 inches; height, from F to G, 5 feet 4 inches; base, H to I, 5 feet 6 inches; walls 9 inches; pillars, 9 inches thick and 2 feet high, upon which nine-inch arches are sprung; distance between the pillars, 3 feet; width of the flue, 10 inches; flue-walls, 3 inches; cavity in front of the flue, 9 inches; from the flue to the pillars, 6 inches; and from the pillars to the pit-wall, 6 inches. From the front wall to the pillars, is an open space of 2 feet 7 inches, which admits the heat from the flue, through the arches, into the frame. From the outside wall to the top of the pillars, is sprung a nine-inch semi-arch, one foot from the top of the flue, which is carried the full length of the frame, and returns to the chimney. *K*, fire-place. *L*, coal-house. *M*, flue.

It will be seen, that on the line B C, (ground-plan) there are two soot-doors (*m m*) of cast-iron, which can be opened with ease whenever the flues require cleaning. The dots on the top of the pillars, (in the longitudinal section,) are cramps of iron, which pass from the outside wall to the inside of the pillar wall, to hold the work firmly together, (see transverse section, *a a*.) On the line of the flue, BC, (ground plan) are two fly dampers, (*u*) which can be used to work one or both lengths at pleasure. The pit walls, (*b b*, transverse section) are 9 inches thick to within 12 inches of the top, and are then reduced

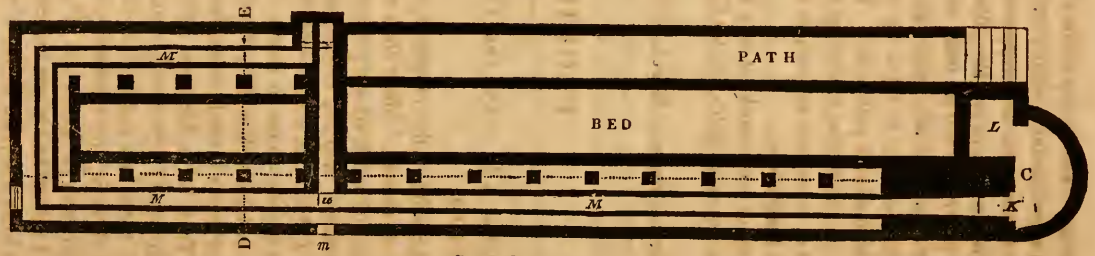
PLAN OF A FIRE-FRAME FOR PINES AND MELONS,

ERECTED IN TRENTHAM-GARDENS IN 1831.

Longitudinal Section, from B *to* C.



Transverse Section, from D *to* E.



Ground Plan.

to 4½ inches. On the top of the pit wall, are three twelve-inch planks, (c c, transverse section) which are used when the frame is wanted for melons, cucumbers, &c. supported by pillars of wood or bricks being placed between them and the pillar-wall. The space between every alternate pillar and the pit wall, is bricked up to the height of the latter, in order to prevent its giving way. The top of the arch, which forms a path over the flue, is filled up with coal ashes to the height required, upon which a brick path is laid. The back path on the first length, where there is no return flue, is filled up with coal ashes from the bottom. The flue, (*d d*, transverse section) is raised upon arches, 12 inches high, in order to keep it dry.

The same brick-work, it may be well to observe, will with a little allowance for extra width, do for Calcutta pits of large dimensions.

JOHN WOOLLEY.

Trentham-Gardens, March, 1832.

FLORICULTURE.

ARTICLE VII.—*On the Cultivation of the Fuchsia.* By DELTA.

THIS beautiful tribe of plants, is become a general favorite among all classes of society. More than twenty species may be obtained at the nurseries, of which six are perfectly hardy, viz.—*Fúchsia coccínea, grácilis, tenélla, virgàta, cònica*, and *macrostèmon*.

The *F. lyciöìdes, excorticàta, microphylla, parviflòra, arbòrea*, &c. require a green-house or frame. The only one which requires the stove, is the *venústa*, or beautiful, it was introduced from Mexico, in 1825.

The Fuchsia is easily raised from cuttings, and by seed for new varieties. Take off in October, well ripened cuttings with two joints, plant them in pans of light sandy loam, and place a bell-glass over them, then plunge them in a gentle heat, and keep them free from decayed leaves, and in three or four weeks they will have struck root; when this is the case, let them be potted out. Place each plant in a 60-sized pot, with as good a sized ball as can be obtained, then fill the pots with a mixture of rich loam and peat, in about equal proportions; re-place them in the hot-bed, and keep the temperature to about 60 degrees Fahr. until they have started growing again. About the end of April, they will require re-potting; after which, those intended for the open border, should be hardened by degrees,—removing them, first to the green-house,—next, to the frame,—and eventually to a warm situation out of doors,—if this be properly attended to, they will receive little or no check from the effects of the change of climate.

In propagating by seed, take it when well dried, and sow it in pans of light sandy loam, place it in a gentle hot-bed, and give gentle waterings until the plants appear; when they have attained three or four leaves, transplant them into thimble pots, and treat them in the same manner as recommended for rooted cuttings.

After the plants have been a summer in the open ground, and are cut off by frost in the winter, the best preservative is, to cut them down even with the ground, and turn a pot or box filled with leaves, over them, drawing the earth a little round the pot, and the plants if kept dry, will receive no injury in the most severe winters.

In the spring following, they will put up ten or twelve stems, all of which, except three or four of the strongest, should be pinched off; by this method I have had the *F. grácilis* to grow as high as eight feet in the course of the summer, and the other species in like proportion.

DELTA.

February 17, 1832.

ARTICLE VIII.—*On the Culture of the Dahlia.* By AN AMATEUR HORTICULTURIST.

I AM not aware that flowers impregnated after the manner described in Mr. Harrison's remarks, page 145, with the farina of any other of a favourite colour or form, would have any influence on the produce, by the seed participating, with any certainty in the desired properties; and as the results of the experiments are not given, I have no means of judging of their effect.

I have raised seedlings for the last seven or eight years, and from the little experience I have had, am inclined to think more depends on the quality of the flowers from which the seed is saved, than on any art used by the cultivator. When I commenced, I seldom raised above two or three semi-doubles in a year, but as I proceeded, having better flowers to breed from, I began to get a chance double one, and the proportion of such have regularly increased, as my collection was improved from which the seed was produced. I should say, last year, out of eight hundred seedlings, at least two-thirds were double; they were of every colour known to be in the class—many variegated or shaded: among them I selected upwards of sixty I thought worth trying another season, of which ten or twelve promise to be superior flowers, even in this Age of improvement.

I have before heard of collecting seed from the two outward tiers only, which undoubtedly are the finest, and always ripen best. The question is, will it produce the greatest proportion of double flowers?

I should say it will not.—Never having tried the experiment, I may be mistaken, and should be glad to be set right. I lately saw a grower who recommended me to sow all the *dross* and *lightest seeds* I could collect, as being the most likely to produce fine double flowers:—this is quite reversing the question, yet I feel inclined to fall in with the opinion. As all double flowers are monstrosities, it would appear probable that degenerate, crippled, and drossy seed may produce them, whilst the stout, bold, ripe, and perfect, would all produce much stronger plants, more in their natural habit, and consequently more likely to have single flowers. On this point I would observe, that I have almost invariably found this year, that if any plant among my seedlings was particularly tall, strong, and luxuriant, when the flower opened, it was single; on the contrary, among the dwarf and stunted plants scarcely any but double ones could be seen.

I have found a great difference in the proportion of double flowers from some sorts; but my present collection being composed entirely of the finest and newest varieties, the produce from the seed is much more regular. There is very little dependence on any producing a progeny of the colour of its parent. I have seen a yellow raised from a pink—a white from a purple—a purple from a yellow, and direct opposite changes many times. I have understood that the reputed best flower known, was raised from a semi-double, and the indefatigable gardener who raised it, had not grown one of the least merit for seven years previous. Three or four of the finest flowers that came out last year, were raised from a flower which produces numbers of semi-double and crippled bloom, and is of no value to a connoiseur.

The method of training is, I think, the most important, and perhaps the most difficult of any part of the management. An espalier fence is certainly a secure and excellent plan; but if a mass is growing together in rows, they will draw each other up out of all bounds, and only show flowers on their tops. Single stakes are a very poor protection: I have seen some excellent collections destroyed by one gale of wind, when well secured on this plan. I give the preference to four or five stakes to each plant, to any other mode of training; but to accomplish this properly, care must be taken to leave sufficient space between the rows, as well as between plant and plant, which must in some measure depend on the grower, and the kind of flower. To have convenient room to pass between them, will require from 4 to 5 feet from row to row, and 5 to 6 feet or more from plant to plant. As the leading shoot advances, a strong stake should be placed to that. The laterals should all be trimmed off to a certain height from the ground, in proportion to the growth of the plant;—say for dwarfs

12 inches, increasing to 18 or 24 for the tallest. As the upper laterals get long, let four stakes be placed about equi-distant, at right angles; to each of these train one shoot, taking care to tie the main stem of it securely—it will soon be observed more than half of the shoots must be cut off, and in that consists one of the principal benefits of the system. Thinning the wood strengthens the shoots that are left, and it reduces the number of flowers, from which those on the plants are greatly increased in size and beauty. Great attention will be constantly required to keep all the bunches in regular order. The flowers also will require support as they open; and all shoots which break below, or come badly situated for training to, or being supported by matting from the stake, should immediately be displaced.

As the cultivation of the best flowers is no more trouble than that of the most inferior, it is very desirable to every grower to procure such, yet from not knowing a proper market he may not succeed in obtaining them. There are many extensive and fine collections in the neighbourhood of London; among them Messrs. Chandler and Sons, at Vauxhall, which although not the largest, has, I think, the greatest proportion of new and fine flowers: they (having discarded all the inferior and older sorts) are now offering the best at very reasonable prices.

An Amateur Horticulturist.

February 13, 1832.

Article IX.—*Account of a gigantic specimen of the Begònia Dipétala.* By Juvenis.

Calling the other day on Mr. Harrinson, Gardener to William Gerrard Walmsley, Esq., I met with the finest specimen of the *Begònia dipétala* that ever my eyes beheld. This gigantic plant was six feet one inch in height, and seven feet six inches in circumference, and had upon its branches 1660 full blown flowers. This I consider an enormous plant, especially as Mr. London, in his catalogue, states its average height to be three feet. This plant was purchased of Mr. Scirven, at the Walton Nursery, near Liverpool, by its present owner (W. G. Walmsley, Esq.) in May last, it being then only two inches high. It commenced blooming in December, being then six months old. It had been in bloom two months when I saw it, and to all appearance it would bloom for two months to come.

Juvenis.

March 5, 1832.

P.S.—W. G. Walmsley, Esq. resides at Platts, Ince, near Wigan, Lancashire.

ARTICLE X.—*On Changing the Colour of the Flowers of the Hydrangea Hortensis,—Treatment of the Disandra Prostrata,—and on Preserving Sea-Weeds.* By M. G., near Crowen, Norfolk.

I PARTICULARLY observed the remarks at page 11, "On changing the Colour of the Flowers of the *Hydrangea hortensis.*" I have tried the experiment in another way to the one there mentioned, with perfect success. I placed a young plant in a pot, and kept it in the house in a west window, regularly watering it with rain water, in which alum was dissolved. Small lumps of alum were constantly kept in the water, which was allowed to absorb as much as it would. I did not weigh the alum, but I calculate it was about 1 lb in the year, this was used to water one plant. This plant produced one bunch of flowers only, but they were of a very pleasant and true blue; and the same plant is still treated in this manner, so that I hope this year also to have some good blue flowers. I do not think it grows so vigorously as the parent plant, which has been growing on a warm south bank, in the open ground, for the last ten years, without any covering in the winters. It has acquired the height and size of a large currant bush, and has at the same time produced as many as 35 bunches of superb blossoms.

I have for some time also cultivated a plant of the Trailing Disandra, (*Disandra prostrata,*) which grew so weak that two years ago, I cut it down rather short, and placed it on a bracket opposite a west window, in a small room. It has now attained the length of 9 feet, and is a full and handsome plant; 3 feet in length rest on the floor of the room. It is constantly watered with water in which toasted bread has been steeped, and I wish to ask you whether you think its luxuriance in any degree arises from that circumstance ? *

Your mentioning in page 142, a method of drying and preparing Sea-weeds for an herbarium, leads me to name another system, which any of your readers unacquainted with it, may be glad to learn. I made for this purpose a tray of well-seasoned oak, full half an inch thick, 13 inches square, and two inches and a half deep. At the bottom, in one corner, is fixed a very small brass cock. The tray is filled with water, and a paper is placed in it ; the Sea-weed is then spread with a bodkin or fine wooden point on the paper. The cock is then turned, and the water allowed to drain off slowly. The Sea-weed remains on the paper better displayed than by any other means that I have been able to learn. It may then be dried between a few leaves of blotting paper, with a gentle pressure.

M. G.

February 16, 1832.

* We conceive the toast-water can be of no advantage, except that the water is rendered much of the same temperature as the room in which the plant is growing, which is always exceedingly beneficial to the health and vigour of all plants.—COND.

Article XI.—*On the Management of Plants in Rooms.* By Joseph Paxton, F.L.S. & H.S., one of the Conductors of this Magazine.

To treat on the proper management of Plants in Houses, is a subject attended with considerable difficulty, every genus requiring some variation both in soil, water, and general treatment. If the room where the plants are intended to be placed, is dark and close, but few will ever thrive in it;—if on the contrary, it is light and airy, with the windows in a suitable aspect to receive the sun, plants will do nearly as well as in a green-house; but if they are observed to suffer, the effects may generally be traced to one of the four following causes:—want of proper light and air,—injudicious watering,—filthiness collected on the leaves,—or, in being potted in unsuitable soil.

1st. *Want of proper light and air*,—is perhaps the most essential point of any to be considered; for however well all other requisites are attended to, a deficiency in either of these, will cause the plants to grow weak and sickly. Let them always be placed as near the light as they can conveniently stand, and receive as much air as can be admitted, when the weather will allow,—indeed those persons who have no other conveniency than the house to keep them in, will find that they derive immense advantage from being, during fine weather, in spring and autumn, turned out of doors in the evening and taken in again in the morning,—the night-dews contributing greatly to their health and vigour.

2nd. *Injudicious watering*,—does more injury to plants in rooms, than many persons imagine. To prevent the soil ever having a dry appearance, is an object of importance in the estimation of very many, they therefore water to such an excess, that the mould becomes sodden, and the roots consequently perish.—Others, to avoid this evil, run exactly into the opposite extreme, and scarcely give sufficient to sustain life. This however, is by no means so common a practice as that of giving too much; for in general, if anything appears to be the matter with the plants, large doses of water are immediately resorted to, and if recovery is not speedy, this nostrum is again administered, with but little doubt of its infallible restorative powers:—but such persons, like an unskilful physician who gluts the weakly stomach of his patient, only hasten on, what they are trying to prevent. This overplus of water, will show its bad effects by a very dark colour and flabby disposition of the leaves; and if the plant receives too little, the leaves will turn yellow, and eventually die.

The best plan is, to always allow the soil in the pot to have the appearance of dryness, (but never sufficient to make the plant flag,)

before a supply of water is given, which should then be pretty copious, but always empty it out of the pan or feeder in which the pot stands, as soon as the soil is properly drained. The water used for the purpose, ought always to be made about the same temperature as the room in which the plants grow,—never use it fresh from the pump,—either let it stand in a warm room all night, or take off the chill by adding a little warm water to it, or the growth of the plants will be much checked.

3rd. *Filthiness collected on the leaves*,—may either arise from insects, or dust, the former may be speedily remedied, by placing the plants under a hand-glass, or anything that is convenient, and burning some tobacco until they become well enveloped in the smoke;—and the latter, may be removed by occasionally washing them on the head with pure water, either by means of a syringe, the rose of a watering-pan, or with a sponge, when the filth still adheres.

4th. *Being potted in unsuitable soil*,—is by far the most difficult part of the business to rectify, for no certain line can be drawn, unless each genus was treated on separately; however as this cannot be done in a paper like the present, a few general remarks, which, perhaps with some little exceptions, may be found to be pretty correct, must suffice.

All plants whose branches are fragile or slender, and roots of a fine thready, fibrous texture, with general habits like the *Ericæ*, as *Diósma, Andersônia, Epàcris*, &c. will require the same soil, (peat earth) and very similar treatment to Cape Heaths. (p. 455) Those whose wood and general habits partially differ, and whose roots are of a stronger texture, as *Acàcia, Ardísia, Stenocárpus, Tetrathìca, Tristànea*, &c. will require a portion of sandy loam,—in many cases about equal parts; and where the habits, &c. differ materially from the Heath, only a small portion of peat earth will be required, and a compost may be made a little rich, by the addition of well rotted dung, or a similar soil to that prescribed for *Pelargòniums*, page 102. Almost all Cape and other bulbs, as *Sparáxis, Ixia, Gladiòlus, Tritònia*, &c. thrive best in light rich sandy loam, without any mixture of peat. Shrubby and herbaceous plants, with luxuriant roots and branches, as several species of *Myrtus, Jasmìnum, Hibiscus, Hermánnia, Heliotròpium*, &c. require rich loam, lightened with leaf soil, without any portion of peat. Plants with powerful roots, and but slender heads, as *Veronìca, Senècio, Scutellària, Ruéllia, Maurándia*, &c. require a light sandy soil, mixed with a small portion of leaf mould and very rotten dung. At the time of potting, always lay plenty of broken pot-sherds at the bottom of each pot, to give a good drainage.

It will be seen that these directions do not allude to either Orchideous, Succulent, or Aquatic plants.

Many of the *Orchideæ* are parasitical, and require a portion of decayed wood mixing with the soil;—others grow in damp moss—but these being chiefly stove plants, they will not flourish in a room: there are several genera however, that do very well both in the green-house, and in rooms, as *Arethùsa, Calopòyon, Dendròbrium, Ophrys*, &c. the soil suitable for these, is a mixture of about equal parts of light sandy loam and peat; very little, or no water, must be given when they are not in a growing state.

Succulent plants, of all descriptions, require very little water, and in general are very easily managed in rooms; many of them thrive in a mixture of sandy soil and lime rubbish, as *Alöe, Cacàlia, Cáctus, Aizòon*, &c.; others grow well in a mixture of peat and loam, as *Còris, Cotylèdon, Mesembryánthemum*, &c.

Aquatic plants, as *Villàrsia, Actinocàrpus*, &c. generally do well in a mixture of peat and loam, and require to be constantly kept in a wet state;—indeed the best way is to place the pot in a deep pan or feeder, which should always be kept full of water.

Bulbs of most sorts, flourish in rooms, with less care than most other kinds of plants.

If the above precautions be attended to, plants may be brought to nearly, if not altogether, as much perfection as in a green-house.

JOSEPH PAXTON.

ARTICLE XII.—*On raising new varieties of the Tree Pæony*, (Pæonia Moutan Banksia.) By MR. MOWBRAY, F.H.S. Curator at the Manchester Botanical and Horticultural Society's Garden.

I BEG to call the attention of the readers of the Horticultural Register, to that charming plant, the Tree Pæony, (*Pæònia moutan Bánksia.*) It is well known, that it frequently produces seed, and I have no doubt it would do so more abundantly, if attended to by impregnation.

If pollen were procured from *P. rùbra, papavaràcea*, or any other variety of the same species, the chance of new varieties would of course be greater; but where this is not the case, I should not despair of obtaining new varieties from the old one, although I know a place near London, where a few were raised from seed of it, and those which flowered proved to be the *papavaràcea*, which well agrees in the latter being called the type of the species.

Mr. Sabine, in vol. 6 of the Horticultural Society's Transactions, has described nine varieties, three of which were raised under my care at the Earl of Mountnorris's, Arley-Hall, Staffordshire; of these, I

wish to remark, we had bees not far distant, and they were much upon the flowers. The *rùbra*, *papavaràcea*, and *Bánksia*, were all in flower at the same time, and the bees did their office in impregnating them most freely. The *Bánksia* first produced seed, from which the three varieties above referred to were raised; a year or two after, both it and the *papavaràcea* seeded, from which were raised some good plants, that I believe have not yet flowered; all that have flowered proved new and very interesting varieties. The one figured in the Transactions, is a beautiful though slender variety;—another, we thought very much of, and called it the *double papavaràcea;*—the third, Mr. Sabine calls *albida plena;* and fine growing plants the two latter were.

The situation for them was the front of a lofty forcing house, under a frame with a glass roof and upright sashes, with other Chinese plants, till the *Pæònias* required the whole; we found them very hardy, till they began to vegetate early in the spring, when sometimes we had occasion to mat them also; but we freely exposed them in mild weather, and when coming into flower. I expect in the south of England, and in warm sheltered places, they may flower, and seed too, without protection.

If you could insert this in the next number of the Register, it might be a means of inducing some of your readers to try the experiment: the operation will require patience, both in getting up the seed, and flowering the plants; but an ample reward will be reaped should a new and valuable variety be raised.

W. Mowbray.

Manchester, April 10, 1832.

We hope the above hint will not be lost upon our readers, not only with respect to the Pæonia, but other flowers also. There are but few plants in cultivation from which hybrids might not be raised; and Heaths, Pelargoniums, &c. we have no doubt might be so impregnated with hardy kinds, that in the course of a few years our flower borders might be filled with varieties as beautiful as those now cultivated under glass. This is a subject well worthy the attention of our friends.—Cond.

ARBORICULTURE.

Article XIII.—*On some of the modes of disposing of the Thinnings, Prunings, and Underwood, of Plantations, Coppices, &c.* By Edward Murphy, Esq. Agent to the Horticultural and Arboricultural Societies of Ireland.

Not unfrequently when descanting on the advantages which would result to proprietors, and the community in general, from planting on an extensive scale, the waste lands which abound to such a vast extent in each portion of the United Kingdom, it has been objected,

that planting to the extent I contemplate would over-stock the market, and render timber of so little value that it would not return the sum expended on its cultivation; but although such an idea may be considered by some a sufficient palliative for omitting to perform what most people will still continue to think their imperative duty, it certainly is an argument against planting, undeserving a serious refutation. On this head I shall only observe that on an average, for some years since the conclusion of the war, imported timber has cost England the enormous sum of three and a quarter millions sterling annually; and surely whilst such a necessity exists, such a dependance on foreign powers for an article essential to the prosperity, nay, to the very existence of England as a nation,—the motive for planting, where the means exist, can never be wanting.

Some of the products for wooded land, however, such for instance, as thinnings, prunings, and underwood, from a want of knowing how to dispose of them profitably, are in many situations, not only of no value, but a nuisance;* and although every person who has considered the matter, will agree with Sir Walter Scott, that "to treat a plantation in one way or other with reference to the profit to be derived from the thinning, would be as if a carpenter should cut out his wood, not with relation to the ultimate use which he was to make of it, but to the chips which the operation would produce."† Yet it is to be feared that few will be found willing to take this very correct view of the subject; and my object in what follows, is, to point out some of the modes by which at every stage of growth, the refuse of plantations may be converted to a profitable use.

The Fir tribe, until they have attained dimensions which fit them for post and rail fences, are scarcely applicable to any other purpose than that of fuel, to which after they have been cut for some time, they are exceedingly well adapted; or an inconsiderable demand may sometimes be had, for them for forming rustic fences. The fine twigs or spray, which form the extremities of Larch branches, have been substituted with good effect for straw in thatching; it is, however, necessary to observe, that roofs which are intended to be covered with Larch thatch should have a high pitch, otherwise the numerous protuberances on the twigs prevent the rain trickling off immediately, and consequently render them more liable to rot. For dwellings, the

* The putrefactive fermentation of spray and brushwood left in close plantations, produces gaseous matter, alike hurtful to animal and vegetable life. In many places, over a thousand acres of the plantations at Blair Adam, the pruning of spray and brushwood, and the lopping of the trees thinned out, for which there is no sale, had been allowed to accumulate for many years. The injurious effect was so remarkable that the proprietor determined to have the stuff removed, this was done; and women and boys now keep the wood clear, the expense of which has been overpaid by the increased health and beauty of the trees."—LIBRARY OF USEFUL KNOWLEDGE; *Farmers' Series*, *No.* 19, *page* 21.

† Essay on the Improvement of Waste Land, published in the 72nd number of the Quarterly Review.

twigs should be formed into handfuls, and laid on over a layer of straw thatch, which will by this means be protected from wet, and will last for many years. Larch thatch answers extremely well for cow-houses, cart sheds, peat houses, &c.; and frames covered in this way would be found an excellent covering for hay-ricks, corn stacks, and the like. In gardening, light frame-work so covered might be useful for protecting alpines and bulbs in frames, or they might be used as a screen for wall trees while in blossom.

The tender shoots on the branches of Larch and Scotch Fir have been found valuable as fodder for cows, sheep, horses, and deer, in severe winters. The trunks of these, when of the thickness of a man's arm, or less, form an excellent fence for detatched trees against injury from cattle. For this purpose, they are fixed in the ground quite close together, and only a few inches from the trunk of the tree. The upper ends being four or five feet from the ground, are nailed to a hoop, which is of such diameter as barely to admit of the vibration of the tree without chafing the bark. A figure and description of this kind of fence will be found in the "Planter's Guide," by Sir Henry Steuart, with this difference,—that in the figure, and in Sir Henry's practice, the upper ends of the stakes are brought in contact with the trunk of the tree, and are prevented from rubbing it by having some soft substances, such as tow or the like, placed between the stakes and the bark.

The former of these methods is much the better, as with the utmost care injury from rubbing can scarcely be prevented, when Sir Henry's plan is adopted. This I observed to be the case on examining many of the trees in Alanton Park, whilst those at the Duke of Hamilton's, and at Eaton Hall, in Cheshire, which are protected in the way first described, are not in the least injured.

But the purpose to which thinnings of Fir plantations are most generally applied, particularly such as have attained a few inches in diameter, is for post and rail fences. When sound, the tree is either fastened to the post entire, or a cut is run up it, so as to divide it in equal parts. In either case the bark is left on, and the fence, if well formed, possesses considerable durability.

I must not conclude these unconnected observations without noticing the means pursued by the late Duke of Athol, by which that spirited improver created a market for the thinnings of his Fir plantations, which extend over more than ten thousand acres of land, most of which was formerly of no value, except as affording subsistence to the grouse and ptarmigan. To leave the plantations unthinned, he well knew would defeat the object he had in planting them; and to cut down trees to the extent his woods required, and expect a demand for them, he also knew

was unreasonable. In this dilemma, he betook himself to one of the resources which every proprietor, who is really bent on improving his property, can at all times command. He erected machinery for working circular saws in various parts of the woods, by means of which fences of various kinds, gates, ladders, in a word every thing for which the trees are suited, are formed at so trifling an expense as to induce every person to be possessed of them. The saw-mill, to which in particular, my attention was directed, is worked by a mountain stream, and so admirably is it constructed, that the edifice and machinery can with very little trouble be taken to pieces, and removed to any place where it may be required. I remained scarcely half an hour with the two labourers who attended the machine, but in that time they formed nine fathom of sheep fence, of which the accompanying sketch [fig. 87] will give an idea. To square and run two cuts through a tree, 12 feet in length, and 5 inches in diameter, so as to form it into four rails, (*a*) was the work of little more than a minute. A number of trees being so cut, an auger was applied to one end of the axle of the saw; four uprights, (*b*) were held at once in the man's hands, and had scarcely been offered to the instrument when they were perforated. This being done, the auger was removed, and a tundish-shaped instrument, with a cutting edge on its inner surface, fixed in its place, in the cavity of which the end of a rail being introduced, it was instantaneously rounded so as exactly to fit the hole previously made. The parts are then fitted together, and a blow of the mallet serves to firm the work without the addition of a wedge or nail, except a few of the latter in the stays. (*c*) I was so much pleased with this very simple contrivance, and one which I consider of so much importance to proprietors of wooded land, that I was induced to erect a working model of it, to which I have added the simple contrivance adopted in Switzerland, for working the frame-saw. These I shall have much pleasure in shewing and explaining to any person interested in these matters, who may choose to call at my place; and I have no doubt that Mr. Ross, the intelligent gardener at Dunkeld, will feel equally happy in affording any information which may be required. Such, at least, I found to be the case when I had the pleasure of calling on him.

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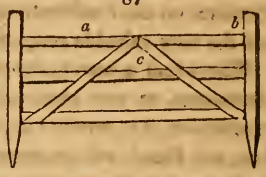


I should observe, that the expense of erecting an effective circular saw, where it may be necessary to make the water-wheel, will not exceed £40, a sum which in most situations will be returned in clear profit in less than quarter of a year after it is set to work.

The rejectamenta of non-resinous plantations may be applied to a great variety of useful purposes, and they would be still more valuable were sufficient consideration bestowed when forming the plantation,

to plant only such trees as there is reason to suppose will obtain a ready demand in any particular place. I have frequently observed plantations ultimately intended to be Oak-woods, thickened up with Scotch Fir, in situations which did not seem to require the shelter of that tree, and which evidently afforded no profitable means of consuming it, but where an equal number of Ash, Hazel, Tree Sallows, &c. would have found a ready market. The New Forest, in Hampshire, affords an example on an extensive scale, of the indiscriminate use of the Scotch Fir, and equally useless Pinaster, where neither is required, at least to the extent made use of. And the woods of Scone Palace, near Perth, where Hazel has been used as a nurse, afford an instance of the proper adaptation of underwood to the demand, which I have attempted to recommend. The former for half a century or more after their formation, are a continued expense. The latter have not only reimbursed all expenses attendant on their cultivation, but have yielded a fair rent for the land, and the very valuable crop of Oak timber is clear profit.

Where fuel is scarce, the obvious mode of disposing of the refuse of plantations, as was observed when adverting to the thinnings of Fir plantations, is to convert it into cord-wood and faggots; saplings of Oak, Ash, and Hazel, will in general be in request for hoops, crates, hurdles for fences,* walking-sticks, &c. and the less valuable parts for *staking-rice*, (a kind of fence,) *keshing*, (a basis on which to form a road over bog, or other soft ground) and *wattling* for houses intended to be covered with thatch, &c.; Alder, Poplar, and Willow, are in demand in situations contiguous to the Herring fisheries, for the purpose of making barrels; and many extensive tracts of low marshy ground might, at an inconsiderable expense, be sufficiently drained to fit it for rearing these trees, and its value thereby be enhanced many hundred-fold.† But where the situation is so remote that the refuse of plantations cannot be profitably applied to any of the purposes above mentioned, still there is one mode of disposing of it, of almost universal application,—I allude to the conversion of it into *pyroligneous acid* and *charcoal*, both of which are produced by the same operation, and by which the produce of many thousand acres may be converted into substances that will amply compensate for transporting them to a market, from any part of the United Kingdom.

A distillery of pyroligneous acid was established some time since in this city, by which a market has been opened for an immense quantity of refuse timber, which, but for the mode of consuming it, would have

* The best fence of this kind was that which you, Mr. Conductor, had the kindness to point out to me, at Chatsworth; a figure and description of the method of forming which, I may venture to say, would be very acceptable to many of your readers.

† Mr. Monteath, in recommending this method of converting waste land to a profitable use, uniformly uses the term Elder, for Alder. The absurdity of the error will prevent its doing any harm; and it were well if the same could be said of very many of his observations on the subject of Foresting.

been quite useless to its possessors. In this way also, the Duke of Montrose is enabled to convert to a profitable use the disbarked poles produced on many thousand acres of Oak coppice, which owing to the remoteness of the situation from a market, and the difficulty of transporting them, would have been utterly useless.

The apparatus for obtaining the acid and charcoal is extremely simple, consisting merely of a metal furnace and a few wooden vessels. The acid is used in bleaching, and as a mordant or basis for fixing the colours in calico printing; when purified by re-distillation, it is a pleasant and excellent vinegar, and it has also been found useful for preserving flesh meat. Glauber, by whom (in his book "De Distillatione," published 200 years since) directions for obtaining the acid are given, attributes many other valuable qualities to it, as a medicine; and the charcoal produced in this way is superior to any other in the manufacture of gunpowder; or with the economical method of consuming it in use on the continent, would be of immense importance in our cottage economy. A minute detail of the whole process will be found in Dr. Ure's Dictionary of Chemistry, which (had the foregoing remarks not extended so much farther than I anticipated, and than in all likelihood you will be disposed to excuse) it was my intention to transcribe; this, together with whatever I can glean concerning it, (unless, haply you shall be favoured with the observations of some person practically acquainted with the subject,) I shall, as I consider it a matter of paramount importance to the possessors of waste and wooded land, be happy to lay before you on a future occasion.

E. Murphy.

North-Frederick-Street, Dublin,
March 1, 1832.

NATURAL HISTORY.

Article XIV.—*Experiments on the Generation of Plants, by M. Girou de Buzareingues.* Communicated by J. Rennie, Esq., A.M., A.L.S., Professor of Natural History, King's-College, London.

In order to answer the question,—Whether Hemp not fecundated, would produce fertile seeds? M. Girou de Buzareingues undertook similar curious experiments to those upon animals, for which he has become so celebrated,—by secluding female plants as much as possible from the influence of pollen, by weeding out the male plants, or covering up the flowers,—the details of which, we cannot spare room to give. The results were:—

1st. That in each of two qualities of Hemp, the spikes of which had been divided into three parts, the one at the summit, yielded proportionally more females, and the *middle* one more males.

2nd. That in each of two qualities of Hemp, the spikes of which had been divided into three parts, the one at the summit yielded proportionally more females, and the one at the *base*, more males.

3rd. That the seed which was lowest on the stems, yielded proportionally most males.

4th, That the fertile seed yielded proportionally most females; but in this case, the numbers were too small to authorize the inference of the production of females being wholly owing to fecundation.

5th. That the smallest seed, or that produced at the base of the spike, yielded more females than the larger seed produced at the middle, and less than that of middle size produced at the summit. In Hemp, as in many birds and quadrupeds, very large or very small germs yield males, —germs of middle size, yield females.

He has given at the conclusion of his paper, a curious table of the results obtained by his experiments upon Hemp, in 1830. He divided it into four qualities, according to the nature of the seed. 1, Hemp-seed not fecundated during two generations.—2, Hemp-seed, not fecundated during one generation.—3, Hemp-seed, furnished only from the base of the stems.—and 4, Hemp-seed fecundated.

The two first, were further separated into three divisions, according to the relative situation of the seed upon the length of the spike:—1st. Seed furnished by the summit,—2nd, Seed furnished by the middle,—and 3rd, Seed furnished by the base. The two other qualities, were each separated into two divisions, one furnished by the upper, the other by the lower half of the spike. A hundred seeds were taken at random, from each division, of the first three qualities.

QUALITIES, NUMBERS, AND RELATIONS.	SUMMIT.		MIDDLE.		BASE.		TOTAL.		RELATIVE WEIGHTS.		
	males.	fems.	males	fems.	males.	fems.	males.	fems.	summ	midd.	base.
1st quality,											
Numbers,.....	479	559	1222	1205	225	234	1926	1998	100	104	94
Relation,.....	1000	1167	1000	986	1000	1040	1000	1037			
2nd quality,											
Numbers,.....	870	933	2549	2615	951	975	4370	4523	100	104	99
Relation,.....	1000	1072	1000	1026	1000	1025	1000	1035			
3rd quality,											
Numbers,.....	352	367			181	178	533	545	100	98	
Relation,.....	1000	1042			1000	983	1000	1022			
4th quality,											
Numbers,.....	36	42			13	15	49	57			
Relation,.....	1000	1166			1000	1154	1000	1163			
Total,.....	1737	1901	3771	3820	1370	1402	6878	7123			
Relation,.....	1000	1094			1000	1023	1000	1035			

M. Girou de Buzareingues, performed similar experiments with nearly the same results, upon *Spinach* and *Lychnis dioïca*. It would be important perhaps to try Hops in the same way, as results interesting to the hop-growers, might in all probability be thence obtained.

J. RENNIE.

Lee, Kent.

ARTICLE XV.—*Observations on the Structure of Insects, and on the Transformations which they undergo.* By MR. JOHN SMITHURST, of Lea.

THE object of the present paper is to give a brief sketch of the structure of insects in general, and also to explain the different transformations they undergo, before they arrive at what we may consider a state of perfection. The subject, I conceive to be one of great importance, not only to every lover of Natural History, but also to the Horticulturist;—I regret much my inability to do it justice, but I trust the few remarks I am about to make, will not be wholly uninteresting to some of your readers.

The Insect division of the animal world, received its name from the individuals of which it is composed, having a separation in the middle of their bodies, by which they are cut, as it were, into two parts. These parts, are in general connected by a slender ligament, or hollow thread. Insects (with the exception of the Crab tribe) breathe through pores arranged along their sides; and have a scaly or bony skin, and many feet. Most of them are furnished with wings. They are destitute of nostrils and eyelids; and the mouth is in general situated under the head, and is furnished with transverse jaws, a kind of teeth, a tongue, and a palate.

Insects have in most instances, four or six *palpi*, or feelers, and also moveable horns, which generally proceed from the front part of the head, and are endowed with a very nice sense of feeling. Some writers have conjectured, that the horns of insects, are their organs of hearing; for it is evident, from various experiments, that insects are possessed of this sense in as exquisite a degree as most other animals, although from their minuteness, we perhaps may never discover by what means. The horns, however, seem little likely to answer the purpose of ears. These instruments of apparently exquisite sensibility, appear adapted to very different purposes,—but to purposes with which we may remain long unacquainted.

The eyes of insects are formed of a transparent crustaceous set of lenses, so hard as to require no coverings to protect them. These,

like multiplying glasses, have innumerable surfaces, on every one of which the objects are distinctly formed. Other creatures are obliged to turn their eyes; but insects have always some one or other of these lenses directed towards objects, from what quarter soever they may present themselves. Mr. Nook computed that there were 14,000 of these lenses in the two eyes of a drone; and Mr. Leuwenhoek reckons 12,544 lenses in each eye of the Dragon Fly. The pictures of objects that are delineated on these, must be millions of times less than those formed on the human eye. Many insects still smaller, have eyes so contrived as to discern objects some thousands of times less than themselves; for such the minute particles on which they feed, must certainly be.

With respect to the wings of insects, those of the two first orders of Linnæus have their wings defended by a pair of hard crustaceous cases, called *elytra*. The three subsequent orders have four membranaceous wings without elytra. All the insects of the sixth order have but two wings, and under each of these, at its base, there is a poise, or balancer. These poises are commonly little balls, each placed on the top of a slender stalk, and moveable every way at pleasure. The use of the poises to an insect seems to be precisely the same as that of a long pole, loaded at each end with lead, is to a rope dancer; —they render the body steady, and obviate all its unsteadiness in flight.

The structure of the feet of these diminutive creatures is truly admirable. Those insects that live altogether in water, have their feet long, flat, and somewhat hairy at the edges, well adapted to aid their motions in that element. Such as have occasion to burrow into the earth, have their legs broad, sharp-edged, and serrated. Those that use their feet only in walking, have them long and cylindrical. Some have their feet furnished with sharp hooked claws, and skinny palms, by which from the pressure of the atmosphere upon them, they are enabled to walk on glass and other smooth surfaces, even with the back downwards.

The tongue of insects is a taper and compact instrument, by which they suck their food. Some of them can contract or expand it; others, as the Butterflies, roll it up under their head, somewhat like the spring of a watch. In many, it is enclosed within a sheath; and in several, as the Flies, it is fleshy and tubular.

The mouth is generally placed somewhat underneath the front part of the head; but in a few of the tribes it is situated below the breast. Some insects have it furnished with a kind of forceps, for the purpose of seizing and cutting their prey; and in others it is pointed, to pierce animal or vegetable substances, and suck their juices. In several it

is strongly ridged with jaws and teeth, to gnaw and scrape their food, to carry burdens, to perforate the earth—nay, the hardest wood, and even stones, for the habitations and nests of their offspring.

Nearly all insects (except Spiders, and a few others of the *apterous* tribe, which proceed nearly in a perfect state from the egg) undergo a metamorphosis, or change, at three different periods of their existence. The lives of these minute creatures, in their perfect state, are in general so short, that the parents have seldom an opportunity of seeing their living offspring, consequently they are neither provided with milk, like viviparous animals, nor are they, like birds, impelled to sit upon their eggs in order to bring their offspring to perfection. In place of these, the all-wise Creator has endowed each species with the astonishing faculty of being able to discover what substance is fitted to afford the food proper for its young; though such food is, for the most part, different from that which the parent itself could eat. Some of them attach their eggs to the bark of trees, or place them upon the leaves of other vegetable substances; others drop their eggs into the water, an element in which they themselves would soon be destroyed. In short, the variety of contrivances that are adopted by insects to ensure the subsistence of their offspring, are beyond enumeration.

From the eggs of all insects, proceed what are called *larvæ*, grubs, or caterpillars. These consist of a long body, covered with a soft, tender skin, divided into segments or rings. In this larvæ state, many insects remain for months; others for a year, and some for even two or three years. They are in general, extremely voracious, oftentimes devouring more than their own weight in twenty-four hours.

As soon as all their parts become perfected, and they are prepared to appear under a new form, called a *pupa* or *chrysalis*, most species of insects fix upon some convenient place, for the performance of this arduous operation. This is generally a place where they are not exposed to danger, for in their transformation they have neither strength to resist, nor swiftness to avoid, the attack of an enemy. That Power which instructed the parents to deposit their eggs in a proper receptacle, directs the offspring to the most secure and appropriate situation for their future defenceless state. Some of them spin webs, or cones, in which they enclose themselves; others undergo their change in decayed wood; and others conceal themselves beneath the surface of the earth. Preparatory to the transformation, they cease to take any food, and for some days continue in a state of inactivity. During this time the internal organs gradually unfold themselves. When the completion is at hand, many of them may be observed, alternately, to extend and contract their bodies, in order

to disengage themselves from the caterpillar skin. The hinder parts are those first liberated: when this is done, the animals contract and draw the skin up towards the head; and by strong efforts they soon afterwards push it off entirely.

As soon as the insect within the shell of the chrysalis, has acquired strength sufficient to break the bonds that surround it, it exerts its powers, and appears to the world in a perfect state. For a little while it continues humid and weak; but as the humidity evaporates, its wings and shell become hardened, and it soon afterwards commits itself in safety to its new element.

JOHN SMITHURST.

Lea, February 15, 1832.

ARTICLE XVI.—*Notice of a Newly-discovered Species of Pine.* By F. J. G. W.

I REGRET that any communication which I may have made to you, should have been the cause of an erroneous insertion in your Register; I allude to an anecdote relative to the Date Tree, which another correspondent says, "merits not the smallest credence." Nevertheless, one more versed in these matters than myself, *has* given credence to it, having inserted it as a note, in a well-known work,—see Dr. Darwin's "Principia Botanica," 3rd edition, in a note on page 178.

Perhaps you may not have heard of a new species of Pine, found on the western flank of the Cordilleras, by Mr. David Douglas; it grows for about fifty feet from the ground, without either branches or leaves; and then spreads forth its branches, covered with a dark thick foliage. The stem, when pierced, emits a liquid very similar to milk, which is used by the natives, for the same domestic purposes; from which circumstance I believe, it has been named the Milk-Tree. I understand, that a drawing of the tree, together with some of the seed, has been sent to this country.

Having only had an oral account given me of it by a friend, of course I am liable to be incorrect in some of the particulars; but upon referring to any Member of the Linnæan Society, you may be furnished, I have no doubt, with further and better information.

F. J. G. W.

April 9, 1832.

PART II.

REVIEWS AND EXTRACTS.

REVIEWS.

1.—Catalogue of Fruits, cultivated in the Garden of the Horticultural Society of London. 2nd edition. 8vo. 8*s*.

The very excellent system adopted in the arrangement of this new Catalogue, renders it a most valuable work to every person interested in the growth of Fruits; both the species and the varieties are placed in alphabetical order, according to the names in common use, and not according to those of Botanists, and to render it doubly useful, the synonymes are appended; and many of the most important characters which distinguish the varieties, are compressed in a very small compass, by columns and abbreviations, as for instance—

"32 Astrachan White. | p. y. | Conical. | 2 | T. | 1 | Aug.—Sept."

which signifies, that the White Astrachan Apple is pale yellow, of a conical figure, middling size, used for table or dessert, of the first quality, and ripens in August and September. To the abbreviations, a few useful observations are added in a separate column.

In the former edition, published in 1826, a number of fruits, as Bilberries, Hawthorns, Brambles, &c. were comprehended, which in the present one are entirely left out; as by far the greater part of them, although eatable, are not fit for cultivation as fruit,—others, can scarcely be considered eatable at all,—and a third class, (as the Orange tribe) is cultivated in this country for their flowers rather than their fruit. But what has chiefly caused the omission of the latter, and of other tender fruits, has been that in the present state of the Garden, there are no means of cultivating them with a view either to fruiting or distribution. To this there is only one exception, in the Purple Guava, (*Psidium Cattleyànum*) which occupies a permanent situation in one of the vineries, where it bears abundantly.

In conclusion, it is due to Mr. Robert Thompson, who has the charge of the Fruit department in the Garden of the Society, to state that the value of the Catalogue is principally due to his assiduity and Pomological knowledge.

We hope, this Catalogue will find its way into the hands of every nurseryman, who would do well to adopt the names given by the Society, as, from the multitude of synonymes that have been, and still continue to be adopted, the distinctions of fruits have become very complicated; and in many cases, when trees have been bought under the impression of their being entirely new sorts, they have proved to be only such as had long been in the possession of the purchaser. We are sorry to say, from experience, that country nurserymen are far from being so alive to this, as they should be.

2.—Transactions of the Arboricultural Society of Ireland. Part I.

This First Part of the Transactions of this Society, containing its Rules, and several abridged communications—On Planting Waste and Arable Lands—On the Management of Coppices,—On Pruning, &c. of Plantations,—On Planting Bogs, &c.—is most ably got up by our friend and correspondent, Mr. Murphy. The whole subject of Planting, is treated on by him in a manner that does him the highest credit; and we think, not a person in the kingdom could have been selected better calculated to superintend the affairs of the Arboricultural Society. Most heartily do we wish the Society success, they have a large field of labour before them,—for although no branch of Rural Affairs has been more ably treated upon within these few years, yet no branch without exception, has made less progress, or is upon the whole less understood.

Considering the means that have been afforded, it is truly astonishing to see with what neglect ninety-nine woods out of a hundred, have been, and still are, suffered to remain in. This has led us to conclude, that a radical alteration in the education of Foresters, has become absolutely necessary. We would recommend the Arboricultural Society to engage Mr. Murphy to deliver a *Course of Lectures* every season, to at least forty well-educated young men; not at his residence in Dublin, but in some extensive woods, that could be conveniently attended for the purpose. These young men, on leaving the Society, ought to have diplomas from the Professor, stating their qualifications, &c. Only persons thus instructed, we think should be employed as foresters. This we are satisfied is the best, if not the only means, of making an entire alteration in the management of woods and forests; as in a few years a number of proficient foresters might be distributed completely over Ireland.

The sister kingdom, however, is not the only one deficient in experienced and proper foresters; for England is equally bad. We are using all our exertions to establish an Arboricultural Society in England, and at present have little doubt of its success.

If a garden is neglected for some years, a portion of diligence and attention may soon bring it into good condition again; but this is not the case with neglected woods: if once a plantation suffers from neglect, it is next to impossible to recover it.

Our space will not allow us to enter fully into the many conflicting opinions on the treatment of woods and plantations. We hope, at no distant period, to have much useful practical information on the subject, to lay before our readers.

3.—British Entomology. By John Curtis, F.L.S. Monthly. 8vo. 4*s*.6*d*. coloured.

Contains *Thanásimus formicárius*.—Order, *Coleoptera*; Family, *Cleridæ*.—This is the only species that has been discovered in Britain; it inhabits the trunks of trees newly felled, especially the Scotch and Spruce Firs. It much resembles the Ant (*Formica*) in its manners and habit, from whence it derives its specific name. Its colour is black and red. It is accompanied with a specimen of the Nettle-leaved Goosefoot, (*Chenopódium muralis*) *Tryphon varitársus*.—Order, *Hymenoptera;* Family, *Ichneumonidæ*. *Nudária mundána*, the Muslin Moth.—Order, *Lepidóptera;* Family, *Lithosiidæ*.—This com-

mon little moth is of a pale rosy ochre colour, and may be found plentifully in the month of July. The larvæ feeds on the *Byssus botryöïdes*, which grows on the bark of trees. And *Tropidia rufomáculata*.—Order, *Diptera*; Family, *Syrphidæ*.

EXTRACTS.

HORTICULTURAL INTELLIGENCE.

PINE-APPLES.—*Varieties of the Pine-Apple, cultivated in the Horticultural Society's Gardens.* (continued from page 460.)

5. *Havannah*, of Speechley's Treatise; the *Brown Havannah*, of Brookshaw; *Smooth-leaved Antigua*, and *Smooth Antigua*, of the Society's Catalogue; *Ripley*, *Old King*, and *Common King*, of many gardens; the *Semi-serrate*, of the French; and the *Lapete*, of the Island of St. Vincent.—Leaves narrow, long, and spreading, of a light blueish green, considerably tinged with pale brown, and slightly mealy, nearly spineless. Flowers purple. Fruit cylindrical, sometimes tapering a little to the summit; before ripening, dark purple, and rather thickly covered with meal; when ripe, of a darkish orange. Pips large, flat, and a little depressed in the centre. Scales covering about one-third part of the pips, and ending in a long reflexed point. Flesh pale yellow, rather solid, and without much fibre, juicy, but neither sweet nor very highly flavoured. Crown large, leaves numerous, long, and spreading.

6. *Smooth Havannah*, called also the *Green Havannah*, in the Society's Catalogue, No. 38; the *Havannah*, of some gardens; and the *Antigua Aurantiaca*, of the French.—Leaves less robust than the last, more tinged with brown, and more mealy. Fruit of the same size and appearance as the Havannah, but seldom so large. Flesh same colour, &c, but abounds with rich, sweet, highly flavoured juice. Crown smaller than the last.

7 *Green Antigua*; *Smooth-leaved Green Antigua*, of Brookshaw; *Smooth Green Havannah*, of some gardens; and *Sans épines*, and *Malabarica*, of the French.—Leaves broader, shorter, more keel-shaped, stronger, and of a paler colour than the Havannah, and destitute of spines. Flowers pale lilac. Fruit globular, inclining to oval; before ripening, of a dull green, very mealy; when ripe, deep yellow. Pips middle sized, roundish, and projecting to a very acute point. Scales covering about one-third of the pips, and ending in narrow short points. Flesh, deep yellow, transparent, rather stringy, with a little acid, neither very sweet nor high-flavoured. Crown rather large, leaves numerous, and bent back. Not worth extensive cultivation.

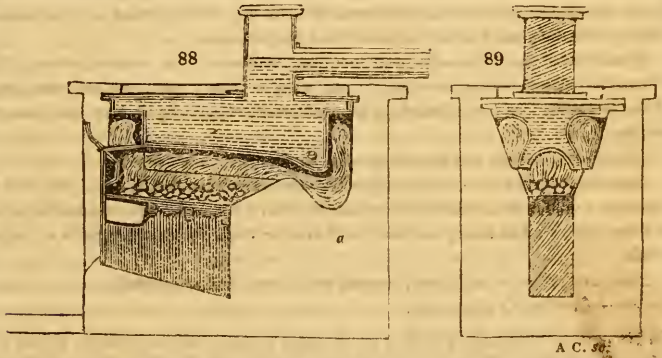
8. *Striped Smooth-leaved Sugar-Loaf;* or *Smooth-leaved Sugar-Loaf.*—Leaves destitute of spines, and striped with dull purple. Flowers pale lilac. Fruit, same appearance as other varieties of the Sugar-Loaf. Flesh deep yellow, with but little acidity or sweetness, neither rich nor juicy. Crown middle sized, leaves numerous. Not worth cultivation.

9. *White Providence; Providence*, of Speechley; *New Providence*, of Nichol; *Mealy-leaved Providence*, of the Society's Catalogue, No. 57; and *Providencia*, of the French.—Leaves large, broad, and spreading, of a blueish-green colour, sometimes blotched with a deeper shade, and very mealy, spines small, thickly set, and rather irregular. Flowers large, dark purple. Fruit oval, or tun-

shaped, very dark green or purple; when mature, reddish yellow, and grows to a large size. Pips large and nearly flat, sometimes a little depressed in the centre. Scales covering nearly half the pips, and ending in short blunt points. Flesh white, opaque, sweet and juicy, without much flavour, rather soft and melting. Crown large, leaves numerous and spreading.—*Transactions of the Horticultural Society, Vol. I, Part I, second series.*

(TO BE CONTINUED)

IMPROVED BOILER FOR HEATING BY HOT WATER.—Mr. D. D. Neeve, late principal clerk to Mr. Tredgold, who wrote in the "Horticultural Transactions," has found that a long rectangular boiler is preferable to a square or circular one, in as much as the bottom receives more heat on account of the fire being retained longer. He has lately had some constructed of the patterns shown in fig. 88 and 89, and has found them to answer his highest expectations. The heat is raised



A C. *sc.*

in much less time, and with less fuel, than with a square or circular boiler. The dip at the end of the boiler, [fig. 89, *a*] has a tendency to prevent the flame from passing so rapidly over the bottom as it would do on a straight one. The upper part of the flue passing round the boiler is entirely covered by the upper part of the boiler.—*Gardener's Magazine.*

TO PREVENT THE SPROUTING, &c., OF STORE ONIONS DURING WINTER.—Apply a heated iron for a few seconds to the nozzle of the onion, whence the roots protrude, and it will be an effectual mode of preserving them.—*Gard. Mag.*

TO MAKE OLD SEEDS GERMINATE.—Put them in a bottle filled with oxalic acid, let them remain there till the germination is observable, which generally takes place in from 24 to 48 hours, then take them out and sow them in the usual manner. Another way is to wet a woollen cloth with oxalic acid, on which the seeds are put; it is then folded up and kept in a stove. By this method small and hard seeds will germinate equally as well as in a bottle. Also very small seeds are sown in pots, and placed in a hot-bed, and oxalic acid, much diluted, is applied twice or thrice a day till they begin to grow. Particular care must be taken to remove the seeds out of the acid as soon as the least vegetation is observable. By this means seeds from 20 to 40 years old have been found to grow, whilst the same sort sown in the usual manner did not grow at all. M. OTTO; *Prussian Gardening Society.—Gard. Mag.*

THE ZIZANIA AQUATICA, or CANADA RICE, has been cultivated in the Botanic Garden at Schöneberg, near Berlin, since 1818. The seeds were received from

North America, in a bottle of water, which is the surest way for transporting seeds of bog plants safely. If the seeds are dropped into the water of a pond or bog, they will vegetate at the proper season, and their produce will be particularly satisfactory to those who now collect the *Glycèria fluitans*, as the grains are not only larger, but have more nourishing qualities in them, and an excellent flavour. They are very good to fatten fowls with. It grows in Canada in boggy places, where it sows itself plentifully, as the least agitation of the stem causes the seeds to fall, even before they appear ripe.—*M. Otto.*

To Destroy Insects.—*Woodlice, Crickets, and Black Beetles.*—Take 1 lb of oatmeal, and ½ lb of coarse brown sugar; mix them, and add 2 oz. of pepper, ground fine. Lay it upon pieces of pot, where the insects frequent.

Slugs, &c.—Take cabbage leaves, and hold them before the fire till they are soft, then rub them with fresh butter or dripping, lay them in places infested with slugs, and when the leaves are infested with them, destroy them as you think well. Woodlice and Earwigs are attracted by the same.

Black and Green Fly.—Take yellow clay, and work it in a tub of water, till it becomes of the consistence of paint; put some of it in a pan, and dip the parts of the branches that are infested, in it, and it will effectually destroy the insects for that season.

The Scale on Pines has been destroyed by the same mixture.

Aphis lanigèra, or American Blight on fruit trees: to every 6 gallons of the above clay and water, add 2 lb of cream of tartar, 1 lb soft soap, and half a peck of lime; mix it, and in dry weather wash it over the infected trees, with a large brush.

Flies and Wasps.—Pepper, sugar, and water, will effectually destroy these insects.—*Gardener's Magazine.*

To Heal the Wounds of Fruit or Forest Trees.—When the tree is cut, or otherwise wounded, smooth the place with a sharp knife, and if cankered, scrape or cut it all out; then put ½ lb of tallow into 2 lb of tar, warm it over the fire till the tallow is melted, then add 1 oz. of saltpetre, and stir it together, and lay it on the parts you want to heal.

To Purify Soil for Pines or other Plants.—Take 4 barrowfuls of good rich earth from a pasture field, one barrowful of leaf mould, one of sheep dung, and one of fresh cow-dung. A month before it is used, lay it in a circular form, about one foot thick, and placing some old pea rods, or any sort of wood on the top of it, set fire to them, and when they are burnt, lay another foot of soil, and burn wood upon it after the same manner, continuing the process until you have as much as is wanted.—*P. Martin; Gard. Mag.*

The Wire Worm.—Mr. Tallant, of Little Houghton, in a communication to the Northamptonshire Farming Society, states that he has discovered by repeated experiments, that land previously cropped with white mustard seed, (*Sinàpis álba*) will effectually protect grain from the depredations of the Wire Worm, (*Elàter ségetis,*) and he seems to have no doubt that they may be successfully repelled and eradicated, by carefully destroying all weeds and roots, and drilling white mustard seed, and keeping the ground clear by hoeing.—*British Farmer's Mag.*

FLORICULTURE AND BOTANY.

Propagation, &c. of the Polygala cordifolia, Eutaxia myrtifolia, and Phœnocoma prolifera.—When the plants have made shoots about ¾ of an inch

long, take off the cuttings and insert them in white sand, placing them under a bell glass, in a house kept at 60 to 65 deg. Fahr., taking care to put the cuttings in as soon as they are made, and watering them when they become dry, and in the course of six weeks they will be ready to pot off.—*J. Nicolles; Gard. Mag.*

Culture of Pelargoniums.—Mr. Appleby, Gardener at Horsforth Hall, always makes it a rule to put in his cuttings in the beginning of July every year. He prepares them in the usual way, viz. takes them off with three joints, cuts off the bottom leaves pretty close to the stem, and makes a cut clear across the bottom joint. They are then planted round the edges of pots 9 inches diameter, filled to within an inch of the rim, with a compost of leaf mould, loam, and peat, in equal parts, and the remaining inch with light maiden soil. After the cuttings are pressed pretty tight in the pots, and well watered, they are placed in a frame facing the south, and in very sunny weather they are shaded. After the first ten days a little air is given when required. When rooted, they are potted into large 60-pots, with light maiden soil, and kept in the frame till they have struck fresh roots; then inure them to the open air, and let them remain till it is necessary to take them into the green-house. At the end of March following, shift them into pots 6 inches in diameter, in a compost of equal parts of vegetable mould, good loam, and well-rotted cow-dung at least a year old; mix, (but do not sift it) and put it under a cover a few days, to dry. After this potting, a little extra heat is given, with plenty of water and air, which quickly brings them into flower. When the bloom is over, turn them out into the borders to flower again in summer and autumn. The essentials of this mode of treatment are,—striking cuttings in July every year, which prevents the plants getting too large; potting when struck, in small pots and poor soil; shifting in spring into larger pots, and very rich compost; and planting out or throwing away in summer.

Mr. Robert Elliot, gardener to W. Hartley, Esq., Rose Hill, near Whitehaven, begins putting in cuttings in May, giving them the usual treatment, until they begin to grow freely; he then pinches off the top shoots, which causes the plants to grow bushy. He keeps them all winter in a common frame, with a few inches thick of coal ashes, to prevent the plants from being injured by damp. Air is freely given by day, and the frame shut close down at night. As the winter advances give less water, and keep the plants clean. All round the outside of the frame is covered with soil about a foot thick, pressed close, and nearly level with the glass, sloped so as to carry off the wet. In severe frosts cover with mats; and if necessary, with a straw mat, and over all a wooden shutter. Uncover the frame when the sun shines upon it, and cover it again as soon as the sun leaves it, and give air every day when the weather is mild.—*Gard. Mag.*

Culture of Nelumbiums.—The *N. speciòsum* should be planted in the beginning of May. File a small hole in the shell of the seed, at the end opposite the point, and put it in a basin of water kept warm, and in about 10 days it will have made its first leaf; then plant it in a tub about 3 feet wide, and 18 inches deep, filled to about five inches of the top with mud. That part of the top covered with water should be painted, to prevent the green slime (*Confervæ,*) from growing, and cover the top of the mud about an inch thick with fine sand, for the same purpose. Change the water twice a week, and move the sand slightly about, pouring the water in with a watering pot;—this should be done early in the morning. Bend down the young leaves with a stone to the surface of the sand, till the stalk is grown long enough for the leaves to remain on the water. Keep them in about the temperature of from 75 to 80 deg. Fahr. by day, but at night the house should be left open when the weather is not cold, as also sometimes on

rainy days. Toward the middle of September they should be gradually inured to the open air, and left there without covering till the following spring, when they should be put in another tub, and planted as before, with one-half fresh earth.—*Gard. Mag.*

Culture of Brugmansia arborea.—Mr. Arnold, gardener at Grove House, Cheshunt, planted one in a conservatory in 1829, and the spring following, 1830, he cut it down to within 6 inches of the ground. In the month of September, in the same year, it bore 200 flowers. In the spring of 1831 he cut it down to about 8 inches of the root, and in the following October there were 355 flowers upon it, which he attributes to cutting down and supplying with liquid manure. He keeps it free from insects by sprinkling tobacco-water on it, about twice during the summer. It delights in a rich soil, and is propagated by eyes, like the vine.—*Gardener's Magazine.*

Culture of the Amaryllis Tribe.—When the bulbs begin to grow, more water is given, and if required, larger pots. If they flower before the leaves appear, they must be re-potted after they have ceased flowering; but no roots should be cut off, except those which are dry and rotten. The size of the pots must depend on the size and growth of the bulbs. Some may remain several years in the same pot. The roots will receive sufficient moisture by putting the pots in a pan, filled occasionally with water, which gives the bulbs more strength, and is more likely to save them from rotting than when the water is ponred on the top. The soil used is one part loam, (free from oxyd of iron) and two parts leaf mould. Small stones must be put at the bottom of the pot to give a good drainage. The practice of taking up the bulbs and drying them, weakens and renders them more liable to rot, nor will they flower any sooner for it.—*M. Otto; Gard. Mag.*

New and Rare Plants, figured in the Monthly Botanical Periodicals, for April; viz,—Edwards's Botanical Register, Loddiges's Botanical Cabinet, Curtis's Botanical Magazine, Sweet's British Flower Garden, and Maund's Botanic Garden.—This plan, of only extracting the new and very rare plants, we have had in agitation for some time, but as we intimated on our cover last month, we intended to have deferred it until the second volume. We think it unnecessary to introduce into our pages, the names, figures, &c. of plants long known to our readers, unless some new discovery was attached;—our chief aim being, in reviewing the periodicals, to give early notice of any new plants, either introduced or discovered, or of such old ones as are rare and scarcely known.

DICOTYLEDONOUS PLANTS, OR EXOGENES.

LEGUMINOSÆ.

Lòtus arenàrius, Sand Lotus,—An annual trailing plant, and probably hardy, it is rather ornamental as a border flower. Flowers bright yellow. Native of, and introduced from, Teneriffe, by P. B. Webb, Esq. in 1831.—*Bot. Reg.* Culture. It will most probably, like the other species, grow well in sandy soil; and may be propagated by seed.—*Cond.*

Lupinus Marshallìànus, Marshall's Hybrid Lupine.—Raised by Mr. Marshall, gardener to Mrs. Langteys, Southborough, Kingston, Surrey, from seed of *L. lépidus*, supposed to be impregnated by *L. tomentòsus*. Its habit is suffrutescent and bushy, like the male parent, and has the appearance of being very hardy. The flowers are a blue colour, and rather showy. Culture, similar to the parents. —*Sweet's Fl. Gard.*

MALVACEÆ.

Hibìscus Genèvii, Large Purple-eyed Hibiscus.—A shrub, growing to the height of 14 or 15 feet, which we conceive will prove a great ornament to the stove. The

flowers are of a pale rose-colour and purple, and when expanded, are as much as five inches in diameter. Native of the forests of Rivière Noire, where Professor Bojer observed some very large trees of it; he named it *Genèvii*, in honour of M. Genêve, who conducted him to the place of its habitation. Whether it is introduced into our country or not, is scarcely certain.—

Sída rósea, Reddish Globe-flowered Sida.—A shrub of some feet high, not remarkable for beauty. Flowers red, somewhat inclining to purple, rather globose, and small, compared to the foliage. It is a native of Brazil, and was introduced in 1820, by Sir Thomas Hardy, but has hitherto remained almost unknown.—*Curtis's Bot. Mag.*

ERICEÆ.

Rhododéndron ornàtum, Ornamental Azalea.—Raised amongst many other splendid varieties, at Highclere. Its flowers are bright orange red.—*Brit. Fl. Gard.*

Erìca undulàta, Waved Heath.—A hybrid of some beauty; raised by Mr. Rollinson. The flowers are somewhat waved, slightly ventricose, and of a deep rose-colour.—*Bot. Cab.*

LABIATEÆ.

Sálvia Grahàmi, Graham's Sage.—A shrubby plant, worthy of cultivation. The flowers are crimson or lake, very showy. Native of Mexico; and was introduced a short time ago, by J. G. Graham, Esq. Culture.—It thrives in rich loam, and is propagated by cuttings.—*Curtis's. Bot. Mag.*

SARRACENIÆ.

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Sarracènia minor, Smallest Side-saddle Flower. [90]—A herbaceous plant, very curious, and well worth cultivation. Its calyx is double, the outer series consists of 3 small sepals, of a blueish-green colour; the inner series is large and spreading, green on the upper side, and slightly tinged with purple underneath and at the margins. Petals, five, of a bright purple on the under side, and tinged with

purple on the upper. A native of Georgia; and introduced by Mr. T. Nuttall.—*Brit. Fl. Gard.* Culture.—We suppose it will grow with the same treatment as the other species; viz, in a pot having turfy peat laid in the bottom, and the upper part filled with *Sphágnum*, or Bog-Moss, in which the plant is to be placed; and the pot set in a pan of water.—Shelter it either in a frame or green-house from the severity of frost.—*Cond.*

MONOCOTYLEDONOUS PLANTS, OR ENDOGENES.

ORCHIDEÆ.

Aërides cornùtum, Horn-flowered Air Plant.—A parasitical plant growing on trees; curious, and worthy of cultivation. Flowers brown and purple, fragrant, something like the Tuberose. Native of the East Indies. Introduced some years ago, by Dr. Roxburgh, and subsequently by Dr. Wallich. Culture.—It flourishes in a very damp hot-house, planted in a pot of moss, and suspended from the rafters.—*Bot. Reg.*

Maxillària tetragòna, Four-cornered Maxillaria.—A very interesting parasite, worthy of a place in the stove. Flowers, yellowish-green and light purple, very fragrant, resembling the smell of fresh violets. Native of the forests of Brazil. Introduced in 1827, by J. Mutford, Esq.—*Bot. Mag.* Culture.—We suppose it will, like all the other *Maxillariæ*, thrive in a turfy peat soil mixed with a portion of decayed wood or saw-dust, and kept in a damp bottom; it is propagated by dividing the roots.—*Cond.*

IRIDEÆ.

Gladiòlus cochleàtus, Spoon-lipped Corn-flag.—A bulbous rooted plant with slender spear leaves. Flowers, perianthium of a delicate snowy white, the three upper segments naked, with an open compass-shaped red mark towards the base. A native of the Cape, and received from thence three years ago, by Mr. H. B. Page, of Southampton.—*Sweet's Fl. Gard.* Culture—We judge the same treatment should be given them as the other species, viz. Pot them in a mixture of very sandy loam, and peat or leaf mould, and place them in the green-house; when they have done flowering, let them have no water until they begin to grow again —*Cond.*

ASPHODELEÆ.

Camássia esculénta, Eatable Quamash.—A very handsome bulbous plant, differing considerably from, and much exceeding in beauty, the species of *Scilla*, generally known by the name of *Quamash*. Flowers, a rich sparkling purple. Native of North-west America, growing in the alluvial and partly-overflowed soils, in Columbia. Introduced by Mr. Douglas. Culture.—It will grow in peat soil, in the open border, and will probably be easily propagated by seed.—*Bot. Reg.*

ARBORICULTURE.

On Pruning Forest Trees.—Particular regard should be paid to their health and vigour, and not to their size and age. A vigorous tree, full of sap, and 20 years of age, may be pruned with more safety than a stunted one 15 years old, because the parts cut over would heal sooner in the former one, from its being full of sap, than in the latter, which was deficient in sap: indeed the whole art of pruning consists in thinning out the branches according to the size, health, and vigour of the tree; to have the tree as well poised with branches as circumstances will allow; and leaving those branches on the tree which will assist the general circulation of the sap.—*Gard. Mag.*

NATURAL HISTORY.

THE WHALE TRIBE.—It is in the Order *Cetàcea*, that we find the largest animals; and the Whale genus forms the most stupendous in the whole range of animated nature. They generally congregate in numbers. The male never abandons the female, which suckles her young until the birth of its successor. *Smell.*—The great developement of the nasal bones, and the power of the organ of smelling, enable these animals to scent odorous bodies at a great distance. *Non-existence of Teeth.*—Their being devoid of teeth forms a distinctive characteristic of the Whales from the other *Cetàcea:* instead of teeth they have a series of laminæ, or layers, of a substance resembling horn, denominated *baleen*, (erroneously called whalebone,) which is supposed to serve to retain their food. *Vision.*—The eyes are well adapted for the element which Whales inhabit: notwithstanding the immense size of the animal, the whole diameter of each ocular globe does not exceed three inches, in fact, about the size of an orange; and according to Baron Cuvier, the crystalline lens is not larger than a pea when it is dried. The situation of the eyes renders them capable of seeing objects either before, behind, or above the head. They are guarded by eye-lids and eye-lashes. *Hearing.*—The organ of hearing is nearly as acute as those of vision: they have no external ear, and the opening leading to the internal, is almost imperceptible. When the delicate external scarf-skin is removed, a black spot is discovered behind the eye, beneath which is the canal leading to the organ of hearing. *Touch.*—No portion of the Whale has as yet been discovered by Zootomists, to which this organ can be referred; yet it is generally supposed to have great sensibility of feeling. The *brain*, like the eye, is very small in proportion to its bulk. In an animal 19 feet long, and 11,200 lb weight, but $3\frac{3}{4}$ lb of brain was found, being but $\frac{1}{3000}$ part of the entire body, whilst that of an adult man is equal to $\frac{1}{33}$ part of his body. The *mouth* is generally of a serpentine form. The *lips* are about 20 or 25 feet long. Duhamel-Dumonceau relates, that one, captured in the bay of Sonsure, in 1726, had a mouth so wide, that when open 2 men might walk in without stooping. *Baleen, or Whalebones*, are suspended from the bone named by the seamen the crown-bone, which forms the upper part of the mouth. Each of these laminæ is composed of a species of stiff hair, or bristle, united longitudinally, and placed side by side, and united at the origin by a species of rabbet, with a tasteless gum-like substance. The laminæ vary in number from 300 to 400 on each side, and are of a bluish black colour. The *milk*, according to Dr. Jenner, who tasted it, is rich, well flavoured, and nutritious, containing more cream than that of quadrupeds. *Velocity.*—Whales descend with immense velocity, frequently to the depth of 300 or 400 fathoms in the space of 5 or 6 minutes, and are capable of ascending at a similar rate. The *colour* of them, whilst sucklings, is pale blue, or bluish grey, afterwards of a bluish-black, and when old, of a blackish-grey, mixed with white. *Blood.*—A much greater quantity circulates in the Whale, than in quadrupeds, the diameter of the aorta, or large artery, arising from the heart, being more than 13 inches; and the late Mr. J. Hunter estimated the quantity thrown into it, at every contraction, to vary from 10 to 15 gallons, and that with immense velocity. *Pectoral Fins.*—The fins (or swimming paws, as they are called,) are placed on each side the chest, and contain bones similar to the anterior extremity of digitated animals, strongly enveloped in strong condensed adipose membranes, of a semi-cartilaginous substance. *Longevity.*—It is presumed that individuals of the larger species may have lived more than 1000 years!

Embryo Whales, when discovered in their earliest fœtal state, are about 17 inches long, and of a whitish colour. The cubs, when born, are black, and vary from 10 to 14, or according to Cuvier, even 20 feet long. Generally only 1 cub is produced, occasionally 2, but never more. When the female suckles, she throws herself on one side on the surface of the water, and the young Whale attaches itself to her breast. They continue sucklings for a year, during which time they are named shortheads by the sailors, and yield about 50 barrels of blubber At 2 years they are called stunts, and thrive but little when weaned, scarcely affording more than 20 barrels. After this period they are called skull-fish, and their age is wholly unknown.—*Mag. Natural History.*

Fairy Rings are considered by J. F. M. Dovaston, Esq., to originate in electricity. "When a column of electric fluid affects the earth, either ascending or descending, it scorches the ground all round its edges, where there is plenty of oxygen in contact with it; and leaves the centre unscathed, where the oxygen is either expelled or destroyed; so fertilizes the extremity. The consequence is, that the first year the grass is destroyed, and the ring appears bare and brown; but the second year, the grass re-springs with highly increased vigour and verdure, together with the fungi, whose seeds are so brought into vegetation, that without this exciting cause might have slept inert for centuries."—*Mag. Nat. Hist.*

Fogs arise whenever the air becomes colder than the water. From this principle the following conclusions may be drawn. First,—Fogs will be most frequent in autumn, after the earth has been heated during the summer, the air cooling faster than the earth. Second,—Fogs will be greatest after the hottest summer. Third,—Fogs show that the air has become suddenly colder, and therefore are a sign of snow. Fourth,—Fogs will be rare in hot climates, where the air is usually very hot. Fifth,—Fogs will be very frequent in the arctic regions, where the sudden depressions are enormously below the mean temperature. Sixth,—Fogs will be most frequent over shallow water, which sooner partakes of the temperature of the bottom than the deeper water.—*Mag. Nat. Hist.*

Arrow Root is prepared in India, from the *Maránta arundinácea*, and at Tahiti, and other of the Polynesian Islands, from the *Tácca pinnatífida*, the roots of which are roundish, of a reddish colour, and in an unprepared state, are possessed of acrid properties. At Tahiti, and the Sandwich Islands, this plant and the farina produced from it, are named *pia;* at the Island of Rotuma, *mara;* at the Island of Tongatabu, *maa-euah;* and at the Island of Tucopia, *massoa*. When the leaves perish, which occurs annually, the roots are dug up, washed, and grated on a piece of coral, into a large bowl of water; then strained through a sieve—the farina, or flour, settles at the bottom of the vessel. The water is renewed every day, until the farina becomes white. When taken out, it is found formed into a solid mass, which is broken to pieces, and well dried in the sun.—*Mag. Nat. Hist.*

The Mole.—It is remarkable that the Mole, (*Tálpa europæ'a*) sometimes gives notice of a change of weather; the temperature or dryness of the air governs its motions as to the depth at which it lives or works. This is partly from its inability to bear cold or thirst, but chiefly from the necessity it is under, of following its natural food, the Earth-worm, (*Lumbrícus terréstris,*) which always descends as drought or cold increases. In frosty weather, both Worms and Moles are deeper in the ground than at any other time; and both seem to be sensible of an approaching change in the weather, before there are any perceptible signs of it in the atmosphere. When it is observed therefore, that Moles are casting hills through openings in the frozen turf, or through a thin covering of snow, a change to open weather may shortly be expected.—*Mag. Nat. Hist.*

PART III.

MISCELLANEOUS INTELLIGENCE.

I.—QUERIES, ANSWERS, REMARKS, &c.

On Planting, Propagating, and Pruning Forest Trees and Evergreens.

1st.—Pray what is the best season for planting deciduous trees, having reference only to the certainty and quickness of their growth, and not to any cost or convenience?

2nd.—What for evergreens?

3rd.—Whether any list can be formed, shewing the most favourable seasons for putting in, all sorts of cuttings, layers, grafts, buds, seeds, &c., &c., according to the most approved methods, divided through the year, month by month? And if no such list is in contemplation, whether you think it would not make a very good article in your book?

4th.—Whether the worthless nature of Scotch Fir, grown in this country, may not arise from too quick growth? Whether it is not an object in reference to timber, rather to check their rapid growth? And whether, in consequence, the more prudent mode of thinning Scotch Fir Plantations, is not to to take out the largest whilst young, and leave the weakest to come into timber, contrary to the usual and approved practice in cases of hard wood?

5th.—Whether, if this be so, preparing the ground for planting Firs is not injurious as a timber cultivation?

6th.—Whether we may not expect that in some time to come, good Fir timber may be grown in England, which has gradually pushed itself up through coppices or other impediments?

7th.—Whether, if this be a true view, the system of growing Fir timber, might not be greatly improved by planting single trees in coppices?

X. Y.

P. S.—The Spruce Fir is beautiful in masses, and grows well when thick in large woods, as in the Hartz Forest; but whenever it is exposed by having its neighbours cut away, it becomes ragged and unsightly.

To Destroy Ants.—Having read in pages 278 and 279, two complaints against Ants, I am induced to send you the following:—Some time ago, a drawer, in which I kept sugar, was so much infested with Ants, that we were obliged to remove the sugar from it. It happened from some cause or other, a small piece of camphor was laid in the drawer, and on opening it a few days afterwards, we were agreeably surprized to find the bottom literally covered with dead Ants. This induced us to repeat the experiment, and from that time we have found no difficulty in keeping the sugar free from their depredations, by allowing a small piece of camphor to be in one corner of the drawer. Where trees upon walls, or plants, are infested, I should recommend small pieces of camphor to be thrown on the ground round their stems and in some cases to dissolve a little in alcohol, and sprinkle it over the leaves in a diluted state, with a common syringe.

John J. Godfrey.

Albany, State of New York, March 3, 1832.

We hope our correspondent will often favour us with something. From the quantity of subscribers we have in America, we have been led to expect some of their favours for a considerable time.—Cond.

CULTURE OF ANNUALS.—Can you give me any information as to the culture of *Argemône mexicàna, Datûra Tátula, Lìnum verticillàtum, Lobèlia grácilis, Lupìnus micránthus, Mìmulus guttàtus, Nigélla damascèna*; or refer me to any work on the subject? Some of them, I have no doubt, must be sown in a hot-bed; but it is well known that some sorts of annuals (the *Clárkia pulchella*, for instance) grow much better in the open ground.
Manchester, March 22, 1832. A SUBSCRIBER.

ANSWER.—The *Argemône mexicàna, Lìnum verticillàtum, Lobelia grácilis Lupìnus micránthus*, and the *Nigélla damascèna*, may all be sown on the open border, in almost any sort of soil or situation. The *Mìmulus guttàtus* should also be sown in the open border; but it is apt to perish unless the soil be light and sandy. The *Datûra Tátula* does the best when raised in a hot-bed, and when large enough, potted in light soil, and eventually turned out into a warm border, composed of light sandy soil.—CONDUCTORS.

HARRISON AND CURTIS'S MODE OF GLAZING.—First, Will not the saving of paint alone on this system give it a decided advantage over every other? The houses under my care, although not extensive, with every possible economy, cost £60 for painting once over, last summer; and as this should take place every three years, the annual expense will be £20, which sum, applied to the erection or improvement of hot-houses, would accomplish much, and ought to be borne in mind.

Second,—Will not the facility with which the squares can be fitted in, give this system a pre-eminence? There are eight different ways in which the squares may be fitted. If any should be found difficult to bed, it may be easily rectified, which is a recommendation of some importance.

Third,—There is no shade from the projecting sash bar. This is another point which every person about to erect new houses would do well to bear in mind.

Fourth,—Will not the sash bar come at much less expense than any other, being made of only half the materials, and taking but half the labour in formation?

Fifth,—Can there be that liability to the serious expences incurred by the glass breaking, from frost? Will not this be removed in a great measure by the roof being more free from wet than in the projecting-bar system? This requires consideration on the part of those who have houses with a less angle than thirty degrees. Are not 20 squares of glass broken by frost to one any other way?

Sixth,—In case of frames, &c. subject to be covered with mats, should not the stiles of the lights, and perhaps the middle bar of each, project as usual, to prevent the glass being broken or fractured when the coverings are thrown on wet?

Seventh,—Does any person experienced in the erection, &c., of houses covered with glass, doubt whether this system will gain the ascendancy over every other that has hitherto appeared?

Eighth,—Will any doubt arise as to the wet entering in at the junction of the squares? Do we ever experience this when the fracture is in a parallel direction with the sash bar?

Ninth,—Will not these roofs always be more free from filth than those with projecting bars? Will they not always be perfectly clean?

Tenth,—Will not the laps of the squares, by being kept much cleaner, prevent the frost from breaking them? Does not the filth attracted by the sash bar collect there, and with the water expand at the time of frost?

Eleventh,—Will there not be found a material difference in the expense of keeping the roofs in repair, arising from two causes.—1st, the expedition with which a broken square can be replaced by a perfect one; and 2nd, the quantity of squares that are often broken or fractured by the shock given in the common mode of removing broken ones, particularly on metallic roofs?

Twelfth,—Has the present system been duly considered according to its merits? And are the public confounding it with those puerile attempts which have lately been carried to an extent that has deranged all confidence betwixt the inventor and those whose capabilities ought to have given every encouragement?

Thirteenth,—Is not the inventor of the present system a real practical gardener? which was not the case with any of the new methods which have lately appeared. Answers to these, will oblige,

A GARDENER OF THE OLD SCHOOL,
Who has practised near half a century.

II.—COLLECTIONS AND RECOLLECTIONS.

To Polish Shells.—"If the shell has the animal alive in it, and you want to kill it, nothing more is necessary than to dip the shell and fish in boiling water, and after some minutes have elapsed, plunge them into cold water, which condenses the fish, and renders it easier to be extracted. Crooked wires and other sharp instruments, are sometimes necessary to effect a perfect extraction. After the animal is taken out, if you have a large quantity to clean, dissolve half-a-pound of potash and half-a-pound of soft soap in two quarts of boiling water, stirring it until all the particles are dissolved. Then pour it warm over the shells, and let them remain in this liquid two or three days, frequently warming it, and pouring it over them. Rinse them out of this with a brush, and cleanse them well in warm water. This method will generally be sufficient to clean all smooth shells, such as Olives, Cowries, Cones, &c. When dry, brush them with a nail brush, and if they are not dead shells they will have a sufficient polish.

"Rugged shells generally require a different process from the preceding, though it is prudent to try that method first, but when the shells are covered with adhesions, or the epidermis will not separate from the shell, it is necessary to use acid, which should always be applied with a careful and a skilful hand. After the shells have undergone the foregoing process and are dry, with a camel's-hair pencil apply muriatic acid to the parts which require it, dipping the brush in sand, and using constant friction until the adhesions are removed. After this, cleanse them in warm water, and dip them in alkali, to neutralize the effects of any acid that may remain. Then cleanse them again in warm water, and with a soft brush put a weak solution of gum arabic over them." T. K. S.

To Destroy the Red Spider in Vineries.—In the month of February, or March, when the houses are white-washed, put to about every four gallons of white-wash, twelve oz. of sulphur vivum; then wash the whole house over with it, taking care not to come nearer the furnace-end of the flue than six or seven feet, or when strong fires are made, the effluvia will rise too powerfully, and probably injure the Vines, &c. The best way is to wash close to the furnace over with plain white-wash. John Woolley.

III.—SOCIETIES,

CONNECTED WITH HORTICULTURE AND NATURAL HISTORY.

LONDON HORTICULTURAL SOCIETY.

At the Meeting of this Society, held on the 6th of March, an interesting paper by Mr. John Wilson, one of the Under-Gardeners in the Garden at Chiswick, "On the Cultivation and Curing of Tobacco, for garden purposes," was read. A large-leaved variety of the Virginian Tobacco, (seeds of which had been received from the Sandwich Islands,) was the sort experimented on, and the specimens which illustrated the communication, bore testimony to the efficacy of the mode adopted in effecting the desired object. Grafts of the most esteemed of Mr. Knight's new Seedling Pears, and of his Sweet Red Currant, were distributed during the Meeting. The exhibition contained Josephine Pears; some excellent specimens of Coffee, both

in the raw and prepared state; and fruit of the Allspice, from Mr. J. Oliver, of Coombe-Abbey;—Flowers of Echeveria gibbiflora, and of Gloxinia candida; Newtown Pippins; Winter Bon-chrétien and Easter Bergamot Pears.

The Meeting on the 20th, was not remarkable for any particular exhibition, further than Camellias and Azaleas; amongst which we observed the Camellia reticulata, and a bybrid Azalea, between A. Indica, and A. Indica phonicea. Grafts of superior Apples and Pears were again distributed. Announcements were made from the Chair, that a new part of the "Transactions," was ready for delivery to the Fellows of the Society, and that certain Medals would be awarded at the Meeting, to be held on the 3rd of April, for the best collection of Camellias, which might be exhibited on that day.

DEVON AND EXETER BOTANICAL AND HORTICULTURAL SOCIETY.

THE Annual Meeting of this Society, was held on Friday, February 17th, at the Society's room, 263, High-Street, Exeter; when Col. Fulford, one of the Vice-Presidents, took the chair. On the table was placed a fine plant of the Double White Camellia, grown in the open air, by Mr. Richard Saunders, Gardener to C. Hoare, Esq. Luscombe. Mr. Saunders stated that in the month of March, last year, there were 600 flowers open at once, on a single plant, growing out of doors, without any protection. The receipts of the past year have been £366 2*s.* being £57 11*s.* 6*d.* more than the preceding year.—The arrears of subscriptions were stated to be £80, and the balance in the Treasurer's hands, £149 3*s.*10*d.* upon which it appeared there were claims to half the amount. The practicability of establishing a Botanical Garden and Library, was considered,—but nothing definitely settled for the present.

IV.—NATURALIST'S CALENDAR,

FOR MAY.

BOTANY.

MAY is proverbial for flowers; they are indeed now in abundance, and among the most prominent is that most beauteous of British flowering shrubs, the Hawthorn, which perfumes the air with the delightful fragrance of its blossoms, and which so peculiarly belongs to this month as to derive one of its most common names from it The Crab, the Wild Plum, and the Cherry, are also in blossom, and add to the general beauty of the fields. The woods and coppices are filled with the flowers of the Wild Hyacinth, and present in many places an entire sheet of rich blue. The plants in flower are so numerous as to prevent anything approaching to a complete catalogue from being given in this place; the following list, therefore, only contains a few of the more rare, or remarkable, and may serve as a memorandum for the Botanist, not to neglect looking for them in their proper habitats.

Mousetail, *Myosúrus mínimus;* Grass-leaved Crowfoot, *Ranúnculus gramíneus;* Alpine Crowfoot, *R. alpéstris;* Globe-flower, *Tróllius europæ'us;* Creeping Marsh-marigold, *Cáltha rádicans;* Entire-leaved Pæony, *Pæónia corallína;* Barrenwort, *Epimèdium alpínum;* Yellow Fumitory, *Cory'dalis lútea;* Hoary Stock, *Mathíola incána;* Bristol Rock-cress, *Arabis stricta;* Hairy Wall-cress, *A. hirsúta;* Impatient Lady-cress, *Cardámine impátiens;* Rock Whitlow-cress, *Drába rupéstris;* Danish and English Scurvy-cress, *Cochleária dánica* and *ángliça;* Scentless Rocket, *Hésperis matronàlis;* Cream-coloured and Yellow Mountain Violets, *Viola láctea* and *lútea;* Red German Catchfly, *Lychnis viscária;* Vernal Sandwort, *Arenária vérna,* a beautiful little plant, which covers with its brilliant white flowers the heaps of spar and other refuse of lead mines; Dusky Cranesbill, *Geránium phæ'um;* Sea Stork's-bill, *Eródium marítimum;* several species of Saxifrage, (*Saxífraga*) found chiefly in alpine situations; Birdsfoot, *Ornithópus perpusíllus;* Arctic Bramble, *Rúbus árcticus;* Scotch and Irish Roses, *Rósa spinosíssima* and *hibérnica;* Alexanders, *Smyrnium olustrum;* Misseltoe, *Víscum álbum;* Leopardsbane, *Doróníeum Pardaliánches;* Winter-green, *Trientalis europæ'us;* Coral-root, *Corallorhíza innáta;* Narrow-leaved Helleborine, *Epipáctis ensifólia;* several species of Orchis, viz. *O. fúsca, militáris, tephrosánthos,* and *latifólia;* Drone Orchis, *Ophrys fucífera;* Summer Snow-flake, *Leucójum æstívum;* White Narcissus, *Narcíssus poéticus;* Lily of the Valley, Common and Angular Solomon's Seal, *Convallaria majális, multiflóra* and *polygonátum.*

ZOOLOGY.

INSECTS.—The Swallow-tailed Butterfly, (*Papílio Machàon,*) the most superb of British Butterflies, having lain in the pupa state through the winter, may now sometimes be found, as may also the following:—

The Cabbage Butterfly, *Pontia brássicæ;* the Pearly-border Butterfly, *Melíte'a euphrósyne;* the Plantain Fritillary, *M. cínxia;* the Duke of Burgundy Fritillary, *M. lucína;* the Common Blue Butterfly, *Polyómmatus alexis;* the Queen of Spain Butterfly, *Argynnis lathónia;* the Goat Moth, *Cóssus lignipérda,*—see page 30 of the Register;* the White or Ghost Moth, *Hepíalus húmuli;* the Cinnabar Moth, *Callimórpha jacobæ'æ;* the Puss Moth, *Cerúra vinula,*—the caterpillars of this moth are found on the Willow, Poplar, &c., and from their singular form, the beauty of their colours, the oddness of their motions, and the variety of changes they undergo, are peculiarly interesting, and worth the trouble of collecting and breeding; the Yellow Hawthorn or Brimstone Moth, *Rúmia cratægàta;* and the Silver-ground Moth, *Cidária implicária.*

* Much curious information respecting this Moth will also be found in "Insect Architecture," and "Insect Transformations," which, together with "Insect Miscellanies," form an interesting treatise on Insects. They are cheap and useful works, which the Entomologist would do well to avail himself of.

The Four-spotted Dragonfly, *Libéllula quadrimaculàta*; the Short-bodied Dragonfly, *L. deprèssa*; the Copper Dragonfly, *L. æ'nea*; and the Little Dragonfly. *L. puélla*; the Ruby-tail Fly. *Chry'sis iguita*; the Scorpion Fly, *Ponórpa communis*; the Rose Beetle, *Cetònia aurèta*; the Cockchafer, *Melolóntha vulgàris*; the Burying Beetle, *Necróphorus sepùltor*, so remarkable for burying the carcases of small quadrupeds, &c.; the Bombardier Beetle, *Brachìnus crépitans*, (see Register, page 420;) the Smooth Dor Beetle, *Geotrùpes læ'vis*; the Two-spotted and the Tortoise-shell Lady-birds, *Coccinélla bipunctàta* and *díspar* may now be met with.

BIRDS.—The latest of the summer migratory birds arrive in this month, and the last of those of winter have left us. Those which arrived last month are now busied in the construction of their nests, or the care of their eggs or young. The nests of the Lesser White-throat may be found generally in the White Rose, (*Rosa arvensis*;) of the Winchat, in hollows excavated in the ground; and of the Sedge Warbler, in the willows, in the water, or in a bush on the bank, near to where the male sits singing his varied and imitative song night and day, ever watchful to apprize his mate of any approaching danger.

In some of those calm, mild, beautiful moonlight nights, which frequently occur in this month, the Cuckoo may be heard singing for hours after every other bird is still, (except the Nightingale, the Corncrake, and the Sedge Warbler,) and it frequently continues its simple song till morning.

The Corncrake, *Gallinùla Créx*, (Ortygómetra Créx.) is the earliest visitor of the month, generally arriving in the first week. The Night-jar, *Caprimùlgus europæ'us*, (Nyctichélidon europæ'us,) may be found in the twilight, on heaths and among fern, pursuing on the wing such beetles and other insects as frequent those places. The Lesser Butcher-bird, *Lànius collùrio*, makes its appearance this month, and generally for a few days after its arrival takes its station on the top of some high tree, where it sits repeating its hoarse call, which is something similar to that of the House Sparrow, but much harsher: by this, and its short and interrupted flight, it may easily be known. The Greater Pettychaps, or Fauvette, *Sylvia hortènsis*, and the Wood Wren, *Sylvia sylvicòla*, (Sylvia sibilàtrix,) arrive in the beginning of the month. The Spotted Fly-catcher, *Muscicàpa grisola*, and the Pied Flycatcher, *M. atricapilla*, which may in general be considered the last of the summer birds, arrive about the middle or latter end of the month

METEOROLOGY.

BAROMETER.—Mean Height 29,898. Highest 30,380. Lowest 29,160 inches.
THERMOMETER.—Mean Temperature 54 degrees. Highest 79. Lowest 33 degrees.
RAIN.—Mean quantity 1,853 inches.
EVAPORATION.—Mean quantity 3,286 inches.

Duffield-Bank, April, 1832. O. JEWITT.

V.—MONTHLY HORTICULTURAL CALENDAR,

FOR MAY.

THE exceeding fine weather we experienced early in April seemed to indicate that a very forward spring might be expected; this, however, was followed with some cold north-east winds, which have been of immense advantage in retarding the progress of vegetation, and preventing the blossoms from expanding and falling a ready sacrifice to the frosts that may still be expected. At present the trees give flattering promise of a plentiful fruit year. Wall trees will still require protection. Sowing and planting for successional crops are necessary to a considerable extent. Insects must be narrowly looked after and destroyed. Towards the end of the month, Peaches and Nectarine trees will require their fore-right shoots rubbing off, and the side ones properly thinning. Grapes in the stoves, or vineries, will want thinning out, and the young wood of the Vines tying in, and stopping. Ridges for Cucumbers should be made. Annuals of several sorts should be transplanted; and cuttings of many green-house plants put in. Look well to the Cucumber and Melon frames; and give green-house plants air, night and day when the weather is fine, which will much prolong the flowering season.

FRUIT DEPARTMENT.

Protect Wall Trees in blossom.—See Calendar for March.

Apricot Trees will now require examining, and the Caterpillars secreted in the buds, destroying. See Calendar for April.

Peach Trees in houses, started in December, will now be swelling up. Keep the heat from 70 to 75 by day, and 65 to 70 by night. Steam the houses regularly, and syringe the trees occasionally, until the fruit begins to ripen, when it must be discontinued. In the succession houses, use the precautions recommended in pages 287, 336, 383, and 431.

Cherry Houses. The fruit on those trees started in January, will now be stoning. Be very careful that the thermometer range no higher than 60 deg. by day, and 55 by night, until this critical period is over, when the heat may be raised to 70 by day, and 65 by night. Give abundance of air, and syringe the trees until the fruit begins to ripen, when it must be discontinued.

Vineries.—See Calendar for March, and April. For Vines in pots, see pages 6, 185, and 490. On the rafters, or in frames, &c., pages 193, 309, 337 to 347, and 399. And for blotched berries, page 280.

Fig Trees, both in the houses and on the open walls, see pages 71, 366, and 385.

Pine Stoves.—See page 374.

FLOWER DEPARTMENT.

Dahlias.—For their management, see pages 145 to 147, and 494.

Mignonette and Ten-week Stocks, that have been sheltered in frames should now be fully exposed to the open air; and more seed sown

Auriculas, towards the end of the month, will require potting.—See page 56.

Polyanthuses will now require attention.—Page 448.

Ranunculus beds will now require a little shading.—See pages 196 to 199.

Carnations.—Page 192 to 202.

Tigridia pavonia. Seed sown the end of March, or beginning of April, will now have produced plants large enough for transplanting.—See page 400; and for treatment of the old bulb, pages 187 and 474.

Tulips.—See pages 104 to 106.

Hardy Annuals may still be sown, either when the seed sown before has failed, or when it has been altogether omitted.

Tender Annuals, sown last month, will now require transplanting into small pots in light soil.

Biennials should now be sown, to produce flowers next year.

China Rose. Cuttings may now be put in advantageously, which will form fine plants by the autumn.—See page 246.

French and English Roses. When it is desired they should flower late, treat them after the manner recommended in pages 15 and 330. For the general culture, see pages 245 to 252.

Erica cuttings may now be put in.—See pages 96 and 455.

VEGETABLE DEPARTMENT.

Peas and Beans. Sow once a fortnight for successional crops; also rod and earth up such as require it.

Dwarf Kidney Beans, as the Canterbury, Cream-coloured, Dun-coloured, &c. may now be sown on a warm border, in drills, two feet and a half apart.

Onions. Sow a few Silver Skinned, to draw young in summer, or for small bulbs to pickle.

Potatoes for winter use, should be planted early in the month, if not done before.—See page 408 and 441.

Carrots, for drawing young in summer, should be sown in the beginning; and towards the end, the main crop will require thinning to about six or eight inches apart; but when they are intended to be drawn in the summer, as they may be wanted for use, only thin them to about four or five inches.

Cauliflowers that have been sheltered under hand-glasses, will now have pretty far advanced. Let the glasses be entirely removed, and if the weather should be dry, give them a good supply of water or cow-wash, (see page 490.) Also sow some more seed towards the end of the month for Michaelmas and winter crops.

Broccoli. Plant out the early raised plants two feet apart, for heading in autumn, and sow a full crop early in the month, of Purple and White, for winter and spring use.

Leeks.—See page 440.

Savoy. Plant out the earliest raised Savoys about two feet apart, to form heads for autumn.

Celery. The first sowing will now be fit for planting in trenches, &c.—See pages 289, 291, and 433.

Cabbage. Plant out the spring-raised, for autumn use; also draw earth about the stems of the early ones; and sow more seed of the Van-Ack, Battersea, &c.

Radish. Sow some of the Short-Top, and Red and White Turnip Radish, about once a fortnight, for succession.

Lettuce. Sow the different kinds two or three times in the month, and plant early raised ones in rows a foot apart. Tie up the leaves of the Cos to blanch, for use.

Mustard and Cress. Sow once a week, out of doors, in a warm situation.

Turnips. Sow a plentiful crop of the Stone Top, &c. towards the middle of the month. Those before sown, will require hoeing and thinning.

Beets. The Red will require thinning to about ten or twelve inches from plant to plant, and the Green and White, to about six inches apart.

Asparagus. Old productive beds will now be in full bearing. When gathering, be careful to thrust the knife close down by each shoot, so as not to injure the young buds that are rising within the ground. Use for this purpose, a knife with a rough edge like a saw.

Endive. Sow a moderate quantity of the Green Curled about the 20th.

Spinach. Sow once a fortnight, for successional crops.

Sage, Savory, &c. may now be propagated by slips, and planted on a shady border.

Mint. New beds may still be planted.—See Calendar for March.

Vegetable-Marrow, Gourds, &c. may be planted out about the end of the month, under hand-glasses, either on a slight hot-bed ridge, or on a warm border; and a few seeds may also be sown in the open ground.

Cucumbers in frames, must be duly attended to, with air, water, bottom heat, &c. It is also now high time to prepare some ridges of hot dung, for growing them on under hand glasses, if not done before. These should either be made on level ground, about four feet wide, and two feet and a half high, or in trenches the same width, and three feet deep, Lay about eight inches in thickness of light mould on the bed, and place the hand-glasses three feet apart, upon it, and when the soil is warm, place three plants under each glass, and cover them well down at night with mats. Sow some seed by the middle of the month, in the open ground, to produce a crop for pickling, &c.

Melons, will require constant attention.—See page 164.

Parsley. Sow for late crops.

G. Jewitt, Printer, Duffield, near Derby.

THE

HORTICULTURAL REGISTER.

JUNE 1ST, 1832.

PART I.

ORIGINAL COMMUNICATIONS.

HORTICULTURE.

ARTICLE I.—ON TRAINING, &c. PEACHES AND NECTARINES,

BY J. HARRISON,

One of the Conductors of this Magazine.

WHERE a border has to be prepared for the kind of trees under consideration, the following method is what I would recommend:—

Nature has suggested to me, and observation and experience have annually confirmed me in the opinion I expressed many years since, that if fruit tree borders are made deep, the trees will scarcely ever prosper however excellent the compost in which they are planted may be. The influence of the sun, air, and rain upon the border to the depth which the roots penetrate, is essential to the success of the trees; and when the roots are encouraged beyond this depth, it is proportionately injurious.

The beneficial effects of heat, water, and air will be experienced to a greater or less depth in the border, according to the nature of the soil of which it is composed; for instance, a sandy or gravelly soil being of an open texture, will admit their influence to a greater depth than a stiff loamy soil can possibly do, but neither kind are the most suitable for the growth of peach and nectarine trees. When there is the advantage to be obtained, both extremes should be avoided; this may be effected by having a loamy soil of such a nature, that when a handful is taken up it adheres firmly together, but upon being allowed to fall to the ground will easily disperse.

Such a soil, whatever its colour may be, is a desirable one for this class of trees.

It may not be amiss to remark in this place, that the darker the colour of the soil, if it possesses the before-mentioned property, the more powerful will the influence of the sun operate upon it.

That particular attention is required in selecting a soil of the above nature will appear evident from the following circumstances :—

Trees planted in a very gravelly or sandy soil uniformly produce weakly shoots, such shoots may be well supplied with blossom buds when every other advantage is afforded the trees in management, but the blossoms are usually single ones, (that is, not twin blooms,) and it will be found that the far greater portion of the shoots will be destitute of any growing bud excepting the terminal one; from this circumstance, such shoots cannot be shortened at winter pruning, because if no growing bud be upon the shoot, the fruit consequently drops off. When the shoots are long, and of necessity allowed year after year to proceed onwards, the trees will soon become naked, and run out. On the other hand, when the soil is a very strong bodied one, the trees will produce gross long jointed shoots, but which will seldom ripen well; and if even blooming buds are at all produced, it will often be found that they are imperfect, wanting the parts of fructification.

The depth of a fruit tree border, composed of a soil as recommended, should not exceed twenty inches; and a substratum of broken stones, gravel, or similar materials, should be spread over the whole to the depth of six inches. This prevents an accumulation of water in very wet seasons, but yet it is not so open as to prevent a retention of a sufficient degree of moisture for the necessary purposes of the trees.

The substratum of the border should be formed so as to slope from the wall, and parallel to it along the front of the border, an open drain should be constructed to take away any superfluities.

It is desirable in selecting compost for the border to obtain turf soil, not digging deeper than six or eight inches. This, when procured and well chopped to pieces, and having about one-sixth of well rotted manure mixed with it, will be found to realize every desirable advantage; and when the trees are treated as hereafter described, they will be found equally distant from either luxuriance or weakness. The compost should be mixed and chopped together for six months previous to planting, so as to give plenty of time for it to properly settle.

My experience has taught me, that a border should, for a twelve

feet wall, be twelve feet wide, and the trees planted at twenty-four feet apart. Being thus placed, they will not fail to fill up the wall completely. Where the wall is lower, of course the trees should be planted proportionately more distant, or the width of the border should be lessened in the same ratio. This will be found expedient, in order to allow a corresponding space for the trees to extend, equal to the supply of nutriment they received, which of course will be exhibited by their growth and extension. When this due arrangement is not attended to, very unnatural measures have frequently to be adopted, which eventually produce disease and decay. A border prepared as directed, and the trees properly treated, there will be no liability to injury. If at any subsequent period there should be indications of weakness in the trees, a supply of nutriment may be readily given, by manuring the surface of the border.

This surface, when completed, should slope a little from the wall, eight to ten inches in the width of the border will be sufficient. This will prevent danger from any over supply of water admitted at the surface. The time of planting may often have to be regulated by circumstances, but not later than the end of February is best, as the buds will then not be much excited.

Whether the trees to be planted are maiden plants (that is, one year old from the budding,) or trained ones, by no means plant them deep; I advice not to cover the roots more than three or four inches. Also place them rather higher than the other part of the border, so as to raise a little mound of soil.

Finish with a *clear cut* any roots broken or damaged in taking up the trees, otherwise such jagged wounds will be liable to cause a production of suckers, which are always injurious.

In planting, spread *fine soil* over the fibrous roots, and when the whole is filled in, give a suitable quantity of water to settle the soil properly about the fibres. This is very essential to a successful planting of the trees. A few inches deep of mulchy manure should then be spread over the roots, this prevents injury from either frost or drought, and is a practice I attend to every winter with this class of trees at every subsequent stage of their growth.

Various have been the modes of training in practice, and to this part of the management my attention has been much directed. I am fully satisfied that to have them appear handsome, and uniformly furnished with fruit-bearing wood, also to retain it in every part of a tree, no method is equal to the old fan system. About six years since I had the mode practised by Mr. Seymour, of Carlton-Hall, near Snaith, very strongly recommended to me. I did myself the

pleasure of visiting Mr. Seymour, and saw the system in practice. Since that time I have seen it in operation annually in my own neighbourhood; and the result of my observation, in connection with the practical experience of my friends, have produced in my mind several objections to it.

The plan in use by Mr. Seymour is to train an exact centre stem, as fig. 91, and from that, side branches, slightly rising upwards, as *a a*

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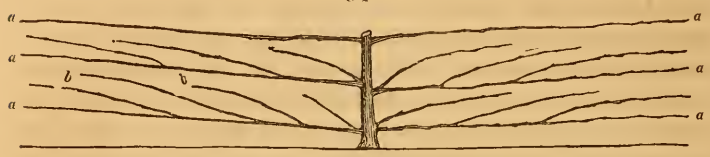

The fruit bearing shoots are retained at the upper side of the branches, at the distance of nine to twelve inches from each other, as *b b* &c. The origin of each successive shoot from the same source is each year farther from its mother branch, and not only does this become naked, but the primary part of the shoot forms a rugged protuberance similar to the spur of a pear tree, as in fig. 92, *a a*, and each successive year it becomes lengthened, as the origin of a suitable new shoot from last year's wood is produced more distant from the mother branch. If a shoot does push upon the protuberance, and thus be nearer the mother branch, it is uniformly much weaker than arising from last year's wood.

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The appearance is a very unnatural one for this class of trees, and is a great deformity. When a shoot, *b b* dies from casualties, a substitute cannot readily be obtained; in some cases it is impossible. I have seen three or four such shoots perish successively on the same branch, and thus there was a yard or two of branch without a single lateral shoot upon it; instances of this kind are not solitary. Amongst the trees that have come under my observation, my friend, who has the management of them, has informed me that the system is more suited for peach than nectarine trees; but he prefers the old fan system, and has now given up this other method after several years' trial. The plan answers better under Mr. Seymour's management than I have seen elsewhere.

In the old fan method nothing unsightly of the kind described in fig. 92, *a a* occurs, nor is there danger of nakedness from the want of supply of young bearing shoots. In fact, there is every desirable requisite in uniformity and fruitfulness, when the trees are properly treated; but without the defects pointed out in the other mode of training.

When a newly planted tree grows weakly the branches are trained more erect, until it is of a desirable strength; if on the contrary, too vigorous, the branches are depressed. If the border be properly prepared the trees will seldom be too vigorous, this class of trees generally requires encouragement by training the branches rising upwards than any depressed mode of training. In both cases, care is taken in the spring and summer regulation of the trees, not to retain more shoots upon them than is required for their proper formation, keeping a supply as near the origin of the branches as possible.

Trees brought to a bearing condition are treated in the following manner:—

Spring and Summer Regulation. As soon as the young shoots have grown to about an inch long, all are taken off where there is no fruit at their bases, excepting the lowest upon the bearing branch, which, under any circumstances, are retained. If there is no fruit upon the branch, no other shoot is allowed to remain but the lower one. Where there is fruit upon the branch, the shoots at those places are left untouched. When a tree has not filled its allotted space, the end shoot upon each branch is retained in addition to those already stated.

As soon as this hand dressing is completed, each tree is washed with water or soap suds, the latter is preferable, and then well dusted over with common sulphur; this prevents any attack from the red spider during summer, and generally preserves the trees from mildew.

When the shoots are six inches long, they are all cut in to about an inch long, excepting the lowest one upon the branch, and those at the extremities of the tree. If the quantity of fruit upon the tree greatly exceeds what will finally be wanted to perfect; at this regulation a portion is taken away and each young shoot attached to them, so as to retain only about double the quantity which will finally remain.

When the fruit is stoned, the final thinning is performed, leaving a fruit about every eight inches, cutting in all shoots arising from the same source in the branch excepting the lowest, and any at the extremities of the tree requiring to be left from being very vigorous at this period of the season. All shoots that have pushed again

since the last shortening are cut in to a bud from where they were last shortened; this will rarely require to be repeated after the stoning of the fruit is perfected. The lowest shoot on the branch is still allowed to grow unmolested. Whatever shoots remain they are to be secured to the wall as soon as required, in order to have them properly inclined for future furnishing the tree. When a tree is not very vigorous, about the middle of September the shoots, which were permitted to go at length at the last regulation, are now shortened back to about where it is intended to prune to at the winter regulation. This cutting in of the shoots will not cause any confusion by the production of young sprays, very few being rarely produced after this advanced period of the season, unless the tree be very luxuriant, in which case I should omit the cutting in, as it would, if performed, cause the production of a quantity of weak spray, which would crowd and otherwise injure the tree. This evil would also result from cutting in the shoots of a tree of desirable vigour, if done much earlier in summer.

At the end of September the leaves are cut, taking away about one-half of each leaf; this admits the light and heat to the shoots, and contributes to the perfecting of fruitful buds. Where there are flued walls they may be used to advantage, in cloudy wet summers, by applying heat for a few weeks at the end of September or in October.

The system of cutting in the young shoots during summer, that are to bear fruit the following year, has been practised upon moderate growing trees for more than thirty-five years by my father, and was first described to the public in his Treatise on Fruit-trees in 1823. Since that time, I have applied it to all the trees of this class, at this place, with perfect success; and I am aware that it has been adopted by a great many persons in Yorkshire with equal success. It not only ensures us a certainty of bearing wood for each following year, but it greatly assists the fruit in bringing it to a much finer size than otherwise would be the result.

Winter Regulation. The attention given to the trees during spring and summer, according to the foregoing directions, renders it quite unnecessary for any extensive cutting the trees at this season. This is of decided advantage to the trees, for all severe cutting of them in winter is very injurious, and the more extensive the performance the greater the proportionate derangement of the tree in its system is the consequence.

It has been my uniform practice so to regulate and prune the trees under my care during their growing seasons, that very little has to

be done afterwards with full grown trees, except cutting away that part of each shoot which produced fruit last season, and shortening it back to the origin of the shoot that is to bear fruit the coming year, as fig. 93, *a a*.

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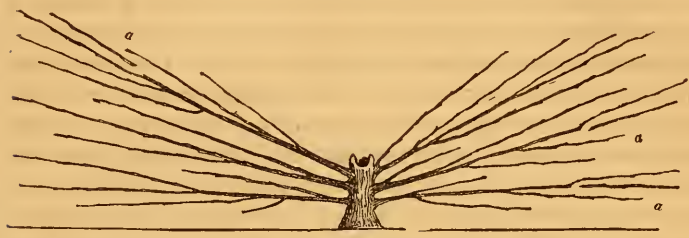

When pruning is required upon shoots that have not been cut in during summer, shorten each shoot one-half its length. Such of those that were shortend in summer and pushed a small shoot or two at the end, the end is cut off below where the shoots have pushed, taking care to have a growing bud, "or in the absence of one below," to leave one of the small shoots.

All small natural spurs are allowed to remain.

It is of advantage to wash the trees during winter with soap suds, and to sprinkle them over with common sulphur.

The borders in which the trees are planted should never be cropped with any thing that roots more than four inches deep, and on no account dug deeper. If healthy trees is the primary object, nothing should be grown within several feet of them, and all encouragement should be given to keep the fibrous roots as near the surface as possible. When a tree becomes weak, manure may be dug in at the surface so deep as just to cover it from the drying air. It is my practice to give trees in full bearing a little well rotted manure every November. The best mode of protecting the bloom from frost is netting; which can be procured at a very low rate of Mr. Huhne, Knutsford, Cheshire. [See adv. in the cover of this Magazine.]

When it is apprehended that the bloom has sustained injury from frost, wash the trees over with cold water early in the morning before sun-rise: if they are in full bloom, that is, the season of impregnation, the watering must then be dispensed with.

The present article is solely for the management of peach and nectarine trees cultivated in the open air. A subsequent article shall be given on their management when forced.

J. Harrison.

ARTICLE II.

ON THE CULTURE OF VINES IN POTS,

BY MR. I. SMITH, SNELSON GARDENS, NEAR ASHBOURNE.

HAVING been solicited to make a remark or two upon the culture of Vines in Pots, as a fellow-labourer in the vineyard, if I can be of any service by casting my mite into the treasury, I will do it with pleasure. What I have to state is not to contradict what has already been observed by your senior correspondents, but merely to corroborate their testimony. Those who have seen crops of grapes produced from small plants in small pots, will not, I am sure, easily forget it. I have some growing in pots under my care here, which have all the luxuriancy of old established Vines on the rafters, and although they are not yet two years old, they have, at this time, from fourteen to twenty bunches on each of them, which promise to be good and well swelled, the sorts are Black Esperion, Black Muscadine, Black Ellison, Black Burgundy, Verdelhoo, White Sweet Water, Parsley Leaved. The plants were raised by Mr. Stafford, Gardener at Willersley Castle, near Cromford, whose superior success as a grape grower is generally acknowledged by most practical gardeners. They were sent here when under a year old, February, 1831. This might be considered young, but it cannot be too strongly recommended for all forcing departments to plant none besides young Vines. As regards treatment, I dont know that mine differs materially from others, my pretensions rest upon the success with which I have met—the plants were removed into pots eleven inches diameter, and twelve inches deep, filled with a compost of equal parts of leaf soil, fresh soil, *(top spit from the pasture,)* manure from an old hotbed, and river sand, all well mixed and run through a course sieve, the plants, of course, were headed down to two eyes, or buds, and placed on the curbstone of the back bed in the vinery and pine stove, with a saucer or feeder under each; the best of the two shoots was reserved and trained to a stake five feet high, then stopped, and likewise the side shoots through the summer. They were watered about every other day with soft aired water, allowing plenty of air every sunny day. They were kept in the house until the wood became ripe, then set out in the open air, in a sheltered situation, until wanted for forcing; they were brought in again for that purpose in January, 1832, previously pruning them down to four feet. Part of them are in a succession pine pit, and trained under the rafters over the pine plants, similar to those shewn in page 7.

It is intended to replace them with others as soon as the present crops are off, which will be about July, the other part are as dwarf standards in a vinery; care must be taken that they are not kept too hot at starting, for on this in a great measure depends the breaking or swelling of the buds. Some of my plants are what may be termed short jointed, having from fourteen to twenty buds in the length of four feet, each bud shewing from one to three bunches; nothing more is requisite during their growth than stoping (first allowing the bunches to appear) and regular attendance with air and water; liquid manure is occasionally given after the berries are set, but not many times during the season, if too much be given it has a tendency to intoxicate them; the saucer must always be dry before more water is given; the water should be poured upon the soil, so that it may filter through, this system may appear somewhat troublesome, but the labour will be scarcely perceptible as it all goes in the regular routine of business, and rather than make it a toil, I should call it a pleasure.

I. SMITH.

Snelson Gardens, March 26th, 1832.

P. S. Where there is the convenience of a very small hothouse, one or two crops of grapes may annually be grown, the pots and plants together taking up but very little room; six or seven plants will stand in a length not exceeding 12 feet, and might, without interfering with other plants, stand entire upon a shelf placed at the back part of the house, leaving sufficient height between the shelf and glass.

ARTICLE III.

ON LIQUID MANURE.—By Mr. STAFFORD.

PERHAPS more gardeners leave their situations through contention with their employers or their farming-bailiffs respecting manure, than from all other causes put together; what I intend here to introduce, being the result of my own personal experience, I hope, in some measure, to extricate the gardener from a part of this difficulty. This I shall do by endeavouring to show that, by using liquid manure, the cultivator obtains his object with more ease, and at the same time applies the very food of plants in a prepared state, and all

this without interfering with the manure in substance. We have the concurring testimony of thousands of eminent men, connected with as many practical experiments, that no plant can take in its food except in a fluid state, and the more this fluid is impregnated with animal or vegetable matter, the more it will act as a stimulant on the plant absorbing it. It has long been a maxim with Horticulturists to apply this liquid to the roots of such plants as they wished to excel, but the effects produced on these individual plants have never yet acted as an inducement to bring the practice into general use.

The accommodating price of your work has, to my knowledge, been the means of placing it in the hands of many respectable farmers; I shall therefore trespass a little more than I otherwise should attempt: and first, I intend to introduce a few experiments of my own. Having an abundance of peat earth at command, I subjected about seventy cart loads to a saturation in this liquid for twelve months, at the expiration of which time, an eminent farmer, who perhaps had paid more attention to the subject than I had, offered me £20. for it. My second experiment chiefly had its origin in this understanding that my predecessor who had served the family many years, had left on account of a dispute about manure; I at once put down a pump, which supplied me with liquid manure for a dung yard, in which not less than thirty head of cattle were kept; I set it down as a standing rule, that this was always to be attended to in autumn and winter months. This had not been practised more than twelve months before I found myself independent, with respect to manure, although I had four acres of garden ground.

I would not advise its application in the summer, except to the Brassica family; winter is, without exception, the best time to apply it to advantage; and although it has been doubted whether its fertilizing properties are not carried off by heavy rains, I am confident that this is not the case; upon the principle of filtration we may rest on this point. I have often been sorry to see farmers' teams driving up and down the country for lime to apply to old tilled land, and at the same time this liquid manure was running to waste, and was called a nuisance.

This subject equally affects every cultivator from the prince to the pauper, for almost as much may be accomplished by this liquid as by the substance. Supposing the gardener or bailiff was to take a store ox (which will be all the better for it afterwards) and draws this liquid either to the garden or farm, the expense of it would be comparatively nothing, and the results would be found exceedingly

beneficial; I feel a pride in stating that, in more than one instance, I have been the means of establishing this practice on an extensive scale.

If we apply the best manure to grass land in dry weather, the herbage appears to derive no benefit from it; but as soon as rain falls, the water acts as a vehicle to convey the fertilizing qualities to the roots, and in twenty-four hours perceptible improvement may be observed. That plants will take liquids into their systems highly impregnated and coloured with both animal and vegetable matter is a fact well authenticated, it having been detected both in the stems, leaves, and fruits; and as this liquid is produced from a mass of dung which has undergone the three first processes of fermentation, it is perhaps in quality more congenial to plants than any article procured by artificial means. If, in a chemical point of view, it is compared with the constituent parts of plants, the result will be so analogous, that the conclusion cannot be otherwise than that this very material is the food of plants, and all manure must be reduced into a soluble state before the roots of plants can take it in.

As a proof of the benefit of liquid manure, I will introduce another experiment; I took in the month of March about twenty cauliflower plants, cleaned their roots, and weighed them separately to adjust their size. I collected as many kinds of compost, from the very best earth, to the most sterile gravel sand, &c. and by a proper selection of equal sized and shaped pots, they were all placed under similar circumstances, excepting the roots; I applied the liquid food to those in the most barren soil, which enabled them to make as good progress, and become as fine plants as those in the most fertile earth, that had been well manured and otherwise suitably prepared.

It will be of great advantage to all sorts of herbaceous plants if their roots be well saturated with it in the month of March; and it possesses these advantages over every other manure, namely, it penetrates immediately to every extremity of the roots of plants in a prepared state; and the seeds of weeds, so very abundant in dung, are by this process not so liable to be sown. Those who wish to consider the matter in a chemical point of view, will find much light thrown on the subject, by a reference to that excellent paper by the Author of the *Domestic Gardener's Manual*, inserted in p. 242 and 243 of your *Register*.

I would recommend a pump to be put down for the purpose, because it draws the liquid at the lowest level, and of course supplies us with the most concentrated parts; the working barrel should be composed of nothing more than four scantlings of wood, metal does

not answer on account of the friction. The carriage for conveying the liquid to any part of the garden need only be a skeleton barrow, with a cask holding about thirty-five gallons placed upon it: an old wine-pipe is a good thing for the purpose, where it can be drawn by an ox.

GEO. STAFFORD.

Willersley, Feb. 6, 1832.

(To be continued.)

ARTICLE IV.

REMARKS ON CUTTING THE LEAVES OF PEACHES AND NECTARINES IN THE AUTUMN.

BY THE AUTHOR OF THE 'DOMESTIC GARDENER'S MANUAL.

IT appears to me that the observations of NOCTURA IN THE DESERT, (page 475, No. 10.) are interesting, and call for early notice. I am not surprised at the nature of his remarks and enquiries, for, at the first view of the directions which he refers to, he could scarcely fail to discover apparent contradiction.

I recollect that, when I first perused the able *Treatise on Fruit Trees*, by Mr. Charles Harrison, I was perplexed and staggered by the earnest advice therein given, to remove a portion of the leaves of peach-trees in autumn. I could not conceive how an author could direct the amputation of those organs which he himself had pointed out as vitally essential to the well-being of the tree.

To render horticultural directions entirely useful to the reader, writers, could they spare the time, ought to furnish the rational of every process which they direct to be performed; they ought also to enter into a philosophical view of the vegetable structure, and of the effects likely to be produced by every given operation; but to do this ably, would require a great deal of thought and trouble. The *leaves* are unquestionably the vital organs of the plants, those upon, and in which the Solar light exerts its primary energy; causing the elaboration of the sap, the transpiration of its redundant aqueous particles, the production of the returning proper juice, and the deposition of the several colouring matters: their structure, as I hope ere long to show, is most peculiar and interesting; and in every way prepared to effect important changes in the vegetable juices.

When therefore we remove a sound, healthy leaf, we deprive the plant of one of those organs by which its vital functions are maintained.

In respect, therefore, to the first observation noticed by NOCTURA, "that trees receive great advantage if planted with their leaves on," it is true to the letter, that if a young tree be removed in September, when the leaves retain their verdure, *fresh fibrous roots will be emitted;* and as I have lately seen, these leaves may even remain firm and green beyond their usual period. But these appearances are deceptive, in as much as regards the future growth of the young tree; for, the energy of the plant is exerted in causing the *protrusion of fresh fibres,* instead of causing the *deposition* of the proper juices in and among the vascular cells of the inner bark *(Liber),* and the sap-wood, *(Alburnum.)* Now, Mr. Knight has proved that a portion of the true sap is conveyed through the channels of the convergent processes (formerly termed the *medullary rays*) into the alburnum; and the deposition thus produced is doubtless one of the chief requisites for effecting the perfect ripening of the wood. If then the reservoir of prepared fluids be expended in the protrusion of roots instead of being hoarded up during the torpid season, the future spring growth must be materially injured.

Trees therefore ought, perhaps, to remain undisturbed until the leaves have fallen; after which period, I doubt much *whether a single fibrous root is ever produced* till the early spring influences begin to prevail.

The agency of the leaves *in ripening the fruit* is another consideration. During the blossoming season, and until the fruit has acquired its full immature growth, the leaves are essential to its progress; but when nothing remains to be effected but the process of *maturation,* the agency of *light* is perhaps of paramount importance. There is a curious and most interesting paper on this subject in the forty-sixth number of the *Annales de Chimie et de Phisique,* February, 1831, by M. Couverchel. It was read before the Académie des Sciences of Paris on the 10th of May, 1830, and contains the detail of a vast variety of interesting experiments; from the general results of which, the writer arrives at the conclusion, that, the *process of maturation* may be, and is, *perfectly effected* after the fruit is detached from the tree. I venture to transcribe a passage from the original *Memoire,* as it is found in page 187.

"La maturation des fruits à péricarpes charnus, s'opere par la reaction des principes qui entrent dans leur composition. Il est à présumer, comme nous l'avons dit, que la sève s'acidéfie dans son

passage des jeunes branches à l'ovaire, par suite, de la décomposition de l'eau, et de la fixation de l'oxigene. Des acides sont de conséquence formés, favorisés par l'action de la chaleur; ils reagissent sur la gélatine, et la transforment en malière, sucree.

"On doit distinguer deux époques dans l'existence du fruit: la première qui comprend son développement et la formation des principes qui entrent dans sa composition. Dans cette première pêriode. Il y a influence dircete et nécessaire de la plante sur le fruit; son action sur l'air atmosphérique, comme la très-bien observe M. de Saussure est la même que celle q'exercent les feuilles; sa composition présente d'ailleurs avec celles-ci une grand e analogie. La second comprend la maturation, proprement dite; elle s'effectue par la réaction des principes, réaction que favorise la challeur. Dans celle-ci les phénomènes sont complèment independans de la végétation; le fruit éprouve, par suite de sa composition, de la part de la chaleur et de l'air (ce dernier considéré seulement comme milieu,) une action qui lui fait parcourir les differens dégrés de la maturation. Cétte action est purement chimique, et la preuve, c'est que la plupart des fruits mûrissent détachés de l'arbre."

For the satisfaction of those of your subscribers who do not read French, I add the following familiar translation:—

"The maturation of fruits with fleshy pericarps (that is, seed-vessels, such as those of the apple, pear, apricot, &c.) is effected by the re-action of the elementary principles, which enter into their composition. It may be presumed, (as we have said) that the sap becomes acidified in its passage from the young branches to the ovary, in consequence of the decomposition of water, and the fixation of the oxygen. Acids consequently are formed, the formation of which is promoted by the action of *heat*. These (acids) re-act upon the gelatine, (of the pulp) and convert it into sacharine matter.

"It is needful to distinguish two periods in the existence of the fruit. The first, that which comprises its development, and the formation of the elementary principles *(principes)* which enter into its composition. In this first period, there is a direct and necessary influence exerted *by the plant* upon the fruit. Its action (that of the fruit) upon atmospheric air, as M. de Saussure justly remarked, is the same as that exerted by the *leaves;* between which (that is to say, between the *fruit* and the *leaves,)* there exists a close analogy. The second period comprises the *maturation* of the fruit, properly so called; this is effected by the re-action of its constituent elements *(principes)*: this re-action is assisted by *heat*. Herein, the several

phenomena are completely *independent* of *vegetation*; (that is, of the principle of growth.) "The fruit, as a necessary result of its composition, is acted upon by heat, and of atmospheric air, (the latter however, considered solely as a mean or medium,) in a way which forces it through the several stages of maturation. *This action is entirely chemical;* and that which proves its reality is the fact that, the *greater number of fruits ripen* after they are detached from the trees."

This ripening after separation from the plants is familiarly known to most orchardists and fruit growers. I may mention the melon as a particular instance: this fruit will become perfectly ripe, if cut long before it affords the slightest odour. Last autumn I had the misfortune to destroy two or three fine melon plants, by the introduction of the rank ammoniacal vapour of fermenting hot dung, placed incautiously too near them. Several melons were then in a state of growth; that of course was arrested, because the plants perished, and shrivelled to the very roots; but the melons still went on to maturity. With one of them however, in particular, a very small fruit, I resolved to try an experiment, in order to ascertain to what extent the maturing process might be carried, although the mother plant had been dead for weeks. I found that the pulp had acquired its proper colour, and possessed its distinctive aroma to a certain extent. This was not all; for as the seeds were sound and plump, I thought it possible that they might vegetate; and therefore sowed them all in a shallow box, and placed them on the melonry. This was about the middle of September, and in ten days almost all the young plants were up. They grew freely till the damps and chill of autumn destroyed them. I apprehend, that this spontaneous maturing process is effected by that power which M. Dutrochet styles *Endosmosis;* and that in the instance of fruits, it is excited by electric agency, operating, through the stimulus of light, upon the membraneous covering or *Epidumis* in the first instance; and secondarily, between the fluids contained in the cellular pulp, but separated by the membraneous tissue of the cells. The effects produced, correspond perhaps closely with, and follow in the order of, those described by M. Converchel.

After what has been said, it may, I think, be inferred that, if the *ripening of the wood* be the chief object of the gardener, he should by all means abstain from cutting it, or mutilating a single leaf of those branches that he intends to retain as bearers; and therefore, if light and air are essentially required to effect the due ripening of the shoots, they should be admitted by the timely removal of all

others that are supernumerary and ill placed. But if, on the contrary, the maturation of the pending *crop of fruit* be the main desideratum, the gardener should take off every leaf that shall happen to shade a full-grown fruit, by which means the maturing process may be considerably promoted and accelerated.

April 6, 1832.

G. I. T.

FLORICULTURE.

ARTICLE V.—OBSERVATIONS ON THE TIME OF THE INTRODUCTION OF THE ORANGE TREE INTO ENGLAND, AND THE PLANTING IT IN THE OPEN GROUND.—By J. T.

Gentlemen,

It is not quite certain at what time the orange tree was first cultivated in England, the *Hortus Kewenses* places it before 1629; but there is a general tradition that it was introduced during the reign of Elizabeth, which would place it at least before 1603, the year in which she died. Among the earliest, if not the very earliest orange trees cultivated in this country were those planted by Sir Francis Carew, at his seat at Beddington, in Surrey; of which Lyson gives the following account:—

"When Sir Francis Carew became possessed of the inheritance of his ancestors, which had been forfeited by his father's attainder, he rebuilt the mansion-house in a very magnificent manner, and laid out the gardens, which he planted with choice fruit trees; in the cultivation of which he took great delight, and spared no expense in procuring them from foreign countries. The first orange trees seen in England are said to have been planted by him. Aubrey says they were brought from Italy by Sir Francis Carew; but the Editor of the Biographia, speaking from tradition preserved in the family, tells us, they were raised from seeds of the first oranges which were imported into England by Sir Walter Raleigh, who married his niece, the daughter of Sir Nicholas Throkmorton: the trees were planted in the open ground, and were preserved in the winter by a moveable shed; they flourished for about a century and a half, being destroyed by the hard frost of 1739—40."*

The account given of these same trees in the celebrated Peter

* Lyson's Environs of London, vol. i. page 56.

Collinson's MSS notes in his copy of Miller's *Gardener's Dictionary*, which were published by A. B. Lambert, Esq. in the Linnean Society Transactions, vol. x. there is some difference, and I think, some errors corrected in the foregoing account of Lyson's. Mr. Collinson's note is as follows:—

"From my nephew, Thomas Collinson's Journal of his Travels, 1754. In the reign of Queen Elizabeth, anno —— the first orange and lemon trees were introduced into England by two curious gentlemen, one of them Sir Nicholas Carew, at Beddington, near Croydon, Surrey, these orange trees were planted in the natural ground. Against winter an artificial covering was raised for their protection. I have seen them some years ago in great perfection. But this apparatus going to decay, without due consideration a green-house of brick-work was built all round them, and left on the top uncovered in the summer. I visited them a year or two after in their new habitation, and to my great concern, found some dying, and all declining; for although there were windows on the south side, they did not thrive in their confinement; but being kept damp with the rains, and wanting a free, airy, full sun all the growing months of summer, they languished, and at last died.

"A better fate has hitherto attended the other fine parcel of orange trees, &c. brought over at the same time by Sir Robert Mansell, at Margam, (late Lord Mansell's, now Mr. Talbots',) called Kingsey-castle, in the road from Cowbridge to Swansea, in South Wales. My nephew counted eighty trees of citron, limes, burgamots, seville and china orange trees, planted in great cases all ranged in a row before the green-house; this is the finest sight of its kind in England. He had the curiosity to measure some of them: a china orange tree measured in the extent of its branches fourteen feet; a seville orange tree was fourteen feet high, the case included, and the stem twenty-one inches round: a china orange tree twenty-two inches and a half in girth.

"July 11th, 1777. I visited the orangery at Margam in the year 1766, in company with Mr. Lewis Thomas, of Eglwys Nynngt, in that neighbourhood, a very sensible and attentive man, who told me that the orange trees, &c. were intended as a present from the king of Spain to the king of Denmark; and that the vessel in which they were shipped being taken in the channel, the trees were made a present of to Sir R. Mansell."*

* It is not improbable that the vessel mentioned might have been taken by Sir Walter Raleigh, who was so much employed against the Spaniards in Queen Elizabeth's reign; and the orange trees divided between the Carew and Mansell's families.

I have made the foregoing extracts not merely in reference to the date of the first introduction of orange trees into this country, and the length of time which they lived—both subjects in themselves of interest, but more to bring before your readers the mode of cultivating them in the open ground as ornamental trees, as practised by Sir F. Carew; which appears to me might, on many occasions, be adopted with much advantage, and those beautiful trees introduced into pleasure grounds with ease and little expense; moveable cases might be formed to cover them of cheap materials which would preserve them during the winter. The orange tree, like many other evergreens, requires, I think, very little either of light or air during the depth of winter; in confirmation of this remark, I would observe, that the finest orange trees I have ever met with have been those kept during the winter in the old kinds of Green-houses, with no light at top, and only windows in the front. Miller, in his Dictionary makes the following observation: "Of late years, there have been many orange trees planted against walls, and frames of glass made to fix over them in winter; and *some curious persons have planted them in the full ground, and erected moveable covers* to put over them in winter, which are so contrived as to be all taken away in summer. When these have been well executed, the trees have made great progress in their growth, and produced a much larger quantity of fruit, which have ripened so much as to be extremely good for eating." Miller goes on to recommend planting of orange trees against hot walls, for the sake of their fruit; but as his book is of such easy access, and my present purpose only being to call public attention to the planting of them in the open ground as ornamental trees, I shall not take up more of your useful pages by a long extract.

The improvement of horticulture has, of late years, been rapid and great, far beyond that of any former period; but it is always desirable, when we are advancing quickly, sometimes to look back to observe, lest we leave behind neglected objects of real value: it is for this reason that I have ventured to call the attention of your readers to the early practice in the culture of the orange tree.

I was some years ago told of two very fine orange trees growing in the open ground in South Wales; but the name of the place has escaped my memory. If any of your readers should know of any instance in which they have succeeded, it would, I think, be generally interesting if communicated.

I am your obedient servant,

J. T.

ARTICLE VI.

ON THE CULTURE OF THE SALVIA SPLENDENS.

BY G. A. L.

THE observations of your correspondent SAGE, p. 437, on the cultivation of the Salvia Splendens, may be useful to individuals possessing large hot-houses; but can be of no service to those who, having only the convenience of a green-house or conservatory, are yet desirous of growing and flowering this fine plant. I will therefore subjoin a few directions, by which the wishes of this last class of persons may be easily and readily accomplished.

Your correspondent recommends plants from four to eight feet high; and to obtain this object, he strikes his plants in the middle of March, and throughout the summer keeps them in the heat of the hot-house. Now it strikes me, that the neglect into which this Salvia has of late fallen, is attributable to the size which the plants attain when propagated so early in the year, and afterwards heated in the way advised by SAGE. For, if the cultivator is desirous to prevent them from becoming so large, and therefore confines them at the roots, they grow tall, straggling, and unsightly, and moreover will seldom flower. To avoid the inconvenience of large plants, and to obtain handsome flowering ones, put in the cuttings about the third week in August, place them in a gentle hot-bed or in the green-house, (they do not require to be covered with hand or bell glasses) and after they have struck root, which will be in about a fortnight; pot them off into forty-eight sized pots, using any rich light soil; afterwards keep them in the green-house, and when about six inches high, nip off their tops, they will soon shoot out again, and will come into flower in October, at which time they will be about two feet high, and will continue in full bloom till December. The S. Splendens cannot be preserved through the winter in the temperature of the green-house; therefore, after the plants have done flowering, throw them away, unless you have the means of saving two or three to serve for stocks next season; otherwise you must depend for cuttings on your more fortunately situated friends.

To SAGE, individually, I would say, that he may grow large plants of the S. Splendens with much less trouble, by the following plan, than by the one he at present practices. Let him strike his cuttings in March, pot them off, place them in the green-house, harden them

to the air by degrees, and when all danger from frost has passed, plant them in the open ground. As soon as the flower buds appear, the plants must be taken up with as large a ball as possible, and planted in a pot or tub of a corresponding size. They must then be well supplied with water, and returned into the hot or green-house, where they will soon recover from the effects of the transplanting, and will flower beautifully and abundantly. These plants will be about five feet high and proportionately bushy; indeed the S. Splendens, when treated in this manner, assumes a regular and handsome habit, which I fear is not often the case when treated in the way recommended by SAGE.

In a warm summer and autumn the S. Splendens will flower very beautifully, if planted on the open border.

A YOUNG AMATEUR,
G. A. S.

April 11th, 1832.

ARTICLE VII.

ON THE CULTURE OF THE ORANGE,

BY MR. W. GREY,

Beaufront-Gardens, near Hexham, Northumberland.

I BEG to send you the result of the culture of our orange trees at this place. My employer bought several that were newly imported from Portugal and Spain; he has taken great interest in their cultivation, and has been at more trouble with them than was conducive to their health. They were in tubs eighteen inches diameter, he frequently stirred the soil on the surface of the tubs, (which broke the young fibres,) and gave them a great quantity of water at all seasons, until the soil became sodden and the trees sickly. They were then removed from the green-house to a vinery, where they lost all their leaves; this was in the winter of 1830—31. They were then turned over to my management, when I considered myself placed in a similar situation to a physician who is called in when the disease appears incurable. I let them stand in that deplorable condition all winter, and in the month of March I turned them out of the tubs, and put them in pots from eight to ten inches in diameter, (the trees were four feet high.) I used turf soil where sheep were folded at night, which had been previously prepared

some months before for pines, to this I put a third part of decayed leaves, I placed a handful of broken potsherds at the bottom of each pot to give a good drainage; water being allowed to stagnate, it soon destroys the health of the plant. Orange trees like a humid atmosphere. The trunks of those under my care were dry, and had, what gardeners term, a hide-bound appearance, which is the case with all imported from abroad that I ever saw; to remedy this, I tied damp moss round all the trunks from the surface of the pots up to the branches, and cut in the young wood to two or three eyes; I then set them in a vinery, in which the temperature was about sixty degrees. The moss round their stems I kept constantly damp by syringing it every morning; by these means, together with occasionally steaming the house, I had the great satisfaction of observing the trees prosper, and by the end of July they had made a quantity of fine young shoots: I then removed them to the green-house, where they matured their wood, where they still remain, in as good health as I could wish, and several of them finely in bloom at this time.

I do not admire the practice of purchasing imported orange trees, for after all trouble and expense, they often become sickly, disappoint the proprietor, and cast reflection on the judgment of the practical gardener. If strong, healthy orange trees are wished, the best plan I know of is to raise the stock from seeds, and graft or bud them when two or three years old; these will be found more hardy and suitable to the climate of Great Britain. When I was gardener to Sir Charles Monck, Bart. at Belsay Castle, he had a number of trees of his own raising, which were strong, fruitful trees.

WILLIAM GREY.

March 27th, 1832.

ARTICLE VIII.

ON THE CULTURE AND PROPAGATION OF THE VERBENA TRIPHY'LLA, OR ALOYSIA CITRIODO'RA, (OUT OF DOORS.)

BY A NOVICE.

YOUR correspondent SUFFOLK, page 473, wishes for some of your readers to acquaint him with the culture of the verbena out of doors, together with its propagation. And as they are both very simple, I, who am but a novice, can perhaps give him a little information on the subject. In a midland county I have had the pleasure of seeing the plant grown nearly to the size of a large

gooseberry bush in the open border; the soil was a light sandy loam, and the plant sheltered from the north and north-west winds by a sandy rock, and from the east by a quick-hedge; it required no more protection in winter than simply mulching for a foot or two round the roots, unless the frost was very intense, and then a few stakes put round, and a mat thrown over was always found sufficient; but I should recommend them to be placed against a south wall, where they could be more easily preserved from the inclemency of the weather during the winter months, by nailing a mat against it; and every spring, just before nature begins to show an inclination to push her buds, cut down the last summer's wood to three or at most four eyes; by so doing your correspondent will keep the plants within due bounds for many years, and at the same time would produce an abundant supply of young wood either for propagation, or to give every week, throughout the summer, to all the fair sex of his acquaintance in the neighbourhood, a sprig for a nosegay of that most delicious and grateful smelling plant, the verbena triphy'lla.

The mode of *propagation* is this; when the young shoots are grown about three, and not on any occasion more than four joints, they may be slipt off from the places where they first started, take off the leaves half way up or more, then with a sharp knife cut a section straight across just at or below the bottom joint; plant them in pots filled with equal parts of light loam, peat, and sand sifted fine; a small bell glass put over them, and the pots placed in the front of a cucumber or melon frame, will greatly facilitate their striking; but if a frame is not convenient, I have no doubt they will grow equally as well on the open border in the summer, covered with either a bell or a common hand-glass, so as to keep them air tight, in either situation, they will require shading in sunny weather, from ten in the morning until four in the afternoon, for the first week, and afterwards gradually giving them more sun every day as you find they will bear it until they have struck root.

If SUFFOLK follows these directions, I anticipate, when I have the pleasure of visiting his part of the country, although it may be during the most sultry and exhausting heats of summer, I shall find the air partaking of an enlivening fragrance, by its copious impregnation with the delightful exhalations of the verbena.

A NOVICE.

April 18th, 1832.

ARTICLE IX.

ON A MODE OF PROPAGATING THE CALA'MPELUS, (SCA'BER) OR, ECREMOCA'RPUS (SCA'BER.)

In the month of January, place an old plant in a vinery or hot-bed so as to get it to break; when the shoots are about three inches long take them off with a sharp knife, being careful to take a small piece of the old bark with the cuttings, and plant them in light vegetable mould and sand under glasses; they will quickly strike root, and in a month will be fit for potting; the composition should consist of equal parts of rotten dung, leaf mould, and loam. Plants raised this way from cuttings will flower well the first year, when those raised from seed will not blossom till the second year. In raising from seed, it should be sown as soon as ripe, and placed in the green-house; the plants will be fit for potting in the spring.

C. G.

ARTICLE X.

SOME SUGGESTIONS RELATIVE TO THE CULTIVATION OF DIFFERENT SPECIES OF ROSES.—By I. T.

In the many excellent observations, on the cultivation of the rose, which have appeared in your *Register* and other works on horticulture, I have frequently observed that the rules, though most excellent in themselves, as applied to many species of roses, have usually been too general, and have proceeded on the principle of considering most species as requiring the same modes of treatment, while the great difference in the habits, nature, places and manner of growth seem to me to point out important variations in the soil, situation, and mode of cultivation required by many of the different species. I therefore would state some of the differences and places of growth, in a wild state, of some of the species, and the variations that they seem to suggest in the culture. Though plants are greatly altered by culture, yet they generally retain a considerable bias to the soil and situation for which, by nature, they are formed; and it is usually within a certain range only, of what I would call, their natural habits, that they are capable of improvement by cultivation.

In taking a cursory view of the difference, which there appears to me, to be among some of the species of roses, I shall, to make myself better understood, separate the genus into five divisions.

In the first division and place *Rosa, spinosissima* and its varieties, the *R. lútea, sulphúrea,* and *cinnamómea* which from their slender shoots, small and numerous thorns, and fibrous roots growing very near the surface of the ground, are all, I believe, plants in their wild state growing on heaths and places where there is but little depth of soil, and are surrounded only by plants of a low stature; they would seem, therefore, to require to be planted in an airy situation and not to need much depth or strength of soil, as in their natural places of growth; they are exposed to the browsing of cattle, and we find them to bear much cutting and shortening of their shoots.

In the second division, I include the numerous varieties of Rosa provinciális, centifòlia, gállica, and muscòsa, The varieties of these species are so numerous, that this division contains the greatest number as well as many of the most beautiful roses; they appear to me to be plants which, judging from their manner of growth, have in their natural situations to contend with high grasses, and other strong growing perennial plants; when overpowered by these they, as it were, remove by sending out roots near the surface of the ground which, when they reach a more airy spot, throw up suckers, these exhaust the old plant, and form a new one in a better situation; the roots of this division, though less fibrous than those of the first, yet are so much so, and grow so near the surface of the ground, as not to require either a strong or deep soil. It is to the roses of this division that the rules usually given for the cultivation of roses chiefly apply; particularly those for cutting the last year shoots to a few inches in length, and removing the stems when three or four years old.

The third division consists of Rosa villòsa, rubiginòsa, moschæta álba, damascèna, and canìna: the roses of this division have much stronger roots than the others, and strike much deeper into the earth. The place of their growth in their wild state is among large, strong growing shrubs and trees: they therefore require a much stronger and deeper soil, and a less airy situation than the two former divisions. They do not need, nor bear so much pruning of the shoots; indeed, some of these species are often rendered less productive of flowers for a year or two, by too much cutting, and the main stems of some of them, the R. villòsa, for example, will send out good blooming shoots for more than half a century, with only a moderate occasional pruning to keep the plant in proper form and bounds.

The fourth division consists of Rosa arvénsis, sempervírens, Bánksiæ, and multiflòra. These roses, in their natural state, trail along the ground, or support themselves by bushes growing near

them, they therefore do not require a very airy situation; their roots are strong, but not so strong as some of those of the last division, and therefore seem to require rather a lighter soil; they must be supported or nailed against a wall.

The fifth division consists of Rosa semperflórens and índica. The sudden and rapid way in which these roses send forth their shoots immmediately on a change from cold to heat, points them out as growing in their wild state on mountains covered with snow a part of the year, and like other natives of such places, with rapidity, taking advantage of an interval of warmth to grow bloom and ripen their seed.

I shall be highly gratified if any of the foregoing observations should tend to make any of your readers better acquainted with the nature of some of the species of this genus of plants, which certainly consists of the most beautiful, elegant, and lovely flowers in existence, and which in every country, where they will grow, are universally esteemed.

J. T.

ARBORICULTURE.

ARTICLE XI.—ON PRUNING FOREST TREES,

COMMUNICATED BY MR. WITHERS.

As so great a difference of opinion exists on the pruning and thinning of Forest Trees, I think I cannot render a more acceptable service to your readers than to communicate the opinions of my venerable friend, Mr. Sandy, on this important subject. * This gentleman superintended the planting of upwards of one thousand acres of land for Mr. Coke, and had the sole care of the trees for a period of more than thirty years. Under his judicious management these plantations attained a growth, and are now yearly producing a profit scarcely equalled, perhaps, taking all circumstances into consideration, by any plantation of the same age in the kingdom. Mr. Sandy's opinions are, therefore, the result of long and successful experience, and as such are deserving the serious attention of all planters.

W. Withers.

Holt, March 7th, 1832.

* This letter of Mr. Sandy's Landscape Gardens, Wells, Norfolk, is inserted in the *Arboricultural Transactions* of Ireland.

TO MR. WITHERS, HOLT.

Dear Sir,—

As you expressed a wish some time ago that I would give you a few hints on pruning trees, I have now endeavoured to comply with your request; and you will find that I have mentioned most things necessary to be attended to in the management of plantations. I shall suppose that they are kept clean and that the planting has been well done.

Plantations want pruning very soon after they are made, if heading down may be so called. Trees from two to four years old are in general the best to plant. After they have been planted one or two years, many of them will be stunted in their growth, and not have a leading shoot; such trees should be cut down with a knife close to the ground, particularly oak, spanish chesnut, ash, elm, and many others. Beech is rather an exception. If the plantation is properly managed, in three, or at most four years old, it must be attended to again. Those trees which were cut down must have all the shoots taken off at the ground but one, which is now left to be the tree; and some more bad growing ones perhaps had better be cut down. The others which are not cut down, may want a branch or two shortening, or a few taking close off, and the hazel, (if any) cut close to the ground. The nurse trees, larch, birch, poplar, or whatever kinds they may be, must not be suffered to whip or damage those intended to stand for timber, but their branches must be shortened or taken off close, without regard to over pruning them, as they may be doing mischief to the others. This method may be continued another year or two, as the plantation may happen to thrive. When the trees are grown so close that they meet together, and no weeds are likely to form a turf under them in future, some of the nurse trees must be taken out; but only those which cannot be kept by pruning from doing damage to the principal trees, and it matters not how much they are cut away rather than take them down. Every two years at least the plantation must be gone over in this manner with the nurses, and the trees to remain will want attention as to pruning. One leading shoot must only be left, and a few of the lower branches may be taken off; *but be sure to leave a good head,* as over pruning when young is a bad mode of treatment.

All small branches should be taken off with the knife; but those too large for the knife the saw should be used, and in both cases quite close to the swelling produced on them, but by no means to injure that part, as it only increases the size of the wound, and it will be a

longer time in barking over. The Averuncator, (fig. 94.) is a useful instrument for cutting off the branches high from the ground, such as double leaders, &c. and other branches rather too large for the knife, when done in proper time.

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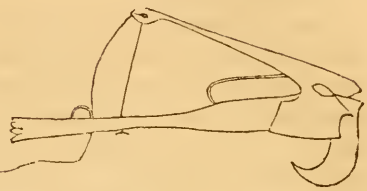

Before all the nurses are taken away, some of the timber trees will want thinning. They should be cut close to the ground smoothly, and by a stroke *upwards*, as they are expected to produce underwood. As the timber trees grow, they will want going over every two or three years, both for thinning and pruning. The best of them should be relieved by felling on one side now, and the next thinning on the other, as the tops interfere with their neighbours; after which some of the lower branches should be taken off to form a stem: and if any are yet double headed that should also be attended to, but as they get older they will seldom do so, and by all means *prune with moderation.* (The Locust or Acacia recommended by Mr. Cobbett wants particular attention as to pruning when young, as it is apt to throw out several large branches; these being taken off in time, it will form a good timber tree in a plantation.) As the trees grow to twenty or thirty feet high, they must be thinned and pruned in the same manner; but by no means thin the heads as recommended by some authors, but leave them to their natural form of growth, except taking off lower branches to form a stem. When they get from thirty to forty feet high, and upwards, they will want the lower branches taking off, whose leaves get sickly, and have little growth in them, as by leaving them on longer, the knot in the timber will be larger. Their stems will now be half their height or more.

In thining by all means attend to the underwood, *so that the plantation be not blown through by the wind,* for being thin below is one of the worst cases of bad management, and must be guarded against by not leaving the principal trees too thick. When trees are much waved about by the wind they shew great neglect in former thinnings; and the whipping of tops in windy weather, particularly in the spring, is exceedingly injurious, and is scarcely ever to be remedied by future thinning. The best way is, if they be ash, chesnut, or any trees that shoot well from the ground, to take them close down.

In pruning plantations that are growing up, say thirty or forty feet high, be very careful not to take too many branches off the out-

side trees, a business scarcely ever attended to; for by pruning them high a plantation looks thin and poor at a distance, and the cold is let more into the interior.

There is a method of pruning still practised by some persons, of leaving a foot or more of the branch on the tree to die and rot off, which, if only an inch in diameter, may take several years to accomplish, during which time the stem increases, and when the stump falls down a hole is left as deep as the tree has grown since the snagging, which hole must have time to fill up after the rotten branch is gone. The healing of the wound is consequently delayed, and the defect in the timber greater.

Instead of taking off a large branch by the stem, a great part of it may be cut off at a distance from it, leaving a small side branch to draw the sap and keep it alive, which is better than leaving a snag; but this method should seldom be practised, being only the result of former bad management.

In pruning young plantations the first or second time, branches may be frequently shortened or cut in, and it is often better than taking the whole off quite close.

In cutting down the underwood in plantations, not more than half the width of the plantation should be done at one time, the other half standing two or three years longer; and in future cuttings down, some of the stools may be trained as wavers or undertrees, to fill up where there is room under the principal tress and above the underwood; by which means the plantation will be thick in the middle as well as at the bottom, and not be blown through by the winds. Also if the plantation is narrow, and there is a strong hedge, it should be left for shelter, till the underwood has grown a year or two; but we frequently see both cut at the same time.

Where plantations, generally called clumps, are wanted for ornament, and are intended to be open groves when they are old enough not to be hurt by cattle, the principal trees must be left thinner than in woods, and allowed to form rather larger heads; so that when they are thrown open to the lawn they will not feel the want of shelter so much, and be more beautiful to stand alone. The underwood may also be thinned by degrees, and some even left till the fence is taken away.

The stem of a tree always increases according to the size of the head as every healthy branch contributes to its growth. A tree but little pruned, and standing singly, will have a large head and short stem; and that stem will increase in size very fast, but not be so valuable from its deficiency in length of stem. The branches will be

large, and have much small crooked timber divided among them. A tree standing in a plantation follows the same law of nature, but by judicious thinning and pruning will form a stem of considerable length, while in a good growing state, care, therefore must be taken at all times to have a *good head*, if you mean to have stem, and when you have length of stem the head cannot be too large. Thus the fewer trees you have on an acre of land the better, if the tops cover all the ground; for the timber will certainly be of larger dimensions, and consequently the more valuable. In plantations grown to timber size, a tree that will square a foot is of considerable more value than four that square six inches each, as every carpenter can tell. And now we are mentioning timber, let us say a word or two about the growing of it. Some great authors tell us that timber cannot be good if raised any way by cultivation and manuring, and that every method employed must be as near nature as possible to make it valuable; but if the experiments made by practical men may be depended upon, timber that has grown the fastest is the strongest and best. It follows, therefore, that land intended for planting, (if not very rich) may be trenched and *manured* according to garden practice for a common crop, such as potatoes and turnips.

I have thus put together the methods I have followed in pruning plantations for many years. They will not be of much use to you at present, as your plantations are under excellent management; but they are yet young, and as my experience is of earlier date than yours, perhaps as they get older, some of my hints may be of service to you.

I am, Dear Sir, truly yours,
JOHN SANDYS.

Wells, December 3rd. 1829.

NATURAL HISTORY.

ARTICLE XII.—DOCTRINE OF SPONTANEANS DISPROVED.

BY AN IMPORTANT DISCOVERY OF M. CHRENBERG.

IT is well known that by far the greater number of our living naturalists and physiologists, believe in the doctrine of spontaneant generation, chiefly because they could not discover that microscopic animalcules, or monads as they called them, are produced from parents. Being, therefore, unable to discover this, they forthwith concluded

that monads are not produced from parents, but by some process of chemistry or they know not what. Now M. Chrenberg has discovered that these monads do spring from parents, in a similar manner to larger animals. The following is Baron Cuvier's report of the discovery:

"The work which M. Humboldt presented to the academy, on the part of its author, M. Chrenberg, and which treats upon animalcules known under the name of microscopic and infusoria is a valuable acquisition to zoology. Not only has M. Chrenberg made many observations respecting these animalcules during his travels into Egypt and Nubia, and determined European species, which are also found in those distant regions—not only has he established new methodical distributions in this remarkable class, and added numerous new species, but he has effected a discovery which must produce a great change in the ideas previously entertained respecting their organization. On tinging water, inhabited by these animals, with unadulterated organic colouring matters, such as indigo, carmine, sap-green, he was enabled to render their alimentary canal distinctly visible, and ascertained that not a single species is supported by the intus-susception of its surfæ, but that all have an intestinal canal exceedingly complicated, convoluted, and furnished with stomachs and sometimes very numerous cœca. In some he perceived special organs of propagation, and traces, likewise, of a nervous and muscular system. Naturalists had already admitted the existence of interior organs, and particularly a stomach, in the largest sized animals of this class, as for example in the wheel animalcule, (rotifere;) but we are not aware that any one before M. Chrenberg, ever doubted the existence of a digestive canal, and stomachs in those species, which are simply regarded as homogeneous and gelatinous amongst those monads, of which many thousands are contained in a drop of water. This discovery entirely changes received opinions, and demolishes many systems; and is one of those discoveries which form a remarkable epoch in scientific researches.—*Annales des sciences Naturelles pour Novr.* 1831.

J. R.

ARTICLE XIII.

ON THE BRITISH BIRDS, TERMED WARBLERS, (SYLVIA SCOPOLI.)

(By James Rennie, M. A. Professor of Zoology, King's College London.)

Upon the obvious principle of convenience, leaving out of consideration the debatable ground of artificial and natural systems, I think it must be obvious that the linnàean genus *notacilla* with its 193 species, and Latham's genus *Sylvia*, with its 298 species, are more likely to puzzle a naturalist than to facilitate his investigations. The logic of the framers of these genera is also more than questionable, when we know that not two-thirds of the linnàean notorcillàe wag their tails, as the term implies, and many of the Sylvià are never seen near a wood. Although I have very small skill in this sort of manufacture, or little time or inclination to engage in it, I have for my own convenience, endeavoured to extricate some of our more interesting British birds from the confusion into which they have been thus thrown by those who make high pretensions to order and system. I found my distinctions as much on food and habits as on form and colour, and I have not selected names implying a palpable Hibernism, such as Phóenicura (literally "Red-tail") recently proposed as a genus to include the Red-breast, which has no red on the tail!!! I think the term Sylvia ought to be abolished as only serving to perpetuate confusion. In my manuscript then the birds in question stand thus:

PHILOMELA.

Nightingale,—*P. Luscinia.*
Blackcap.—*P. Atricapilla.*
Fauvette.—*P. Mortensis.*

RHONDELLA.

Redbreast.—*Rh. Rubecula.*
Redstart.—*Rh. Phoenicurus.*

CURRUCA.

White-throat.—*C. Cinerea.*
Babillard.—*C. Garrula.*
Dartford Warbler.—*C. Provincialis.*

RIPAECOLA.

Ledge Bird.—*R. Salicaria.*
Reed Bird.—*R. Arundenacia.*
Grasshopper Bird.—*R. Locustella.*

TROCHILLUS.

Goldcrested Wren.—*T. Regulus*
Wood Wren.—*T. Sibillans.*
Hay Bird.—*T. Asilus.*
Chiff Chaff.—*T. Hippolais.*

ANORTHURA.

Wren.—*A Communis.*

Although the Blackcap *(Philomelor Artricapilla)* is one of our most interesting summer visitors, ranking only second to the night-

ingale as a song bird, its history seems still but imperfectly known. Mr. Sweet has observed those he has kept in his aviary to exhibit the migratory agitation at various times during winter, and hence concludes that they visit more than one country after their departure from this; and I have had recently an opportunity of verifying his remark upon a fine cock bird, which I purchased at Paris. It was so very restless in the night for about two weeks, in the end of September, that I was compelled to remove it from my bed-room, where its cage had previously hung; no covering to exclude the moonlight was of any avail to quiet its fluttering. About the middle of November this agitation was removed, and, as before, was confined to the night, for during the day it remained quiet, and slept a great deal. Are we to infer from this, that its first station, on leaving us is the South of Europe, from which it subsequently flits to Africa? It accords with this view that it is said to be found at Gibraltar, as well as upon the Morocco shore. Selby says it is rare to the south of the Apperinees and the Pyrenees; but his information may possibly refer to an allied species *Sylvia melanocephala Lortham Ind.* which M. Natterer shot at Algesiras and near Gibraltar; and which Temminck says is confined to the south of Spain, Sardinia, and the Neapolitan States. The distinctive characters given by Temminck are "Orbits naked, bill rather thick and strong; the male with a black hood *(capuchon);* the female with a blackish ash-coloured hood." It is not improbable that this may be "La petite Calombaude" of Buffon's, and the black hood *(Tinto nearo de Capello)* of Madeira, though Dr. Heineken is disposed to consider the latter as only a variety of the black cap *(Ph. atricapilla).* He describes it as "a somewhat larger and coarser bird than the common one; its general plumage more sombre and olivaceous; and the black, instead of being confined to the head, extends as low as the shoulders behind, and loses itself gradually on the breast before,"* which agrees so precisely with Temminck's description, that I think it unnecessary to follow Dr. Heineken into other particulars.

Mr. Knapp says, though it remains in our gardens and orchards, "its exceeding dislike to man is very extraordinary," and "may arise from a long residence in wilds and solitary places, seldom visited by human beings, during those eight or nine months when it is absent from us, so that man becomes an unknown creature, and injury is suspected."† On the contrary, we learn from Dr. Heineken that, during its winter retreat, it frequents gardens and

* Zool. Gardn. No. xvii. 75. † Journal of a Naturalist, p. 227.

orchards, as with us, and is as common in the hedges of Madeira as sparrows are in Europe. That it has a feverish, instinctive fear of man, however, I think, is certain, for though the cock which I mentioned above is now so tame that it will peck or fly from my finger, it has the remarkable habit of mooting whenever it is approached, and this must undoubtedly be ascribed to fear; as the same circumstance may be observed in the red-breast (*Rh. rubecula*) when he is frightened away from his crumbs at the cottage door. By mistaking a similar circumstance with respect to aphides, the younger Huber, as I have shown in "Insect Miscellanies," p. 110—13, has been led into the mistake of ascribing anternal language, as he calls it, between these insects and ants.

JAMES RENNIE.

Lee, Kent, 17th March, 1832.

PART II.

REVIEWS AND EXTRACTS.

EXTRACTS.

HORTICULTURE INTELLIGENCE.

On Forcing Cherries.—The dimensions of the pots cherry trees grow in must be regulated according to the size of the plants, say from two quarts to two gallons. The soil in which they are potted must not be rich, as highly manured soil is apt to make the shoots too luxuriant, and cause them to gum. Put the trees into the houses at the close of the year, and give them very little water; when beginning to force, water sparingly, and admit as much air as the weather will allow night and day, for nothing is so much calculated to render the cherry impatient of forcing, as alternate ventilation in the day, and confinement at night. In frosty weather increase the fire, until with constant air the temperature does not fall below 32 deg. of Fahr. in this manner proceed slowly until the blossoms are all set, then raise the temperature at first to 65 deg. and afterwards gradually to 70, increasing the moisture of the atmosphere at the same time, and always taking care to keep the ventilation as abundant as possible.—B. Law. *Hort. Trans.*

On the culture of Vines on the Open Wall.—W. T. Salvin, Esq. of Croxdale, has a wall above eighteen feet high, used for the culture of vines. The fire places are made in the form of ovens, nothing but wood is burnt in them, as it is found with the following regulation to produce a more steady heat than coal. After an accumulation of ashes is produced, they should be used to cover the embers at night, or at any time when those who attend the fires retire to rest, and also to regulate the fire during the day when less heat is required. The red-hot charcoal so covered will continue to give out heat for several hours, and is ready to rekindle a fresh supply of wood, whereas coal requires more constant attendance or it will soon go out. The fires are commenced when the buds begin to break in April, and are continued night and day until the fruit is perfected, except a few weeks in July and August, if the season is hot. Rotten dung is put to the vine roots, and dug in during spring. The branches are trained to the wall, and pruned in the usual way. It is necessary to plaster the inside of the flue in the best manner when wood is used, as otherwise the steam or smoke from the wood will force itself through the joints of the wall in the form of tar, and injure the grapes.—Id.

Culture of the Horse Radish in Denmark and Germany.—The horse radish delights in a good rich and moist loam, and rather a shaded situation. The ground must be trenched and manured the year before planting. In the autumn, when the old roots are taken out of the ground, select all the small side roots from nine to twelve inches in length, and as thick as a quill or thereabouts; tie them in bunches, and preserve them in sand in a place protected

from the frost during the winter. The planting is commenced in the beginning or middle of April. In dry weather, divide the ground into beds four feet wide, which, with the mould out of the alleys, should be raised about a couple of inches higher in the middle than the sides of the beds. With a woollen cloth rub off all the lateral fibres from the roots, and also pare off each extremity, so that the wounds may be fresh, then plant them by inserting them horizontally into the sides of the elevated beds, about a foot apart, and in a quincuncial manner; so that the bottom part of the root is about six or seven inches below the surface, and the top or crown end of the root stands a little out of the side of the bed, remarking that the roots are to be inclined a little, so that their lower extremity is rather deeper than their upper. In the latter end of June or sometime in July, take and cut off with a sharp knife all the lateral fibres of each root, which is done by placing the foot on the lower extremity, and carefully lifting the roots out of the ground as far as may be necessary. This operation is performed two or three times every summer. When the operation is over, replace the roots as before, and cover them with mould. The roots or fibres which are left at the end of the main root undisturbed are sufficient to nourish the plant. In the third year the roots have attained their full size. Laying the roots horizontally has the advantage, that they are easily taken out of the ground without breaking; while cutting off the side roots makes the main root grow straight and thick. It is advisable to plant a bed every year.—Jens Peter Petersen. *Hort. Trans.*

Mode of keeping Apples.—When the fruit is quite ripe commence gathering, taking care not to bruise any of them. They are then to be carried to the fruit-room, and placed thinly on shelves, with proper divisions, so as to keep each variety distinct, allow them free air for six or eight days, then procure a quantity of sand which is dried thoroughly on the flue, and mix with it one pound of powdered nitre to each bushel of sand, then dry the jars thoroughly; these jars should be made of glazed stone ware, and in a conical shape, to throw the weight on the jars and relieve the fruit. At the expiration of eight days, examine the fruit and wipe each fruit carefully with a soft towel. (Never allow the fruit to sweat, for although recommended by many it is hurtful to the flavour, injurious to the appearance, and renders the fruit insipid and mealy.) Put a quantity of the mixed sand in the bottom of the jar; then place a layer of fruit in such a way that each apple may be kept apart, cover them with the sand, again place a tier, and go on thus till the jar be filled within a few inches of the top, this upper space fill with sand, seal the tops with putty-lime, attaching a ticket descriptive of the fruit, &c. &c. The jars are to be kept in a room free from frost.—W. Jack. *Cal. Hort. Soc.*

On Canker in Fruit Trees.—The chief causes of canker in fruit trees are the *bad quality of the soil*, the *want of climate*, and the *scions* being wrought on *stocks* either *harder* or *softer* in their nature than themselves. Trees often do very well for four or five years until the roots have penetrated down into the subsoil, then the roots are put upon hard labour, the nourishment they collect is poor and scanty, and not adequate to support and keep up the stature of the trees. On cutting the young wood it will be found to be of a reddish colour at the heart; the bark will crack in several places during winter; and when the trees begin to push in spring, many of the last year's shoots will be found dead, others will grow till midsummer, then the leaves will flag or fade, and two or

three feet of the extremities die, and this will be the case every year until at last it will end in the death of the tree. The best remedy is to cut off the perpendicular roots as well as all the infected parts, at the same time filling up the bottom of the trench all round and under the tree with new soil, which should be repeated every three or four years. Fruit trees should never be deep planted; if the roots be three or four inches below the surface it is sufficient, when the trees are firmly staked. In trimming, all the perpendicular roots should be cut off, and the horizontal ones spread out, if they be long, cut them a little to encourage fibres. The way canker is produced from want of climate is, when the trees are swelling up their buds or some of them are even expanded, the severe weather, which often happens early in the spring, stops the flowing of the sap in its passages, and the buds and flowers are injured; a number of prominent spots like blisters appear on the last year's wood, which afterwards crack and become cankered: and thus checks may be experienced more or less through the whole summer. The grafting apple or pear scions on stocks not congenial to them is apt to produce canker. The foliage of the crab points out the foliage of the graft suitable to be put on it. Crabs of small and prickly wood will not support a soft swelled-leaved scion long; they may continue a year; two at most will show the disagreement.—C. Doig. *Cal. Hort. Trans.*

FLORICULTURAL INTELLIGENCE.

New and very rare Plants, figured in the Botanical Periodicals for May—

CLASS 1.—DICOTYLEDONOUS PLANTS, OR EXOGENES.

MYRTACEÆ.

My'rcia *àcris*, Wild Clove Tree, or Bay-berry Myrtle. *Icosandria Monogynia*, Lin.—A highly fragrant plant, the smell of the leaves being like cinnamon, it grows to a tree of considerable size, and although it has been introduced many years, is still but little known, having been much confounded with the *Myrtus pimenta* of Linnæus, which it much resembles. Flowers white, native of Jamaica. Many specimens have been received from the Rev. L. Gilding, from St. Vincent's. *Curtis's Bot. Mag.* Culture—It thrives well in the stove in a very humid atmosphere, potted in sandy peat soil, and is propagated by cuttings.—Conductors.

ACANTHACEÆ.

Era'nthemum *fœcundum*. Ever-blowing Eranthemum.—A neat little shrub worthy of cultivation. Flowers lilac colour. Native of Brazil, said to be introduced by the Rt. Hon. Robt. Gordon. Culture—It requires the stove heat and a very humid atmosphere, it readily increases by cuttings, and flowers all the year round; it must be kept in a regular state of growth, for if it meets with a check, such an amazing quantity of flowering buds are formed, that it not unfrequently dies in consequence of excessive fecundity.—*Ed. Bot. Reg.*

RHAMNEÆ.

SOULA'NGIA *rùbra.* Red Soulangia.—A neat evergreen shrub. Flowers of a brick-red colour, small, but rather pretty. Native of the Cape of Good Hope, from whence seeds were received a few years since by Messrs. Rollisson, of Tooting.—*Edwds. Bot. Reg.* Culture—It requires the protection of the green-house, and should be potted in a compost of peat and loam, having rather the most of the former; it may be propagated by cuttings, which will grow well if placed under a bell glass in sand.—CONDUCTORS.

SCROPHULARINÆ.

CALCEOL'ARIA *connàta.* Connate Calceolaria, or Slipper-wort.—A free flowering plant growing into a large bush. Flowers yellow. Native of Chili, from whence it was lately introduced. Culture—It thrives in a light loam, and increases freely by either seeds or cuttings. It is necessary to give it shelter in the green-house during winter.—*Bot. Cab.*

CLASS 2.—MONOCOTYLEDONES, OR ENDOGENES.

ORCHIDEÆ.

EPIDENDRUM *variegàtum.* Variegated Epidendrum.—A parasite well worthy of cultivation. Flowers yellowish green, spotted with dark purple and very beautiful. Native of Rio, from whence it was lately introduced by Mr. Wm. Harrison.—*Curtis's Bot. Mag.* Culture—All the species require a good stove heat with a very damp atmosphere, and they will grow well hung up in baskets of damp moss, or fixed in moss to other plants; if planted in pots mix a considerable portion of moss or turf with the soil, which must be very sandy, they will readily increase by dividing the roots.—CONDUCTORS.

AMARYLLIDEÆ.

COBU'RGIA *fúlva.* Tawny Coburgia.—A bulbous plant well worthy of cultivation. Flowers of a tawny orange colour. Native of South America. Introduced by the Rev. Wm. Herbert. Culture—The bulbs of this genus are hardy green-house plants; they may be kept dry in the winter, and planted out in the spring; but they will not endure the winter out of doors, except near the wall of a stove. They produce abundance of offsets, which is probably the cause of their rarely flowering with us. Perhaps a strong and richly manured loam would promote their blossom.—*Ed. Bot. Reg.*

GASTRON'EMA *pállidum.* Pale-flowering Gastronema.—Flowers white, streaked with green and rose colour, rather handsome. Native of the Cape of Good Hope. Introduced in 1829. Culture—It requires the green-house protection, and should be potted in sandy peat earth. It appears to increase very slowly by offsets.—*Lodd. Bot. Cab.*

ASPHODELEÆ.

ORNITHOGALUM *bifolium.* Two-leaved Star of Bethlehem.—Flowers of a delicate white. Native of Chili. Introduced in 1831, by Mr. Cumming. Culture—Messrs. Loddiges have kept it in a green-house, but it is thought probable that it will bear the winter in a sheltered place out of doors. It will increase by offsets from the bulbs. The soil should be light sandy loam.—*Lodd. Bot. Cab.*

MAXILLARIA PICTA.

Maxillaria *picta.* Painted Maxillaria (fig. 95) is a most beautiful plant, a parasite like the other, the bulbs are about the size of a pigeon's egg, of a dark green colour, and bear one or two leaves each. Flower very handsome, petals within of a rich deep orange colour spotted with purple, and externally almost white, with spots and blotches of deep purple. The lip of a pale dirty white or cream colour, with but few spots, column of a deep purple. It is a native of Brazil from whence it was lately introduced by Mr. Wm. Harrison. *Curtis' Bot. Mag.* Culture—Similar to the Epidendrum.

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On raising Roses from Seed.—Mr. Geo. Duncan of Scotstown, near Glasgow, collected in Oct. 1826, the ripest heps of some Red Officinal, Portland, and Velvet roses, he laid them on a stone-paved floor, and rubbed them under a brick, to soften the seed vessels; afterwards they were rubbed one by one between the fingers. The seed was sown immediately on a wall border with an aspect opposite to the sun at eight o'clock in the morning. The soil was sandy

loam. They were covered half an inch deep, and an inch of saw-dust was laid on to keep the bed from caking in winter. The saw-dust was removed about the middle of the March following, and in the end of that month the plants began to appear. The beds were then hooped, and a net thrown over them to prevent them from being destroyed by birds. They continued coming up till September, when they were attacked with the mildew, in consequence of which a great number of them died the succeeding winter. Mr. Duncan has since found, that it is better to sow the seed in a box of from four to six inches deep.—*Cal. Hor. Soc.*

On keeping Tender Plants in Cellars during Winter.—Mr. John Street, at Beil, has been trying several curious experiments with tender plants, and the results have shown that scarlet Geraniums (Pelargoniums) growing in pots, if plunged during summer in the open border, and taken up before the frosts commence, and kept during winter without water in a cellar, then planted out the following May or June, they will flower well and ripen plenty of seed. In March, 1828, Mr. Street sowed in a small wooden box, seed saved from five or six scarlet varieties in 1822, these produced many plants which stood abroad until November, the box was then put into a north shed, where the plants survived the winter without water, and the summer following came into flower. Pots of *Begònia evansiàna* keep very well in a north shed without water all winter, about the end of March or beginning of April they are put under a glass case in saucers and watered. They soon begin to grow, they are then divided or put in larger pots, or top-dressed with rich soil as may be necessary. With such treatment they grow to near three feet high, and flower freely. *Cánna gigántea.* In autumn, 1828, a young plant very strong growing in a large pot, was put into a dryish dark cellar, there it remained till the end of April, 1829, when it was turned out into the open border. It grew luxuriantly, and flowered freely; two of its flowering stalks measured six feet eight inches high. In catalogues it is marked as a stove plant growing five feet high. *C. índica coccínea*, and *pàteus* have all succeeded with the same treatment. *Crìnum longifolium.* After having flowered strong in the autumn of 1828, was placed in a north shed, and kept in a dormant state without water until the end of March, when the offsets were removed, and the plant potted in fresh earth, and put under a low glass case, in the summer it flowered well, when done flowering it was put under a south wall, where it remained till the 25th of November; it was then removed into the shed to rest all winter. *Commelìna tuberòsa* does very well kept in a north shed all winter without water, and then brought into the glazed house as they are wanted to flower, say either in February, March, or April. The tubers of this plant have survived for the last five or six winters in the open borders, growing to five feet high ripening seeds, and sowing themselves both on the gravel walk and in the border; these self-sown plants flower and ripen seeds in the same year. The tubers may likewise be preserved in dry earth or sand all winter like those of the Dahlia, or in boxes or drawers. *Datùra arbòrea* has kept very well in a dormant state in a north shed all winter, and planted in the open ground late in the spring with good success. From incidental observation, it is also thought that *Rhús semialàta*, as well as many other plants, may be kept all winter in a similar manner, which will be very convenient and advantageous to those persons who are not possessed of proper plant houses, or who have not sufficient room to winter their whole stock comfortably.—*Cal. Hort. Soc.*

NATURAL HISTORY.

On the Tea Tree.—Two kinds are commonly cultivated in our green-houses, the one under the name of *Thea viridis*, or green tea; the other of *T. Bohea*, or black tea, which applications have been given them partly, as it would appear, on account of the relative colours of the foliage, and partly under an impression, that the former produced the *green tea* of the shops, and the latter the *black tea*. But this idea seems to be founded on no good authority.

The *T. viridis* is a large, strong-growing, almost hardy plant, with its branches spreading, its leaves from three to five inches long, very broadly lanceolated, pale green, singularly waved, the margin reflexed; the flowers are large, solitary, mostly confined to the upper axil: they appear in the autumn, six weeks or two months earlier than those of *T. Bohea;* whilst the latter is of small size, with remarkably erect, stiff branches, leaves not above half or two-thirds the size of the former, perfectly flat, more coriaceous, of a dark green, bearing in the axils of numerous leaves two or three flowers, which are smaller, and have a slight fragrance, and are in perfection during winter. It will not endure our frosts. It is difficult to determine which of these species is the one cultivated in China; whether both may not be employed in the production of the different kinds of tea; or whether they may not be indiscriminately used: for the Chinese are exceedingly jealous over the processes employed in the preparation of teas, and the tea-country being at a great distance from the European factory, it is very doubtful if any scientific person has, from personal observation, been able to decide the question. Dr. Abel* satisfactorily notices the two kinds of tea plant, and adds, "from persons conversant with the Chinese method, I learnt that either of the two plants will afford the *black* or *green* tea of the shops; but that the broad thin-leaved plant (our *T. viridis*) is preferred for making the green tea." This statement is corroborated by a communication from C. Millett, Esq. of Canton, who holds a high official situation in the Company's factory there: "The tea plant," he says, in a letter, dated Canton, 12th of December, 1827, "is almost as scarce in this neighbourhood as it is in England. The tea-country is at a great distance from hence, and the teas brought to Canton are several months on their route by inland navigation. Of the plants there are two kinds, of which one has a leaf of a much darker green than the other. This difference may partly arise from cultivation; but it is to the various modes of preparation that the green and the black teas of shops are due. In proof of this we sent home last year *green tea* from the black tea-plant. You may, therefore, conclude that, though there are two plants differing so much in appearance and growth as any two varieties of the Camellia Japonica, each, by proper management, will produce *black* or *green* tea indifferently. The varieties of *teas* from the several provinces, arise from soil, culture, mode of preparation, and above all, from the part of the shrub whence the leaves are pulled. From the same individual plant there are three crops or gatherings annually; the first affords the fine teas, of which the Pouschong is the produce of the larger leaves of the young shoots. The extreme shoots, with the opening leaf buds, constitute the Pekoe. This is in England commonly supposed to be the flowers; but an examination after infusion will clearly show its origin. The

* Narrative of a Journey to the Interior of China, p. 221.

first picking takes place in June, the second in July, and the third in August." Kæmpfer's figure of the *Japanese Tea-Plant*, which is evidently the plant in general cultivation in that empire, is the *T. Bohea*, not the *T. viridis*. The native country of both species is, probably, various parts of China, and the cultivation seems to be confined to the temperate zone, extending to the northern provinces of the empire, and as far as the 45 deg. of latitude, in Japan. But the *Tea-districts* properly so called, are thus stated by Dr. Abel: "That of the green tea is in the province of Keang-nau, between the 29th and 41st degrees of north latitude, at the north-western base of a ridge of mountains, which divides the province of Che-Keang and Keang-nau. The black tea district, in the province of Fokien, is contained within the 27th and 28th degrees of north latitude, and is situated on the south-eastern declivities of a ridge of mountains dividing the province of Fokein from that of Keang-si."

M. A. Baron de Schilling has given the names of thirty-six sorts copied from a Chinese manuscript. These are divided into seven heads. 1. Teas of the district of the city of Sou-ugan-tcheon, in the province of *Keang-nau*, eight sorts. 2. Green teas *Soung-lo*, of the district of the city of *Hoey-tcheon*, in the province of *Keang-nau-Soung-lo*, eleven sorts. 3. Teas of the district of *Hang-tcheon-fou*, in the province of *Tche-Kiang* five sorts. 4. Tea of the province of *Hou-Kouang*, one sort. 5. Black teas, *Wou-y* or Bohea, of the province of *Fou-kian*, ten sorts: and which, if we may judge from the names, are the most esteemed—such as, *Lao*, *Kiun mei*, or venerable old man's eye-brows; *Pekao*, white hairs, or Peko tea; *Cheou mei*, eye-brows of a very advanced age; *Kieou Khin lian sin*, hearts of water-lilies of Kieou Khin: *Ouang nin fung*, tea of the pick-axe of the king's daughter; *Ta haung phao*, large red tails; and *Sian jin tchang*, palm of the immortals, &c. 6. Tea of the province of *Yunnan*, one sort. 7. Teas of the province of *Szu-tchhouan*, two kinds. But this list, it is said by the editor of "Abel Rémusat," is not yet complete: and he adds fifteen others, several of which appear to be the kinds best known in Europe. Wou-i-tchha, *Wou-i Tea*. Wou-i is the name of a celebrated mountain in the province of Fou-kian; thence comes the common name of Bohea tea. Hi-tchun-tchha, Hyson tea. Phi-tchha, Skin tea; that species of Hyson tea commonly called Skin. Siao-tchoung-tchha, a small kind, the Saotchoun or *Souchong* tea of the merchants. Pao-tchoung-tchha, a species sold in small packets; the *Pouchong* of commerce. Soung-tseu-tchha, *Sonchais tea*. Koung-fou-tchha, *Camphon* or *Congo tea*. Chang-koung-fou, *Camphon tea* of a higher quality, or *Camphon Campony*. Tchu-tchha, *Pearl tea*. Ya-toung-tchha, *winter tea*. Tun-ki-tchha, *Twankay tea*. Kian-peii-tchha, or Tseu-tchoung, a second species of *Campony tea*. On-tchha, *black tea*, the leaves serve to die stuffs black. Ye-tchha, *Desert tea*. The flowers of this species of tea are of a golden colour, the stem is high, and the leaves of a bright green: they use it in the same manner as the common tea. Chan-tchha, *mountain* or *wild tea*. All these different kinds of tea may be distinguished by the experienced merchant, merely by taste. The situation of Assayer of Teas at Canton, requires this sort of talent, and the individual who holds it enjoys a salary of £1,000. per ann. for tasting tea only!

The quantity of tea produced in China must be enormous; it is spread over a square area of 1,372,450 square miles. Its use in China reaches to a very high antiquity, for they have a tradition that an Indian prince, a holy and religious character, of the name of Darma, visited China about the year 516 of

the Christian era, to instruct the natives in the duties of religion. He led a life of great abstinence, and denied all manner of rest or relaxation to his body; but he was, at length, so weary of his fatigues and fasting, that he fell asleep. As a penance for so great a dereliction of duty, he cut off both his eye-brows, the instruments and ministers of his crime, and threw them upon the ground; each eye-brow became a shrub now called the tea. Darma quickly discovered the agreeable properties of their foliage, which endowed his mind with fresh powers to pursue his divine meditations; having recommended the use of it to his disciples, it soon became general in China. The individual who first discovered its qualities is held in remembrance by a rude figure in Chinese and Japanese drawings, of an old man standing upon water, with reeds under his feet, and one of his eye-brows sprouting out into a tea-leaf. Linschot is said to be the first traveller who tells of a herb, with which the Japanese prepared a drink, and which they offer to their guests as a mark of high consideration. Caspar Bauhin speaks of it in his *Pinax*, under the name of *Cha*. Very early in the seventeenth century, tea first became known in Europe; and we are assured, that the Dutch at first carried on a trade, by recommending the sage of this country, which they gave in exchange for tea of China. Little more than a century ago, according to Lord Macartney, the English East India Company did not sell more than 50,000 lbs of tea, and very little was smuggled. In 1784, the consumption of Great Britain was estimated at 1,333,814 lbs: now that of Great Britain and Ireland, exclusive of their dependencies, amounts to 28,000,000 lbs. Lords Arlington and Ossory brought home a quantity of tea from Holland, about the year 1666, at which time it was sold for 60s. per lb. But the practice of tea-drinking, even in public coffee-houses, was not uncommon in England prior to that period: for in 1660, a duty of 8d. per gallon was laid on the liquor made and sold in all coffee-houses.

In Scotland a century elapsed before tea was generally known, and it has been stated, that people are yet living who recollect how Lady Pumphraston, to whom *a pound* of fine green tea had been sent as a rare and valuable present, boiled the same, and served it up with melted butter, as condiment to a salted rump of beef, and complained, that no cooking she could contrive, "would make those *foreign greens* tender." America carries on a vast trade in this article; but Russia is stated to rank next to Great Britain, inasmuch as 25,200,000 lbs of tea are yearly imported and consumed by the Russians.

Linnæus had the honour of introducing this interesting and valuable plant alive to Europe but not till he had experienced many disappointments. The seeds would never bear the voyage; for, like all oily seed, they turned rancid in a short time. His pupil Osbeck brought a plant as far as the Cape of Good Hope, when it was washed overboard during a storm. Lagerstroem conveyed two shrubs for the true tea, to Upsal; but they turned out to be Camellia, which the Chinese call by the same name; not distinguishing it generically from Thea. Some time after, one reached the harbour of Gottenburg in good health; but the evening before landing, the captain set the plant on the table of his cabin, where it was eaten by rats. At length, Linnæus advised Captain Ekeberg to sow the fresh seeds in pots of earth at the moment of his departure from China, so that they might vegetate after passing the line: and the growing plants were thus brought in safety to Gottenburg, the 3rd of October, 1763, and transplanted to the Botanic Garden of Upsal.—*Curt. Bot. Mag.*

PART III.

MISCELLANEOUS INTELLIGENCE.

I.—QUERIES, ANSWERS, REMARKS, ETC.

Treatment of the Verbena, &c.—Pray, in what manner can I best preserve in health the Verbèna melíndris, or chamædryfòlia, the Maurándia Barclayana, and the Cobæa scándens in winter? Should all these plants be kept in the greenhouse, pit, or frame during the winter months? Will a mat covering out of doors answer for either of them? Should all be kept in a very dry state during that period, or moderately moist? Should the Cobæa scándens, and the Maurándia Barclayana be cut down in the autumn or not? Will you also, at the time of answering these queries, inform me where I can procure a large plant of the Rhododéndeon arbóreum and the nature of its treatment.—

G. L.

Mealy Bug.—I should feel obliged if you or any of your readers would recommend me some effectual remedy for the mealy bug, and which at the same time will not injure the plants. G. A. L.

☞ See directions given in page 516.—Conductors.

Grafting and Budding.—Will some of your correspondents inform me, how the different methods of grafting and budding are to be performed on fruit trees, which might be shown by different cuts; whether double flowers can be raised by seed, particularly the double primrose? Your Work also would be, I think, much improved by inserting introductions to the artificial and natural systems of botany, each class and order might be illustrated with cuts. Q. P. R.

House Beetles.—Pray, how can I get rid of house beetles? Traps set in every cupboard do not reduce their numbers, and they are too numerous to poison without the risk of the effluvia creating a worse evil than themselves. M.

The Robin.—Pray does the Hen Robin sing? As I never noticed a silent Robin, and have often observed them for a long time together, and always found, at the spring of the year, that every one I could see, sung. (Both cock and hen appear to make known all their feelings, whether of anger or love, in the semblance of song.) What is the best mode, and the expense of constructing a frame for cucumbers which, without using stable dung, would enable me to have them on the table all the winter through? And who would you recommend to erect it? Q. V.

☞ An answer, including all necessary information, will appear shortly.

Will Mr. Howden quote some passage from the writings of Mr. Withers, in which it is stated "that the frothy firs grown on the rich lands of Essex, &c. are as good as the Highland or Norway Pines,"* or any thing to that effect? As far as my recollection goes, Mr. Withers says nothing about the quality of the fir tribe, but wholly rejects them, particularly the Scotch, as unworthy of the

* Vide Mr. Howden's Letter .Reg. page 426.

planter's notice, and altogether unnecessary as nurses where the ground is properly prepared. Mr. Howden, on the contrary, appears to regard firs as the sole object of his attention, and because they will succeed on a thin poor soil, he thence concludes, that not only manure but trenching are unnecessary, and even injurious for the more valuable trees. If Mr. Howden *can* be serious, let him for once lay aside his puns and his quidities, and endeavour to establish either of the two following propositions:—

1. That the growth of oak, ash, chesnut, and other deciduous trees is *not* greatly increased by trenching and (in the case of *poor* land) manuring the soil before planting, and keeping it clean afterwards; or

2. That the timber so raised is of *inferior* quality to that of slower growth.

Mr. Howden has evidently great confidence in his own powers, but if he can do this, he will accomplish what neither Sir Walter Scott nor Sir Henry Stewart has been able to effect.

Epsom, March 8, 1832. RADICAL.

PRESERVING GARDEN STICKS.—With all due respect to Mr. Claughton's twenty-five years' experience on the preservation of garden sticks described in page 300, I beg leave to say, it appears to me a troublesome and expensive one; an old gardener advised me to *char* the ends of them before putting them in the ground, I have practised this about three years, and my sticks appear as sound as ever. AN AMATEUR.

We conceive Mr. Claughton's system of preserving sticks to be the best for durability, of any that have previously been introduced to public notice; for, however charring the ends may preserve those ends for five or six years, it is not worthy of comparison with soaking them in oil, which renders them capable of being kept in constant use for nearly the term of a person's life.

CONDUCTORS.

SOIL FOR AURICULAS—In reply to T. H. page 330, I beg to inform him, that if old ants' nests cannot be conveniently obtained, well-rotted leaf mould may be used as a substitute; for although I have tried to grow auriculas in all composts that could be suggested, I have found nothing equal to old ants' nests.

JOHN REVELL.

SPUR EYES OF VINES.—In page 427, ELECTRICUS requests to know the process of raising vines from spurs; the system will be better illustrated by the figure 96. Say No. 1, is wood of 1830; No. 2, is wood of 1831, this is what is termed the spur; and No. 3, is the situation where the roots are protruded: plant two of them in each pot in light rich earth, and place them either in a frame, or upon the front flue or curb of a house, where they will have a moderate heat, should both grow, take one out.

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G. STAFFORD.

As I have sought information through the columns of your Register, I ought in fairness to communicate the little my experience will afford; to M. E. S. then (page 427) I answer, that to kill the young shoots of horse radish, a certain, and the only cure I know is, to pull them up as they appear—repeat this two or three times, and success is certain.——To ELECTRICUS (same page) I reply, that the strongest, fullest eyes produced on the young wood, or that of the pre-

ceding summer, are the eyes proper to be employed to raise new vines; they are shorter in the joint, and better bearers than those obtained by any other mode; it was the plan of Speechley, and *is* that of one of our best grape growers, my friend Mr. Crawshay of Norfolk, who cultivated the grape most successfully, previously to his removal, in this county. J. Mills.

Sussex, March 6, 1832.

In this county our grapes, grown under glass, are from Mr. Crawshay's example generally grown on the *spur* system; that is, no wood of the foregoing summer is left on the vine at the period of pruning, except about a quarter of an inch of the stem that has just borne; and the system is adhered to even if no visible eye be left on the branch.

Stand for supporting Dahlias, &c.—The accompanying sketch of a Stand for supporting Dahlias, sweet Peas, Roses, &c. will, I think, be found much superior to that recommended by "A Practical Gardener," p. 444. The uprights are made of $\frac{5}{8}$ round iron, and stand four feet above the surface of the ground. The hoops are $\frac{3}{8}$ round iron, and pass through holes punched in the uprights. Figure 97 represents the stand as fixed in the ground. Figure 98 shows the manner of placing it when not in use; when painted green they have a very elegant appearance, and I have ascertained that they are not liable to be blown down.

27, *North Frederick Street, Dublin,* E. Murphy.
April 14*th*, 1832.

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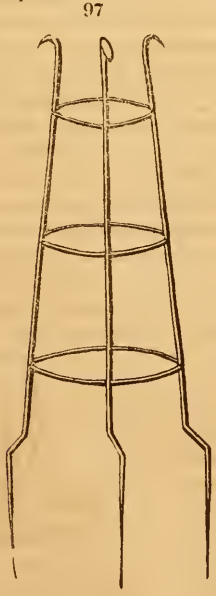
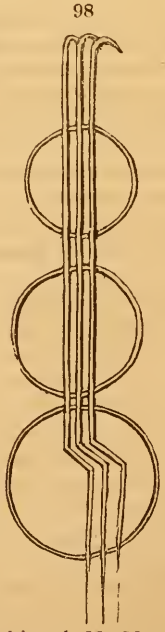


98



Note.—So much are these stands admired that, although Mr. Murphy had the first but little more than a month ago, we understand he has already sold some hundreds of them, the largest sized ones are sold at *seven* stands for 20 shillings, and the smaller eight for the same money.—Conductors.

II.—SOCIETIES,

CONNECTED WITH HORTICULTURE AND NATURAL HISTORY.

LONDON HORTICULTURAL SOCIETY.

The exhibitions at the Meetings of this Society during the past month have been unusually fine, and the numerous attendance of Fellows and Visitors, with the interest which was manifested, were sufficient proofs of the estimation in which the Society is still held.

The display of Camellias was beautiful, and the number of Candidates for the medals, which were to be awarded for the best collections, was very great. Messrs. Chandler contributed about forty sorts, and fully deserved the large Silver Medal, which was awarded to them by the Judges. Mr. Loddiges, Mr. Smith, and William Wells, Esq. were also considered each to be entitled to the Banksian Medal. In addition, we have observed the following plants which were very conspicuous. Hovea illicifolia, Maxillaria Harrisoniæ, Acacia pubescens, the magnificent Magnolias, Yulan, Soulangeana and conspicua, Hybrid Rhododendron arboreum, a Hybrid Cactus, a very fine hardy new sp. of Solanum from Chiloe, Glycine sinensis, Azalea indica phœnicea, &c. &c.

Papers have been read on the following subjects: on the manufacture of Indian Rubber, from the common garden Fig Tree;" "on the cultivation of the Garden Grounds at Evesham in Worcestershire." Description of a double range of forcing pits heated by hotwater, and one of very great practical importance by Mr. Knight, "on the grafting of the Walnut Tree."

The anniversary meeting for the election of officers, &c. was held on May. 1st. Hasler Capron, Esq. one of the auditors, read a report of the state of the finances, from which it appeared that the present debt of the Society amounted to £18,255 4s. 4d. To meet which they had a balance at their bankers of £109 15s. 9d.; arrears of subscriptions, &c. £4,845 15s. 5d.; property of the Society, beyond the available assests, £23,000, making together £27,955 11s. 2d.; leaving a gross surplus, in favour of the Society, of £9,700 6s. 10d.; and in its income over its expenditure, during the year, of £856 10s. 8d. This report was received with considerable satisfaction. The exhibition of shrubs and flowers, sent from the gardens at Turnham-green, and contributed by private persons, especially Mr. Wells, of Red Leaf, were really magnificent. Some curious Flanders spinach, and a fine specimen of Knight's protecting brocoli, from the garden of the Society attracted attention. Previously to the adjournment, one of the Fellows inquired if the Society intended giving a public breakfast during the present year; to which Dr. Henderson replied, that the council had not yet made their minds up on the subject.

ZOOLOGICAL SOCIETY, REGENT'S PARK.

A Meeting of this Society was held on Monday, at the theatre, Albemarle-street, Lord Stanley in the chair. The report of the state of the Society was most satisfactory. The income of the last year was £17,663, being an increase over the preceeding year of £1,857. A similar increase also appeared on comparing the corresponding four months of the past and present year; the receipts during the former being £3,330, and those of the last £3,755. The Society had been formed in 1827, and its progressive increase of prosperity would be best shown by a statement of its annual receipts since then. In 1827 there were £4,079; in 1828, there were £11,515; in 1829, £13091; in 1830, £15,806; and in 1831, they amounted to £17,662. The number of visitors to the gardens in 1830, was £224,745, and during the past year was £258,936; the gross income derived from this source during the former period, was £9,773, and during the latter £11,425. There had been 320 Fellows admitted since the last meeting, making the present total number of Fellows 2,074. after deducting forty-five deaths and fifteen resignations. The report then enumerated a long list of rare and valuable animals which had been added to the collection during the year. In particular the attention of the Meeting was called to the splendid donation of his Majesty of all the animals confined in the menagerie at the Tower of of London. The visitors to the Society's collection of zoological curiosities had been, during the past year, 11,636, and the receipts £333. The Commissioners of woods and forests had granted nine acres and a half of land to the society, contiguous to their gardens in the Regent's Park. A letter had been received from Lord Althorp announcing his retirement from the council of the society. He stated that his zeal for its interests was unabated, and, "should any change chance to take place" which left him more leisure, he should be happy to resume his seat in the council.

DISS HORTICULTURAL SOCIETY.

The first Meeting took place on Thursday, April 12th, at the King's-Head Inn. Notwithstanding the backwardness of the season, the exhibition far surpassed that of the Spring Meeting last year. The fruits, vegetables, and flowers were of the first description. The Camellias were very fine. The Cottagers' table was well covered with brocoli, apples, and pears, all in excellent order. A considerable number of prizes were adjudged. This being the day to appoint officers for the ensuing year, the Rt. Hon. and Rev. Lord Bayning was elected President; the Hon. and Rev. E. S Keppel, Vice-President; Mr. Cupiss, Treasurer; and the Rev. C. H. Browne, Secretary.

LIVERPOOL FLORAL SOCIETY.

The show of Auriculas, plants, fruits, vegetables, &c. took place on Wednesday, April 25th, at the Corn Exchange. The attendance of visitors was not numerous but very respectable; there were but few Auriculas and Polyanthuses, but those produced were very good. The greenhouse and stove plants were of an excellent quality, and made a splendid show. There were some good pines, &c. a plate of strawberries, and a few grapes. Rhubarb, Potatoes, and Brocoli were very fine: indeed, upon the whole, the exhibition was very interesting.

III.—NATURALIST'S CALENDAR,

FOR JUNE.

BOTANY.

This month may be considered one of the most cheerful and beautiful months in the whole year: almost every part of the vegetable creation is in vigorous growth; and during the day the lovely fragrance of the woodbine, (Caprifòlium Periclymenum) and in the cool of the evening, the additional scent of the Butterfly Orchis (*Orchis papilionacea*) give an exhilarating perfume to the air, early in the morning the woods and groves echo with the music of the feathered songsters; and, indeed, all nature seems to rejoice together. The plants in flower, like the preceding month, are innumerable. In the fields, on the borders of woods or on banks, may be found the Hare-bells (Scíllá non scríptus); Stitchwort (Stellària nèmorum); and Herb Robert (Geránium Robertiánum.) And towards the end of the month may be found plentifully in fields the Cockle (Lychnis Githágo;) the Fox-glove (Digitalis purpurea,) Blue-wort (Centàurèa Cyánus;) Frogs-mouth (Linaria linifolia;) &c. In Meadows, the Cuckoo-flower (Lychnis Flosculculi;) the Germander-Speedwell (Verónica Chamæ'drys;) Scorpion-grass (Myosótis palústris;) the Marsh-thistle (Cirsium palústre;) the Water-drop Wort (Œnánthe pimpinellöides;) the Amarella (Gentiàna amarélla;) Meadow-Sweet, (Spiræ'a Ulmária;) &c. In Marshes may be found the Butter-wort (Pinguícula lusitánica;) Loose-stripe (Lysimáchia vulgaris;) Flowering Rush (Butòmus umbellàtus;) and Sweet Gale (Myrica Gále;) &c. And in Rivers, the white and yellow Water Lilies (Nymphæà álba, and lutèa;) Water Ranunculus (Ranúnculus aquatílis;) &c. and many other aquatic plants. And towards the end of the month, on Heaths, besides the Ericas, Ferns, &c. may be seen the Rampion Bell Flower (Campánula rapunculöides,) &c.

ZOOLOGY.

Insects—This month myriads of insects burst from their eggs every day, which may be seen swarming in every direction. Dragon Flies (*Libellulæ*) leave the water where they were born, and may be seen darting through the air, seizing the smaller winged insects as their prey. Butterflies are now very numerous. Amongst the most interesting are the Swallow-Tailed (Papílio Macháon;) Peacock (Vanéssa Jo;) Grand Admiral (Vanéssa Atalánta;) Orange-tip (Póntia Cardamines;) Marbled White (Hippárchia Galàtea;) Tortoise-shell (Vanéssa Polychlòros;) Blue Argus (Polyómmatus Aléxis.) The splendid family of Moths are also plentifully found on the wing in the evenings. Beetles are seen on our paths, and on leaves and flowers, particularly the Rose Beetles (Cetònia Auràta.) The splendid Sparkler (Cicindela Campéstris) may often be observed flitting before us on dry paths: the nest of the Mason Bee may now be occasionally found sticking like a patch of mud on the face of walls. Wasps (Vespa,) and Grasshoppers (Grillidæ,) begin now to be seen plentifully.

METEOROLOGY.

Barometer.—Mean Height, 30. Thermometer.—Mean Temperature 60. Rain.—Mean Quantity, 1,738 inches.

IV.—MONTHLY HORTICULTURAL CALENDAR,

FOR JUNE.

The wet and cold weather we experienced through the greater part of May, has caused the expansion of the blossoms, and indeed the Spring generally, to be much later than for some years previous. The frosts, however, have been comparatively few, and none sufficiently powerful to destroy the hopes of the Gardener; the orchards and gardens are big with hope, and should the weather now prove favourable, we may calculate on immense crops of fruit. The different sorts of business in the garden are, commencing the summer dressing of wall trees, transplanting such annuals as require it, turning the greenhouse plants out of doors, thinning, hoeing, and watering many of the principal kitchen crops, also sowing and transplanting several successional and main crops for autumn and winter.

FRUIT DEPARTMENT.

Summer Pruning.—Towards the middle of the month Peaches, Nectarines, &c. will require all foreright and ill-placed shoots rubbing off, leaving, however, a good supply of young wood for bearing next year. See page 529.

Thin Wall Fruit.—Apricots will now require looking over, and when the fruit is much crowded in large clusters, thin them out a little to allow room for swelling; and towards the end of the month Peaches and Nectarines will need a similar treatment.

Peach Houses started in December will now be ripening their fruit daily; be careful after they begin to change colour to keep the house perfectly dry, and give plenty of air, or the flavour will be materially injured.

Cherry Houses.—The fruit in those started in January will now be fully ripe; keep the house dry as recommended for peaches.

Vineries.—Vines in Pots, p. 6, 185- 490, and 532; on the Rafters or in Frames, &c. p. 193, 309, 337 to 347, and 399.

Fig-Trees both in houses and on the open walls, p. 71, 366 and 385.

Pine Stoves, p. 374.

FLOWER DEPARTMENT.

Dahlias, pages 145, and 494.

Auriculas should now be potted, if not done before, p. 56.

Polyanthuses, page 448.

Ranunculuses in flower should have a little shade afforded them. See page 196.

Carnations in Pots should now be top-dressed, p. 201.

Tulips, page 104.

Erica Cuttings, as also cuttings of most greenhouse plants, should now be put in. See pages 96 and 455.

French and English Roses.—When it is desired they should flower late, treat them after the manner recommended at p. 15 and 330; and for their general culture, see p. 245 and 536.

Greenhouse Plants should now be set out of doors in a somewhat sheltered situation.

VEGETABLE DEPARTMENT.

Kidney beans.—Sow full crops both of Dwarfs and Runners, if the weather should prove dry, water the drills well previous to sowing.

Peas and Beans.—Sow for successional crops as recommended last month, it would be well to soak them well in water for five or six hours before sowing.

Endive.—Sow for the first principal crops, and plant out those sown last month, twelve inches apart.

Lettuce.—Thin out the seed-beds to a foot apart, and plant all sorts the same distance; also, sow more seeds and water when required.

Onions.—Those beds intended to stand for full bulbers, thin to about four inches apart.

Carrots and Parsnips intended for main crops, thin the former to about six inches, and the latter to ten inches apart.

Celery.—Plant out in trenches, pages 289, 291, and 433.

Brocoli.—Take advantage of dripping weather to plant out a moderate crop two feet and a half apart; sow a little more seed, and prick out those sown last month.

Beet Root.—Thin the red to about twelve inches apart, and the green to six inches.

Cabbages.—Prick out those sown last month, and sow a little more seed for autumn Coleworts.

Savoys.—Plant out the main crop for autumn and winter two feet apart, if the weather be dry, give them a good supply of water.

Radishes may be sown once a fortnight, both of the short top, and the white and red turnip radishes.

Spinach.—Sow as recommended last month.

Turnips. Sow plentiful crops of the stone top, &c. twice during the month, and hoe and thin those sown before.

Cucumbers.—Sow in the natural ground for pickling, &c.

HARDCASTLE & JONES, PRINTERS, CHURCH-STREET, SHEFFIELD.

THE

HORTICULTURAL REGISTER.

JULY 1ST, 1832.

PART I.

ORIGINAL COMMUNICATIONS.

HORTICULTURE.

ARTICLE I.—SOME IDEAS ON THE EXPENSE OF ERECTING, AND THE DIFFERENT USES A TWO-LIGHT FRAME MIGHT BE PUT TO, THROUGHOUT THE YEAR.

INTENDED FOR THE ACCOMMODATION OF PERSONS WITH SMALL GARDENS.

BY JOSEPH PAXTON, F.L.S. AND H.S.

It will first be necessary to consider the expense of having a two-light frame made, this would of course depend, in a great measure, on the nature of the materials, and the size it was intended to be. The criterion we shall take is, that the frame and lights be made of the best *red deal;* glazed with good glass, and be well painted; the *size* a common one, namely, each light measuring six feet by three: the cost of the wood together with the labour of a carpenter properly making, would amount to £2. 2s. The two lights glazing with good glass, cut to the size of six inches by three, would cost 18s. and giving three coats of white paint, 11s. 3d. which makes the whole cost of the frame to amount to £3. 11s. 3d. Having thus made a rough calculation of the expense attending the erection, the next thing necesssary is to point out the various uses it may be put to throughout the year. The material for heating will of course be dung, the expense attending which depends on the situation, means of carriage, and other circumstances, which entirely preclude the possibility of any certain estimate, but in most places dung could be procured in a green state at a very trifling expense. The various

uses to which such a frame could be put throughout the year we must speak of each month separately, and shall therefore commence first with—

JANUARY—Those who have a taste for flowers will now have their frame filled with greenhouse plants, Camellias, p. 362, or Auriculas, p. 56, which cannot be disposed of otherwise before next month.

FEBRUARY—The Camellias or other greenhouse plants may now be taken out of the frame, and placed in such rooms as are convenient to flower them. See pages 362 and 498. Let the Auriculas, &c. be placed in a temporary shelter made with a few boards, so that they can be allowed plenty of air, or be fully exposed in fine days, and well covered down at night with mats or litter to preserve them from frost. Then let a bed be made for the frame of prepared horse-dung, about three feet thick in front, and four feet at the back, which will leave a good slope towards the south; set on the frame, and after the bed has settled a day or two, let one of the lights have about a foot thick of light sandy soil put in it; if this cannot be easily procured, mix a large portion of sand with common garden mould, in this plant some whole potatoes of the early kidney sort, which are always best for the first crops, at about the distance of eight inches in the rows, and one foot from row to row; making the rows from the back to the front of the bed, which will admit the sun to the roots when the tops become large; on the top of these potatoes scatter a crop of scarlet radishes, which will be all drawn before the potatoe tops attain any size. Let the other light have some sandy soil or old tan put in it, then plunge a quantity of three years old rhubarb roots as closely as they can be placed to each other, and turn a large pot over each root, to exclude it from the air; if it be the early scarlet variety, the stalks will be ready for use in eight days; three or four large pans or feeders may also be filled with light soil, and sown with light salading: as soon as the seeds begin to show themselves above the soil, sow three or four others to succeed them. When the radishes appear, give as much air as possible without injuring them by either cutting winds or heavy rains. Also prepare a quantity of dung for a cucumber bed, let it be well shaken and thrown in a heap, and watered if necessary, turning it two or three times until it becomes sweetened. Towards the end of the month, when the rhubarb is all gathered, fill the light with the same sort of soil as the other, and plant another crop of kidney potatoes, with a few radishes sown over them as recommended for the last, leaving, however, a space at the front of the frame sufficiently broad to set a row of pans or feeders; sow in one or two of them

seeds of the red solid celery, and in another, a few seeds of Bath coss and other hardy lettuces, the remainder of the pan will do for small salading.

March—As soon as the violent rankness of the dung is properly worked off, begin to make up a cucumber bed of not less thickness than four feet in the front, and five feet at the back; as soon as the radishes are up, take off the frame and place it on the new bed; hoop the radish bed over with mats, to preserve the potatoes and radishes in case of frost; if it is convenient to place a hand-glass over the celery and lettuce pans it will be all the better; fork over the new-made bed occasionally, and when the steam is found to be pretty sweet, put about a bushel of good light maiden soil, mixed with a small portion of pigeons' dung or that of fowls, in the middle of each light, and in the course of two or three days, obtain from some neighbouring garden, two pots of good stopped cucumber plants; if each pot contains three plants, let one be pulled out, as two are quite sufficient for each hill. Make a hole on the summit of the hill, and turn out the plants with the ball entire, place them in the hole, and press the soil about the roots slightly, also give them a sprinkling of water made new milk warm; and if the sun shines bright, take a handful of litter and lay on the glass over the plants, which will sufficiently shelter them until they have become established; earth and treat them in the usual manner, and fruit will be ready to cut by the middle of May.

About the end of June or beginning of July, if the season be fine, cucumbers will have become so common, that perhaps the proprietor may not consider it scarcely worth while to keep the frame over them, especially as they will grow and bear without it; if this is the case, a pit should be formed according to the directions of Mr. Waldron, p. 399, and planted with either grapes, figs, or peaches, set on the frame, and a crop of excellent fruit may be obtained much earlier than in the open air, thus of very superior flavour. Nothing more could be accomplished properly with one frame for that season, as if either grapes or figs were planted in the pit, the frame would be kept in use till October; when the season for sheltering greenhouse plants, &c. for the winter commences, and continues until the following February.

October—To prepare the frame for the reception of the greenhouse plants, &c. take it from off the pit, and place it in a warm situation opposite the south, and fully exposed to the sun; raise it from the ground by laying a brick under each of the front corners, and two bricks under each of the back ones, this will give a good bevel

towards the sun; then proceed to place all round the outsides of the frame, not less than a foot thick of soil well trodden down, and raised nearly as high as the top of the frame all round; next, prepare the floor on which the plants are to be placed, first, by laying a good floor of lime scraps; and on the top of that about six inches thick of coal ashes, on which arrange the plants. This floor will effectually prevent worms from penetrating, and also add much to the warmth and cleanliness of the plants. Elevating the frame also is far preferable to setting it upon the ground, as the frame is not so liable to rot, and the more the plants are raised above the level of the surrounding earth, by a thick floor of ashes, &c. the more easily will they be kept from damp.

J. Paxton.

Chatsworth, June 2nd. 1832.

ARTICLE II.

ON THE DESTRUCTION, OR PREVENTION OF INSECTS, INFESTING PEACH AND NECTARINE TREES.

BY MR. T. H. BAILEY, GARDENER TO WM. EVANS, ESQ. M.P.

Allestree-Hall, near Derby.

This being the season when insects of various kinds become troublesome to the gardener, by infesting his Peach and Nectarine Trees, and not seeing in your *Register* any method given to destroy them, I take the liberty to send the following: A system which I have practised for the last ten years with perfect success, seven of which have been in my present situation. In the autumn, after the fruit is all gathered I commence getting off the leaves, a few at a time, as they become ripe, until they are all entirely off. I then unnail the trees, merely leaving as many nails and shreds in the wall as will prevent the wind from breaking the shoots, at the same time clearing away all dead leaves, cobwebs or other rubbish that may have collected about the crevices of the wall with a hand brush, as I consider them complete repositories for the eggs of all kinds of insects. In this loose state I leave them till the March following, when I prune and nail them again to the wall, taking away all the nails and shreds that were left to support the branches in the winter. The next thing I consider essential is, after the blooming season is past, and the

fruit is set, which generally happens about the end of April, or the beginning of May, I take off with my thumb and finger all fore-right and superfluous side shoots, whilst they are but from two to three inches long, being cautious to leave as few as possible more than will furnish the tree with a good supply of young wood for the ensuing season. When the tree is not likely to put forth its branches too luxuriant, I seldom leave more than two or three buds upon the last year's shoot, supposing it to be from twelve to eighteen inches long, observing to leave one as near as I can to the heel, and another at the extremity of each. Those trees I pick over in the fore-part of the day, I wash with pure water, played with the force of a garden engine, to wash down as much as possible all the old relics of bloom, &c. that may be left behind. This should be done early in the afternoon, so that they may have time to get dry before the cool of the evening comes on; strict attention should be paid to looking over the trees once a week, for a short time, and taking off all useless shoots that may have been left, and repeating the washing every two or three days, when the weather is fine. By this means I have always been able to keep them free from insects, and the foliage has assumed a very healthy appearance, and never failed of having a good crop of fruit. I have seen washes of different kinds used, and even quick lime thrown all over the trees, which I consider not only unsightly, but (the lime in particular) very pernicious to the leaves. I never use a composition of any kind, except dusting them over with a little flower of sulphur in case of mildew. Many people (and amongst them some gardeners of old standing) are of opinion that insects come in the air with cold east winds. This notion I class with those of frogs and toads being rained from the clouds, or the smallest insect in nature being produced without a parent, which appears to me as improbable as producing a camel out of a grain of sand. That cold winds may encourage these little animals in a great degree, I do not deny; and when the young shoots are allowed to get to any considerable length before the trees are hand-dressed over, they become a fine cover for the brood of these little creatures. I believe myriads of them will be generated in a very few days, then a little ungenial weather, tending to check the growth of the trees, the numerous insects obtain the mastery, and become difficult to get rid off, whereas if proper attention be paid, and no harbour allowed, the trees remain free, although cold weather may keep them in a slow state of growth.

T. H. Bailey.

April 14th, 1832.

ARTICLE III.

COMPARATIVE REMARKS ON WOOD AND METAL AS CONDUCTORS OF HEAT.

BY EPHEBICUS HORTICULTOR.

I WAS happy to hear you invite practical men to come forward and state their opinions upon disputed subjects, and pleased to see your invitation complied with. The different sentiments of individuals will be thus brought to bear immediately upon each other, and we shall more easily gain the acquisition of truth, provided those sentiments are established by adequate reasons, and not bare affirmations, said to be the result of experience. I cannot but admire the liberal and candid manner in which some Gardeners have given their opinions, whilst at the same time I must disapprove of the weak reasoning, and hasty inferences of others. As an example, I would allude to the communication of Mr. Cur on Metallic Hothouses—He says, "The chief objection urged against metal is the attraction of heat. *This is mere nonsense,* for if the metal is kept well painted, it attracts no more heat than wood." This he proved by taking a piece of metal and a piece of wood, both well painted, and placing them against a south wall two feet asunder. He examined them every half hour, and could not perceive that the metal heated one degree faster than the wood; they were also put into water, and the one was heated just as soon as the other. Mr. Cur having detailed his experiment, triumphantly exclaims thus: "So much for the attraction of heat, which Mr. M. Murtrie says injured his pines when they came in contact with the rafters!"

From this experiment, Mr. Cur asserts, that metal and wood are equal conductors of heat if kept well painted, for I suppose their power of conducting heat is what is meant by their attracting heat. This I flatly deny; in the first place, because it is contrary to well known properties of caloric; and secondly, because the experiment in itself is erroneous and quite incapable of supporting the inferences which Mr. Cur has boldly deduced from it; the great error of this experiment lies in Mr. Cur making his observation on the same side he applied the heat, if he had felt the opposite sides he would have found a great difference; by his plunging them over head in water, nothing else could be expected, but that they would become equally heated, as there would be a constant giving and receiving of caloric, till they all three were of a uniform temperature.

Any person may prove Mr. Cur's experiments and assertions to be founded on error, very satisfactorily by the following method:—

Take equal sized rods of iron and wood, both being painted; cover the half of each with wax or tallow, plunging the other half in hot water or sand, and observing which soonest indicates the presence of heat—most assuredly the metal. To show the striking disparity between metal and wood, as conductors of heat, let rods of iron, copper, tin, lead, glass, bone, and wood be treated in the manner stated, it will be observed that the wax melts on each particular rod, in the order of its power of conducting heat—the metals first, and these two in their particular order, then the glass, and last of all the wood. Now, supposing the outside of a metal rafter to be heated to 180 deg. it is evident that the inside will be almost as hot, whereas if a wooden rafter was heated on the outside to the same degree, the inside, of the wood being a bad conductor, would only be at the same temperature of the house; a very little reflection upon this will very easily and truly account for the scorching of Mr. M'Murtrié's pines.

Upon this principle is founded the general complaint against metal houses, called (though unphilosophically) the attraction of heat and cold, for if the external atmosphere is hotter than the internal air of the house, or the rafters heated by the sun's rays, it is evident that a quantity of caloric will be given off to the air in the house, and in this case make it too hot; on the contrary, if the external air is colder, there will be a continued absorption of heat from the inside to the out, till an equilibrium is restored, this of course will make the house too cold.

This then, is what Mr. Cur calls "mere nonsense," and which he, in his own opinion, has proved to be such, but I would with all humility inform Mr. Cur, that before he again summons the assurance to call any opinions "mere nonsense," he will first prove his own to be sound sense; and before he attempts any more to write upon heat, or heat in connection with metallic houses, I would advise him earnestly to study the properties of, and the laws which regulate the science of caloric.

In writing this, I am neither actuated by motives of interest on the one hand, or feelings of prejudice on the other; but solely from a desire of seeing liberality of sentiment triumphing over bigotry, knowledge over ignorance, and truth finally overcoming all misconceptions and errors.

EPHEBICUS HORTICULTOR.

S. S. March 13, 1832.

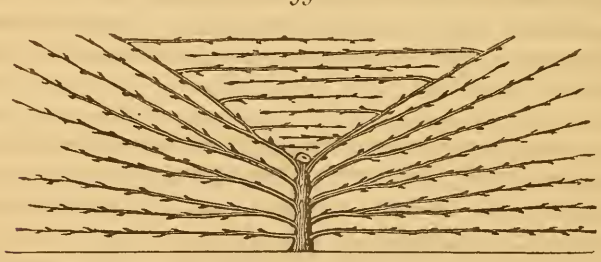
ARTICLE IV.

ON TRAINING TREES.—BY MR. HAYTHORN.

Late Gardener to the Rt. Hon. Lord Middleton, Wollaton-Hall, Notts.

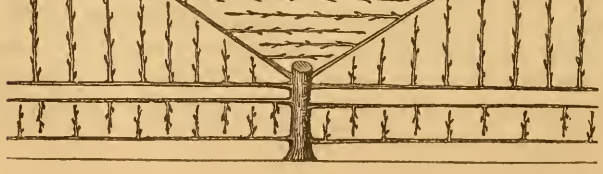
I BEG to lay before your readers a successful method I practised with some old Pear Trees in Wollaton Gardens; they were all trained on the fan fashion, and the wall being too low for them, (only from ten to twelve feet high) they made an exceeding quantity of breast-wood; being full of old spurs, they had become, by repeated cutting, like a clipt hedge, and only bore fruit at the extremities of the side branches. I was very desirous to find out some means to bring them into a bearing state in the centre of the trees, as well as the extremities, without heading them down, not wishing to have much naked wall. I first took out the centre and most upright branches, (fig, 99)

99



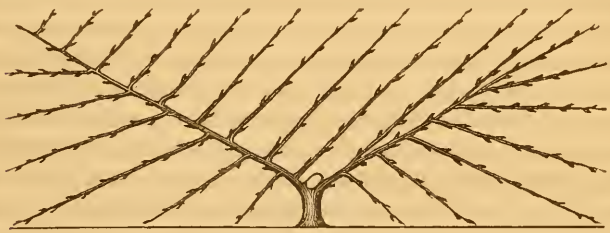
And when the spurs had grown to a sufficient length, and had acquired a degree of hardness, they were trained inwards; these branches bore great plenty of very fine fruit, which induced me to use something of the same means to improve the rest of the trees. I next proceeded to cut away all the other branches, except three on each side, figure 100.

100



The foreright shoots I turned to the wall, intending eventually to take away the top and two bottom branches. But, leaving Wollaton, I had not the opportunity afforded me of accomplishing it; these branches also bore wonderful crops of fruit, and looked exceedingly well. The sorts I chiefly practised upon were *Autumn Bergamot, Crassane, Gansels Bergamot,* and Paddington Pear. A summer Boncretien also, I headed and trained as represented, figure 101.

101



And, although it is considered a very shy bearer, it produced under this treatment very fair crops of fruit, and of an excellent quality. Another tree I headed nearly close to the upright stem, figure 102,

102

And grafted with the Colmar, which is well known to be an excellent fruit for use in February and March, this bore very well, but I found none produce crops equal to those trained as fig. 100. And I am satisfied that any person having trees in a similar condition to those under my care, by adopting the system I have recommended, will be amply rewarded for his pains.

I. Haythorn, C. M. H. S.

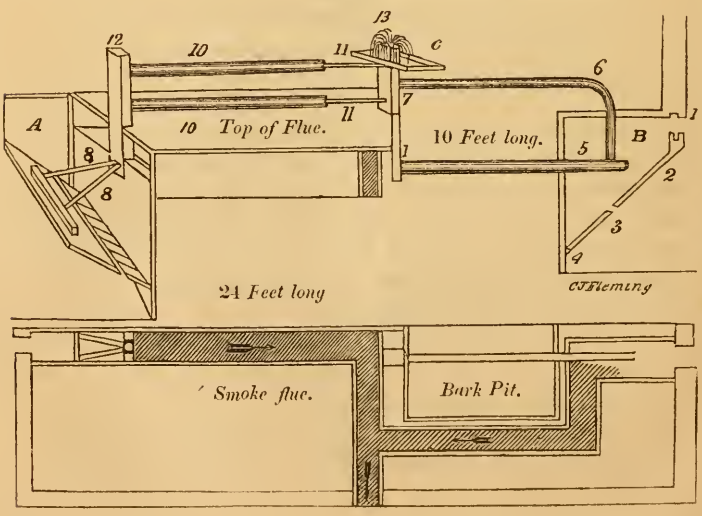
ARTICLE V.

IMPROVED HOT WATER APPARATUS, FOR PITS AND HOUSES.

BY MR. MATTHIAS SAUL, SULYARD-STREET, LANCASTER.

As much difference of opinion exists respecting the size and form of boilers best calculated for hot-water apparatuses, I have been induced to try the experiment of doing entirely without one, by introducing the *pipes* into the fire. The first experiment I made was by placing the lower pipe into the fire so that the water would pass through the flames; next I placed two pipes in the fire so as not to pass over, but be forced back again: this appears to me to have an advantage over the air pipe, which conveyed the water through the fire, as the water is forced in those two pipes backward and forward, which gives a strong motion, working something like a pump, the hot water being forced forward, and the cold forced to the pipes in the fire. It appears also to have another advantage: all matter or sediment which might accumulate in the pipes is entirely prevented by the strong motion. There is a regular stroke of six inches, with a regular fire, but if the heat is increased, it will increase the stroke two or three inches. Perhaps you will consider my apparatus worthy of an early notice in the *Register,* that your readers may be induced to furnish you with tables of the temperature of the water in their different apparatuses, taken twelve feet from the fire.

103



If there be no aperture in the pipe, some other means may be adopted, either to plunge the thermometer into the water of the pipe, or perhaps some of your readers may favour you with a plan of placing it some other way, so as to obtain the correct heat.

My house is 24 feet long, 14 feet wide, and 12 feet high at the back. There are two fire places, one at each end, as will be seen by figure 103 (a b.) (A) is in perspective to show it more clearly; b is only a section, both fire places are of the same size. (1) is a sliding door, at which the fire is supplied with coals; (2) an inclined plane two feet six inches long, and fifteen inches broad, made of cast iron; (3) is the grate fifteen inches by twelve; the ashes fall through at (4) as fast as they are made, all the coals sliding down to the grate as they burn; it therefore is of no consequence whether the grate be entirely immoveable or not. The greater part of the smoke also is converted into heat, by being compelled to pass over the flames arising from the fire on the grate, in its road to the flue; (5) is a single pipe three inches diameter inside, which passes under the bark Pit; (6) a small return pipe about an inch diameter inside measure; (7) the Connector, which acts for all the pipes, as never more than one fire is in use at one time. My chief reason for having two fire places is for trying experiments to prove the difference of the two systems; for, when the fire is burning, the water has to rise into the pipes placed on the top of the flue, and passes round through pipe (5.) The two pipes (8 8) are twenty-one inches long, and one and a half inches diameter inside; the two pipes (10 10) are eight feet long, and three inches diameter inside; the pipes (11 11) are two feet long, and one inch diameter inside; the two Connectors are two and a half inches by four and a half square. (C) is a reservoir for supplying the pipes with water, as it wastes, through a small hole, about the size of a quill, having a plug in it, which prevents an increase of steam, but does not prevent the water from dropping into the reservoir; also, if the strokes are increased above six inches, and the water thrown over at (13) it is caught in this reservoir, and thus enters again into the pipes. The top (12) is closed, six inches being allowed from the pipe (10) to the top.

The following are tables showing the different degrees of heat the water attained, taken twelve feet from the fire, no fire having been in during the day. April 15th, fire made at seven o'clock in the evening in the fire-place (a.) The thermometer stood at 83; in twenty minutes after the fire was kindled, the heat rose to 120 degrees; in twenty-five minutes, 132 degrees; 30 minutes, 150 degrees; 35 minutes, 170 degrees; 40 minutes, 188 degrees; 45 minutes, 212. The

next evening a fire was put into the fire-place (b.) The water like the other standing at 83 degrees; in 20 minutes it rose to 132; in 25, to 140; in 30, to 158; in 35, to 164; in 40, to 174; and in 45, to 188 degrees. It took twenty minutes in bringing the water to the boiling point by fire (b.) The following table was taken: April 27th the temperature of the water was 71 degrees; ten pounds of coal were used, besides a few chips with which the fire was kindled in the fire-place (a.) The thermometer was dipped into the Connector (7.) Another placed in the centre of the house stood at 64 degrees, in two hours afterwards it had arisen to 76 degrees; although nothing had been done at the fire, and the next morning it stood at 60 degrees. In five minutes after the fire was made the thermometer in the Connector rose to 75 degrees; in 10 minutes, 78 degrees; in 15 minutes, 85 degrees; in 20 minutes, 91 degrees; in 25, 104; in 30, 128; in 35, 138; in 40, 144; in 45, 154; in 50, 175; in 55, 175; in 55, 188; in 60 minutes, 212 degrees.

M. Saul.

May 5th, 1832.

FLORICULTURE.

ARTICLE VI.

ON THE CULTIVATION OF HYACINTHS.—By a Subscriber.

"*Et ferrugineos Hyacinthos.*"

Observing that it is your intention to give one or more papers on the cultivation of various flowers and fruits, I beg to send a few remarks on the cultivation of Hyacinths, to which I have for the last four or five years paid particular attention.

Hyacinths will grow in almost any soil, provided it be light and dry; for although they require a good deal of water, yet if the soil be wet the bulbs will decay. I should, however, recommend a rich loam mixed with one-third of sea or river sand.

The beds should be about four feet wide and flat (in the Dutch style,) so that a few hoops and bass mats might be put across them to prevent the frosts and heavy rains from spoiling the blooms. The soil in the beds should be eighteen inches deep, and the bulbs planted in rows about eight inches asunder and about six inches apart. Many of the Gardeners about Manchester have them in pots about

eighteen inches deep and six inches in diameter, and keep them in a hot or greenhouse. The plants may be better protected by this plan, and are much easier to carry about to exhibitions, &c. but I do not think the blooms are any better than those in the beds.

The best time to plant Hyacinths is about the first or second week in November, and when they have done flowering, they should be taken up and put into boxes similar to those used for tulips, and kept in a dry place until the time for planting them again.

A SUBSCRIBER.

Manchester, 3rd May, 1832.

ARTICLE VII.

ON GROWING BALSAMS TO GREAT PERFECTION

BY X. Y. Z.

BALSAMS being general favourites, and grown in almost every cottage window, I beg to submit to their admirers a system, for very much improving their flowering. In page 70 of your *Register* is mentioned a method of growing them to great perfection, by "MR. J. REID, Bridgewater Nursery;" whose plan I follow until the bloom makes its appearance. I then select the best plants, rejecting all the inferior, and, with a pair of grape scissors, clip off all the blooming flowers, and far advanced buds, being careful to cut them off close to the flowers or buds, thereby leaving as much of the flower stalk to the plant as possible. I then shift them into larger pots, and place them in their former situation. By these means the plants throw up their lower branches to great perfection. If the flowers are allowed to remain on the plants as they appear, they injure their growth, and still remain seperate; and, being hid by the leaves, are prevented from being seen to advantage. If my method be adopted, the plants will require shifting again in a fortnight, only then clipping off the flowers, but leaving the buds, and, in a short time, they will be entirely covered with one complete mass of flowers, for where the flowers were clipped off, they will throw out three for one; the plants also grow double the strength of those treated in the usual way. To prolong the flowering season, I take off both seed vessels and flowers as soon as they begin to fade. Thus new flowers are produced in succession for a considerable time.

X. Y. Z.

Thorney, Cambridgeshire, April 21st, 1832.

ARTICLE VIII.

ON THE CULTIVATION OF THE ALO'YSIA CITRI'ODORA, OR LEMON PLANT, OUT OF DOORS.—By Sage.

In perusing page 473 of the *Horticultural Register*, I find that your querist "Suffolk" invokes your numerous Readers to take up their pen to unfold to him the mystery of growing the Alóysia citriòdora of Ortega and Loudon (the Verbena triphylla of L'Heritier and Don,) vulgarly called the Lemon plant, in the open air. I therefore take up my pen in answer to his solicitations, to disclose to him a method of propagating and cultivating this oderiferous production of the Chilian clime.

The soil this plant requires is composed of the same ingredients, and in the same proportion as I recommended for the Salvia splendens, page 437.

Propagation—In the months of May and June choose a warm shady border for the purpose of striking; take out the soil about six inches deep, and fill it with the compost; then take young cuttings off your old stools, displace the leaves for three or four joints, and with a sharp knife cause a slit to pass through the two first joints of the cutting which will cause it to strike root much sooner, then prick them out, make them quite firm, and give them a good watering, covering them close with the hand glass till they begin to grow, when they must be hardened to the open air by degrees.

Cultivation—As soon as the cuttings begin to grow, pinch out their hearts and pot them in small pots using the above compost, and repotting them as often as they require it in the succeeding summer and autumn months, in other respects they must be treated as greenhouse plants till the following May, when you must begin to prepare your bed or beds; if they are intended to be grown by themselves, take out the soil from one foot to one foot six inches deep, the width and length may suit your own taste and convenience, fill it up rather above level, to allow for settling, with your prepared soil, permit it to settle for a few days, and then proceed to put out your plants with their balls entire, two feet apart, firming the soil well round them, and giving them a good watering to settle the soil to their roots, and as the aspect should be a south one, they should be shaded for a few days if the sun is powerful; they must also be defended from cold nights, by means of hoops and mats or canvass, or else they will receive a check from which they seldom or ever reco-

ver. By the foregoing method, I have seen the Alóysia produce shoots of four and five feet long in the course of a summer, and each shoot almost covered with their simple but delicate blossoms. As this Chilian exotic will not bear the severity of the British winter; by the end of September, the plants must be taken up, most of the soil shaken away, all the large, superfluous, and useless roots cut away, and the shoots cut to a couple of eyes, they must then be repotted in good sized pots in the same sort of soil as before recommended, and treated through the autumn and winter months as a greenhouse plant.

The Alóysia citriòdora makes a very agreeable variety among other plants trained against an arbour or a summer house.

SAGE.

ARTICLE IX.

ON CHANGING THE COLOUR OF THE FLOWERS OF THE HYDRA'NGEA HORTE'NSIS.

BY SAGE.

FINDING, on perusing "RUSTICUS," in page 11, and "M. G." in page 497, that causing the blossoms of the Hydrángea to change from pink (their original colour) to blue, is becoming the subject of discussion, I have taken up my pen to become a third person in the controversy, not to depreciate or undervalue the other methods, but to propose one of my own, which is simply this,—instead of cultivating the plants in loam, (the common method) pot them in sandy peat, and water them once or twice a week with a solution of the same, which will be found, after a fair trial, to be equally as efficient as any other method.

SAGE.

ARBORICULTURE.

ARTICLE X.—ON FOREST TIMBER.—BY DODONA.

"Quod homines tot sententiæ."

IT may be a question as to what kinds of trees are likely to be most profitable, when profit is the only object? Much depends upon the nature of the soil. On dry lands, Larch gives the fairest prospects of profit, and what is of no little consequence, it has been found that

the land under Larch carries a beautiful and useful herbage, when nothing that was profitable grew before they were planted. The rapidity of its growth is such, that it has been found by repeated trials, to double in diameter that of the Oak in a given time, and consequently, the bulk being as the squares of their diameters, to produce in the same time four times the quantity of timber; its usual annual increase is from one inch and half to two inches in circumference, so that a tree of thirty years' standing will measure from four to five feet in girth.

It is a matter of deep regret that so little attention should be paid to the growth of the Oak. There was a time when our gentry vied with each other in the cultivation of this tree—when our woods were literally filled with it. Why should not the same laudable predilection now prevail amongst our affluent country gentlemen? especially when the superiority of the English Oak to that of every other country is universally acknowledged.

It is also a source of regret, both to the naturalist and the landholder, that so few registers have been kept or published respecting the growth of trees. In truth, such register will be at all times difficult to procure, on account of the length of time necessary to be passed in amassing facts, before any useful deduction can be drawn. No man loves to enter on a train of reasoning where half a century must be spent in collecting premises. A thousand accidental circumstances may accelerate or retard the growth of one tree which may not occur to any other in the whole plantation; but if the measurement is taken of many, the hurtful and favourable circumstances so counterbalance each other as to produce a fair average result on which the planter may rely. From such tables, an important general conclusion might be drawn, namely, that the planting of timber trees, if the proper species be chosen, is a profitable mode of cropping ground, if not very valuable for the plough. It is one which accumulates yearly in value, without a yearly increase of expense, and will amply repay at the time of cutting down, not only the original cost, but the interest for that sum, and rent during the time of its growth.

As the scientific pruning of forest trees is but little known, such instructions may be easily had, that any intelligent woodman (not inclined to have a will of his own) may execute with perfect safety and at a trifling expense, by which it is hoped the practice will be spread throughout the kingdom, and will never be lost; although the trees will be much improved by annual pruning, both as to growth and quality of timber, yet care should be taken not to over-

prune them. This will always show, when that is the case, by their breaking into numerous unnatural branches, but it may not be so soon observed in the fir tribe, which, however, have generally a stunted appearance for some years afterwards, and sometimes it occasions their death. Perhaps the expense may, with some persons, be the objection to the annual operation; and it is true that all trees, in the course of their growth to perfection, will require very many prunings; but the oftener they are pruned the less they will need at one time, and their value will be always increasing. DODONA.

Knutsford, 1832.

P. S.—When an old hedge is splashed, the labourer should be allowed one penny for every young tree he saves, by which means, the estate will soon be covered with fine growing timber at a very trifling expense. EXPERTO CREDO.

ARTICLE XI.

NOTICES OF FOREST TIMBER.—By An Arborist.

The profits of plantations on the borders of fields are very great in Flanders—yielding the value of the cultivated, as well as planted soil in forty years. The shelter afforded improves the climate, prevents evaporation, and the moisture occasioned greatly promotes the growth of herbage. It is laid down as a maxim, "that small gains and quick returns make the dealer rich; but long credit ruins him." It is a rule, therefore, with that view to cut down the *whole coppice* as soon as it is saleable. The loss of the interest of the money, and the damage which the underwood receives from the drops of the standard, are favourable to this system.

Ash, growing from a level, is generally worth in forty years, from forty shillings to three pounds. Gilpin, in his work on Forest Scenery, calls the Oak the *Hercules* of the forest, and the Ash, the *Venus*. The chief characteristic of the one is strength—of the other, elegance. The ash carries its principal stem higher than the oak; its whole appearance is that of lightness, and the looseness of the leaves corresponds with the lightness of the spray; its bloom is one of the most beautiful appearances of vegetation.

The Beech is the most lovely of all forest trees, whether we consider its smooth rind or bark, its glossy foliage, or graceful pendulous boughs. For fuel, it is the best of any wood we have in this climate, and it is found by far the most powerful to contend with

the western wind. Its leaves, gathered about the fall, and somewhat before they are much frost-bitten, afford the easiest and sweetest mattresses in the world to lay under our quilts instead of straw, and continue perfect for seven or eight years.

The Birch (the Bark) produces that glutinous, odoriferous, and inflamable gums or oil which the Germans and Russians employ in tanning leather, and which gives it that peculiar odour so hostile to insects. It would be peculiarly calculated, if mixed with butter or grease, to smear sheep and a small quantity of it would be sufficient.

The Spanish Chesnut, though not so general a grower as ash, is a most excellent wood either for timber or underwood, and wants only to be more known to be in higher estimation; it partakes much of the properties of oak, but excels it in two points:—it grows faster, and the sap part of the timber is firmer, and less corruptible. It will thrive on almost all soils, and in all situations. Many Spanish chesnuts in Derbyshire have fifty feet of clear stem without a bough; these should not be pruned too much, (indeed this may be asserted of all trees,) lest they throw out fresh shoots, which with judicious annual pruning, will scarcely ever happen, namely, the taking out quite close to the stem with a sharp knife, not fewer than three, or more than five of the most vigorous branches, always beginning at the top of the tree. The Romans first procured the chesnut from Thessaly, where it is grown in great abundance by the Grecians. Its longevity is great, as is sufficiently proved by the celebrated specimen on Mount Etna, which has attained the astonishing circumference of two hundred and four feet. It is the tree with which Salvator Rosa delighted to adorn his bold and rugged landscapes. It flourished in the mountain of Calabria, which furnished the scenes of this great artist's pictures.

The progress of the Horse Chesnut can be traced from parts of Northern Asia to Constantinople, thence to Vienna, and thence to Paris; where the first tree was planted 1615, it was introduced into this country in 1629.

The Cypress, of all timber, is generally supposed to be the most durable, superior to that of the Cedar itself. The doors of St. Peter's church, at Rome, which were formed of this material in the time of Constantine, showed no sign of decay after the lapse of 1100 years, Pope Eugenius the Tenth, took them down to replace them by gates of brass.

All Firs ought to be felled in summer, because they are then fullest of turpentine and heaviest. An Arborist.

(To be continued.)

ARTICLE XII.

ON THE IMPROVEMENT OF THE FOREST TREE PLANTATIONS,

(THIRD PAPER,)

By the Author of the Domestic Gardener's Manual.—C.M.H.S.

GENTLEMEN.—In order to render that which remains to be said upon this subject as perspicuous as possible, I must request your readers to re-peruse the few observations that have already been made upon the formation and developement of the buds or gems of plants, at pages 393 and 394 of the *Horticultural Register*. It may now be further remarked that many plants, particularly those of tropical climates, are said to be unfurnished with buds, "the leaf being in them, immediately protruded from the bark." Perhaps, however, buds, or embryons, tantamount to buds, must be admitted to exist in every plant; for, how otherwise could there be a developement of new parts? The enquiry into this physiological fact is very important, but not immediately connected with the subject under consideration; it will suffice to observe, that buds, where they are visibly present, are generally found to be seated at the axillæ of the leaves, that is, at the angle formed by the base of the leaf stalk, and the stem or branch from which the leaf emerges, Whatever be the precise nature of the bud or embryon, from which the future developement proceeds, certain it is that the bud has its origin and support in juices which have been prepared by those leaves that had previously existed; and, therefore, to the agency of the leaves must be ascribed the commencement and future support of all the vital functions.

If the reader bears in mind that the leaves are proved, by a thousand facts, to be the organs of respiration, the laboratories in which that immature fluid, familiarly known by the appellation of *Sap*, is subjected to the stimulus of light and of air, he will be naturally prepared to ascertain, as far as may be possible, the nature of that fluid, and the course or channels by which it is conveyed from the fibrils of the roots to the extremity of the leaves.

The *Sap*, in the common acceptation of the term, is that simple bland fluid, which is absorbed from the soil, and supposed to be distributed by appropriate vessels throughout the whole vegetable structure. This fluid was, at a former period, believed to *circulate* in the vessels of the plant; and hence the origin of the expression so often misapplied, "the circulation of the sap." There is reason, however, to believe that, strictly speaking, the sap does not circulate, that is, in a way corresponding with that of the motion of the blood in ani-

mals, for there is no heart, no organised internal viscus, which can propel the vegetable fluid through one set of vessels and receive it back again, by the channels of another set. There exists, particularly in the early spring, an ascending movement in the juices derived from the soil, and this can, in many instances, be distinctly traced. After the developement of the leaves, however, the flow of the sap appears to cease: that is, plants do not, after the leaves are expanded, evince any great tendency to bleed, when they are cut across. The movement of the sap, notwithstanding, is not in reality interrupted; for it increases as the temperature of the season advances, but as the leaves are expiratory organs, a large portion of the more aqueous part of the sap is either carried off, or undergoes a remarkable change by the operations of light and air upon it within their cellular membranous tissue. The ascending sap, as far at least as the taste is capable of determining, can scarcely be distinguished from pure water. It holds however in solution, matter, which renders it liable to undergo speedy fermentation, and to become either acid or putrid. The motion of the sap, strictly speaking, is that of ascent, but it is not through vessels tubular throughout their whole structure that the sap ascends; it is through the cellular substance (parenchyma) of herbaceous plants; and the cullular vessels of the sap-wood (alburnum) of trees, that it passes. These vascular cells are little bladders replete with juices, a familiar example of the structure of which is furnished by the pulp of an orange; they are arranged side by side, but one above another in rather an oblique direction, and, therefore, the sap in vessels so constructed and situated, must flow by a lateral or zigzag motion, whose general direction is one of ascent. This motion depends upon the attractive energy exerted between fluids of different densities, when they are seperated by a membranous substance; and constitutes that surprising phenomenon that has been recently discovered, termed by M. Dutrochet, *Endosmosis*, and by some other naturalists, the *penetrativeness* of fluids. The subject would require too much minute enquiry and rigid investigation, to admit of being pursued in the present paper; it will, therefore, suffice to observe that a species of circulation of the sap may still be said to exist, because, to a certain extent, there is a blending of the perfected descending juices, with the raw ascending sap. This fact appears to have been established by the experiments of Mr. Knight; for he discovered that "the specific gravity of the sap of trees increases in the spring in proportion to its distance from the ground; and that saccharine matter, (that is, something in a degree approaching to sugar,) is found at that season in the sap-wood of trees, which contained none

in the winter." Now, this effect could only have been produced by the intermixture of some matter that had previously been prepared by organized vessels above, and remote from the roots.

I have stated the above facts generally, now, because they tend to evince the importance of every healthy portion of the vegetable structure. Without particularizing further, I shall merely observe, that the sap undergoes a complete alteration after it has entered the cellular vessels of the leaves: that, in those organs it is converted by the agency of light and air, from an almost insipid fluid, into one possessing taste, odour, and colour; and that this perfected sap is then propelled or attracted downward into the vessels of the *liber* or inner bark, and becomes the laborated substance termed *cambium*. This matter contains perhaps, all the molecules, or organized particles from which the *alburnum* or sap-wood of trees, and the parts analagous to it, of herbaceous plants are produced.

The deposited sugary matter, spoken of by Mr. Knight, must be prepared in, and returned from, the leaves; and as the inner bark is exterior in its position to that of the sap-wood through which the sap ascends, it is clear to a demonstration, that the proportion of prepared fluid derived from the former and blended with the latter, could be so only by a lateral or side-long progress. In this way then, a circulation may be said to exist; for, there is, first, a positive ascending current through the sap-wood; second, a descending current from the leaves, through the bark, and to the roots; and third, a lateral or connecting current between the vessels of the bark and those of the alburnum.

I do not attempt, in this article, to enter minutely upon an inquiry into the precise nature of the sap vessels—their structure, position, and functions; for, it is one that properly belongs to the science of vegetable physiology: my chief design is to prove, beyond a doubt, the great importance of retaining in their integrity, every healthy portion of the vegetable organization; and to evince that, by lopping off, or depriving a tree or plant of any one of its vessels of supply, or efficient organs of elaboration, a direct and positive act of mutilation is committed, injurious in proportion to its extent, and ruinous if rashly persisted in. Such is the opinion of every impartial observer of nature, who views the operation of the pruner in connection with the philosophy of the vegetable structure. The real phytologist, when witnessing the fresh verdure produced by the amputations of the knife, is not deluded by mere appearances: he knows that nature has been severely taxed; and that those new developments are procured at the expense of much vital energy.

It should however be recollected, that we say nothing against the operations which suit man's convenience; neither do we impugn his right to prune, train, or decorticate his trees; we merely require that facts, and not false notions be permitted to guide the judgment; and therefore, we observe, that if it be the planters's object to let his trees gain strength, to obtain vigorous, healthy growth, and robust old age, the system of pruning out healthy sound wood, ought to be abandoned. If, on the contrary, figure, early maturity, and fruit-bearing be the chief desiderata, pruning and its concomitant operations must, and ought to be persisted in. The simple facts of the case may, I think, be condensed in a few lines, and I offer the remarks which follow to the candid consideration of every philosophical observer of nature.

By pruning and training we indeed *educate* the tree, and make it subservient to our will; we place it in an unnatural position, spread it abroad, expand and depress its boughs and branches; nay, we produce an appearance of growth, and expansion of parts by the operations of the knife; for we compel nature to make attempts at self-preservation by a precocious development of those buds which, for a time, or even a long period of years, might otherwise remain dormant in the stems; but all these are processes of exhaustion, and not of energy.

The consequences prove this to be the fact, because *fertility* is the invariable result; and fruit-bearing is the constant attendant upon, as well as the certain effect of, whatever tends to check vigorous or luxuriant growth. We gain fruit, but abate the *vis vitæ;* we induce precocity, but shorten life: hence, I consider loppings and prunings of every kind to be injurious, where *duration of life* and *bulk of timber* are the objects. Let us not mislead our judgments, but rather acknowledge facts: a tree, I repeat, is not benefitted by prunings, but its fertility, the final object of its being, is doubtless accelerated; and therefore, whenever we prune or disbud fruit-bearing trees, we do it expressly to obtain fruit-buds within certain prescribed limits, and we gain our ends. But let us not be so unphilosophical as to suppose that we thereby improve the strength and vitality of the tree.

With these remarks I conclude this series of papers; and I trust that the kindness and good spirit of the far greater number of your readers will induce them to appreciate and justify my motives.

G. I. T.

May 28, 1832.

RURAL AFFAIRS.

ARTICLE XIII.

A DESCRIPTION OF THE HOUSES OF THE PEASANTRY IN THE WESTERN HIGHLANDS, AND NORTHERN PARTS OF SCOTLAND.

BY THE BRICKLAYER'S LABOURER.

HAVING determined upon seeing Johnny O'Groat's I threw aside the *hod* for a few weeks, and visited North Britain in the year 1826; so the following is no second-handed account of the houses of the peasantry in that part of the country, but that which came under my own observation.

I arrived at Wick in the fishing season, where all was hurry and confusion. I hastened into the country, where I was greatly disappointed to find there were no forest trees whatever, nothing larger than a willow or apple tree, and one or two others. The face of the country presented a bare, bleak appearance to one who had seen the beautiful scenery of England, and that of the South of Scotland. The gardens appeared very scantily furnished with fruit trees; pears, apples, cherries, gooseberries, currants, &c. were chiefly all the fruit they grew. I saw no peaches, or melons, or any other of our choice fruits in any of the gardens which I had visited, nor any hothouse plants worth mentioning; kitchen garden vegetables of every description were, however, in great abundance. But to my subject:—The following observations do not extend to the towns, which, upon the whole, are very tastefully built with a kind of blue, hard stone.

The houses of the small farmers and peasantry, and the manner of erecting them, astonished me more than anything.

The site being chosen, (which by the bye is seldom a good one,) and the trenches for walls being excavated to the depth of two feet, round stones are gathered from the surrounding fields, with which the foundations are laid. The walls are carried up to about three feet with these stones, which are locally termed whinstone, and bound together with clay mortar instead of lime. The walls are then carried up to their respective heights (and two feet thick,) with heavy turf prepared for that purpose. Half-dressed boughs or limbs of trees (imported from Inverness and Ross-shire) are joined together with wooden pins, (such as are used in the building of ships,) to form the scantling of the roof. The rafters form a segment of a circle from the easings, and are continued down the ground on each

side, as the walls are not sufficient to support them; recesses about nine inches deep being left in the wall for their reception. Tile-lath is then laid on at random, and covered over with very thin turf in regular courses, and finished with straw. The strata of the materials of the roof is secured by heather (heath) ropes, braced down at the easings by lintel-shaped stones, suspended and equally ballanced in the loop of the ropes. No openings are in the external walls except the door-way, which has a cross-barr'd batten door, that is shut up or fastened with a wooden bolt, turned off and on outside by a crooked piece of iron. The light is admitted by a skylight about twelve by sixteen inches. The interior division walls are the same as nature left the stone and turf; and the floors are earthen or clay. Where there is more than one apartment, the walls have openings without doors. A stone stands on edge in the middle of the living room, (if can it be called a room,) which the fire is built against; the smoke ascending through a round hole in the roof, having a funnel, but more generally an old barrel, to conduct it into the atmosphere. Opposite to the fire are recesses for the children's bed; and behind the fire are calves, swine, and hen-roosts; and not unfrequently, a horse or a cow.

In such like houses do the peasantry of that part of our country spend their days; and, although they remain silent on the subject, they are not insensible to the injury they receive from the negligence of their poor, but proud and haughty lairds.

Having remained in that part of the country until the middle of winter, I had an opportunity of witnessing the effects of these damp, disagreeable, and unwholesome houses; and were the inhabitants not a hardy race of people, they never could exist in such cold, miserable hovels. The severe bleak winds from the north, without any trees to afford shelter, induce them to build their habitations in low glens or valleys, which is both uncomfortable and dangerous in stormy winters. The wind drives the snow from the heights into the lower parts in the night time, and I have seen the poor cottagers dug out in the morning by their neighbours.

The houses of the peasantry in that part of the country might be improved, or rebuilt at a very little expense. Stone is abundant in almost every parish; and in some places it can even be procured by digging twelve or twenty feet deep. The shore dues are exceedingly low, and therefore Memel and American timbers might be had cheaper than in Edinburgh or London. There is a pavement quarry in Halkirk in the county of Caithness, the best in Scotland, which might supply them with large flag-stones to form their roof: this

would make a most substantial covering, which is necessary in these parts, as the winds are so very high at times, that I have seen a roof, with the exception of the rafters, completely lifted off and crushed to the ground.

It is but justice to mention here, that the Highland Society has done a great deal for that part of the country; and what is still more gratifying, they are continuing their exertions. Poverty may plead an excuse for many of the landed proprietors there; but did they, in addition to their present Institutions, form Associations for improving the conditions of the labouring classes, (such as that established in Sussex,) then the end we have in view would be much easier accomplished. THE BRICKLAYER'S LABOURER.

London, 23rd February, 1833.

NATURAL HISTORY.

ARTICLE XIV.

ON THE STUDY OF ENTOMOLOGY—By RUSTICUS.

(Continued from p. 420.)

Subsection 2nd—HYDRADEPHAGA; Water Beetles, Toe-Biters.

Family VIII. –DYTICI'DÆ; 12 genera.

Most of these grow to a considerable size, and are capable of biting very severely; they all inhabit stagnant pools, from whence they issue in the evenings, to make excursions on the wing: the *larvæ* have each six eyes, and are exceedingly rapacious, feeding on all water insects that come within their reach, as well as one another.

1. Hàliplus,	5. Hydrophòrus,	9. Hydáticus,
2. Pælòbius,	6. Notèrus,	10. Dy'ticus,
3. Hyphìdrus,	7. Laccophílus,	11. Cybíster,
4. Hygròtus,	8. Colymbètes,	12. Acílius.

Family IX.—*Gyrinidæ.*—1 Genus.—1 *Gyrìnus.*

The most common species in this genus is the *Gyrìnus natàtor*, the little shining waterflea or whirl-wig, which may be seen skimming about on the surface of almost every stagnant pool, this remarkable insect is possessed of two pairs of eyes; one pair being situated on the lower part of the forehead adapted for seeing in the water, and the other on the upper part of the forehead for seeing in the air; the *larvæ*, like those of the *Dyticidæ*, are supposed to be possessed of six eyes each, but De Geer could not properly ascertain.

Subsection 3rd.—PHILYDRIDA; Amphibious Beetles, or such as haunt water.

Family X.—PARNI'DÆ, 1 Genus, 1 *Pàrnus.*

Family XI.—HETEROCERIDÆ; 1 Genus; 1 *Heterocèrus.*

Family XII.—LIMNIIDÆ; 2 *Genera.*

1 Georyssus; 2 Elmis.

Family XIII.—HELOPHÓRIDÆ; 4 *Genera.*

1. Hydròchus,
2. Helophòrus,
3. Ochthèbius,
4. Hydr'æna.

Family XIV.—HYDROPHI'LIDÆ; 6 *Genera.*

1. Limnèbius.
2. Hydröus,
3. Hydróphilus,
4. Spércheus,
5. Berösus,
6. Hydròbius.

Family XV.—SPHÆRID'IDIÆ; 2 *Genera.*

1. Cércyon,
2. Sphærídium.

Family XVI.—ANISOTOMIDÆ; 9 *Genera.*

1. Tritòma,
2. Phalácrus,
3. Ephístemus,
4. Leiòdes,
5. Agathídium,
6. Clámbus,
7. Clypeaster
8. Anisotoma, Kirby MSS.
9. Scaphidium, Marsh.

Subsection 4th.—NECROPHAGA; Beetles that feed on Carrion, Putrid Wood, and Fungusis.

Family XVII.—SCAPHIDIDÆ; 6 *Genera.*

1. Scaphídium,
2. Scaphisòma,
3. Myl'æchus,
4. Homaphàgus,
5. Cátops,
6. Cholèva.

Family XVIII.—SILPHI'DÆ; 7 *Genera.*

1. Necrophòrus,
2. Necròdes,
3. Oiceoptóma,
4. Sílpha,
5. Phosphùga,
6. Agy'rtes,
7. Péltis.

The species of more than ordinary interest, in this family are the Necrophòrus Sepúltor, and Vespillo, or Burying Beetles, which may be met with wherever there is putrid flesh on the ground; they are said to be possessed of extraordinary powers of smelling their food at a great distance. Mr. Rennie informs us in *Insect Miscellanies,*

p. 46, that he once observed a pair of those useful insects, the N. Sepultor, in Copenhagen Fields, flying at the height of about twenty feet from the ground, when they suddenly descended, and crept under the body of a dead frog hid amongst the grass, although this was so dried up with the extreme heat of the weather, (1825) that little or no smell could be perceived, when standing close to the place; it was in the forenoon when the sun was bright and powerful, a time when scents are much less diffusible than in the cool of a dewy evening. M. Gleditsch also gives in the *Acts of the Berlin Society, for* 1752, some very interesting accounts of the labours of the N. Vespillo: "He had often remarked that dead moles when laid upon the ground, especially if upon loose earth, were almost sure to disappear in the course of two or three days, often of twelve hours. To ascertain the cause, he placed a mole upon one of the beds in his garden; it had vanished by the third morning, and on digging where it had been laid, he found it buried to the depth of three inches, and under it four beetles, which seemed to have been the agents of this singular inhumation. Not perceiving any thing in the mole he buried it again; and on examining it at the end of six days, he found it swarming with maggots, apparently the issue of the beetles, which M. Gleditsch now naturally concluded had buried the carcass for the food of the future young. To determine these points more clearly, he put four of these insects into a glass vessel half filled with earth and properly secured, and upon the surface of the earth two frogs; in less than twelve hours, one of the frogs was interred by two of these beetles; the other two ran about the whole of the day, as if measuring the dimensions of the remaining corpse, which on the third day was also found buried;" this was accompanied with many other interesting experiments of a similar character. Mr. Rennie also tells us, that "In the summer of 1826, he found on Putney Heath, in Surrey, four of these beetles hard at work in burying a dead crow precisely in the manner described by M. Gleditsch." And Messrs. Kirby and Spence in their Introduction to Entomology, p. 515, notice a very curious fact of these insects. "A friend of M. Gleditsch being desirous of drying a dead toad, fixed it to the top of a piece of wood, which he stuck in the ground, but a short time afterwards he found that a body of these indefatigable little sextons, had circumvented him, in spite of his precaution; not being able to reach the toad, they had undermined the stick until it fell, and then buried both the stick and the toad.

RUSTICUS.

(To be continued.)

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ARTICLE XV.

SURREY ZOOLOGICAL GARDENS, MANOR PLACE, WALWORTH.

Considering the site on which this garden is formed, it is astonishing how rapidly it has been brought to its present condition. At page 220 of our *Register*, a correspondent noticed that Mr. Cross had availed himself of the valuable services of Mr. Phillips, the landscape planter, and under his judicious and excellent superintendence it soon appeared in another form; for (although in July last the grounds were nothing but swampy meadows, except a small kitchen garden, and another little plot near the house cultivated partly as an orchard, and partly as a flower garden, and after the elapse of about three weeks,) they were got into that state as to induce Mr. Cross to open them, and the visitors who paid for their entrance averaged from five hundred to a thousand persons daily. A late notice of them says, that "the grounds possess some of the most beautiful features of landscape gardening." This we conceive to be correct; for some of the views are extensive as well as very beautiful, particularly if the view be taken standing at (26 fig. 105) it is exceeding-grand and imposing, perhaps not to be equalled in any garden, either public or private, for many miles round London. One great object of Mr. Phillips was to give a bolder style than is seen at the Regent's Park Gardens The enterprizing spirit and indefatigable labours of Mr. Cross deserve the highest praise; he has had a beautiful lodge entrance (1) fig. 105, erected, opening into Penton Place close to Manor Place, (2,) to the right of this entrance are rooms appropriated to birds on sale (23,) and a short distance from them a neat enclosure for pheasants (3.) A quantity of curious water-fowls occupy a bason on the grass (4.) The monkeys also enjoy a spe-

cies of perpetual summer, and show their little tricks to advantage in all weathers, in a glass conservatory (5) as was noticed at p. 220 of our *Register;* attached to this monkey conservatory is a commo-

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dious eagle house (6;) there are also two more enclosures for pheasants (7, 13;) (8) is gentlemen's closets, (9) confectionary and cloak room, (10) is a small pond for alligators, and then the visitor

comes to one of the most imposing structures of the age—the glass conservatory for tropical animals, birds, and plants (11;) this capacious building is near three hundred feet in circumference, and is most judiciously arranged. The animals occupy a series of cages or compartments forming a circle in the centre of the building; exterior to these is a colonade which supports the roof, here are numerous cages of interesting birds hung and otherwise fixed; there is then an open area for the spectators to parade, which is bordered with a stream of water for exotic fishes; this novel edifice has entirely originated with Mr. Phillips, and at once proves his abilities and ingenuity. The ruins for eagles, (18) which perhaps has been rarely surpassed even where expense has been no object, was merely built out of such rubbish as came in his way, for, it must be understood, the question with Mr. Phillips was not how *well* but how *cheap* he could transform this marsh into a pleasure ground. The octagonal building (12) surrounded by paddocks, is filled with many rare specimens of foreign domestic animals; the seal occupies a small pond (14) not far from the large conservatory, near to which is the elephant pond, (15) and on the site for the elephant house (16) there is also a cave for the tortoise, and a partition for the armadillos (17.) The hermitage and boat-house (19) stands on the edge of one of the most interesting lakes in the vicinity of London, in this water is an island (20) for monkeys; (21) is the site for the bear pit; (22) is a lodge entrance from Kennington, near to which is a park (25) enclosed for deer on sale; (24) is the camel house; where there are dotted lines forest trees are planted, each of which is labelled, with it its Latin and English name, together with the country of which it is a native, and a more interesting walk, as an Arboretum, perhaps has not hitherto been formed. The garden contains fifteen acres, about three of which is covered with water. The whole is the property of Mr. Cross, who, we must say, certainly deserves the most distinguished patronage.

PART II.

REVIEWS AND EXTRACTS.

EXTRACTS.

HORTICULTURE INTELLIGENCE.

Mode of Preserving Apples.—Perhaps every thing that can be done may be accomplished with a good fruit room and a dry cellar; but where these cannot be had, the following method will be found to answer: The apples are taken from the tree in the autumn in a pretty ripe state, they are then carried to a cool outhouse, and piled in a sort of oblong heap against the wall upon some wheat straw. The fruit may lie in this state about a fortnight, and then packed in large packing boxes, with ferns or brakens, (fronds of Pteris aquilina) which have been previously well dried, placing them in the order of a layer of ferns and a layer of apples alternately until the boxes are full; the lids are then fastened down, and the boxes carried to a border of a northern exposure, each being set upon two cross pieces of wood to keep it free of the damp surface. They are then covered with straw and earth, and are allowed to remain until required; one box being lifted at a time as wanted for use.—W. Morison.—*Cal. Hort. Trans.*

On the Preservation of Grapes and Plums.—At Berlin, grapes are preserved by cutting the bunch when ripe with about one foot of the wood, above and below the footstalk. The ends of the wood are dipped in hot pitch to keep in the moisture, and the bunch is then hung up in a dry place. The Quetch plum is preserved till March by the following method:—Gather them when perfectly ripe and dry; put them in a glass jar or bottle, closely tied up, and pitched so as to exclude the air; and then bury them in dry soil seven or eight feet deep, so as to be out of the reach of any change in temperature or moisture. When taken out they must be used immediately.—*Ib.*

On the Varieties of the Pine Apple.—(Continued from page 515.)—10. Green Java, called also, the *Narrow-leaved Java.*—Leaves long, broad, palish green, free from any tinge of brown or purple, with small feeble spines. Flowers large, dark bluish purple. Fruit oval, sometimes tapering a little to the summit, weighing from four to five pounds; before ripening, light green, and lightly covered with meal, when ripe, of a fine clear citron colour. Pips rather above the middle size, and flat. Scales cover full one-third of the pips, and in long narrow points. Flesh pale yellow, rather soft, juicy, and melting with a rich pleasant acid. Crown middle sized, leaves not very numerous.

11. Black Jamaica, Montserrat of Speechly, black Barbadoes of some, copper-coloured and tawny of Hort. Soc. Cat. No. 14—Leaves rather long and narrow, slightly spreading, and somewhat keel-shaped, of a dull green, tinged with a dark brown colour, and rather mealy. Spines short, regular, and thinly set. Flowers purple. Fruit oval, not much lengthened, rather compressed at

the ends, colour before ripening very dark olive, afterwards a dark orange, inclining to that of copper. Pips roundish, irregularly angular, about the middle size, rather prominent at the margins, and concave in the centre. Scales covering one-third of the pips and terminating in lengthened points. Flesh pale yellow, opaque, firm, slightly stringy, very rich, juicy, and high-flavoured. Crown large, spreading, and very mealy. A pine of great excellence weighing from three to five pounds; richly meriting the character given it by Speechly, namely, that in the autumnal months, and even during winter, it produces a fruit much more swelled and perfect than any of the other sorts.

12. Orange Sugar-Loaf.—Leaves rather long and narrow, somewhat keel-shaped and a little spreading, of a dull green, considerably tinged with dark brown, and rather mealy; spines short, and thinly set and regular. Flowers pale purple. Fruit cylindrical, before ripening very dark olive, somewhat shining and slightly mealy; when ripe, deep yellow, inclining to an orange colour. Pips large and flat. Scales covering about half the pips, and ending in short, blunt, reflexed points. Flesh pale yellow, almost destitute of fibre, very juicy and sweet, with a rich highly-flavoured acid. Crown middle sized, leaves numerous and spreading.

13. Downton Havannah, called also Knight's Seedling. It differs nothing from the Smooth Havannah, except having small spines on the edges of the leaves.

14. New Jamaica. Black Jamaica *Speechly*. New Black Jamaica, Hort. Soc. Cat. No. 43. St. Kitts, Hort. Soc. Cat. No. 73, Brown Antigua, English Globe, and Montserrat of many English gardens, St. Vincent's Sugar-Loaf, and Mr. Rae's St. Vincent, in St. Vincent's.—This differs from the Black Jamaica in the colour of the leaf, which is rather paler, and in the margins being slightly reflexed. The fruit is pyramidal and slightly mealy. The colour black, on approaching maturity changing to that of a dark orange. Pips differ from those of this variety by being half covered with the scales, and rather more prominent and angular. Flesh pale yellow, somewhat opaque, slightly fibrous, sweet and rather acid, very pleasant, rich and highly flavoured. Crown middle sized, leaves rather numerous and spreading. An excellent summer fruit, but is apt to become deformed during the winter months, it generally weighs from three to four pounds.

15. New Demerara. Harrison's New, of some gardens.—Leaves strong, very broad and rather long, slightly keel-shaped and spreading, of a dull green colour, and tinged with reddish brown on the upper surface, the lower surface is remarkably mealy, a feature by which it may be readily distinguished. Spines rather minute and regular. Flowers lilac. Fruit globular, depressed at each end, of a dark green colour before ripening, afterwards a dull ochre tinged with red; very mealy on the centre part of the pips, which are large and prominent. Scales covering half the pips and ending in narrow lengthened points. Flesh white and firm, very juicy, but not highly-flavoured. Crown large, leaves rather long and erect.—*Hort. Trans. vol.* i. *part* 1, *Second Series.*

To avoid the Danger of rank Steam from Dung Linings injuring Plants in Frames.—Instead of filling the lights with glass in the usual way, have two blank squares of wood in the top of the lights, in the centre of which is a hole cut one inch in diameter, and covered with a piece of tin or lead, so fastened as to turn with ease; these are opened as air may be required, either by day or night.—W. Preston.—*Gard. Mag.*

On Canker in Fruit Trees.—The nature of the sap or juices of one sort of stock, may suit particular sorts of grafts, and another sort other kinds. The nature of the stock, therefore, is more particularly the cause of canker in fruit trees. However, there are other causes besides this, as for instance, in taking up and transplanting trees, the roots are often injured in a great degree by being much reduced; and should the top not be pruned in proportion, the plant usually becomes bark-bound for want of nourishment, whereby it languishes, and canker generally ensues. Bruises are also often a cause of canker. Jargonelle pear trees are often affected by a different kind of canker. Rubbing over the diseased part slightly with hogs-lard, is often found beneficial to Jargonelle trees. When a tree is wished to be permanently established, either against a wall or as a standard, sowing two or three seeds of the crab sort in the selected spot is to be recommended. If more than one plant grows, leave the best, and pull away the others, Stocks produced on the spot where they are destined to remain, will probably be fit for working the third year, or at most the fourth. This method may appear tedious at first view, but in a few years it will fully compensate for the delay. The composition to be used as a cure for canker, is made of one pound of pitch, half a pound of rosin, half a pound of venice turpentine, four ounces of bees' wax, two ounces of hogs-lard, or a gill of whale oil, heated over a fire until the whole is incorporated with a liquid matter. After cleaning out the diseased part wash it with a strong solution of soft soap, and brush it well, cover the orifice or part with strong paper or sheep's skin, and with the composition warm and a painter's brush, cover over all round the wound on the tree. When canker appears in forest trees, it is, in a great measure, occasioned by the injudicious manner in which the different species are arranged. Willows and alders ought to be destined for a bog; oaks and ash for a strong soil. Larch should be more elevated.

The juice (sap) appears to be very superabundant, yet it is most applicable for a great many kinds. The juice of the crab is most congenial in a general view to grafts of all sorts of apples.—A. Diack.—*Cal. Hort. Soc.*

FLORICULTURAL INTELLIGENCE.

New and very rare Plants, figured in the Botanical Periodicals for June.—

CLASS I.—DICOTYLEDONOUS PLANTS, OR EXOGENES.

Fernströmi'aceæ, *Mirbel*; Camelli'eæ, *Jussieu.*

Cam'ellia *japónica*; var. Reevesiána: Mr. Reeves's crimson Camellia.—Flowers double, very rich crimson, but liable to variation. Native of China, from whence it was imported by Mr. Tate; it is named in compliment to Mr. Reeves, a zealous Botanical collector in the celestial empire.—*Ed. Bot. Reg.*

MYRTACEÆ.

Couroupita *Guianensis.* Guiana Couroupita, or Cannon-Ball Tree. A tree growing to a vast size, one of the greatest ornaments of the dense forests of

Cayenne.—Flowers yellowish on the outside, and crimson-lilac within, large and very beautiful, and endowed with the most delicious odour, the fruit grows to a remarkable size, and according to Mr. Guilding, so nearly resembles the cannon shell, that one might easily at first sight, imagine that a company of artillery had bivouacked in its shade; hence the plant is called by the colonists cannon-ball tree, and according to the poetical language of M. Descourlitz, the noise the fruit makes in falling, affords an additional reason for the name; the shell is used in South America for domestic purposes as the calabash. The pulp contains sugar, gum, malic, citric, and tartaric acids, and is employed to afford a refreshing drink in fevers; but in the perfectly ripe state Mr. Guilding says, "it exceeds whatever is filthy, stinking, and abominable in nature; yet the scent is remarkably vinous and so durable that on examining some portions of the fruit that had been preserved in rum for two or three years, the native odour of the plant was so strong as to render the apartment almost insupportable. Insects revel in this disgusting and putrid pulp, Coleoptera (Beetles) and Forficulæ (Earwigs) feed upon it, while the Formicæ (Ants) find a shelter in the hollow of the shell.—*Botanical Magazine.*

B'ÆCKEA *saxicòla.* Stony Bæckea. A low shrub, prostrate in its wild state, but when cultivated, erect, with virgate branches.—Flowers small, pale rose-coloured. Native of bare granite rocks, on the south-west coast of Australia, from whence it was introduced by Mr. Allan Cunningham. Culture—It requires the shelter of the greenhouse, and the usual treatment of New Holland plants in general.—*Bot. Mag.*

PITTOSPÒREÆ.

PITTOSPÒRUM *cornifòlium.* Cornel-leaved Pittosporum.—Flowers of a reddish brown colour. Native of New Zealand, where it was discovered by Mr. A. Cunningham, in dark humid woods by the rivers; it was uniformly found growing (parasitically) on tufts of Asteliæ (A. Banksii,) and upon the trunks and principal branches of the larger timber trees, particularly upon the "Kackatèa" or Dacr'ydium taxifòlium of Lambert. Culture—It thrives in the greenhouse, we suppose in loam and peat, and may be propagated by cuttings.—*Bot. Reg.*

COMPÒSITÆ.

CHRYSA'NTHEMUM *indicum;* var. plenum. Double yellow Indian Chrysanthemum.—This variety is not much cultivated, because it seldom flowers, except after very hot and dry summers; but when its blossoms are produced they form a striking addition to the few flowers December will produce, and are therefore an acquisition.—*Bot. Reg.*

VERBEN'ACEÆ, *Juss.* SELAGINEÆ, *Choisy.*

SEL'AGO *Gillii.* Dr. Gill's Selago.—Flowers lilac. Native of the Cape of Good Hope. Introduced by Dr. Beck. Culture—A greenhouse plant, requiring a good airy situation in winter; but during summer well adapted for the open border, propagated by ripened cuttings struck under a bell glass.—*Bot. Reg.*

ERICEÆ.

RHODODE'NDRON *álbum.* White. Nepaul Rhododendron.—This handsome

plant was raised from seed by Mr. Anderson, seven years ago, but only flowered for the first time in April last.—Flowers beautiful white, spotted in the inside with beautiful purple, and red spots; first discovered by D. D. Fran. Hamilton, at Narainhetty on a mountain by itself, on the 3rd of March, 1803. Culture—As the present plant is said to grow on a cold mountain, it probably stands well in the open air, particularly if planted on a north border; it is said the Rev. T. Garnier of Bishop's Stoke, near Winchester, has plants of *R. arboreum* in a north border, that have succeeded without any covering, and have not been at all injured.—*Brit. Flower Gard.*

CORDI'ACEÆ.

CÓRDIA *grandiflòra.* Large flowered Cordia.—Flowers pale lilac, and very handsome. Since the drawing was made in August, 1828, in the stove of Mr. Lee of Hammersmith, the plant has disappeared, and no specimen having been preserved, nothing is known relative to it beyond what the drawing affords.—*Bot. Reg.*

CLASS II.—MONOCOTYLEDONES, OR ENDOGENES.

ORCHIDEÆ.

HABENARIA *cordata.* Heart-leaved Habenaria.—Flowers yellowish green and highly fragrant, especially in the evening. Native of the rocks on the southern shores of the Island of Madeira, where it was discovered by the Rev. Mr. Lowe. Culture—The plants have hitherto been kept in a pot of peat and loam, in an airy part of the greenhouse.—*Bot. Mag.*

TRITÒNIA.

TRITÒNIA *odòrata.* Sweet-scented Tritonia.—Flowers yellow and very fragrant. Native of the Cape of Good Hope, from whence it has been lately introduced. Culture—Messrs. Loddiges have preserved it safely in a narrow border, close to the wall, in front of the stove, where the ground scarcely ever freezes in winter, in which this, as well as most of the Cape plants of the same family, flower and grow much better than when potted and kept in a greenhouse. The soil should be sandy peat. It increases by offsets.—*Lodd. Bot. Cat.*

AMARYLLIDEÆ.

A'JAX *àlbicans.* Greatest Spanish white Ajax.—This rare and handsome species appears to have been lost to our gardens for many years—Flowers pale yellow and large. Native of Spain, and has lately been introduced both from Holland and Spain. Culture—The present species as well as other strong growing ones, thrives best in a rich sandy loam; and if there is a little dry rotten dung mixed with it, they will thrive all the better and attain a greater height. The greater part of this genus seed freely, particularly if a little pains be taken, or the bees are plentiful at the time they are in flower.—*Brit. Fl. Gar.*

BROMELI'ACEÆ.

BILLBE'RGIA *bicolor.* Two-coloured Billbergia.—Flowers purplish scarlet and yellow. Native of the dense forests of Brazil, rooting in the rough bark of the trees; it has been lately introduced.—*Lodd. Bot. Cat.* Culture—It will grow in the stove, potted in light rich mould; and may be propagated by suckers.

IRI'DEÆ.

HERMODA'CTYLUS *longifolius*. Long-leaved Snakes-head (fig. 106.)—This singular plant was brought from Naples about three years ago, by Mr. Charles Ridgway, under the name of Iris tuberosa, together with two other species, the

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H. rèpens, creeping-rooted Snakes-head, and *H. bispathàceus*, the common Snakes-head.—Flowers a perianthemum with a short tube, six parted, three large outer segments about three inches long, narrowing to the base, curved a little inwards from the two sides, of a green colour, slightly tinged with purple nearly to the bend, and of a pale yellow line extending down the centre to the base; at the bend they are considerably curved backwards, and two greenish white marks in the bend, edged with dark purple, from these to a point of a bright velvet on the upper side edged with green; back green, and hollow on the recurved part; three small inner segmentsvery small, and curved in wards at the base, and a considerable way up, so as to make them hollow.—*Brit. Flower Garden.* Culture—It thrives in the open border in sandy loam mixed with peat, and is propagated by offsets.

AMARYLLI'DEÆ.

Eu'rycles *Cunninghámii.* Mr. Cunningham's Eurycles. A bulbous rooted plant worthy of cultivation.—Flowers white. Native of New Holland. Introduced under the name of *Calostémma.* Culture—A greenhouse plant thriving in light loam, and propagated by seeds or offsets.—*Bot. Reg.*

CHOICE, OR BEAUTIFUL PLANTS FLOWERING THIS MONTH,

AT MESSRS. LODDIGES AND SONS, HACKNEY.

STOVE.

Justícia venústa
Jatròpha panduræfòlia
Oncídium bifolium
——— pumílum
Zàmia pymæa
—— débilis
Sabál minor
Calánthe veratrifòlia
Rosc'œa purpurea
Epidéndron cochleàtum
——— elongàtum
——— ellípticum

STOVE

Cymbídium sinénsis
——— dependens
Cypripèdium venústum
Pleurothállis sauroùphila
Ruéllia Sabiniàna
Ardisia paniculàta
——— pyramidális
——— punctàta
Francíscea uniflòra
Gardènia Rándia
Barbacènia purpùrea

GREENHOUSE.

Andrómeda buxifòlia
Anthocércis littòrea
Dracophy'llum gracíle
——— *C*apitàtum
Kálmia hirsùta
Marsdenia suaveòlens
Alstrœmèria pulchélla
——— bìcolor
——— trìcolor
——— Hookèri
Borònia dentàta
Sprengèlia incarnàta
Pimèlia decussàta

GREENHOUSE.

Elichr'ysum spectàbile
Hakea microcàrpa
Lachn'œa purpùrea
Patersònia glabràta
Petrophíla trìfida
Erìca, many species
Diósma, many species
Epácris ditto
Dillw'ynia ditto
Pol'ygala ditto
A'loe ditto
Sowerb'œa juncèa,
&c. &c. &c.

HARDY.

Azàlea, many sorts
Kalmia ditto
Vaccínium ditto
Erica ditto
Phlox ditto

HARDY.

Magnolia, many sorts
Iris ditto
Potentilla ditto
&c. &c. &c.

LIST OF NEW AND BEAUTIFUL PLANTS FLOWERING THIS MONTH,

AT MESSRS. RONALDS AND SONS, BRENTFORD.

Salpiglóssis integrifolia
Sedum azùreum
Azaleas
Póntica álba
——— globòsa
——— odoràta
——— nivális
——— cærùlea
——— revolùta
——— máxima
——— erécta
——— lutèa cærùlea
——— cruénta
——— multiflòra
——— compácta
——— aurantiàca
——— pállida
——— calendulàcea
——— láxa
Pontica trìcolor
Flamicòlor
Splendìda
Speciosíssima
Coccinàta
Amæníssima
Glòria múndi
Spléndens
Lépida
Pulchélla
Exquísita
Insígnis
Rùbra aurèæ
Guillielmus prìmus
Formòsa
Maratìma incarnàta
Venustíssima
Mixta triúmphans

Treatment of the Verb'ena, &c.—As the plants of *Verbèna Melíndres* (Chamædryfòlia, Sweet,) seldom survive our winters even if taken up from the borders and potted. We have found it the safest way to take off a number of young rooted plants from the old stools and plant them in small pots in a mixture of about equal parts of loam, peat, and sand; the pots are set in a cold frame placed in an airy situation facing the south, having a floor of sand about four inches thick for the pots to stand upon, and by allowing plenty of air, and keeping them moderately moist, they seldom appear sickly, and rarely die. We potted about one thousand last autumn, and scarcely a dozen have perished.

The Maura'ndia *Barclayàna* should be sheltered in a greenhouse or conservatory during winter, potted in light loam and peat, and kept regularly moist, if cut quite down, it seldom breaks strong again, and consequently rarely or ever looks healthy afterwards; the most approved method is to raise young ones from seed, which is ripened in abundance, as the old plants scarcely ever thrive well longer than two or three years.

The Cob'æa sca'ndens will do very well if placed in a pit or frame during winter, and kept moderately moist; it is better not to cut it down in winter, if it is even necessary to cut it in, let the operation be performed in the beginning of spring, let some young plants be raised annually from seed.—Conductors.

On Raising Annual Flower Seeds.—After sowing the patch of seeds and covering it with fine moist soil, place a garden-pot inversely over it: this remains till the seeds have struck root, when the pot must be raised two or three inches; keep it thus supported for a few days, and then remove it entirely. The pot not only tends to keep the soil moist, but the sun heating the pot, the seeds come up much more quickly than otherwise they would do, in consequence of which

the seeds need not be sown so early by a fortnight or upwards as is necessary in the usual way. The young plants are less exposed to injury from cold or late spring frost, and the soil is not washed off the seeds by heavy rains; also, where the garden is surrounded by trees, this practice prevents their being destroyed by birds. If pots are not convenient, hollow tiles will answer the same end.—*J. H. Hor. Trans.*

On the Hibi'scus *Fugæ*—This is a herbaceous plant from Brazil. The stems die down during the winter, when the roots, being tuberous, must be kept rather dry. It grows well in leaf mould and sand, and is easily propagated by cuttings and layers of its angular stems.—M. Seitz.—*Pruss. Gard. Soc.*

Hints on Floriculture.—By the first of June, the night frosts of spring may be fairly considered as past, and consequently preparation may be made to fill up the different compartments of the flower garden, with such superfluous ornamental plants the greenhouse, &c. may contain: as eligible plants for out door summer decoration, large plants of the Fuchsias may be named, not forgetting the new species F. bacillàris, Sálvia splendéns, fúlgens, involucràta, Grahàmi, and even formósa, are particularly splendid: and S. fúlgens, planted in rich light soil, at the base of a warm aspected wall, and trained over the face of that wall, forms, in autumn, an especially splendid object. Petùnia nyctaginiflo'ra, whose large white flowers are very fragrant by night, treated in the same way, is surprisingly improved, and rendered a very ornamental object. Pelargoniums may be copiously planted out: and the trailing-stemmed ivy leaved kinds, trained over the surface of little beds set apart for them, and pegged into the soil at their joints, cover the earth with their glossy leaves charmingly, and flower beautifully and abundantly in the autumn. *Maurándia Barclayàna* and M. semperflo'rens are well known summer climbers of great elegance and beauty; and although there is a coarseness of aspect in the Lophospérmum erubéscens, it is a climber whose copious wreaths of rosy blossoms excel, in beauty, many other plants of a more delicate habit. Ficus elásticus is a beautiful object in its leaves during summer and autumn, when plunged over the rim of its pot in the soil of a sunny border; also the New Holland Acacias and numerous other plants.—*J. D. Gard. Mag.*

ARBORICULTURAL INTELLIGENCE.

On Shortening the Tap Roots of Trees.—Dr. Schlechtendal lays down the following principles. 1. An injury to any one part of a plant occasions a change in the natural developement of the other parts. 2. Roots and stems are always in a certain degree reciprocally proportionate to each other. 3. The tap root does not form a part of every plant: but when it is so, it is an essential part of that plant. 4. By shortening the tap root, one or other of the following consequences will result:—tender plants will be more easily destroyed by severe weather; all sorts of plants by dry weather, from their roots not being so deep in the soil: the wood of the timber trees will be less durable, their trunks shorter, and their heads broader and less high: and fruit trees will blossom earlier and more abundantly, and their fruit will be larger and better flavoured. 5. To transplant trees, without injuring their roots, is difficult in proportion to the age of the tree, and the extent of the roots. 6. All transplanting ought to

be done when the trees are young, and then only can the roots be cut without injury. 7. When the tap root descends into a bad subsoil, it brings on diseases in the tree.

The general conclusion is, that when the largest and best timber trees are an object, the seeds should be sown where the plants are to remain, and, consequently, the tap root is never injured; but that in fruit trees, it should always be shortened, to cause them to spread out horizontal roots near the surface, among the nutritive soil.—*Prussian Gardening Society.*

NATURAL HISTORY.

The Galli'nula *chlóropus*, or Common Water Hen, is a percher and excellent for food. One of these birds was kept in an aviary with some pheasants, and although the tip of the wing was clipt, at evening it scrambled up into some currant bushes to roost; and they have been shot on the top branch of a tall elder (Alnus glutinòsa,) as also on low shrubs by the water side; they have also been known to roost in Scotch pines, (Pìnus sylvéstris;) it has also been found that, when properly cooked, it is as fine eating as a woodcock (Scólopax rusticola;) water hens, in some places, are kept in a state of half domestication where they are quiet and undisturbed.—*Mag. Nat. Hist.*

Poultry Hatched by the Common Buzzard in Captivity.—At a farmer's house at Whittington, near Litchfield, a female common buzzard (Fálco Bùteo, L.) domesticated and kept in the garden, was every year set with some eggs of the common poultry, which she sat upon with great assiduity, and hatched at the usual time. When the chickens were hatched, the fury of this stepmother surpassed that of the common hen, but as the chickens grew up, it gradually abated.—There is also in the gardens of the Chequers Inn, at Uxbridge, another buzzard, which has reared a brood of chickens annually for the last eight years. The first showed her inclination to sit, by collecting and bending all the loose sticks she could obtain; her owner observing her actions, supplied her with materials; she completed her nest, and sat on two hen's eggs, which she hatched, and aftewards reared the young; since then she hatched and brought up a brood every year. In the last summer (1831) in order to save her the fatigue of sitting, some young chickens, just hatched, were put to her; but in this case she did not forget her natural appetite, but destroyed the whole In the same summer, however, she proved a careful mother to nine others. When flesh was given her, she was very assiduous in tearing and offering her food to her nurslings; and appeared very uneasy if, after taking small portions from her, they turned away to pick up grain.—*Mag. Nat. Hist.*

On the Epiphytes of the Orchis Tribe.—Orchideous Epiphytes grow naturally upon trees in the recesses of tropical forests: they establish themselves in the forks of branches, and vegetate amidst masses of decayed vegetable and animal matter; in consequence of their position, there cannot possibly be any accumulation of moisture about their roots. They also grow equally well on rocks and stones in similar situations. Shade seems essential to them, as does also high temperature and excessive humidity. The hottest countries, if dry,

and the dampest, if cold, are destitute of them, while there is no instance of a country both hot and damp, in which they do not swarm. No soil or temperature will nourish them in drought; but when the atmospheric humidity and temperature are carefully regulated any soil will do, as either garden mould, lime rubbish, gravel, decayed vegetable matter and moss, seems to suit them equally well, provided the drainage be effectual; but a deficiency in this renders every thing else useless. The mean temperature of the air in the day ought to be about 87 degrees Fahr. and its humidity at the point of saturation or nearly so. The most favourable situations for their growth are a well-drained soil, a shady situation, a saturated atmosphere, the mean temperature of which is never less than from 79 to 80 degrees Fahr. and a complete protection from dry parching winds.—J. LINDLEY, ESQ. *Hort. Trans.*

THE SUGAR-CANE.—"Sugar-cane grows spontaneously in all the South-Sea Islands, and more than ten varieties are indigenous. It has been stated, that the best canes now cultivated in the West Indies are those taken there by Captain Bligh. In their native islands, they grow remarkably fine. I have frequently seen canes as thick as a man's wrist, and ten or twelve feet between the roots and leaves. The *Iromotu*, a large yellow cane, and the *To-ura*, of a dark red colour, grow very large, and yield an abundance of juice; but the *Patu*, a small light red, long-jointed cane, with a thin husk or skin, contains the greatest quantity of saccharine matter. Some of the sugar manufactured by Mr. Gyles, was of a very superior quality; and if hired labour was less expensive, or the people more industrious, it might be raised with facility in considerable quantities."

COFFEE.—"The *Haweis*, in returning to the Islands, in the spring of 1819, touched at Norfolk Island, formerly an appendage to the colony of New South Wales, and I believe re-occupied since that period. From this island the captain brought away a number of coffee plants, which, on his arrival in the islands, were distributed among the stations. The tender plants were once or twice removed, and all perished, excepting those in my garden at Huahine, which I was happy to succeed in preserving. The climate was favourable to their growth, and they appeared to thrive well. After four years, each tree bore about forty berries, which, when perfectly ripe, were gathered and sent to the several stations. They were planted, and have since flourished, so that in every island, the coffee plant is now growing, and may be cultivated to almost any extent."

GARDENS.—"A garden is a valuable acquisition in this part of the world; and, next to our dwellings, we regard it as an important part of our domestic establishment. As soon as the sites of our houses were fixed, we employed natives to inclose a piece of ground adjoining them. I had received from Governor Macquarie, in New South Wales, a hundred ears of Egyptian wheat, which being a kind frequently grown in a warm climate, it was supposed might flourish in these islands. The grain was planted with care, and grew remarkably well; the leaves were green, and grew high and strong, and the ears large; but as they began to turn yellow, it appeared that scarcely one of them contained a single grain of corn, and the few that were found, were shrivelled and dry. Potatoes were also tried, and have been repeatedly planted since, in different situations and seasons; but although, after the first growth, they usually appear like young potatoes; if planted again, they are invariably soft and sweet, very small, and by no means so palatable as the indigenous sweet potatoe.

"At Asariaita, I had sown a number of seeds from England, Rio Janeiro, and New South Wales. Coffee and Cashew-nuts *(Anacardium occidentale)* I had before planted in boxes; they grew well, but the Coffee and Cashew-nuts were totally destroyed by the goats, which, reaping the fence one day, in a few minutes ate up the plants, on which I had bestowed much care. I succeeded, however, in preserving the Custard-apple *(Annona triloba*, or *squammosa)* that I had brought from Rio, and plants from it are now bearing fruit in several of the islands. In addition to these, I was enabled to cultivate Papaw-apple *(Carica papaya,)* French-beans, carrots, turnips, cabbage, and Indian-corn; while our little flower-garden in Huahine, was adorned with the Convolvulus major and minor, capsicum, helianthus, and amaranthus, with several brilliant native flowers, amongst which, the *Gardenia* and *Hibiscus rosa Sinensis*, were always conspicuous. The front of our house was shaded by orange trees, and our garden enclosed with a citron hedge."

"The natives display a taste for the beautiful, in their fondness of flowers. The *Gardenia*, *Hibiscus*, and *Amaranthus* were often wove in the most graceful wreaths and garlands, and worn on their brows. They were delighted when the *Helianthus* was added to their flowers. The king and queen passed by my garden, when the first ever grown in the islands was in flower, and came in to admire its size and brilliant colours. Soon after their return, I received a note from the king, asking a flower for the queen, and also one for her sister; I sent them each a small one; and the next time they appeared in public, the large sun-flowers were fixed as ornaments in their hair."

Tobacco.—"The Tobacco plant is another exotic, common now in all the islands; it was introduced by Captain Cook, and has since been cultivated to a small extent by the natives, merely for their own use. Mr. Williams encouraged its culture to a considerable extent in the island of Raiatea, and the natives were taught to prepare it for the market of New South Wales in a manner that rendered the Raiatian tobacco equal to any brought into Sydney."

Habits of the Female Borneo, and the Male Chimpanzee Orang Utans.—As observed during their exhibition at the Egyptian Hall in 1831. The most striking points of distinction between the two were the length of the facial angle in the female or Borneo orang (Símia Sátyrus.) The singular smallness of the ear, and its close resemblance to that of the human species; the pear shaped head, the nose but in a slight degree elevated, the nostrils narrow and oblique, the extreme length of the arms, the use made of them in walking, the animal resting the hands on the ground, and swinging as if on crutches, the hair of a reddish brown, very short, and but slightly scattered over the body, the abdomen exceedingly protruberant, the feet long, with the largest toe peculiarly short, but exhibiting a perfect nail. The Chimpanzee (Símia Troglódytes) exhibited a marked contrast, presenting a much nearer approach to that of the human race. The form of the head, the intellectual superiority that distinguishes the cast of the features; the proportionate length of the arms to that of the body, the larger and perfect thumb, the roundness of the thigh, the perfect feet, and the consequent upright mode of walking, the complete formation of the last joint of the great toe, and the quality of the sounds which it occasionally utters, denote the superiority of the Chimpanzee over the Borneo Orang Utan. On their first introduction they stood at some distance from each other, resting on their knuckles in evident contemplation of the new form they saw for the first time.

They then approached nearer, smelling each other, the female protruded her prominent lower lip, touching the lip of the male, but without any smack or noise. This was done apparently without any joy or mutual attachment, nor did they even show the least tenderness or attachment to each other, but always on the contrary, especially the female; on trying to make them sleep together in the same cage, a battle took place, of which it was thought advisable never to risk a repetition. The social habits of the Chimpanzee far exceeded those of the female. On first approaching in a morning, or after being absent from him a short time, he would utter a loud cry of recognition, and running towards you, would stand perfectly erect, spreading his arms to be taken up, when he would put them round your neck in the manner of the fondest embrace; nor was it an easy task for those to whom he was attached, to leave the room, except by stealth. Food was the only object that could cause any attachment, or even locomotion, in the female. In feeding, the greediness of the female was evinced by her body over the dish, securing the choicest mossels both with hands and feet, and then feeding with her mouth in the dish, using her lips after the manner of the horse, and evincing the greatest fear lest any portion should be taken from her. The Chimpanzee sat perfectly upright, taking small portions between his thumb and forefinger, in the most placid and gentle manner, nor was his rage even excited except by him refusing part of an orange, of which he might have caught a glimpse, or that he knew was contained in your pocket. Neither of the animals ever secured portions of food in the cheek or pouch, nor did they appear to smell their food before eating, as most of the monkeys do, except it was some uncommon substance which they had not been accustomed to eat. Both were in the habit of using a glass in drinking, but they were never known to throw it down; they invariably either gave it back, or set it down in the most careful manner. The Chimpanzee was particularly attracted by the brilliancy of colours, always getting up on the approach of any female whose dress was distinguished by the gaiety of its hues, he likewise evinced great joy in being placed at a window, and would scream with delight at the passing of horses and carriages, but nothing could exceed his rage when placed in a confined cage. Such was his love of the society of those he knew, that the temptation of the choicest fruits would not entice him to remain in the room alone; for if at liberty he would run towards the door, and try to get out first, or would embrace your knees, and cry in a most piteous manner to be taken by you. I never knew them attempt the least gambol or amusement of any kind, either together or individually; nor did they take any notice of other animals, as cats, monkeys, squirrels, &c. that were placed with them; but would sit for hours with the utmost gravity, as if absorbed in the most intense thought. The instinct of providing and placing warm materials for her bed was most marked in the female, who would be for two hours at a time dragging blankets from various parts of the room, smoothing and changing their position, and beating any raised part down with her knuckles, assuming, at the same time a look of gravity and an appearance of wisdom. The Chimpanzee took no care in this particular, but if no place was provided for him, and even when provided, if he did not like it he would climb into the bed of his keeper. The timidity of both was remarkable. A toy-dog, or a cast of one of their own species, if removed the least towards them was sufficient to drive them to the farthest extremity of the apartment, and the fear exhibited by the female at the sight of her deadly enemy, a boa constrictor was most acutely evinced. The

hearing of both animals was remarkably acute, and the knowledge of sounds was accurately shewn. They were in the daily habit of riding in a coach, and on being seated, before the vehicle moved, they would secure themselves by getting a firm grasp of the hold-straps attached to the side of the coach. They seemed to have a knowledge also of time, for as the hour approached at which they were removed to their nightly residence, they would of their own accord get the blankets, and enfold themselves in readiness to depart, and if their removal was protracted beyond the usual time, it required force to prevent them from going to the door. The Chimpanzee having caught a cold, which ultimately caused his death, he had a violent cough that in sound was remarkably human; and as when a fit of coughing came on, he was usually given some sweetmeat or cordial to stop it, he soon adopted the cough as a mode of obtaining those luxuries.—1. WARWICK.—*Mag. Nat. History.*

PART III.

MISCELLANEOUS INTELLIGENCE.

I.—QUERIES, ANSWERS, REMARKS, ETC.

VARIETIES OF ELM.—Be pleased to inform me, through your useful Miscellany, the peculiar properties of the Elm. The Chichester, Worcester, and Wych. The first is very little known in this part. SALOPIENSIS.

MOVEABLE SAW MILL.—I wish your correspondent, Mr. Murphy, would send you a drawing and a detailed account of the machinery used in the Duke of Athol's woods, particularly the construction of the moveable Saw Mill. A. B.

FLOWERING THE BLÈTIA *Tankervilliæ*.—I shall feel extremely obliged by any of your correspondents giving me information respecting the culture and method pursued in flowering the Blètia Tankervilliæ. AN AMATEUR.

STRAWBERRIES FOR FORCING.—Would your esteemed correspondent, Mr. George Harrison inform your numerous readers, what sorts of Fragaria he cultivates for forcing, as he most likely unintentionally omitted it in his paper on the method of forcing that kind of fruit at Petworth, inserted p. 395. SAGE.

COMPOST FOR CAMELLIAS, &c.—In your compost for Camellias, No. 8, p. 362, is it to be as follows 12 barrowsful of loam; 4 ditto of sand; 2 ditto of peat earth; and 2 ditto of rotten dung? Or 12 of loam; 4 of sand, 6 of peat, and 6 of dung. I hope your correspondent G. A. L. will soon forward the list of Camellias, as he he says page 362. Perhaps you would mention your opinions on the subject of glazing, whether the old one inch lap is to be preferred to the one-eighth of an inch, and whether the last will admit the rain?

HAUTBOY STRAWBERRY.—Mr. Lindley states somewhat at large, in his "Guide to the Orchard and Kitchen Garden," that he has found, by his own experience, that the *Male* Plant of the Hautboy is worse than useless, as it occupies the ground and injures the growth of the other plants, and to which it does not contribute, as indeed it does not possess any fecundating principle. This statement is so much at variance with the experience of myself and some of my friends, that I can only suppose that Mr. Lindley's observations do not extend to the whole tribe of Hautboys, as by acting on his plan before I read his book, I was unable to obtain a single fruit, after the year when I destroyed the Male plants'

until I had planted others. I mention this that young amateur gardeners may not, like myself, be misled by the high authority of Mr. Lindley's name, so far as to suppose that his remarks extend to all hautboys: you perhaps, or some of your correspondents can inform your readers the kind to which Mr. L. refers. *I think* mine are the Bath hautboy.

I have a grapery in which I succeed pretty well generally; but my fruit which grows nearly to maturity without exhibiting any disease, is occasionally and partially affected when the bunches have nearly attained their last colouring, by many of the berries retaining their *red* colour; and upon examination, the foot stalk and the sprig appear incrusted with a brown rust which deprives them of the power of supporting the berries, and these consequently never ripen, or are in fact eatable. Can you give, or procure me the cause, preventive, and cure of this disease? J. Mills.

Jan. 28, 1832.

II.—COLLECTIONS AND RECOLLECTIONS.

In Berlin there are four large gardens, in which is kept up the appearance of perpetual summer. They are filled with orange trees, and exotics of different kinds, being covered over and having good stove fires, the temperature is always that of July and August. They contain Reading and Refreshment Rooms, &c. At night they are illuminated, and have a beautiful effect. Why should London have nothing of this kind? In Petersburg also they have their winter gardens; and surely we might have the same, where exercise, and conversation, and reading may most invitingly draw us from our fire-sides, when a ride in the Park or the streets could not tempt us to move in this dreary season of the year. In the zoological department we shall soon take the lead;—why do we not attempt this also? Try to give a taste for it—set it a-foot; and we shall soon leave Petersburg and Berlin far behind us. R.

Hawthorn Tree.—It is surprising the small progress in growth which trees will sometimes make when placed in situations where they can obtain but little nourishment, and yet how long they will live. I do not doubt but that many of your readers remember a small hawthorn-bush which used to grow between the stones on the top of the Conduit-house, in Hyde Park; it was cut down when some repairs were done to the stone roof ten or twelve years ago; I regretted it very much, for it accorded so well with the building. I had observed it from my youth, and in between thirty and forty years which I remembered it, its increase in size seemed to be but little: and I knew a gentleman who died more than ten years before it was cut down at the advanced age of 93, who told me he remembered it when he was a boy, and so gradual and slow had been its increase that, in his long life, he could hardly perceive the difference in its size. These circumstances make it impossible to fix the age of it at less than a 120 or 130 years. At the time it was rooted out it was not more than three feet high, no branch was from the stem more than two feet long, and the stem at the thickest part not more than an inch in diameter. I. T.

Ants.—To prevent the ravages of ants in places in which they sometimes abound and do mischief; it is only necessary to place tobacco leaves in their way, the smell is fatal to them, as is also that of the greater number of strong scented plants.—*Morning Herald.* I fear it is rather apocryphal. G. A. L.

April 11, 1832.

III.—SOCIETIES,

CONNECTED WITH HORTICULTURE AND NATURAL HISTORY.

LONDON HORTICULTURAL SOCIETY.

The Anniversary Meeting of the Society took place as usual on the 1st of May, when the various officers were unanimously elected to fulfil their duties for another year; the report of the Auditors was read, and copies distributed to the Fellows of the Society.

The finances are now considered to be in a satisfactory state, and from the re-action which has evidently taken place in the affairs of the Society, and the interest which has been of late manifested in its welfare, we hope that ere long its difficulties will be entirely dispelled, and that it will exercise its beneficial influence with still greater vigour. Two papers were read on the heating of hotbeds through the agency of hotwater, thereby rendering their renovation unnecessary; the construction of the two were the principal points of difference. In the exhibitions during the past month we have noticed, as the most prominent plants, Beaumontia grandiflora, Erica arborea, and E. mediterranea, Clivia nobilis, Hovea Celsii, Azalea sinensis, Templetonia retusa, Erythronium luteum, Gesnerias, Calceolarias, Tulips from Mr. Groom's fine collection at Walworth; a plant of the Erythrina Crista-Galli, six feet high, profusely covered with blossoms; Pœonia Moutan and its varieties; a handsome Seedling Camellia raised by Mr. Wells of Redleaf, and a collection of Heartsease of the finest colours, from Mr. Young of Epsom. Very excellent specimens of cultivation have also appeared in the form of Cucumbers, Leeks, Flanders Spinach, Knight's protecting Brocoli, Lettuces, &c.

DEVON AND EXETER FLORIST'S SOCIETY.

The first Exhibition for this season took place at Congdon's Subscription Rooms in Exeter, on Wednesday, May 2nd, when the attendance of Gentry was such as must have been highly gratifying to its members; there was a good show of Auriculas, Polyanthuses, Greenhouse, Herbaceous, and other plants and flowers, which together made a very splendid appearance.

BROMLEY HOUSE SOCIETY, NOTTINGHAM.

The first Exhibition of this Society took place on Wednesday, April 25th; the display of Auriculas and and Polyanthuses were very fine, there was a most beautiful and novel selection of flowers, from the greenhouse of Lord Rancliffe; also some very fine ones from Mr. Pearson, Mr. Spencer, and Mr. Gresham: the supply of fruits and vegetables were most excellent; the company were numerous and fashionable: we were glad to see the worthy Patron, Lord Middleton, and many of the Vice-Presidents, and Ladies and Gentlemen of the town and neighbourhood.

CHESTERFIELD FLORISTS' SOCIETY.

The Society of Florists held their Annual Exhibition of Tulips at Mr. Pinder's, the King and Milner, High-Street, Chesterfield, on Monday, May 28th, 1832, when a good supply of flowers were sent in for competition, and a number of prizes awarded.

BECCLES HORTICULTURAL SOCIETY.

This Society, under the presidency of the Earl of Stradbroke, held its first Meeting in the Assembly Room, on Wednesday, the 9th of May. The attendance of ladies and gentlemen was very great; amongst whom were Sir Edmund Bacon, Bart. and the Miss Bacons, with a party of their friends; Sir Thomas Gooch, &c. &c. The day proved fine, and the specimens exhibited were very superior to what could have been expected from a newly established Society at this time of the year. Mr. G. Thurtell, notwithstanding the lateness of the season, produced nineteen superb hyacinths, several choice varieties of the heartseases, a brace of magnificent cucumbers, a bunch of asparagus, of fifty-one heads, weighing four pounds ten ounces, and a double polyanthus, unique and of great beauty, and consequently justly carried the prizes for all that were offered; Mr. J Toll, of Keswick, produced eighteen pots of very fine auriculas, gaining the first and second prizes; a dish of Keene's seedling strawberries from Sir T. Gooch's gardens were much admired; a dish of apples from E. C. Sharpin, Esq. and also the cardilac pears from Mr. R. Baas, of Chedlestone, were in a fine state of preservation; the fruits and vegetables in general did great credit to their growers; there were also some beautiful flowers. Mr. Francis, of Beccles, exhibited nine pots of auriculas, and gained, with well-earned merit, the thrice offered prizes.

SHEFFIELD HORTICULTURAL SOCIETY.

On Wednesday, May 30th, the second Exhibition for the present year, of this Society was held at the Music-Hall. Tulips formed the prominent feature of the Show, and there was certainly one of the best selections ever witnessed in this town. Of Fruits and Vegetables the specimens exhibited were truly excellent; and many greenhouse and stove plants, from the conservatories of the neighbouring nobility and gentry, attracted marked attention. The visitors on the occasion were numerous, including nearly all the first families in the town and its vicinity.

HORTICULTURAL SOCIETY OF IRELAND.

The spring Exhibition was held in the Rotunda on Tuesday, April 24th, when the specimens were generally well grown, rare and beautiful—the Auriculas and Hyacinths were remarkably fine; and the whole seemed to indicate a rapid improvement in the horticulture of the neighbourhood of Dublin.

IV.—NATURALIST'S CALENDAR FOR JULY.

BOTANY.

In general this is the hottest month in the year, it was called by the Saxons *hay month;* within the last fourteen years the thermometer, in three or four instances, has ranged as high as 85 and 87 degrees, and once even to 89 degrees; it is often, however, very showery, and the rains towards the middle of the month, sometimes become of a periodical character; the vegetable kingdom is now in its full glory, more plants are now in flower than in any other month, the Enchanter's Nightshade (Circæa lutètiana) may be found in damp shady situations; in marshes, rivulets, and stagnant pools, several species of Duck-weed, (Lémna;) Club-rush, (Scírpus;) Pond-weed, (Potamogèton;) Water Parsnep, (Siúm;) Rush, (Júncus;) Water dropwort, (Œnánthe;) Water Plantain, (Alisma;) Hooded Milfoil, or Bladder-wort, (Utriculária;) Common Reed, (Phragmìtes, commùnis;) Brook-weed, (Samòlus valerándi;) Water Star-wort, (Callítriche autumnalis;) Chara, (Chára vulgàris;) this too is an important month for collecting the different grasses in flower, as the Canary Grass, (Phalàris canariénsis;) which with many other sorts may be found in uncultivated places—in meadows or pasture fields; the Cats-tail grass, (Phleùm praténsis;) Fox-tail grass, (Alopecùrus;) Bent-grass, (Agróstis;) Meadow-grass, (Pòa;) Quaking-grass, (Briza;) Fescue-grass, (Festùca;) Clove-pink-leaved Hair-grass, (Aira carryophy'llea;) Cocks-foot Prickling-grass, (Echinòchloa crus-gálli;) &c. On sandy banks, several species of Speedwell, (Veronica;) and Bell-flowers, (Campánula;) &c. And on road-sides, Yarrow, (Achíllea;) &c. &c. the hedges abound with Goose-grass or Cleavers, (Gàlium Aparine;) and in the Corn-fields, Blue-bottle, (Centàurea;) Camomile, (Anthemis;) Bind-weed, (Convolvulus;) &c. the Puff-ball, (Lycopérdon bovísta;) and common Mushroom, (Agaricus campestris,) now appear, and towards the end, Truffles, (Tùber cibárium,) are hunted and dug up in commons and forests.

ZOOLOGY.

Birds.—The Cuckoo, (Cùculus canòrus,) is seldom heard later than the first week; the Nightingale, (Sy'lvia Luscínia, Lathan; Philomèlla Luscínia, Rennie,) now seldom utters any other noise than croacking; the Skylark, (Alànda arvénsis,) the Woodlark, (A. arborea,) and the Thrush, (Túrdus mùsicus, Lin.) still continue their song; as does also the Black-cap, (Sy'lvia atracapilla;) annd the Reed, and Sedge Warblers, (Currùca arundinàcea, and Salicària;) the Stone Curlew, (Charadrius œdicnèmus,) whistles occasionally very late at night; the Quail, (Cotúrnix major, *Brisson,*) utters its two or three singular notes during the day, and through a greater part of the night; young Bulfinches, (Pyrrhùla vulgàris,) fly; the Gold-crested Wren, (Régulus cristàtus,) may occasionally be heard chirping; and young Partridges, (Pérdix cinèrea,) run.

Insects are seen sporting on every hand in myriads, the Lepidopterous families are now peculiarly interesting, the gardens and fields swarm with butterflies during the day, and in the evenings numbers of moths may be found in every direction; the beautiful Tiger Moth, (A'rctia Càga,) now makes its appearance, the larvæ of which feed on the strawberry and lettuce; the Humming-bird Hawk-moth, (Macroglóssa Stellarum,) may be seen, mornings and evenings, darting from flower to flower, with something of the swiftness of its feathered

namesake of the tropics; also the Gammon Moth, (Plùsia Gámma) which nearly resembles the preceding in habits, may be found both in gardens and fields; in the long grass abounds the large yellow Underwing Moth, (Triph'æna Pronùba;) the larvæ too of the Goat Moth, (Cóssus lignipérda,) may be found occasionally buried in the earth. Numbers of the Ichneumonídæ, as Cry'ptus peregrinator, &c. now fly about in search of larvæ on which to lay their eggs; the hoary beetle, (Zantheùmia solstitiális,) is to be seen, and towards the end of the month the four spotted Carrion Beetle, (Silpha four punctàta) may be observed in the evenings, hovering under hedges, or in thick woods in search of dead animals, &c. the Stomóxys calcitrans and irritans, both of which have a great resemblance to the house fly, (Músca doméstica,) begin now to torment cattle; the invisible Harvest Bug, (Acàrus Ricìnus,) and the common Gnat (Cùlex pípiens,) are now very troublesome; the great Horse Fly (Tabànus bovìnus,) appears; Glow-worms, (Lámpyris noctilùceæ,) almost cease to emit their light after the middle of the month, although they are observed more or less throughout the whole summer, but retiring for the winter into the crevices of a stony or earthy soil. And the Cockchaffers, (Melontha vulgàris,) now become numerous, and are fed upon by the rooks.

METEOROLOGY.

BAROMETER.—Mean Height, 30. THERMOMETER.—Mean Temperature, 61. RAIN—Mean Quantity, 2,448 Inches. EVAPORATION.—Mean Quantity, 3,293 Inches.

V.—MONTHLY HORTICULTURAL CALENDAR,

FOR JULY.

Although the Crops of fruit, &c. were generally backward this spring, the late rains have been the means of bringing them forward with amazing rapidity. The warmth of this month will preclude the necessity of much fire heat in the stoves: if the weather should prove very wet, however, it will be necessary to make sufficient fire to dry up the damp, and ripen the fruit kindly; all the crops in the early forcing houses will be ripening, and perhaps many of them be gathered, in which case the trees will require exposing to the weather. The summer dressing of the wall-trees should be proceeded with, and a few successional crops sown in the Kitchen Garden.

FLOWER DEPARTMENT.

Greenhouse Plants out of doors, particularly if the pots stand in an exposed situation, will require a good supply of water every day, and occasionally in the afternoon well syringing over the head, with clear water.

Carnations now require attention, p. 47, and 199.

Azaleas may now be propagated by cuttings of the young wood.

Bud Roses, p. 245, and 249.

Ranunculuses out of flower should be taken up, p. 196.

Tigri'dia pavonia, for the treatment of Seedlings, see p. 401.

Erythrina Cri'sta Ga'lli may now be propagated by cuttings, p. 114.

Bud Lemon and Orange Stocks, if the bark will rise freely.

Erica Cuttings may now be put in, p. 455.

Propagate Pelargoniums by cuttings, p. 517.

FRUIT DEPARTMENT.

Melon Plants in the pits or frames, will be in full bearing; let them be stopped and otherwise regularly attended to.

Thinning Wall-Fruit, let prompt attention be paid to this, as early in the month as possible, not stripping off too many however, till the stoning season is over, p. 47.

Cherry Trees in the houses forced this season, as well as *Peaches and Nectarines*, when all the fruit is gathered, should be fully exposed to the weather by the lights being removed from the houses.

Mildew.—If this disease should make its appearance, wash the trees with sulphur and water.

For the vegetable cropping, or any other information required, see Calendar for July, p. 47.

HARDCASTLE AND JONES, PRINTERS, SHEFFIELD.

THE

HORTICULTURAL REGISTER.

AUGUST 1ST, 1832.

PART I.

ORIGINAL COMMUNICATIONS.

HORTICULTURE.

ARTICLE I.—SOME PARTICULARS RESPECTING THE CULTIVATION OF THE VINE IN NEW SOUTH WALES.—BY J. T.

THOUGH the climate and soil of New South Wales appears so well suited to the grape, the progress that might have been expected, has by no means been made in the culture of the Vine in that country. Some grapes are raised however of a good quality for the table, and in a few instances, wine has been made, but to a very limited extent; and, as far as I have heard, of rather an inferior quality. One of the principal difficulties the cultivator has to contend with is the cold south-westerly winds, which often prevail in the spring after the vine has begun to shoot; and which are of the nature of our north-easterly winds; blowing over the ice of the south pole, as ours do over the north. These winds, therefore, greatly injure the young shoots of the vines. A. McLeay, Esq. the colonial secretary, has instituted a set of experiments, which, it is hoped, will lead to the overcoming this evil. He has planted all the varieties of the vine, which he could obtain, in the same exposure, and in every respect under the same circumstances, the result has been that about ten varieties have been found much hardier than the other sorts; and which have suffered very little from the cold winds of their last spring. A writer in the *Sydney Gazette* is so sanguine as to think that, from these hardy

sorts, they shall be able to make wine to a very considerable extent. There are, however, still other difficulties to overcome before this desirable object is attained; at a later period in the summer they are often subject, near Sydney, to a dry, hot wind, which injures the vines much; and it would appear from last year's observations that those sorts which stood the cold winds of the spring best, did not bear the hot dry winds, so well as some of the tender kinds: it is to be hoped, however, that the perseverance which seems already to have overcome the greatest impediment, will be able to find varieties which will endure both kinds of wine.

J. T.

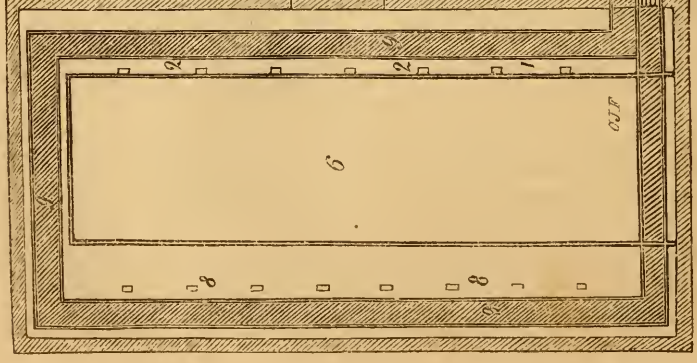
ARTICLE II.

PLAN AND DESCRIPTION OF A PROPAGATING-HOUSE.

BY MR. RONALDS, NURSERYMAN, BRENTFORD.

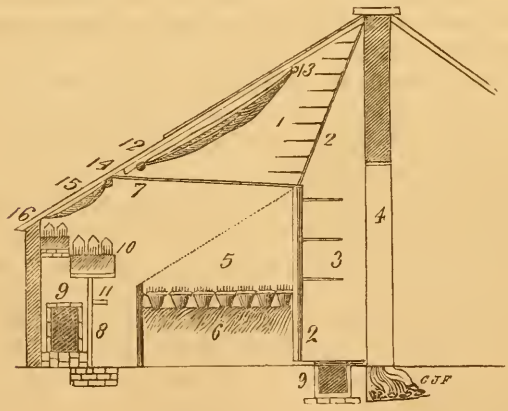
I AM persuaded almost all the plants with which we are acquainted may be increased by cuttings; and in order to perform this successfully two things are requisite to be known: the best time to take the cuttings from the plants, and the best manner of keeping them alive until nature has formed roots to support them. It would be impossible to lay down any rule for the first, without making an entire list of all the plants known, as every genus, and even species, differs more or less from another; for instance, the common tree Pœony (Pœo'nia Moután) will root in six weeks, if the cuttings are put in soon after the plants are out of blow; whilst the sweet scented variety will only strike when planted previous to the flower expanding.

107



To assist in keeping them alive, I have sent you the plans of a house, that I have found to answer the purpose very well, (fig. 108.) The front stage is used for plants which will not bear the damp atmosphere of the pit, as Epacris, Ericas, &c. &c.; the pit is for the cuttings of such plants as require a damp atmosphere, as Camellias, Phillyreas, and many other evergreens, which require a little heat to make them root freely. When well rooted, I remove them to another house, and make room for more on the shelves. I would here just observe, that the pots for cuttings cannot be too well drained, they should be half filled with broken potsherd, covered over with a little peat or moss, which will keep the sand from sinking through.

108



At the back of the pit there are iron supports, one inch square, each one solid bar and bent as (2 2) into which brackets are rivetted for the shelves to rest upon; (3) shelves used for bulbous or tuberous rooted plants in winter, as Ferrarias Dahlias, Gladioluses, &c. these extend the whole length of the house, there is a door through the back wall (4) to take any plants in the potting shed, without exposing them to the open air: the two bottom shelves are divided, and take out easily when the pots of cuttings in the pit may require moving, to introduce new tan into the pit, or for other purposes. The pots of cuttings (5) are placed on the tan (6,) and not plunged, as by constant sprinkling they are liable to become too wet; eighteen inches thick of new tan is put on the bed, about every two months; this keeps up a regular warmth, the new tan is suffered to lay on the old for the two months without mixing, then some of the old tan is

taken away and the whole mixed well together, at the same time spreading over the top eighteen inches more new bark. The lights which cover the pit are attached by a loop, or string and nail to the rafters of the house (7) at the time of sprinkling the cuttings with water. The front stage is supported by frames of one inch square iron (8) set firm in three or four covers of brick work, and also driven into the wall of the house. One of these frames is placed at about every three feet. (9) flue; (10) beds of sand, with pots and glasses fitted in them; there are three pieces of wood one and a half inch square, laid at the bottom of each bed to support two flat tiles on which the sand is laid; a board is also screwed to the turn-up iron to keep the sand up in the front, the pots of cuttings are then plunged, by which means they are not so liable to suffer from either drought or constant watering, and the flue being underneath gives a moderate warmth, and keeps the cuttings in a growing state through most part of the winter; a bracket is rivetted into each iron support (11) to bear a shelf, for the purpose of setting on the cutting glasses when not wanted, or at the time of sprinkling the cuttings. The pit is shaded by a covering of very thin canvas, three feet wide, which can be rolled up or spread out at pleasure by means of a wooden roller (12.) The canvass is attached to a lath, and by means of pulling a string tied to the lath, and passed through a ring (13) the canvass is stretched out as wide as the ring; the string is then fastened to a nail (14) to keep the canvas in its place. When the string is loosed from the nail, the canvas may be rolled upon the roller by the hand: (15) roller for shading the front pots in a similar manner, the lath is placed on a hook at (16) which keeps the blind extended, and is rolled up or spread out by the hand.

J. Ronalds.

ARTICLE III.

ON THE CULTURE OF THE HORSE RADISH.

BY RUSTICOLA.

The horse-radish (Cochleària Armoràcia of Linnæus) and Armoràcia rusticàna, of modern botanists, belongs to the natural order Cruciferæ is indigenous to many parts of England, being found in marshy grounds, and by road sides in Devonshire, Dorsetshire, and other places in the north of England. My manner of cultivating it is this: I first fix on a quarter composed of yellow loam, and in an exposed situation; this I have trenched 2½ feet deep, taking care to

break the soil well, particularly that part intended to be first planted; I then divide the ground into three parts. The first division is bored with holes eighteen inches apart every way, and from eighteen to twenty inches deep. I then take some crowns cut into single buds, and drop them into the bottom of the holes, filling them up with rotten tan, cinder dust, or any light soil; a light dwarf crop may then be sown on the ground as well as on the two pieces kept in reserve. The year following I plant another division the same way, and the year afterwards the last division is planted, by which time that which was first planted is ready to take up, this is done in the manner following: a trench is opened at one end of the piece to the depth of the roots, which are each cut horizontally with the spade, leaving the bottom of the root in the ground, until the piece, or as much as will serve for a year be taken up. The trench is then levelled back, picking out all the little fibrous roots, and adding a little rotten dung as occasion requires. When it pushes up again in the summer I take advantage of rain to thin it out to regular distances, and by the time the last planted piece has been taken up, it will be grown to a fine size. The roots, when taken up, are laid in with their fibres entire, in a cool, moist situation, where they will keep good twelve months or more if required. By these means I have always a regular succession of well grown roots every year, and by keeping it on one quarter I prevent the nuisance of it coming up, wherever it may have been planted. When once a plantation is made it will keep producing fine roots a great number of years, giving the ground, every time you take up a quantity of roots, a good dressing of dung.

RUSTICOLA.

Wandsworth, May 22, 1832.

ARTICLE IV.

ON THE CULTURE AND PREPARATION OF VIRGINIA AND ORONOOKA TOBACCO.

BY MR. MEARNS.

AFTER the leaves are gathered, and laid across poles or lines in an airy, open shade, till a large portion of the watery juices are evaporated, they are laid in large boxes filled up to the top, a lid fitted to the inside of the box is laid upon them, and weights upon it to press them down; fermentation soon takes place, and as is seen by dung

in a stable yard. The mass of leaves soon heat themselves sufficiently dry, to be in a fit state to pack up for use, either for fumigating or other purposes. It ought to be known, and it is not the least important part of the art, that the land should be rich, prepared as if for cucumbers, and the plants previously (in this country) raised early, on a hot bed, are potted off, shifted, and hardened by degrees like the tomatoes, then turned out of the pots, and planted in rows, four to six feet apart from plant to plant each way, for if it be a fine season, and they be judiciously managed, each leaf will measure from two to three feet long, and be very broad and fleshy. When the plants have got from six to eight leaves each, according to their vigour, take off the top of each, and as the buds at the base of the leaves break pick them out, so as to blind every eye upon the plant; some planters retain a bud at top, to carry up the sap more readily, and like the spurring of vines, pinch it back occasionally, but that is said to be unnecessary. By such process all the sap is thrown into the leaves, so that by the commencement of the season for collecting, they will be very fine. To prepare tobacco properly it must undergo a considerable degree of fermentation, and there must be boxes of sufficient capacity to contain a body of sufficient bulk, to create the required degree of heat, or it is not tobacco. To manage it properly you must at least have as many boxes as there are leaves on one plant, and as many plants that a leaf taken from each will fill one box, say 200 plants, which I think would be leaves enough to produce the required fermentation. As soon as the bottom leaves have done growing, and begin to change of a yellow hue they are fit to gather, and not till then, so that only one can be in a proper state to detach from the plant at one time; they are hung in the shade as before mentioned, and, when in a fit state, laid in the first box for the process of fermentation. When the next leaves are fit to detach, they are treated in the same manner, and so on until the six or eight leaves are gathered from each plant, consequently, all the boxes filled. For further details on this subject, I leave the affair to those who have had far better opportunities of becoming acquainted with the process of culture, and method of first manufacture than myself.

J. Mearns.

ARTICLE V.

ON THE TREATMENT OF THE LOVE-APPLE, OR TOMATOES, CAPSICUMS, AND NASTURTIUMS.

BY SAGE.

In the beginning of March, the seeds of the Tomatoes, (Lycopérsicum esculentum of Dunal; Solanum lycopersicum of Lin,) should be sown in pots of rich mould, and covered about half an inch deep with the same, well sifted; these pots should be placed in a melon or cucumber frame, and duly watered, until the seeds begin to vegetate, when they should be removed into the pinery or stove, and as soon as the plants appear in second leaf pot them off in rich mould, either a single plant in each small pot to be repotted again in a short time, or three planted in a pot about six inches diameter, and five inches deep. When potted give them a gentle watering, and place them in a shady part of the house, for a few days. When they have begun to grow, remove them to a more exposed situation, or they will be liable to draw; care must be taken not to allow that destructive insect, the red spider (Acarus) to retard the growth of the plants, but as soon as any are observed, syringe the plants occasionally with a weak solution of sulphur and tobacco water; also sprinkle them over head every morning and night with clear water They should remain in the hot-house until the beginning of May, and then be removed to an airy part of the greenhouse, allowing them a regular supply of water as well as air. When the weather becomes settled, perhaps about the last week in May, prepare the interstices between the wall trees on either a south or east aspect, by removing the subsoil to the depth of eighteen inches, and filling the holes up with good melon earth, then turn the plants out of the pots, press the soil of the border finally about their roots, and give them a good watering. No further attention is requisite except sheltering them with mats if the nights prove very cold, both now and in the autumn displacing all foreright and other superfluous shoots, and regularly nailing them to the wall as they advance in growth. When the frosts of autumn begin to appear, gather the fruit in bunches, with part of the stem adhering to them, and hang them up in the stove to ripen. There are three varieties of this Lycopersicum grown, the red, yellow, and white fruited, but the former is in the greatest estimation for all culinary purposes. Nasturtium or Indian Cress (Tropæòlum

màjus) may be sown on a south border, the end of March, or beginning of April, in drills nine inches apart, and one and a half inch deep, and covered with light rich mould. This plant is cultivated for its flower, as well as fruit; the flower being used for garnishing salads &c. and the fruit for pickling. The Tropæòlum makes a very agreeable variety as well as pleasing appearance trained amongst other climbing plants against summer-houses, harbours, alcoves, or basket handles. Perhaps it may not be known generally, that the flowers of this plant on moonlight nights emit sparks of fire, resembling those struck by a steel and flint. Can the professor of natural history, J. Rennie, Esq. or any other of your excellent scientific correspondents or readers, account for the cause ?

Capsicum.—The different species and varieties of this genus, are raised from seed sown in the beginning of March in pots of rich mould placed upon a strong hot-bed; when come into second leaf, they are potted off singly into small pots filled with light rich soil, and decayed wood or leaf mould, well ameliorated by the frost of the preceeding winter, they should be kept in the stove, and repotted as often as they require it. If the red spider (Acarus) and green fly (Aphis) make their appearance, treat them as recommended for Tomatoes, water them occasionally with drainings of dung-hills, which will greatly assist them in bringing their fruit to perfection. The C. frutèscens may be propagated by cuttings as well as by seeds, and is considered superior to all other sorts for culinary purposes. This species is grown to great perfection at the Marquiss of Stafford's, Mr. Wooley, the intelligent gardener there would confer a lasting favour on many of your readers by inserting a paper in the *Register* on his method of growing them. All the perrennial species may be taken out of their pots in spring, the soil shaken from them, all their superfluous roots be cut off; the shoots cut down to two or three eyes, and then repotted again in the compost mentioned before, and placed in a hot-bed to start them. SAGE.

FLORICULTURE.

ARTICLE VI.—THE VARIETIES OF THE CAMELLIA.—By G. A. L.

PURSUANT to my promise made some months since, I shall proceed to lay before your readers, a list of the varieties of the Camellia Japonica, I deem most worthy of their attention, and deserving of cultivation. I shall add a few cursory observations to the name of each variety, which I flatter myself will be serviceable and useful, by guiding the choice in forming a collection of this noble tribe of plants

To many, I know they will be useless, to these persons I must apologize, not for wasting their time, for they must skip and turn to something more useful; but for occupying so many pages of the Register, which I confess might be so much better filled up by abler and wiser heads. I must not forget to express my obligations to Messrs. Chandler and Booth, to whose valuable work on the Camellia, I am indebted for much of what follows.

G. A. L.

May 26th, 1832.

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1. CAME'LLIA JAPO'NICA, the old single red Camellia, introduced in 1739; chiefly cultivated for the sake of cuttings, to raise stocks, upon which to inarch and graft the finer varieties.

2. C. JAP. FLOR'A PLE'NA A'LBA, the old double white C. introduced 1792. This variety is too well known, and too beautiful to require any recommendation, or comment.—Indeed, I think it is the finest in cultivation.

3. C. JAP. RU'BRA PLE'NA, the old double red, or Greville's red C. Introduced in 1794, by Sir Robert Preston, of Valley-Fields. Although not so much cultivated as some of the other varieties, yet no collection should be without it. Messrs. Chandler and Booth observe, that it does not flower well before it attains a considerable age. The flowers from three inches to three and a half in diameter.

4. C. JAP. INCARNA'TA, VEL FLAVE'SCENS, Lady Hume's Blush or Buff C. Introduced in 1806, for the late Lady Hume, of Wormlebury, Hertfordshire. A fine and beautiful flowering variety, and well deserving of cultivation; but requires often to be pruned, or it becomes straggling in its growth.

5. C. JAP. ANEMONE FLOR'A. Anemone flowered, or red Waratah C. introduced in 1806. A very fine and distinct variety, but its flowers drop much sooner than those of the other kinds. Many fine seedlings have been raised by impregnation from this variety.

6. C. JAP. VARIEGA'TA, the double-striped C. introduced in 1792, by Capt. Conner, for the late John Slater, of the India House. A fine variety, but like most of the variegated Camellias, no dependance can be placed upon the flower coming striped with white.—Indeed, during the last few years, this variety appears to have degenerated. Mr. Chandler recommends, that it should be forwarded in the stove, in a warm part of the green house, so that the plant may flower late in the autumn, or early in spring,—because, when thus heated, it is generally more variegated, than when flowered later in the season.

7. C. JAP CARNEA. Middlemists' C. not very worthy of attention, except for cuttings, which make excellent stocks. It will sometimes open a fine flower.

8. C. JAP MYRTIFOLIA. Myrtle-leaved C. Supposed to have been introduced about 1808. A beautiful variety, neat and compact in its growth; the flowers are of a deep rose colour at first, becomes of a fainter tinge after their expansion. This variety, and those called C. Jap. involuta or Lady Longs, and C. Jap. hexangularis, appear to be one and the same plant, only there is sometimes a slight difference in the foliage, or flower, arising from accidental variations of soil and culture. They are sometimes called the large flowering myrtle-leaved, the large myrtle-leaved, and the small myrtle-leaved. Although, I think they are but one variety, and in this opinion I am supported by Mr. Chandler, yet there are many persons who maintain that they are three distinct varieties.

9. C. JAP. FIMBRIA'TA, fringed white C. Introduced about 1816. A very beautiful plant, resembling the old white, but the edges of the petals being fringed, gives the flower a very pretty effect. It *must* be cultivated by every lover of the Camella.

10. C. JAP. POMPONIA, Pompone or Kew Blush C. Introduced to the Kew Gardens, about 1810. This plant, I take to be the same as the one called C. jap. variabilis, (but see C. jap. pœoniflora, below.) It bears a pretty flower, but the plant is loose and rambling in its habit

11. C. JAP PŒNIFLORA, Rosy Pœony flowered C. Introduced about 1810, for Charles Hampden Turner, Esq., of Surry. A very beautiful plant, of which there are said to be three varieties, viz. the rosy or red, the blush, and the pompone or white; but in this nomenclature, there appears to be great and almost inextricable confusion. For my own part, I think there is but one pœony flowered,—the red or rosy, which I believe never varies in the colour of its flowers, and therefore is distinct from the pompone or variabilis, the flowers of which vary in their colour, being sometimes red, sometimes white, and sometimes blush; or again, flowers of two, or even of the three different colours, will often be seen on the same plant. So that in my opinion, the blush pœony flowered, and the pompone, or variabilis, or white pœony flowered, is one plant, distinct from the red pœony flowered, the latter not changing the colour of its flower, although it resembles the pompone in the shape of the flower, and the habit of the plant, in which latter respect, they so much resemble each other, that it is difficult to distinguish them when not in bloom. I will not vouch for the accuracy of my opinion, but I never yet could meet

with white and the blush poeony flowered; however, I have been shown the pompone, when it happened only to have a white flower upon it, by the name of the white pœony flowered, or when, only a blush coloured flower, by that of the blush pœony; but when there has been two or more flowers of different colours on a plant at the same time, then it was called the pompone or Kew blush, sometimes the variabilis; but the true pœony flowered far surpasses the pompone, variabilis, or whatever other name it may possess.

12. C. JAP. DRANTHIFL'ORA, VEL KN'IGHTI, Knights' carnation waratah C. A very pretty seedling, raised by Mr. Knight, of the Exotic Nursery, Chelsea.

13. C. JAP. ANEMONE FLORA ALBA, White anemone flowered C. A fine seedling variety, raised by Mr. Chandler, of the Vauxhall Nursery. Flowers, three to four inches in diameter, white, and sometimes dotted and striped with pale red.

14. C. JAP. WILTONI, Lady Wilton's C. A pretty seedling, raised by Mr. Knight some years since. The flower is very pretty when it is striped, but in this respect no dependance can be placed upon it. The plant is but little known.

15. C. JAP. CORALLINA, coral flowered C. So called, from the colour of the flower, which resembles that of coral. A fine and splendid seedling, raised in 1819, by the Messrs. Chandler. It will sometimes have the flowers striped with white.

16. C. JAP. EXIMIA, Chandler's choice C. Perhaps this is the finest variety raised by the Messrs. Chandler, the only one that can compare with it, is corallina, and that is certainly nearly its equal in beauty, but its beauty is of a different and distinct kind to that of eximia, the flowers of which are of a rose colour, very double, and about four inches in diameter. No collection *must* be without either of them, although both are still very expensive, particularly eximia.

17. C. JAP. IMBUCATA, Imbucated C. Next to the old white, this is certainly the finest variety imported from China. It much resembles the C. jap. eximina, I scarcely know which I prefer of the two.

18. C. JAP .CHANDL'ERI; Chandler's striped waratah C. Another very fine seedling, raised by the Messrs. Chandler in 1819. It is often variegated, but is very uncertain in this respect.

19. C. JAP. ROSA SINENSIS, Rose of China C. A very fine seedling, from the Vauxhall Nursery. Colour pale red.

20. C. JAP. WELLB'ANKII, Wellbanks C. A handsome white variety, from China, well deserving of cultivation.

21. C. JAP. SPECIOSA, beautiful or Capt. Rawes' striped waratah C.

A beautiful and elegant variety, imported within a few years from China. It is held in high estimation by every admirer of the Camellia.

22. C. RETICULA'TA, Reticulated C. A distinct species from the C. japonica. Introduced by Capt. Rawes in 1820. It produces flowers resembling the Pœònia Moutàn, both in form and colour. It is difficult to propogate, in-arching is the only sure plan, and the stocks must be very strong. This species will not bear the knife like the C. japonica, consequently, care must be taken to leave a good strong bud, at the next joint to that from which you take the scion, and that bud must be strong and well formed, before laying on the shoot immediately above it, otherwise the whole branch will die; and if it be a small plant with only one shoot, the whole plant will most probably go off. It is still very scarce and expensive.

23. C SASANQU'A, ROSE'A, VEL MALIFLO'RA, Lady Banks rosy Sasanqua, or the apple-blossomed C. A distinct species, and universal favorite. Introduced in 1816, by Capt. Rawes, for J. C. Palmer, of Bromley, Kent. Mr. Chandler recommends, that it should have more heat in its culture, than the varieties of C. japonica. G. A. L.

May 26th, 1832.

(To be continued.)

ARTICLE VII.

ON THE CULTURE OF THE MESPILUS,

(ERIOBOTYRA, LINDL.) JAPONICA.—BY Q.

THE Japan Loquat is generally considered a greenhouse plant, and is grafted on white thorn, medlar, service, or quince stocks, but it is found to thrive best on the white thorn (Cratægus Oxyacántha) and when the stock is of a good shape it forms a very handsome tree. The fruit ripens pretty well in the greenhouse, although the flower is much improved by the temperature of the stove; the fruit is of a rich yellow colour, grows to the size of a gooseberry, and is nearly as good as the manga; the variety commonly cultivated, however, is very inferior to the true japan loquat, which is, at the present time, far from being common, although introduced long ago. I believe in Malta it is considered an excellent garden fruit.

Q.

ARTICLE VIII.

ON THE CULTURE OF THE IXIA TRIBE,

BY MR. R. STAFFORD,

Under Gardener at G. B. Strutts, Esq. Belper, near Derby.

I HAVE sent you a very successful method of flowering the Ixia, which has been practised by my father at Willersley for many years. In the first week in September take the bulbs out of the paper bags, and plant about twelve of the largest in each quart pot (32s.) in a mixture of sand and peat, about equal parts covering them about an inch deep; then place them in the open air where they are to remain until the winter frosts render it advisable to place them in the window of a greenhouse, where they should remain until the first week in February, at which time place them in the front of a vinery or some other house, where they will have about sixty degress of heat, giving them a regular supply of water. In May they will be in full blow, and may be removed to furnish the flower stand, &c. after which place them in the open air, where they should be attended to with water so long as there exists in any part of them a disposition to generate sap. When the roots appear to be perfectly matured, take them out of the pots, clean them, and put them in paper bags, until the planting season in September. Few plants repay us with a profusion of more brilliant flowers than this tribe of bulbous plants. The chief object is the successful culture of bulbs seems to be that of keeping them in a perfectly torpid state until the time you wish to excite them, at which time and during the whole period of their growth they should be kept in as free a growing state as possible. I have no doubt but most of the cape bulbs will blow well under this simple mode of treatment.

R. STAFFORD.

Belper, June 13, 1832.

ARTICLE IX.

ON THE CULTURE OF THE BLETIA TANKERVILLIÆ.

THE Blètia Tankervilliæ flowered for the first time in this country in the stove of Mrs. Hird, at Apperley Bridge, near Bradford, Yorkshire, to whom it had been sent by Dr. Fothergill, her uncle, in 1776. It is very easy of culture, and will flower freely if potted in

a soil composed of equal parts of light sandy loam, peat, and river sand; let the pots be plunged up to the rim in a bark bed or other brisk heat, during the time the roots are in a growing state, and give a good supply of water; when out of flower and the roots become dormant, take up the pots and place them in a shady situation; allow the soil to become rather dry, until they begin to grow again: as soon as this is observed, repot them and plunge as before directed, they are readily propagated by parting the roots, treated in the same way as the flowering plants.

SERAMALEA.

ARTICLE X.

ON THE TREATMENT OF THE CAMPA'NULA PYRAMIDA'LIS

BY MR. JAMES BROWN, JUN.

At the Gardens of his Grace the Duke of Buckingham, Stowe, near Buckingham.

I DO not know a plant more deserving the attention of the flower gardener, or one that will more amply repay him for his attention, by the brilliancy of its colours, and the length of time it continues in flower than the Campánula pyramidális; not only may the professed flower gardener grow this beautiful plant, but any lover of plants who has a spare window, by the following mode of treatment may have it in the most splendid perfection.

In the spring of the year, offsets or cuttings are taken off the large plants intended for flowering, and planted in any shady part of the garden, till they have struck root; they are then taken up, and planted in rows in a very shady situation, where they should remain twelve months from the following March. Some are taken up in the first March after this planting, but are seldom strong enough to flower very large, if they are not planted in a shady place, they generally flower the first year,—they are then taken up with good balls and put into pots from ten to twelve inches diameter; and those who have the advantage of a green-house, should occupy the coolest part of it with them, exposed however to as much light and air as possible; but where there is not the convenience of a green-house, the windows of the dwelling-house would answer very well, or the most sheltered part of the garden, until the month of May, when the plants ought to be under cover. The soil most suitable for them, is

good rich loam and rotten dung, well pulverized; they are not only greatly aided in strength, but also in the brilliancy of their colours, by the richness of the compost they grow in.—I am induced to recommend to your notice this plant, as being one that every lover of flowers may excel in, and I believe that in no part of the kingdom have their perfection been more conspicuous, as in the town of Buckingham. You may see in twenty different parts of the town, a single plant fill a window; and in one particular, a plant in the possession of a tailor, had a leading stem eight feet high, producing a mass of laterals, forming a most beautiful pyramid of flowers, measuring in circumference twelve feet.—The flower gardener requested to produce the best show of flowers, could not exhibit a more imposing and striking appearance than with the campanula treated as above, and turned out into clumps, mixed with an equal number of the Lobèlia splèndens and fulgens brought forward in the hot-house in pots. It is much to be regretted, that this plant has been so long neglected, by the common mode of culture, it seldom exceeds three feet high; whereas, if treated as above, it will commonly attain seven and occasionally eight feet, and be equally strong in proportion.—It may be necessary to add, that the plant when growing, ought frequently to be supplied with dung water.

JAMES BROWN, JUN.

Stowe Gardens, June 15th, 1832.

ARTICLE XI.

CULTURE OF THE GLORIO'SA SUPE'RBA.

BY RUSTICUS.

I AM induced from the request of your correspondent, Sage, to send the following account of a method of treating the Gloriòsa superba, to make it flower freely. About the middle of January, the roots should be potted two inches deep in upright forty-eight pots; the soil used for the purpose should be composed of one-half of loam, one quarter of leaf mould, and one quarter of peat, plunge the pots of roots in a frame or bark bed, where they will receive about eighty degrees of heat, water them very sparingly, until the shoots have grown a little. In the beginning of March, they should be shifted into a size larger pots, being careful not to break the balls, using the same compost as before; then plunge them in a bark bed or

frame, and allow them as much as ninety degrees of heat; when the shoots grow, they must be supported by tying them to sticks, or a temporary trellis: by which treatment they will advance upwards of ten feet high, and flower beautifully. When the stalks have died down, remove the pots from the bark bed to a dry part of the house, when they will be entirely free from any droppings of water, as they must have no moisture during the time they remain in a dormant state. They are readily propogated by dividing the roots, or by seeds which generally ripen very freely.

RUSTICUS.

ARBORICULTURE.

ARTICLE XII.—ON PRUNING FOREST TREES.

BY MR. JOHN HOWDEN.

I OBSERVE, you have introduced some more observations on Pruning Forest Trees, &c. into your Register. One article p. 390, from the gren of G. I. T., and the other p. 406, by Mr. Blakie, of Holkham. What a pity, that these gentlemen so desirous of doing good, should be the means of misleading; they entertain such extraordinary ideas on vegetable physiology. They suppose the leaves of a tree to be its mouths, &c. whereby it inhales nourishment. Now I consider them quite the reverse, and I should not be very far wrong, if I said they were merely the excrements of the timber, or why does the tree discharge them annually, or biennially. The leaves of a tree appears to me no more mouths than the hair on my head, or the wool on a sheep's back; they carry off insensible perspiration, and superabundant sap. Pray, do you think the hole or trunk of the weeping ash, lately planted at Chatsworth, has swelled in proportion to its immense quantity of mouths? I know you will answer in the negative, that tree would have been ten times its present size, with a tenth of its mouths. I am as averse to sawing off *large boughs* from an old tree as any of your correspondents, I would have them cut off before they become *large*. The only way to improve an old mis-shapen tree, is to send it to the sawyers, and plant a handsome one in its place, and afterwards attend to pruning it properly, until it is brought into the form or shape intended, then touch it no more till you fell it for the *timber-merchant*. It is almost impossible to overprune any tree, providing you do not overprune it in any one year. Mr. Bla-

kie's system of foreshortening may do very well for laurels, hollies, and other ornamental trees; but for timber, it is worse than useless. Lord Bathurst may be very fond of his great *lime trees*; if I were him, I would cut them down and plant something better. As proofs that the pruning of trees does them no injury, but good, I shall give you the following instances:—A larch tree not far from my window, which I had planted no less than twice before, was mangled by a fat bullock as he was going to the butcher, it was then about seven feet high, in 1816, the bullock broke or bruised every branch, and at last with his horns tossed it clear up into the air; I planted it again, and cut off all the bruised branches, when it looked little better than a coachman's whip-stick: I have since attended to pruning it every year, and it is now the largest larch in a range of plantations of many hundreds of acres of the same age, being forty-five feet high, and nearly four feet round at the base, tapering regularly to the top, the butt or bole is twenty-five feet of clear wood, and I never mean to touch it again.

Some people are very fond of the picturesque, and would like to see trees feathered to the ground, their *ne plus ultra* would be a tree the shape and size of an Egyptian pyramid. I am also fond of the picturesque, I should like my trees to look like pyramids, but I would have them fixed on pompey's pillars, by this means the manufacturer would give me more for a pompey's pillar, than for all the pyramids put together. The next instance I shall give, is of an *Elm*, which grows opposite to the larch, it is the old English or broad-leaved, which you know is a very spreading tree,—but the timber is much superior to the narrow-leaved Elm,—it had all the appearance of an old tree, or an old gooseberry-bush at seven years old; it had broke into four limbs at nearly right angles, about four feet high; I could scarcely determine which limb to call the leader, however, I cut off three of them, and attended to pruning it every year afterwards, it has now a clear straight bole of nearly twenty feet, and three feet in circumference.

JOHN HOWDEN.

ARTICLE XIII.

NOTICES ON FOREST TIMBER.

BY AN ARBORIST.

(Continued from page 594.)

The Scotch Fir thrives at the height of one thousand four hundred feet above the level of the sea, and the timber which grows on the highest elevation is of the best quality, and superior to any foreign timber that is imported. The larch will grow at an elevation of about two thousand feet. It is not improbable, that as this tree was originally introduced from the mountains of Carniola, it will at length degenerate with us, at least as to *perfecting healthy seed,* hence it would be advisable to import annually, at least, a portion of the seed for our nurseries from the alpine regions. The Duke of Athol sold a larch a of fifty years' growth for twelve guineas ; a scotch fir of the same age would be only worth about fifteen shillings.

The Fir is the "builders timber," and as when the carpenter wants a post or beam of peculiar strength and durability, he has recourse to the oak : so when the shipwright wishes to have a piece of timber, that shall combine *lightness* with great length, as for a span or mast he makes use of the pine.

The Silver Fir attains the height of upwards of one hundred feet; and one of the trees at Woburn exceeds nine feet in circumference, four feet from the ground; and has a clear annually pruned bole of seventy-five feet, the rapidity of its growth, and the value of its timber, which is not liable to warp, are equal to that of any of the pine tribe. Some of the Norway houses, built of entire trees of the red fir or pine, are supposed to have stood upwards of four hundred years. In Guld bransdale, the house is still standing, in which King Olaf lodged five nights, above seven hundred years ago ! In the dock yards at Venice, spruce and silver fir from the vallies of Venice, may be seen 40 yards long and 18 inches diameter at the small end.

The Pineaster was introduced in 1596, and the Stone Pine in 1570, the seeds are esteemed a delicacy by the Chinese, as well as the natives of the south of Europe, and appear in their ripe state as an article in their choicest deserts.—The advantages derived from planting pines in Upland and heathy parts of the country, which can scarcely be turned to any other profitable purpose are very many. They form a shelter to the little patches of land that are unsuscepti-

ble of cultivation; the thinnings are well adapted for fuel, palings, and many other domestic purposes. Bishop Heber found the pines of the Himalaya mountains, at the height of nine thousand feet above the level of the sea. Two new species of pine, of more gigantic dimensions than any that have hitherto been described in Europe or America, have been found on the western coast of South America; the one grows to the height of 230 feet, and is upwards of fifty feet in circumference at the base, it has a rough corky bark, from an inch to twelve inches thick; the leaves resemble those of the spruce, and the cones are small; the timber is of good quality and very heavy. The other was discovered in Northern California; it is a very majestic tree, and grows to two hundred and fifteen feet in length, fifty-seven feet nine inches in circumference at three feet from the root, and seventeen feet five inches at one hundred and thirty-four feet; the bark is uncommonly smooth, and the whole tree has a most graceful appearance; the cones resemble those of the Weymouth pine, but are much larger, being on an average at least sixteen inches in length.

Filberts, under proper management, are a profitable crop in an Orchard, but they are supposed to be great impoverishers of the land. More than one hundred thousand bushels of foreign nuts, are every year consumed in this country, most of which would succeed in our clima te.

The Hiccory rises to a considerable height, of nearly uniform thickness, as straight as a line, and without any lateral branches; it is therefore very probable, that if these trees were more generally cultivated, they would be found amongst the most valuable in this country.

Hollies.—Their superiority, whether in point of utility or ornament, is universally acknowledged, they will thrive upon almost any soil, but thin soiled heights seem to be their natural situations. They make an impenetrable fence, and bear cropping. Many plants, like many animals are furnished with *arms*, these are either *prickles* as in the rose and barberry, which are formed from the outer bark of the plant; or *thorns* as in the hawthorn which are an elongation of the wood, and hence more difficult to be torn off than the former; or *stings* as in the nettles, which are armed with a venomous fluid, for the annoyance of naked animals. Many plants lose their thorns by cultivation, so will animals lose their ferocity, and some of them their horns. Hollies that grow wild in the woods, naturally lay their own branches, which as soon as they touch the ground freely take root; with a little assistance from art, a sufficient number of well-rooted

plants could soon be got, which might safely be transplanted at such an age, as to make almost an immediate hedge.

Hollies and Thorns might be mixed in hedges with a most excellent effect, every third or fourth plant being a holly; for the first four or five years, the thorns will advance fastest, after which, the hollies will naturally gain ground, and at last totally extirpate the others; by planting both, you will soonest have an appearance, and afterwards, by an agreeable metamorphosis, have an entire holly hedge.

Larches even upon stony ground, annually shoot between two and three feet. If the soil is dry, the height of the situation is of no consequence. The most superb palaces in Venice, and the forum of Augustus, were built of larch, as were sundry magnificent bridges by Tiberius. Posts of it driven into the ground become almost as hard as iron, and will bear an incredible weight. A larch of fifty-four years' growth in Derbyshire, measured in 1809, eighty-three feet and a half of timber; the Duke of Athol was offered twenty pounds for a single larch of fifty years' growth. The thinnings used for upright paling, rails, and hurdles, with the bark on, are more durable than oak-copse-wood of twenty-four years' growth. Four larches will grow where only one oak or beech would occupy, and are the better for being crowded, whilst the two latter suffer materially from it. The *pruning* of larches makes them grow with *great vigour*, by repeated experiments, it appears that plants which were *pruned* advanced at the rate of *four years in six, before* those which were not pruned; this treatment should be attended to *every year* either winter or summer, after they have been planted out.

The Norway Maple grows to a large timber tree; its leaves are of a shining green colour, and are as large or larger than the common sycamore; their edges are acutely and more beautifully indented, they are not so liable to be eaten by insects in the summer, and in the autumn they die of a *golden yellow colour*, which causes a delightful effect at that season, when the different tints of the decaying vegetable world are displayed; the flowers also are beautiful, they come out early in the spring, are of a fine yellow colour, and shew themselves to advantage before the leaves come out.

Oaks, in Ampthill Park, are particularly celebrated for their great size and age; several of them are supposed to be upwards of five hundred years old, and some persons do not hesitate to say, above a thousand; the growth of many of them is ten yards or considerably more. A survey of this park, by order of the Conventional Parliament in 1653, pronounced two hundred and eighty-seven of these oaks hollow, and too much decayed for the use of the navy. The whole of these

remain to this day, and may perhaps continue two or three centuries longer; some few of them have been scathed by lightning. There are calculated to be seven thousand three hundred and sixty acorns in bushel. In the New Forest, Evelyn counted in the sections of some trees, four hundred concentric rings, or layers of wood, each of which must have recorded a year's growth.

The Turkey Oak in many situations is more profitable than those of our own country. The Duke of Tuscany's princely domain at Pisa, is partly overgrown with woods of evergreen oak, (Quéscus Ilex,) to which the situation is so congenial, that many of them measure twelve feet in circumference, and the shade of single trees is found to be seventy or eighty feet broad; the foliage is small of a dull dark green, and the acorn when roasted is palatable.

Although the Teak Tree (Téctona grándis) is a tree of quite a different family from the oak, and a native of India, it is used in ship-building like the oak, and has some resemblance to it in its timber. It is a tree of uncommon size, with leaves twenty inches long and sixteen broad, and bears a hard nut. Besides its value as timber, the teak has beauty as a tree; it is found more than two hundred feet high, and the stem, branches, and leaves are all very imposing.

The Abele Tree (Populus álba) is a tree of extremely quick growth, and is equal to the best mahogany in colour and smoothness of surface; and much superior to the Plane, or inferior sorts in those respects, as well as transparency and variety; and it has the further advantage over mahogany and most other woods, that it takes but little oil or rubbing, to produce upon it that sort of mellow shining surface so much admired in furniture, that it has been some years subject to proper attention.

An Arborist.

RURAL AFFAIRS.

ARTICLE XIV.

ON PREPARING POTATOES AS FOOD.

BY SOLANUM.

Your correspondent "G. I. T." (p. 441) with the aid of the ingenious president of the Horticultural Society, has shewn how the enormous quantity of 670 bushels of potatoes, of 80lbs. to the bushel, may be produced in one statute acre of land. Will you give me leave, with

the assistance of even a more celebrated character, to place before your readers the best mode of preparing this valuable crop for the table?

Most English cooks, I apprehend, think the boiling of potatoes rather unworthy much attention, hence we frequently find these roots but indifferently dressed. In Ireland, on the contrary, that potatoe fed population have brought the art of cooking them to great perfection.—Guy says,

> "Leek to the Welch, to Dutchmen butter's dear,
> Of Irish swains potatoe is the cheer."

The following accords with the Irish mode of preparing potatoes as food, and is from the pen of Benjamin Count Rumford, the eminent person above alluded to, whose successful exertions in the application of science to the purposes of ordinary life, have contributed much to the comforts of mankind.

"The potatoes should be as much as possible of the same size, and small ones boiled separately; they must be washed clean, and, without paring, put into a pot with cold water not sufficient to cover them as they will themselves produce a considerable quantity of fluid before they boil; they do not admit of being put into a vessel of boiling water like greens. If the potatoes are tolerably large, it will be necessary, as soon as they begin to boil, to throw in some cold water, and occasionally to repeat it, till the potatoes are boiled to the heart, which will take from half an hour to an hour and a quarter, according to their size, they will otherwise crack, and burst to pieces on the outside, whilst the inside will be nearly in a crude state. During the boiling, throwing in a little salt occasionally is found a great improvement, and it is certain that the slower they are cooked the better. When boiled pour off the water, and evaporate the moisture, by replacing the vessel, in which the potatoes were boiled, once more over the fire: this makes them remarkably dry and mealy."

SOLANUM.

April 25th, 1832.

ARTICLE XV.

ON THE METHOD OF COOKING TOMATOES.

BY A CONSTANT READER.

How desirable it would be that your excellent work should occasionally contain receipts for the cookery of the many vegetables that have lately been introduced into our gardens, in the uses of which most people are totally ignorant. I am aware that the *Gardeners*

Magazine, has papers to that effect, and to make a beginning in the *Horticultural Register,* here is one, if you think what I am writing worth notice.

Peel a dozen ripe tomatoes, and fry them in a little salad oil, with two or three green capsicums cut up, and sprinkled with a little salt. A sliced onion or two also may be added, if approved of, or butter used instead of oil.

This is a Spanish dish, and it is presumed, will be found excellent by most people.

A CONSTANT READER.

June 29, 1832.

NATURAL HISTORY.

ARTICLE XVI.

NOTICE OF A BIRD CALLED THE MARCH COCK, MIGRATION OF GOLD FINCHES.

BY HIJO DE HESPANA.

IN reference to Professor Rennie's communication inserted at pages 559—60, of the *Horticultural Register,* where mention is made of M. Natterer having shot a species of bird, nearly allied to the Philomela atricapilla, at Algeziras near Gibraltar, brought strongly to my recollection, the circumstance of my having, when a youth, been on a shooting excursion with two or three friends about the same spot, and meeting with a bird which perched on a tree near where we were passing. I had a distinct but very transient view of it, for one of the party immediately fired at it, and though within short range of shot, unfortunately missed it. The bird appeared of the size of the common Bantam, with white plumage and arched feathers in its tail, and is known in that part of Spain by the name of the March Cock, by reason of it never having been seen at any other season of the year in lower Andalusia, than in that month.

I have heard my father state, that being on a return-voyage from Oram, on the north coast of Barbary to the Straits, a March Cock alighted on one of the yards of the vessel, and was so exhausted as to permit its being taken, without any difficulty; the bird, notwithstanding its having rejected various kinds of food that was presented to it, for several days prior to its arrival at Gibraltar, continued alive

and well, and on its being brought on shore, was, as a last resource, tried with worms, these were put into a shallow receiver, slightly covered with earth and placed in a room, where the bird was permitted to run loose. It soon discovered the worms by thrusting its beak into the dish, and having secured one, was observed to throw it into the air, and in its descent, recaught and swallowed it,—the same process took place with a second and a third.—This bird has, I understood, the peculiar faculty of expanding its comb, whenever it alights, like a fan, which in its flight is invariably colapsed.

Goldfinches migrate in great numbers in the spring, across the straits of Gibraltar from Barbary to Spain, and return in the autumn.

Partridges are found in great numbers, in the immediate neighbourhood of Tetuan on the south side of the Straits; these are beautiful birds with red legs, and are similar in every respect to those found on the rock of Gibraltar.

HIJO DE ESPANA.

ARTICLE XVII.

ON THE DESTRUCTION OF BEES BY TOADS.

BY MR. G. BUCKLAND.

THE following account of the destruction of Bees, by the common Toad, (Berfo *Communis*) was sent me some time since by a friend, in the accuracy of whose observation I can confide. Should you deem it of sufficient interest to occupy a space in your *Register*, it is much at your service; and I hope that it will be the means of eliciting further information from some of your correspondents.

G. BUCKLAND.

Benenden, Kent, June 11th, 1832.

"As I was fetching some water from a pond, on the side of which grew a plant, called Water Betony, I observed a bee gathering from its flowers. Being curious to know whether the little industrious labourer came for honey, or merely to collect on its legs for the purpose of breeding, I observed it very attentively, and as it descended to the lower part of the flowers, I felt somewhat surprised that it had escaped my observation. While reflecting on this circumstance, another bee alighted on the top of the same plant, and proceeding, like the former one downwards, I heard a little smack, and observed

the bee go off the flower into a large cluster of grass. This excited my curiosity to see whether it went into the ground, and to my surprise, I found concealed under the grass a large toad, which was seated in a little hollow of the earth: I then felt quite satisfied, that the toad had devoured both the bees. About eight or ten days afterwards, in the evening of a very warm day, as I was standing to behold my bees return weary and heavy laden to their hives, (for when the sun is setting, they always appear weary and weakly,) I observed that several dropped short of the landing board, and settled on the leaves of a mallow, which grew beneath the mouth of the hive. While thinking when they would rise, I heard a loud smack, and saw a bee go from the edge of a leaf into the mouth of a large toad, which was seated under the mallow, at the distance of seven inches from the bee. I then hastened for my uncle to come and see, which he did, and we suffered the same toad to suck in three more, the distance of one bee was nearly nine inches. The toad's mouth was so far opened, that I could see the bees in the mouth, before it closed, and I believe that they were swallowed whole."

ARTICLE XVIII.

THE DESTRUCTION OF THE WIRE WORM.

BY M.

At one of the Holkham meetings some years ago, Lord Albermarle stated, that he had accidentally discovered a remedy for the Wire Worm, but since his speech was given in the *Farmer's Journal* for that year, I have never seen it noticed in any way whatever, I therefore transcribe the particulars as detailed by his Lordship (from memory.) His Lordship informed the company, that he had drilled a field with wheat, intending at the same time to have deposited with all the seed, rape cake as manure, but more of the latter having being used than had been calculated upon at the commencement of the work, part of the field was drilled without any manure, and that part only had suffered from the wire worm. Unwilling, however, to promulgate this accidental discovery, without trying the experiment again, his Lordship, the following year had wheat drilled, and afterwards sowed with rape cake, in powder, across the field in an oblique direction, and the result was again as before stated, viz. only that part of the field was free from the wire worm, which was sown with rape cake. M. ———

ARTICLE XIX.

ON SERPENT'S EGGS.

BY A. M.

The Rev. Michael Russell, L. L. D., under the Zoological treatise of animals, mentioned in Scripture remarks, on the generation of serpents, "the only difference between the oviparous and viviparous is, that in the former the eggs are laid before the fœtus is mature in the latter, the fœtus bursts the egg while yet in the womb of the mother." There has been doubts whether the adder be oviparous or viviparous,—certain it is, that the eggs lay as above described, and I should have no difficulty in procuring you a female adder to send you, if you wish to satisfy yourselves by dissecting it.

A. M.

ARTICLE XX.

ON VEGETABLE ANALYSIS.

BY MR. A. GODWIN.

The economy of animal and vegetable existence is obviously similar, and even in matters not very obvious; a thermometer, put in an augur hole in a tree, will shew that the plant in winter is warmer by many degrees than the atmosphere;—the tree can resist cold, by its moisture not freezing so soon as the water in its neighbourhood.—Plants shut up their leaves, and sleep in the night, betray irritability and sensibility.—A wounded tree on a frosty day, when the sun shines, will bleed profusely on its south side, but shew no signs of sap on the north, &c. &c. A rainy season opposes the developement of the saccharine principle, as well as the formation of resins and aromatics. A dry season is unfriendly to mucilage, but otherwise to resins and aromatics. Cold weather is inimical to all these, except mucilage, which is the principle of increase in the bulk of plants; hence trees in cold climates are most agreeable in their appearance.

A. Godwin.

ARTICLE XXI.

ON THE STUDY OF ENTOMOLOGY—By Rusticus.

(Continued from page 603.)

Section 1st—Adephaga Voracious—Subsection 4th, Necrophaga; Beetles that feed on Carrion, &c. continued.

Family XIX.—Nitid'ulidæ; 6 genera.

1. Thymàlus,
2. Nitidùla,
3. Stróngylus,
4. Cámpta,
5. Meligèthes,
6. Prìa,
7. Carpóphilus,
8. Caterètes,
9. Micropêplus,

Family XX—E'ngidæ.—26 Genera, many of which are exceedingly minute.

1. Trichópteryx,
2. Atomària,
2. Typhœa,
4. Cryptophàgus,
5. Antherophàgus
6. Bytùrus,
7. Mycetœa,
8. Triphy'llus,
9. Mycetophàgus,
10. Byphíllus,
11. Trìplax,
12. Tetratòma,
13. E'ngis,
14. Ips,
15. Nemosòma,
16. Sychìta,
17. Cérylon,
18. Cicones.
19. Rhyzophàgus,
20. Monotòma,
21. Crypta,
22. Silvânus,
23. Bitòma,
24. Corticària,
25. Latrídius,
26. Ly'ctus,

Family XXI. Dermestydœ.—4 Genera.

1. Throscus,
2. Megatoma,
3. Attagènus,
4. Derméstes,

The leather-eater (Derméstes lardàrius) is destructive to meat, and is a very unwelcome intruder into the cabinets of the curious, the larvæ feed equally well upon dried skins, bark of trees, rotten wood, seeds, flowers, and the carcases of dead animals, and is often found deeply buried in old bacon, &c.

Section 2nd—Chilognathomo'rpha, *Chilognathiform Larvæ.*

Subsection 1st—Clavicornes, *with clavati sublammate Antennæ.*

Family XXII.—Byrrhidæ—7. Genera.

1. Anthrenus,
2. Trinòdes,
3. Aspidéphorus,
4. Nosodéndron
5. By'rrhus,
6. Simplocària.
7. Chætophora, Kirby.

The Larvæ of the Anthrènus Museòrum, are among the most de-

structive pests of our cabinets, for if once they get among the specimens, the havoc they make is truly astonishing; the birds are soon stripped of their feathers, and the insects fall to pieces; these larvæ are covered with bunches of diverging hairs, which enables them when caught to glide through your fingers, as though they were lubricated with oil; scarcely any thing in the cabinet escapes them. De Geer even says they will feed upon horn.

Family XXIII.—Histeridæ.—5 Genera'

1. Abræus, 3. Hister, 5. Platisoma,
2. Onthóphilus, 4. Dendróphilus,

Subsection II.—Lamellicornes. –With laminate Antennæ.

Family XXIV.—Lucanidæ.—4. Genera.

1. Platycèrus, 2. Dòrcus, 3. Lucànus,
4. Sinodendron,

Family XXV.—Scarabœidæ.—3. Genera.

1. Copris, 2. Onthophagus, 3. Oniticéllus,

Family XXVI.—Geotku'pidæ—Genera.

1. Bolbocèrus, 2. Typhæus, 3. Geotrùpes.

Family XXVII.—Aphodiidæ.—2. Genera.

1. Aphòdius, 2. Psammòdius.

Family XXVIII.—Trogidæ—3 Genera.

1. Ægiàlia, 2. Trachyscèlis Tróx.

Family XXIX.—Dynastidæ—2. Genera.

1. Oryctes, 2. Dynástes,

Family XXX.—Melolonthidæ....7 Genera.

1. Sérica 4. Melolóntha, 7. Hóplia
2. Omalóplia, 5. Anómala,
3. Zantheùmia, 6. Anisóplia,

One of the most destructive ravagers in our pastures is the larvæ of the may-bug, or cock-chaffer, (Melolóntha vulgaris) well known in the southern and midland districts of England, as well as Ireland, where it is called the Connought worm; the perfect beetle lives but about eight or ten days. The female deposits her eggs in a cluster about a span below the surface of the earth, in a hole, which she digs for the purpose. The larvæ continues to undergo various transformations for three years, and makes its appearance about the beginning of May, in the fourth year, as a perfect beetle. To obtain a more perfect understanding of their economy, Rosel put some females

into glasses half filled with earth and covered with a tuft of grass, and in a piece of muslin; in a fortnight, he found some hundreds of eggs deposited, placing the glasses in a cellar they were hatched towards autumn, and the grubs increased remarkably in size. In the following May. they fed so voraciously. that they required a fresh turf every second day; but this proving too scanty, he sowed in several garden pots, peas, lentils, and salad; and when the plants were up, he put a pair of grubs in each pot, and in this manner he fed them through the second and third years; during this period they cast their skins three or four times, going for this purpose deeper in the ground, where they may effect this change undisturbed, and they do the same in winter when they become torpid and do not eat.

When the grub changes into a pupa the third autumn after it is hatched, it digs a similar burrow, about a yard deep, and when kept in a pot, and prevented from going deep enough, it shows great uneasiness, and often dies. The perfect beetle comes forth from the pupa in January or February, but does not acquire its hardness or colour for ten or twelve days, and seldom makes its appearance above ground before May, being the fourth year from the time of hatching, during all this time it feeds upon the roots of herbage, sometimes destroying whole acres of grass, it undermines the richest meadows, and so loosens the turf that it will roll up as if cut with the turfing spade. A poor farmer, near Norwich, suffered so much from their depredations some years ago, that the court of the city allowed him £25 out of pity for the great damage he had sustained, and the man and his servant declared that they gathered as many as eighty bushels of the insect. In the year 1783 many provinces of France were so ravaged by them, that a premium was offered by the government for the best method of destroying them. They do not confine themselves to grass, but eat also the roots of corn, and it is to feast upon this grub chiefly that the rooks follow so attentively the plough. Both forest and fruit trees sometimes suffer materially from the ravages of the perfect beetles, in connection with the summer-chaffer or Fernweb (Zantheùmia solstitiális,) and the braken clock, (Anómala Horticòla) which unitedly devour the leaves of the sycamore, lime, beech, willow, elm, apple, &c. &c. and are sometimes so numerous as to strip whole trees entirely of their foliage. Mouffet relates that in 1574, such a number of the common Chafer (M. vulgaris) fell into the river Severn as to stop the wheels of the water-mills. It is also recorded in the philosophical transactions that in the year 1688 they filled the hedges and trees of part of the county of Galway in such immense numbers as to cling to each other like clusters of bees when

they swarm; on the wing they darkened the air, and produced a sound like that of distant drums; when they were feeding, the noise of their jaws might be mistaken for the sawing of timber. The Anómala Horticòla attacks and devours the leaves of the raspberry, and is often found exceedingly troublesome, particularly in some parts of Nottinghamshire, where the gardens are bordered by the forest.

Family XXXI....Cetoniadæ....2 Genera.

1. Trichius, 2. Cetònia.

The Green Rose Chafer (Cetònia auràta) is one of our prettiest native insects, and may be found reposing in the rose blossoms, or flying about the trees, making a considerable humming noise, about the end of May, or the beginning of June; the female burrows into light soft ground, and deposits her eggs about the middle of June; the grub feeds on the roots of trees, when about to enter into the pupœ state, they prepare themselves a cocoon composed of earth, pieces of rotten wood, and any substances within reach, which they fasten together with a glutinous secretion; the length of its life in the perfect state has not been ascertained. Rösel informs us, he fed one with fruit and moist white bread for three years.

Rusticus.

(To be continued.)

PART II.

REVIEWS AND EXTRACTS.

REVIEWS.

BRITISH FLOWERING PLANTS,

FOUND IN OXFORDSHIRE AND ITS CONTIGIOUS COUNTIES.

Described in Walkers Flora, drawn from Nature, and engraved under the direction of Mr. Wm. Baxter, A.L.S.F.H.S. &c. Curator of the Oxford Bot. G.

THE object proposed in the present work, is to supply the lovers of Botany with a set of figures, which may be relied on with accuracy, while every unnecessary expense will be avoided. With this view, it was at first proposed to reduce the size of the plants on a plan similar to that in "Maund's Botanic Garden," but this was not found compatible with sufficient distinctness and accuracy. It is intended to divide the work into three series. The first to consist of one plate to each Genus, as a guide to Students. The second to comprise the remainder of the Oxfordshire flowering plants, and the third (if called for) to complete the "British Flora;" How well able Mr. Baxter is to conduct a work of this kind. The situation he holds at once testifies, which is all we can say of the Editor, as we have not the pleasure of personally knowing him; we are glad that the pecuniary circumstances and conveniences of young gardeners and botanists are not forgotten or neglected, although we think there will be a very important deficiency in this work when bound up in volumes, and unless that deficiency be remedied (which may easily be done) much of its real value will be detracted. For instance, the present No. before us, contains two coloured figures.—The snake's head, (Frittilària meleàgris) and the wild tulip, (Tulipa sylvèstris,) their localities, time of flowering, duration, &c. &c. are printed on the outside of the cover, when therefore the coloured figures are divested of these covers for binding, they are stripped of some of the most interesting intelligence to young gardeners. The low and accommodating price, no doubt, precludes the possibility of inserting letter-press in each number. What we would recommend is, that when a sufficient quantity of numbers are published to form a volume, let the number be printed to bind up with them, containing all the necessary information, together with an index; this will meet, we conceive every deficiency, and make the work calculated to be of much service, and consequently well deserving of encouragement.

EXTRACTS.

HORNICULTURAL INTELLIGENCE.

On the Varieties of the Pine Apple.—(Continued from page 608.) 16. Striped Surinam, silver striped of Speechly and Nichol. Pink Surinam, striped Surinam, and Ribbon Grass, and Prince of Wales's Island, of the Hort. Soc. Cat. This is very beautiful both in leaf and fruit, but a very worthless variety, being both a shy grower and fruiter. Leaves beautifully striped with dark green and delicate white, tinged with a fiery red. Fruit cylindrical, marbled with red, green, yellow, and white. Pips small, rather prominent and covered to the extent of one-third by the scales, which terminate in narrow sharp points. Flesh dullish yellow, very acid, and moderately flavoured. Crown middle sized, of the same character as the leaves. Not worth growing.

17. Sierra Leone. Leaves long, broad and rather flaccid, with revolute undulated edges, of a clear bluish green, and, from the circumstance of it being a free grower, often considerably blotched with a darker colour. Spines short, middle sized, and regular. Flowers purple. Fruit cylindrical, of a dull green colour tinged with red; when ripe, it gradually changes to a dull ochre colour, thickly covered with meal. Pips rather below the middle size, and slightly prominent. Scales covering nearly one of the pips, and terminating in lengthened reddish coloured points; when approaching maturity, it gradually changes to a dull ochre colour. Flesh very pale yellow, almost white, tender, abundantly juicy, free from fitre, crisp and melting; sweet without acidity; pleasant though not rich. Crown large and rather sweet, often accompanied by gills at its base, leaves numerous; it is also inclined to emit suckers at the base of the fruit, and those on the stem are inclined to fruit before the other is half matured.

18. Anson's. Anson's Queen, Lemon Antigua, of the Hort. Soc. Cat. Leaves long, rather more slender and erect than in the Otaheite, to which it bears a considerable resemblance, particularly in the spines and flatness of the leaves. Flowers purple. Fruit cylindrical, before ripening of a darkish green and rather mealy; when ripe of a bright lemon colour. Pips rather above the middle size, prominent at the margins and depressed in the centre. Scales covering half the pips, and ending in narrow acute points. Flesh white, opaque, entirely without stringiness, very sweet and pleasant, but without acidity. Crown middle sized, leaves not very numerous. Weight of fruit from three to five pounds, not of much excellence.

19. Montserrat. The Copper, Cape Coast, Bogwarp, Red Ripley, New Ripley, Copper Coloured Antigua, Cochineal, and Brazil, of the Hort. Soc. Cat. Old King, St. Kitts, Malacca and Sumatra, of some gardens. Antigua Rubra of the French.—Indian Creole and Cockscomb, in St. Vincents, and Chevaliers in Sierra Léone. Easily distinguished from all other varieties by the dark purple colour of the spines, which are small and irregular; good specimens of it will weigh from three to five pounds. Flowers purple. Fruit cylindrical, sometimes broader at the top and narrower downwards; before ripening, dark green and mealy, afterwards of a pale orange tinged with a copper-colour. Pips middle sized, and rather flat. Scales covering one-half the pips, of a deep red towards the points, which are rather lengthened. Flesh solid, lemon-coloured,

semi-transparent, somewhat mealy, juicy and acid, without much flavour or sweetness. Crown rather large, leaves numerous. This is rather an inferior variety, not worth growing to any great extent. *Hort. Trans. vol.* i. *part* 1.

On the Use of Camphor in Horticulture. Camphor is dissolved in alcohol until the latter is saturated; the alcohol is then put into soft water, in the proportion of two drops to half an ounce. Withered or apparently dead plants, put into this liquid, and allowed to remain there from two to four hours, will revive, if they have not been completely dead before being put in.—M. Droste. *Pruss. Gardening Society.*

On the Propagation of Vines. Cuttings are made from one foot and a half to two feet in length, and all the buds removed from them except one at the upper extremity. The shoot is then laid in the soil, to the depth of six inches, the end heaving the bud being brought up to the surface. A vigorous shoot is made in the first year; and the second year, the plants if not removed, will bear fruit.—M. Fintelmann, *ib.*

On the Diseases of Plants.—The *roots* of plants may be wounded by instruments used in working the ground; from the attacks of subterranean animals, such as moles, rabbits, mice, and a whole host of insects: the last of which injure roots chiefly in the larva state, by devouring the minute rootlets, and when in great numbers the fibrils often suffer in a great degree, being either broken by those which undermine for shelter, or eaten by others, and thus the plants are in a great measure deprived of their wonted supply of nourishment. The fibrils of roots are often broken, among plants of the pine tribe, by being violently shaken by the wind &c. and although none of the roots appear above ground, or even when the soil is scarcely broken around them, they suddenly decay, being deprived of nourishment, by the loss of the tender fibres; after wounds of roots, many trees remain apparently stationary in growth for a time, engaged, however, in forming roots according to the loss sustained. The operation of cutting, or laying bare, roots of trees, to force them to become fruitful, is only an apparent exception to the foregoing remarks, for the production of fruit in such cases, must be considered as the first step towards decay, it depending not so much on a full supply of nourishment, as on a state of maturity necessary for the purpose. Treatment.—When the roots have been attacked by insects, endeavour to destroy them; the most approved solution is lime water and tobacco water, poured upon the ground over the affected parts; even unslacked lime has been dug in with advantage. To entrap the wire-worm (Elates segetis) Sir Joseph Banks recommends slices of potatoes to be buried where they abound, and frequently examining the baits and destroying such as have collected on them. When a plant happens to have its roots lacerated, these ought to be protected from extremes of heat and cold; the ground in the neighbourhood should be kept moderately moist; if possible the plant itself shaded; and whatever else may be found conducive to its health, should be resorted to, to induce the formation of new roots.

Gangrene of Roots.—This occurs often in roots, and is of two kinds,—wet and dry gangrene. An example of the first kind occurs frequently from too much moisture, accompanied with cold weather and a bad soil, or in consequence of the succulent nature of the parts in which it occurs. It is frequently found in "house plants," when these have been officiously indulged with too much water. Dry gangrene in roots is similar to that in the stems, and is noticed under that head.—

Lacerated and incised wounds of Leaves.—These occur from attacks of animals, chiefly of the insect tribes: from hail, and many of the lower animals are very destructive to leaves whilst feeding. Some birds seem to do so for amusement. The *Aphis centunculàris* cuts out portions of leaves, and carries them away for its use. Plants frequently become stripped of their foliage in a short time by the ravages of the caterpillars, of butterflies and moths, although generally they are more sparing in their attacks. These with many others attack most plants fit for the food of man. Various methods have been had recourse to for the destruction of caterpillars; washing with tobacco-water and soap, lime-water &c. boiling water has also been tried with success, for those insects which seek the ground at particular seasons, unslaked lime laid on, and dug in is advantageous. There is what might be termed an approach to a natural cure for this infection, in the larvæ of an aphidovorous fly which is described and represented by Darwin which will also feed on caterpillars. Mr. Elliot's remarks on the subject "when the foliage is all off the trees and bushes, wash them over with the hand-engine to clear them off decayed leaves: for this purpose any water will do; then stir up the surface of the earth all round their roots. and lay a little hot lime about them to destroy the eggs." Hail is a frequent cause of wounds in leaves; and to ward off these destructive showers, "paragrelis" have been used on the continent. The most approved kind consists of a pole of wood from thirty to fifty feet long, fixed perpendicularly in the earth, having a brass wire sharpened at the point, running from two to three inches above the summit down into the ground. These should be planted at the distance of from one to two thousand feet from each other. By their influence on the elective state of the atmosphere, the hail hail is said to be melted down to snow or rain, the descent of which does comparatively little mischief. It is chiefly in southern climes that these are required. Plants receiving wounds in their leaves, must be protected from extremes of heat and cold, from too much moisture, and altogether treated more carefully than usual, according to the habits of the plants affected.—

Punctured Wounds of Leaves. Leaves are punctured by various insects for two purposes, viz. for the purpose of procuring food, and for Oviposition. The most remarkable insect of the first kind is the Aphis, which attack the under surface of the leaves, and young stems, sucking the sap of the plant by inserting their curious proboscides.—From these wounds, the leaves become variously distorted in shape, generally assuming a blistered appearance, in consequence of the irritation from the punctures at particular parts; and sometimes several of these diseased portions may be seen rising nearly half an inch on the surface of a leaf otherwise healthy, the concavity of these are found to contain numerous Aphides; such distortions are generally of a whitish or reddish colour, which will be explained shortly. On the leaves of the Maple tree, round purple tumours, with narrow necks, are often found projecting from their upper surface, having a small opening leading into them from the under surface, nearly closed, however, by a number of morbidly enlarged hairs. These, we believe, to be the effects of punctures by the Aphis. Small white tufts are often seen attached to the leaves and stems of the larch; these are produced by a brown Aphis, and when examined by the microscope, are seen to consist of a bundle of fine filaments, generally twisted around the animal, and attached to the extremities of many; oval-shaped eggs are also frequently seen. Various methods have been proposed and practised for the destruction of the Aphis. The most effectual

appears to be fumigation with tobacco-smoke, followed up by washing with lime-water, and finishing by digging the ground around the plants. Leaves are frequently found traversed by white lines, twisting and running in all directions,—they are caused by the larvæ of certain insects, which eat their way through, leaving their excrements behind them in their paths; and so neatly do they perform their works of destruction, that by far the finest dissection we have ever seen, were the works of some of these animals. They burrow under the cuticle, and generally confine themselves to the upper surface of the leaf, sometimes to the lower, occasionally however both are attacked; such we have observed in the leaves of many plants, and believe it to be in consequence of the larvæ piercing the leaves. Some insects lay their eggs close to each other on the back of the leaves of certain plants. After a time these become hatched, and the larvæ, each for itself, pierces a small hole immediately above the attachment of the egg from which it came, and passing through the leaf, arrives at the upper surface, where it commences its mining, covered only by the cuticle; these do not traverse the leaves like the others, but confine themselves to one part. The leaves of apple and pear trees are very subject to this affection. The treatment of such is not as for the Aphis, in consequence of the protection they receive from the cuticle. The most powerful remedy is boiling water.

Wounds of Leaves with Oviposition. The most curious effects produced by the wounds of insects, are the various kinds of galls. These are tumours produced on various succulent surfaces, varying according to the insects which effect them, or the plants in which they occur. They are caused by insects of the order Hymenoptera and Genus Cynips, and occur in a variety of plants, but most frequently in the oak and willow.—It is very evident, that these various excrescences must materially injure the health of the plants on which they occur, from the inordinate consumption of substance required for their nourishment; and this is found to be the case, for when they occur in great numbers, from the excess of nourishment drawn off, the branch, or even the whole plant suffers, the leaves become distorted and small, and the whole plant stunted in growth. They scarcely admit of a *cure* in many plants. The method we would recommend in the early stage, is the application of boiling water; afterwards, when of considerable size, nothing but their removal will be of service.—

Parasitical Plants on Leaves. Leaves are liable to become attacked by various cryptogamia plants, from circumstances not well ascertained. The most familiar of these diseases is known by the name of "*Mildew*" (Sporotrichum macrosporum;) certain circumstances seem particularly favourable to its appearance, as cold dry weather, and particular exposures; plants under the shade of others, or otherwise shaded, apparently suffering more than those fully exposed. From microscopical observation, this parasitical plant, constituting "*Mildew*" seems to be composed of globular semi-transparent masses, apparently sometimes attached to a stalk, sometimes to hairs on the plant, or collected into heaps on the surface of leaves and stems.—Amongst the remedies proposed, perhaps the best is thinning around the affected part, or removing to more light and air. Delicate and rare plants may have their leaves washed with water. We have found lime-water of service on apple trees. In hardy plants slightly affected, remove all the diseased leaves or shoots, and attend to the other circumstances mentioned. An apple-tree annually affected, was perfectly cured by a free washing of what is termed the "*cream of lime*," during the winter; from

this case we are inclined to think, that the seeds of the parasite remain about the buds and stems, until a fit period arrive for their evolution.—The red, termed "*Rubigo or rust*" (Uredo salicis) occurs on the leaves and stems of many plants; there is also a black kind, termed "Smut" (Uredo segetum.) It is most destructive to wheat, oats, &c., which are also very often affected with the red kind. According to the experiments of Mr. Young on this subject, it appears, that the best and simplest method for the prevention of these parasitical diseases in corn, is to steep the seeds of affected plants in lime-water for twenty-four hours. When either the black or red parasite appears on other plants, treat them as for the Mildew. The leaves of several plants belonging to the kitchen-garden, viz. horse-raddish, cabbage, &c. are sometimes attacked by a parasitical plant (Urèdo candida) in appearance not much unlike the "*Mildew*" to the naked eye, this disease has been found from experience to be highly infectious. The gooseberry tree is liable to be affected in spring by a curious parasitical disease, (Œcidium Grossulariæ; vide page 466.) The only remedy for which, as well as the former one, is the removal of the affected leaves, and this can be done generally with safety, as these diseases seldom involve many on the same plant at the same time.

Discoloration of Leaves. Upon certain laws which regulate the proportion of Acid and Alkaline matter, depend the colours of the leaves of plants, and these we know to be as various as the shades in the rainbow,—a certain proportion of these matters appears to be allotted to each; any deviation from which, generally more or less, injures the health of the plant. The most usual morbid change of colour in leaves is from green to white, either of the whole or only part of a leaf. Mr. Knight has observed, that plants with white leaves cannot survive long, and that variegated ones bear the deprivation of the light ill: but he believes there are many such which are neither in a state of disease nor debility. This indeed seems to be the case with some, but there are very few which will not be found to suffer in various degrees from the variegation. Morbid discoloration happens from various causes, which counteract the natural influence of light on the leaves, and it may ultimately be in consequence of the obliteration of the pores, or "culs de sac," according to Mr. Todd Thompson, by which respiration is performed. In such cases, the blanched portions may obtain a quantity of carbonic acid, from that absorbed by the green portion of the leaf; but when all white, the acid, it is possible, may be obtained by the roots or stems. However, it is agreed, that it is from the accumulation of carbonic acid which takes place, such portions of the leaves being unable to decompose it, that the change of colour happens, and which, indeed, seems to vary according to the excess of acid present. A want of proper nourishment, is a frequent cause of discoloration, also absence of light, and attacks of insects, as in the white and red tumours of the Aphis; again, from the distruction of roots or other vital parts; and indeed, any thing which tends to injure the health of the plant generally, is apt to produce discoloration of the leaves.—

Gangrene of Leaves.—All the diseases described are apt to cause gangrene, either in the whole or a portion of a leaf.—

Wounds of the Stem.—The stem is very subject to wounds of various kinds, according to the nature of the instrument by which they are inflicted, and the particular texture involved. Wounds which penetrate or remove a portion of the bark, as indeed all others, heal the quicker the more vigorous the branch or plant is in which they occur, and of course according to their dimensions; all

wounds heal more rapidly from above downwards than in any other way; no doubt stimulated by returning juices. The most serious wounds of the bark, are those which detach it to a great extent all round the stem, for the consequence is, that all branches beyond the wound, are forced to become fruitful, and thus premature decay is brought on. Simple incised wounds, and even those in which the bark is raised from the stem to a considerable extent, may unite if the edges be accurately adapted to each other, and the whole covered with some plaster to exclude the air: Forsyth's preparation is perhaps one of the best. In *pruning*, numerous wounds are unavoidably inflicted; these, however, when smoothly and properly made, produce no mischief. Stems bruised or fractured more than half through, in many cases will recover; but when more than that it is generally better to remove them at once, especially in old plants. There are many plants which never recover even slight fractures, but gradually decay. On the other hand, many succulent stems will, by proper management recover, after being bruised and broken to a great extent. The most proper treatment for fractured or bruised stems, is to tie them up, bringing the edges of the wound neatly together so as to promote a union, and covering the whole with some plaster.

Wounds of Stems from Insects.—There is a minute insect, which frequently infests the stems of apple and pear-trees; it is probably the Coccus arborum described by Reaumur. It attacks all the stems indiscriminately, which, in consequence, becomes covered with numerous muscle-like bodies, varying in length from one-eighth to three-sixteenths of an inch. The trees suffer from these when numerous by their inducing disease in the bark, from the lodgement of water, which they cause, and also by hindering the functions of the bark. The most effectual remedies for this affection that we have tried, are boiling water, as recommended by Mr. Beattie in the memoirs of the Hort. Soc. of Edinburgh, for 1827, and the "Cream of Lime" applied with care to the stems; or they may be scraped off, and the stems afterwards well washed with lime-water. Many insects attack the woody parts of plants, and trees in consequence become hollow, sometimes, again, the larvæ of some insects curiously undermine the bark of various trees, living upon the liber and alburnum, and forming twisted paths running in all directions.—

Ulcerations of Stems or "Canker."—So various and opposite are the opinions advanced concerning the cause of this disease, that it is difficult, if not almost impossible, to discover the real one of eleven authors; the following table will show the various causes, and the number of supporters mentioned by each:—

Supporters.	
8	Wounds of bark and wood.
8	Bad soil and subsoil, viz. wet,—stiff clayey—cold clayey —cold wet—wet gravel—exhausted soils—mossy bottom.
4	Injudicious pruning.
3	Bruises.
2	Gangrene of young shoots.
2	Attacks of insects.
2	Cold wet seasons.
2	Improper aspects.
1	Load of fruit.
1	Frost injuring sap.
1	Friction.

Removal of the affected part by the knife, and covering the wound with plaster, as recommended by Forsyth, is the most usual method by which a cure is attempted, and this, in some cases, seems to answer tolerably well, while in others it entirely fails.—

Gangrene of Stems.—The disease just described is frequently the cause of extensive gangrene, by which we mean, that the part loses entirely its vitality, and is in many cases; changed in its consistency, having its texture completely broken up in all cases the colour is changed, and generally to a reddish brown or black, but the texture is not always broke up. Gangrene seems to occur, for the most part, in consequence of wounds, parasitical plants, great heat in cold, excess or want of moisture, lightning, &c. Extremes of heat and cold, and sudden alternation of temperature, are frequent causes of gangrene in succulent stems and other parts of plants, as the leaves, flowers, &c.; and the hopes of the gardener are often blasted by their influence, especially in the spring. The cherry, plum, and other stone-fruit trees, are subject to a species of gangrene which is generally called the "*gum.*" The affected branches must be removed as soon as possible, for the disease is very rapid in its progress.—Stems sometimes become bark-bound, and this is supposed to arise from the cuticle not giving way as it ought to do; trees in consequence become stunted in growth. It is sometimes cured by longitudinal incisions along the stems down to the alburnum.

Natural Decay of Plants.—Like all other organized bodies, they are destined to exist but for a time; some for less than a day, others for more than a thousand years; but all are subject at last to decay, each having certain functions to perform, that the continuation of the species may be insured, natural decay never comes on till this process is completed; so that any means used to counteract natural decay, must be practised with a constant reference to that fact.—R. Spittal, Esq.—*Cal. Hort. Trans.*

HORTICULTURAL INTELLIGENCE.

New and very Rare Plants, figured in the Botanical Periodicals for July.

CLASS I.—DICOTYLEDONOUS PLANTS, OR EXOGENES.

LEGUMINOSÆ.

Hov'ea villo'sa. Shaggy Hovea. The nearest relationship of this species is the H. purpúrea, from which it differs in being excessively, instead of being merely covered with a very short dense pubescence. Flowers purple; native of New Holland. Culture.—It requires an airy greenhouse, flowers in April, and is easily propagated by cuttings grown in sandy peat.—*Bot. Register.*

Chorize'ma triangul'are. Triangular Chorizema. Flowers scarlet, mixed with bright orange. Native of the south-west coast of New Holland, where the seeds were found by the collector, Mr. Baxter. Culture.—A delicate greenhouse plant, requiring a very airy dry shelf in the winter, and is increased freely by cuttings.—*Bot. Register.*—The soil suitable is sandy peat.

GALACINÆ.

Franc'oa appendicul'ata. Naked stalked Francoa. A perrennial of considerable beauty. Flowers bright rose coloured. This remarkable and hitherto little known plant is one of the many interesting additions made to our collections by Mr. Anderson, the assiduous Botanist who accompanied Capt. King, in his recent voyage of survey on the coasts of South America. The seeds were collected near the port of San Carlos de Chiloe, where the plant had been originally discovered by Don Luis Née, Naturalist to the Spanish expedition under the ill-fated Malaspinæ.—*Brit. Flo. Gard.* Culture.—We suppose it will thrive in sandy peat earth planted in a moist situation out of doors.

PRIMULACEÆ.

Primula Sibirica. Siberian Primrose; flowers purdlish rose-coloured. Native of the northern regions of Siberia, and of the Altaic mountains, whence specimens have been sent by Dr. Fischer. Culture.—Like many other plants of countries where the winters are more severe than ours, this plant requires the protection of a frame in winter, which serves the same purpose as the covering of snow, in its native regions: thus treated it flowers in April.—*Bot. Mag.*

EPACRIDEÆ.

Epacris nivalis. Snowy Epacris. A white flowering species. Native of New Holland; raised by Messrs. Loddiges from seeds, presented to them in 1829, by H. M. Dyer, Esq. Culture.—It requires the protection of the greenhouse, and should be potted in sandy peat earth; it may be increased by cuttings.—*Bot. Cab.*

TROPÆOLEÆ.

Trop'æolum tricolorum. Three-coloured Indian cress, a slender growing creeper. Flowers bright vermillion colour.—*Bot. Mag.* Culture.—It requires the shelter of the greenhouse, and thrives potted in any rich light loam. Cuttings root freely when planted under a common hand glass.

GROSSULARIEÆ.

Ribes speciosum. (Fig. 109.) Fuchsia-flowered gooseberry. This is by far the most showy of this group of Ribes; having the entire habit of the gooseberry, yet vieing in the brilliancy and form of its flowers with the elegant Fuchsia, their colour being a bright crimson. It is one of the many interesting discoveries of Mr. Menzies, who collected specimens of it in California, during the voyage of Vancouver. Culture.—It is found to thrive well in the open ground, growing to a large bush, and continues in flower for more than six weeks.—*Brit. Fl. Gard.*

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CLASS II.—MONOCOTYLEDONES, OR ENDOGENES.

ORCHIDEÆ.

HERMI'NIUM CORD'ATUM. Heart-leaved Herminium. Flowers small, and of a yellowish green colour. Native of the north-west of Africa, and the south-west of Europe. Link and Brotero have found it in Portugal. Spalzmann collected specimens on shady hills near Tangier; and the Rev. Mr. Lowe found it on walls and rocks in Madeira. Culture.—This plant grows very well in the greenhouse, but requires a little more heat in November (its flowering season) and seems to flower the best when set in a cool part of the stove *(Bot. Reg.)* potted in a mixture of loam, peat, and sand.

MAXILL'ARIA VI'RIDIS. Green Maxillaria. Flowers green and purple. Native of Rio Janeiro, whence it was sent by the late Sir Henry Chamberlain.—Culture.—It is rather a weak growing plant, requiring shade, much moisture to its leaves, and little to its roots, together with a high temperature and decayed vegetable mould. It seems to have no tendency to form those pseudo-bulbs which are generally so characteristic of the genus.—*Bot. Reg.*

ASPHODELEÆ.

ASPHOD'ELUS LUTEUS VAR. SIBIRICUS.—Siberian yellow Asphodel. Flowers paler yellow than those of A. luteús. Introduced by Dr. Fischer. Culture.—It requires to be treated precisely in the same way as A. luteús.—*Ed. Bot. Reg.*

IRIDEÆ.

CROCUS RETICULATUS.—Netted Crocus. Flowers rich orange and velvet. Native of Caucasus. Introduced in 1830 by Mr. Steven. Culture.—It is exceedingly hardy, and the limbs increase themselves by offsets, and will grow in any good garden soil.—*Bot. Cat.*

ON FORCING CA'MELLIAS.—Take the plants as soon as they are out of flower, and shift them by taking some of the old mould off the ball and adding some rich compost, such as is used for pines, then place them in the stove. The sudden transition from cold to heat, causes them to throw out young wood directly, and as soon as flower buds appear, remove them back to the greenhouse till July, then set them out of doors, as much in the shade as possible; by this simple process, a succession of flowers may be kept up from November until the following May. Plants when once early excited, appear to look for it the same season again; people in possession of a quantity of pots, should not wait for many together, but shift them progressively as they go out of flower.—T. BLAKE.—*Hort. Trans.*

NATURAL HISTORY.

THE HABITS OF THE COMMON SNAKE, (CO'LUBER NA'TRIX,) AS EVINCED IN CAPTIVITY. I have been trying to domesticate a common Snake, and make it familiar with me and my children, but all to no purpose. It was a most beautiful creature, only two feet seven inches long. I did not know how long it had been

without food when I caught it; but I presented it with frogs, toads, worms, beetles, spiders, mice, and every other delicacy of the season. I also tried to charm it with music, and my children stroked and caressed it, but all in vain. I kept it in an old barrel out of doors, for the first three weeks; during that time it eat nothing, but after a very wet night, it seemed to suffer from cold. I then put it into a glass vessel, and set it on the parlour chimney-piece, covering the vessel with a piece of silk gauze. I caught two live mice, and put them in the vessel, it never attempted to eat them, but they sat shivering on its back, while it lay coiled up; I gave the mice some boiled potatoes which they eat, but the snake would eat neither the mice nor the potatoes. My children often took it out in their hands, to shew it to their schoolfellows; I one day took it in my hand, and opened its mouth with a penknife, to shew a gentleman how different it was from that of the adder, which I had dead by me, its teeth being no more formidable than those of an Eel or Trout, while the mouth of the adder had two fangs, like the claws of a cat, attached to the roof of the mouth, no way connected with its jaw-teeth; while thus examining it, an intolerable obnoxious smell was emitted, I also thought I felt a kind of prickling numbness in the hand I held it in, which continued for some weeks afterwards. It made its escape from me several times, by boring a hole through the gauze. I had lost it for several days at one time, but at length found it peeping out of a mouse-hole behind one of the cellar steps, whether it had caught any beetles or spiders I cannot say, but it looked very lively. I again confined it in a flour-barrel, from which it made its escape, and shortly afterwards met with its death.—J. Howden.—*Mag. Nat. Hist.*

PART III.

MISCELLANEOUS INTELLIGENCE.

I.—QUERIES, ANSWERS, REMARKS, ETC.

Culture of the Ho'ya Ca'rnosa.—I should feel greatly obliged, if you or some of your subscribers, would favour me in some future number with the mode of treatment, and the native soil of the *Hòya Carnòsa*, as I have not been able to gather information from any books I have hitherto met with.

Florilegus.

Essex, May 7th, 1832.

On the Culture of Rhubarb.—Having read with pleasure Dr. Bevan's excellent method of cultivating Rhubarb, Hort. Reg. page 486—7, I beg to submit the following question to the Doctor.

Does Dr. Bevan think the flower stalk should be cut on its appearance, or be allowed to perfect the seed? Your opinion also, gentlemen, will greatly oblige.

T * * * *

R——d, May 7th, 1832.

Peculiar Fruit.—I met some years since with a fruit in the Mediterranean, which the foreigner who presented the same to me pronounced *Nazarol*; it was of the size and appearance of a well-grown crab-apple, having a stone in its centre, similar to that of a nectarine.—Pray what was it?

W. Z.

The Field-Mouse.—Pray what means can I use to destroy the short-tailed Field-Mouse? (Mús arváles) all the baits and traps I have set, are of no avail; the damage they do me is very serious. G. N.

Apple peculiar to Cornwall.—There is a very superior apple, (the name of which I have forgotten) peculiar to Cornwall, and the immediate neighbourhood of Truro in particular, it grows of a good size, is very juicy, diffuses when cut an agreeable fragrance, and is highly esteemed at the table. The late worthy Mr. Vivian had this apple in great perfection in his garden at Truro, and may be classed, if not the first, decidedly among the very best apples of this country.

Pray can you inform me the name of this apple, and where trees bearing this particular kind, may be met with in the neighbourhood of London?

W. M. M.

G'alium Apar'ine.—As the expressed juice of the Gàlium Aparìne,—Goose-grass or catchweed, taken to the amount of four ounces, night and morning for several weeks, is very efficacious in removing many of those cutaneous eruptions which are called, although improperly, scorbutic; I may probably be favoured through some of your correspondents, with the best and most simple method of extracting the juice from the stem and leaves in the greatest quantity, without lessening its virtue; for however succulent the plant may be for a short period of the year, it afterwards becomes very limited in this respect.

A Subscriber,—*ab initio.*

Conservatories.—In page 475, you promise an answer to M. D's letter of the 10th of January. I feel it due to the parties referred to in the middle paragraph, to rescue them from the insinuations there contained. If M. D. object ours, to avail himself usefully and practically of the information as to what he admits the cheapest mode of hot water heating he has met with: he would have applied himself to ascertain the more important point, viz.: The correctness of the statement and this investigation, would have furnished my answer to his suspicions. Query as to indirect advertisement, it is quite evident that this paragraph is mere cavil.

I can now state for your information, that trifling as the cost was of this hot water heating; the result both in Vineries and Conservatories, has been entirely satisfactory without interruption or accident.

P. T. O.

April 28th, 1832.

The Double Camellia.—Allow me to ask, cannot the Double Camellia be propogated by cuttings as well as the single, and if so, why it is not mentioned in your Article, page 362, or in Loudon's Encyclopedia of Gardening? Would you point out the difference in Mr. Harrison's Compost, given in pages 102 and 331? In making a list of plants, shall I put down the name of 'Authemis Artemisiaflora,' or 'Chrysanthemum Indicum.' When could the Starry Narcissus, mentioned in No. 9, of the *Horticultural Register*, page 411 be procured, and is it expensive?

H. L. T.

Preservation of Dahlia Roots.—Having known several methods which were adopted for the preservation of the roots of Dahlia, during the winter fail, it would, I am sure, be acceptable to some of your readers, to be informed of the very best method for preserving the same, during the severity of winter.

Alfa.

A Method of Preserving Seeds.—A friend of mine, a few years ago, received a considerable number of Seeds from the East Indies, which were mixed with charcoal-dust in the papers in which they were folded up; they proved to have kept particularly well, as he was very successful in raising them. I am not aware, whether this method is much practised, but from the success in this instance, it seems deserving to be generally known. I. T.

Characteristics of Fruits.—From reading the notice in your work, of Mr. Lindley's New Book on Gardening. I was induced to purchase it, and from the nature of its contents, expected to find something satisfactory on the distinctive characters of different kinds of fruits, I admit, the work contains much that is valuable on this point, yet something is still evidently wanting to evince a philosophical accuracy. The distinctive marks of figs are, I think, very defective, which Mr. Lindley himself seems to be aware of, as he apologizes, that he had nothing better to offer. My motive is to enquire, if you, or any of your correspondents can point out any characters closely, to discriminate the following sorts of grapes, I take them from Loudon's Catalogue (given in page 751, Encyclop. Gardening.) I have referred in vain to published books for satisfactory information.—Perhaps my meaning will be more clear, if I state it in the form of questions thus: How are we to distinguish from each other, the small black cluster; the miller's burgundy; the large black cluster; the Pitmaston black cluster; the black sweet water; and the clarette? Of these, the miller's burgundy, is perhaps sufficiently distinguished by its hoary leaves, yet this is often confounded with the *Claret a Rosa*. Again, the diagnostics of the large black cluster is thought to be easily ascertained by the statement, that its leaves are *scarlet* in the autumn; but this also, it appears, is a characteristic of the Pitmaston scarlet.—Perhaps, you or your friends, will have the goodness to take the matter into consideration. It is one of great importance to the interests of gardening, and will, if not removed, render it impossible for the student to attain that accuracy, which is desirable in every scientific pursuit, and without which, indeed, no pursuit can be deemed a science.

P.

II.—COLLECTIONS AND RECOLLECTIONS.

Buds Destroyed by Birds.—I observe in your Naturalist's Calendar, for January, under Zoology, you say, Birds at this Season are not in search of the Buds upon Trees, but the insects infecting them,—this I know is a generally received opinion, but I must say, I have great doubt of its correctness. I have numbers of the Tom-Tit constantly about my garden, and they uniformly take off all my plum crop, as well as the gooseberries, currants, and frequently cherries: I remarked, for several years I scarcely got a green gage from two trees at the lower part of my garden, but I usually had some in a favourable season on

a tree near the house, I also observed, that all the fruit-buds were regularly taken off the finer sorts of gooseberries, of which I was an extensive grower, when the smaller and common kinds escaped; now am I to conclude that the insects infested the plums, a distance from the house and not those near to it? or that they attacked the superior sorts of Lancashire gooseberries, and left the common ones untouched?

Or should I not be more correct in attributing my crop of plums near my house to the public situation of the trees, and the number of persons constantly moving about near them? and the losing the crop of large gooseberries when the smaller were secure, to the size of the bud, offering a greater temptation to the depredator to take it?

A few years since, I was surprised to see the snow under a May-Duke Cherry, covered with husks of buds, which I found were taken off by the common sparrow; had they not been prevented, they would have taken the whole, yet those preserved produced fruit: at another time, I saw a bullfinch alight on a cherry-tree, and before I could charge a gun, he had completely stripped every blossom bud from one long branch, yet all the others were full of fruit; can any one suppose, that the sparrows would not have stripped the first tree, had they not been discovered? or can it be imagined for one moment, that every blossom-bud, on a particular branch of the second should have an insect in, when all others were free and produced a good crop of fruit?

I should be much obliged to any correspondent, who could explain this apparent contradiction to the statement alluded to.

AN AMETEUR HORTICULTURIST.

January 10th, 1832.

By a reference to page 379, our Correspondent will find an observation on the subject, by Mr. Rennie.

ON RAISING TULIPS FROM SEED.—"The seed, when ripe, should be cut, and laid to dry in the capsules at first. As soon as they are perfectly dry, they should be sown as thick as you please, in pans or flat pots, in a light sandy soil; these must be placed in a frame, or some other situation where they will not become sodden with too much wet in winter, but, at the same time should be kept moderately moist. In the spring they will make their appearance; and, when two or three inches high, should be pricked off in a light sandy soil, either in pots or in a bed. When planted out so young, they will not miss their removal, but will continue to grow, and if kept regularly moist, with a little protection, will probably continue to grow till they become of a flowering size; or, if the leaves die away, the bulbs should not be dried, but should be set growing again as soon as possible; the bulbs to be transplanted when in a dormant state.

By this mode of treatment, we have flowered bulbs of the genus Amaryllis at one year old, and nearly all the sorts at two years old, sowing the seed as soon as ripe, and pricking them off singly in small pots, as soon as up; then placing them in a hot-bed frame, and, as the pots fill with roots, shifting them in larger ones, keeping them in continual growth till they flower."

SWEETS FLORISTS' GUIDE.

March 14th, 1832.

On Preserving Tobacco.—"About the middle of August, the early tobacco will have attained its height and size; as it approaches maturity, the leaves acquire a whitish velvet down, the corrugate and yellowish shoots appear upon the elevated parts, and a certain indication of maturity is the appearance of livid spots upon the stem or midrib of the leaf."

"The best mode is to take off so much of the bottom leaves as exhibit the marks above mentioned, these may be four or eight, and leave the rest on the plant to acquire strength and maturity. These leaves are suffered to lie on the ground for some time, and when they lose their brittleness, and can be safely handled, they are carried to any convenient office, and there put in a heap for fermentation; on this fermentation, depends in a great measure, the colour of the tobacco, if moderate it will be light, and if permitted to penetrate the leaves, it will produce a brown colour. The greatest heat the leaves ought to arrive at, is from one hundred to one hundred and ten degrees, Fahr. After it has remained for two or three days in the heap, it is to be cooled, and the leaves hung up in an airy shed or stove, after which, it is fit for use."

T. K. S.

OBITUARY.

"He being dead, yet speaketh."

We have to announce with deep regret, the death of Mr. Wm. Mowbray, Curator of the Manchester Botanical and Horticultural Garden, which took place, after a painful and protracted illness of several months, on Tuesday the 10th of July, at Hitchen, in Hertfordshire, where he had retired for the benefit of his health. Mr. Mowbray's constitution has for some years had within it, the germs of consumption, and we fear his unwearied exertion, both mental and bodily, together with the great anxiety he felt in the formation of the Manchester Garden, has much contributed to assist the decay of his health. What is there completed, shews his superior abilities, and stands a monument to his fame, as a scientific and practical gardener. He was born at Hitchen, in Hertfordshire, where his father still carries on the business of gardener and seedsman; he was upwards of forty years of age, eleven of which he was gardener to the Earl of Mount-Norris, at Harley-Hall, Staffordshire, where from his general behaviour and modest habits, he was highly respected. On the breaking up of that garden-establishment, he was engaged to fill the situation he held at his death; he was warm and sincere in his attachments, humble and unassuming in his deportment, unwearied in the performance of his duty, a Christian in his actions, and in the words of a friend of ours, who communicated the painful intelligence of his death, "he has left behind him a character crowned with great respect."

III.—SOCIETIES,

CONNECTED WITH HORTICULTURE AND NATURAL HISTORY.

STIRLING HORTICULTURAL SOCIETY.

The Third meeting was held in the Saracen's Head, Inn, Stirling, on Tuesday 12th of June, when there was an excellent assortment of plants, fruit and vegetables, besides the usual prices an extra one was offered by the Treasurer, to the person, whether a member of this Society or not, who would produce at this meeting, the best model of a Moss-house of his own construction, and not exceeding two feet high. A spirited competition took place, when the judges after a most minute inspection, decided in favour of William Wilkie, apprentice gardener at Keir. It is hoped this subject of designing will not be lost sight of.

TAUNTON HORTICULTURAL SOCIETY.

The second meeting for this year, took place at the Assembly Rooms, Taunton, on Friday, June 15. The fruits, vegetables, and flowers were very excellent, and the attendance of respectable company very numerous.

LANCASTER FLORAL AND HORTICULTURAL SOCIETY.

The second show was much better than it was generally expected. The flowers though few in number were fine, the fruits were good also, particularly the grapes and strawberries. On the vegetable tables, lay a bunch of Rhubarb, consisting of eight stalks, which weighed 13lb. The circumference of one of the stalks was nine inches.

NORFOLK AND NORWICH HORTICULTURAL SOCIETY.

The third meeting held at the Corn Exchange, Norwich, on Wednesday June 13th, was numerously attended. The shew of Cactus's, Ranunculuses, and other flowers, was extremely beautiful, the exhibition of fruit was very limited, but there was a good supply of vegetables. After the shew between fifty and sixty members sat down together to an excellent dinner. In the course of the evening the Secretary stated that the Society was most flourishing and daily increasing in numbers, there being now between six and seven hundred members.

DEVON AND EXETER BOTANICAL AND HORTICULTURAL SOCIETY.

The tenth exhibition took place in the city of Exeter on Thursday, June 7. The room presented one dense mass of the rank and fashion of the neighbourhood. The room also presented a display of Floricultural productions as gorgeous as to set rivalry at defiance. There were also some excellent fruits and vegetables. A succession of company continued to crowd the room to the time of its closing, and the receipts exceeded by many pounds that of any previous exhibition.

OXFORD HORTICULTURAL SOCIETY.

The first exhibition for the present year was held on Thursday, April 26th, and the second on May 28th; both of which were very good, and appeared to create much interest: much respectable company was in attendance, and the whole seemed to augur, that this will be a very flourishing Society.

IV.—MONTHLY HORTICULTURAL CALENDAR,

FOR AUGUST.

This month; with a few exceptions, is much more dry than the preceding, with at the same time but little diminution of heat. During the past month we have expeeienced much cold weather, but we have not observed that vegetation has sustained any material injury, except that insects have rather gained ground; this year they are exceedingly numerous, which may

probably be accounted for by the fine open weather of last winter not destroying either the eggs or larvæ. Although many fruit trees have been partially stripped of their foliage by the larvæ of moths, there are, upon the whole, as far as we have seen, good crops remaining. This is an important month to gardeners in sowing and planting several autumnal and winter crops, as well as those for next spring and summer, none of which will allow of any delay.

FRUIT DEPARTMENT.

Peach and Nectarine Trees, should be again looked over, and all superfluous wood taken off, the fruit will also require its final thinning as soon as the stoning is over. See p. 95, 481, and 529.

Figs out of doors will now begin to ripen, for the general treatment, see p. 71, 95, 386.

Currants and Gooseberries should be matted in dry weather to preserve them to a late time in the year.

Strawberry beds in late situations now in bearing, may be occasionally watered if the weather proves dry. This is also a good time to make new beds, p. 95, and 329. Those in pots intended for forcing should be constantly stripped of their runners, page 395.

Budding may yet be performed if the bark rises well.

Vines in Pots, p. 6, 185, 490, 536. On the rafters, in frames, or out of doors p. 73, 193, 309, 337, and 339.

Melons and Cucumbers raised from cuttings should be carefully looked after, and they will bear abundantly from the beginning of September.

Pine Stoves for the regulation of their heat p. 374.

FLOWER DEPARTMENT.

Carnations will now be in full flower. All layers that have struck root should be potted. See page 199 to 202.

Erica Cuttings may still be put in, see p. 96, and 445.

Mignonette should now be sown in pots to stand the winter in frames, See p. 96.

Dahlias cuttings may still be put in. P 145, and 494.

French and English Roses, may be budded still. P, 186, 245, and 249.

Pink pippings may be yet put in with success, if sufficient are not propogated.

Violets may still be propagated by parting the roots.

Bud *Lemon and Orange Stocks*, if the bark will rise full.

Ranunculuses and Anemonies out of flower should be taken up. P. 166; those planted last month will, if taken care of, flower by the middle of September.

Rose Acacia.—The shoots may still be shortened early in the month, and they will push anew and produce abundance of flowers in autumn.

Propagate *Pelargoniums* by cuttings. P. 102, and 517.

Azaleas may yet be propagated by cuttings of the young wood.

VEGETABLE DEPARTMENT.

Celery planted out in July will require earthing; also plant out more for spring use, pages 96, 289, 290, and 433.

Turnips sown in the first week come in October, also sow twice more in the month to succeed them.

Sow Radishes three times in the month.

Sow Lettuce the first and third weeks, to come in from October; also plant out from the seedling beds such plants as are of sufficient size.

Carrots sown by the middle of the month will be fit for table in the spring.

Plant out *Endive* for a full crop, and sow more seeds to come into use early in the spring.

Stratsburg Onions now sown will come into use from November. About the middle of the month sow a crop of Welsh for winter use.

Winter Spinach should be sown not later than the middle of the month.

Cabbage seed sown the first week will come in, for coleworts in winter and spring. About the middle sow Battersea. &c. for planting out in the spring. Also finish planting Savoys, Brocoli &c.

Cauliflowers now planted out will be in use from October; about the middle or latter end of the month, sow more seed to stand the winter in frames.

Shallots and Garlic should be taken up in dry weather as soon as the tops decay.

Herbs fit for cutting must be gathered in fine weather.

HARDCASTLE & JONES, PRINTERS, CHURCH-STREET, SHEFFIELD.

THE

HORTICULTURAL REGISTER.

SEPTEMBER 1ST, 1832.

PART I.

ORIGINAL COMMUNICATIONS.

HORTICULTURE.

ARTICLE I.—ON TRAINING PEACHES AND NECTARINES.

BY HENRY DYSON.

Sub-Gardener at Womersley Park, near Pontefract.

FOR several months past I have fostered the intention of laying before your readers a paper on the subject of training peach and nectarine trees, which intention has, in a great measure been rendered nugatory by the ample and able disquisitions on the same subject, which have already appeared in the preceding numbers of the *Horticultural Register,* from the respective pens of Messrs. Harrison and Mearns. The elaborate remarks of these gentlemen I have perused with pleasure and instruction. I should not have presumed to add any observations of my own, had I not been impressed with the positive conviction that Mr. Harrison was labouring under a misconception of the nature, utility and beauty of Mr. Seymour's system of training ; such being the precise state of the case according to my comprehension, it is my intention to give a brief, and simple statement of the routine treatment of such trees, as practised at this place.

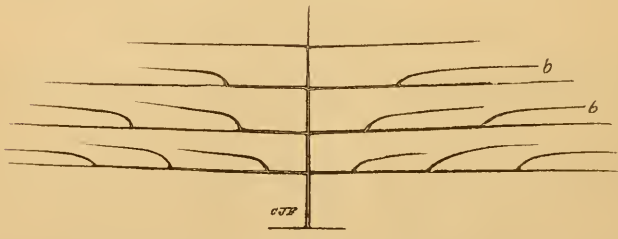
Figure 109 is the representation of a tree established on Mr. Seymour's system, having made its first year's wood; the main branches being trained slightly converging upwards (as a) to form the rudiments of the future tree, the centre stem being cut down to five eyes.

Figure 110 represents the same tree after it has made the second years' wood, and is trained in for the next season.

109 110

Figure 111 exhibits its appearance after the third season, with the lateral shoots trained in, over the main branches, as bearing wood for the forthcoming season, (b. b.) the main branches are always trained at full length, and, when the tree approaches to maturity, covers an expanse of wall to the extent of seventy-five feet, or upwards.

111



In the *Horticultural Register* for June 1832, page 532, Mr. Harrison states his objections to Mr. Seymour's system to be first, "that the origin of each successive shoot, from the same source, is each year farther from its mother branch, and not only does this become naked, but the primary part of the shoot forms a rugged protuberance similar to the spur of a pear tree, and each successive year it becomes lengthened, as the origin of a suitable new shoot from last year's wood is produced more distant from the mother branch."

Now to this objection urged by Mr. Harrison against Mr. Seymour's system, I must beg leave to tender my unqualified dissent, for the origin of each successive shoot, after the first season of training in the lateral shoots, is most certainly not farther removed from the parent stem, which position is also admitted by Mr. Harrison in the very next sentence to that I have quoted.* But he states in addition, "that such shoot is uniformly much weaker, than one arising from last year's wood." That it is weaker, I most willingly admit, but in young trees (which I presume Mr. Harrison's friends must have been) the failure of fruit most commonly results, from an overluxuriance in the young wood, and this is an axiom which will be generally, if not universally allowed by practical gardeners, and such truism being admitted, it clearly establishes the fact that weakness (in this case at least) is strength, inasmuch as the production of fruit is the desideratum. With regard to "the rugged protuberance similar to the spur of a pear tree," I beg to declare most unequivocally, that under Mr. Seymour's system, with proper management and attention, no such unsightly appearances can exist or occur,† and if the statement of a youth be not sufficiently conclusive, I invite all unbelievers to a personal inspection, when I will engage to convince them, be they ever so obstinate, by actual demonstration.

Mr. Harrison next observes "that when a shoot [b. b.] (that is a lateral shoot) dies from casualities, a substitute cannot readily be obtained, and that he has seen three or four such shoots perish successively on the same branch, and thus there was a yard or two of branch without a single lateral shoot upon it, and that instances of this kind are not solitary."

My experience has revealed to me nothing of the kind complained of, and although I have witnessed the system of Mr. Seymour in practical operation, on an extensive scale in several gardens, I have never yet met with one solitary instance of dead wood occurring in any material degree. I do, therefore, conclude that Mr. Harrison's friend first *attempted* the adoption of a system, subsequently gave it up, and afterwards unjustly condemned it as worthless, never having comprehended its merits, its efficacy, or its beauty.

* When the shoots has its rise from one of the previous years' growth, it must of necessity (as we before stated in page 532,) be produced more distant from the origin of the lateral branch, than its parent. If the shoot is produced from the protuberance and not upon a last year's shoot, we before remarked, it would not be liable to the objection.—J. H.

† Mr. Seymour's Trees have them.—J. H.

In the autumn, or in the winter season, we proceed to cut away all wood which has produced fruit, together with all that was intended to produce fruit, and train down the young lateral shoot to take its place for production the next forthcoming season, cut to the length of from twelve to twenty inches, according to the distance of the next lateral shoot on the main branch.

Early in the year we make a strong solution of soft soap, to which we add from two to three pounds of flour of sulphur, and propel it upon the trees with the force of the garden engine, the tenacious quality of the soap causing the sulphur to adhere to the branches, and to the wall in sufficient quantity to destroy any insects that may then be lodged there, together with their ovaria, which dressing is repeated when the trees are in bloom.

When the fruit is set the trees are well engined or syringed, both in obverse and transverse directions, with a strong decoction of tobacco. When the trees become well covered with leaves we syringe them thoroughly with pure water, and while wet dust them with sulphur by means of a puffer; an instrument well adapted for the purpose, expelling the fine particles of sulphur through a minute wire sieve at one end about an inch in diameter, similar to the common bellows propelling the atmospheric air, and which completely destroys the red spider, and prevents the mildew, if the trees, as is commonly the case, are infested therewith.

It must be observed, that it is absolutely necessary to protect the trees during the entire blooming season, throughout every night by woollen netting or by canvass, and also every day when the weather is frosty, cold and wet, or otherwise unpropitious to the tender bloom. We have strong hoops driven into the upper part of our walls at proper distances, to each of which is attached a pole by a strong staple, the other end being fastened in the soil, and over which is secured the netting or canvass, and, when once fixed, the walls are protected from inclement weather, or readily exposed to the influence of the sun.

In the summer management we take care to select that young shoot which is nearest to the mother branch, and which generally proceeds from about the base of what Mr. Harrison calls the "unsightly spur," and such being the case the identical spur complained of, (or the embryo thereof, which would eventually form a spur if permitted so to do) is cut away at the latter end of the year, together with the lateral that has produced fruit; having selected the young shoot it is necessary, before midsummer, to tie it down in its proper place, being rather above and parallel with, the fruit-bearing branch of the present season; which is subsequently secured by a nail and shred, as a tem-

porary precaution against the effect of boisterous winds. During the summer months at repeated intervals, we proceed to remove every superfluous branch, or shoot which may have pushed from underneath, or in front of the main branches of the tree; either by pinching off or disbudding, as circumstances may appear to require. On these occasions every super-abundant and deformed fruit, or any that are sickly in appearance are severally removed.

By adopting this system, and carefully attending to the simple rules enumerated, notwithstanding the variable climate of the north of England, I will venture to prognosticate that any gardener may safely calculate on the certain assurance of a plentiful crop of peaches and nectarines, and those also of a superior size and quality, to any that can be produced on the old fan system.

To behold these trees in spring, when the leaves are in embryo, not a nail or shred visible, every branch occupying its appointed place with mathematical precision, and every lateral shoot adorned with its beautiful crimson blossoms; the effect is magical! and if less enchanting, it is not a less glorious sight to behold them in September, when every part of a tree from its centre to its extremities is universally studded with delicious fruit, alike desirable to the palate and the visionary organs.

In conclusion, I beg to aver, that Mr. Seymour's system is so simple, so perfect, so abundantly fructiferous, and so bewitching to the eye at all seasons; that it only need be seen and understood, to be universally adopted throughout Great Britain.

HENRY DYSON.

Womersley Park, July 1*st*, 1832.

ARTICLE II.

THE ADVANTAGES TO BE DERIVED FROM THE FORMATION OF A GARDENERS' SOCIETY.—By R. F.

THERE will be few who do not approve of your recommendation, for forming an Arboricultural Society, in England, or of your suggestion for training young men as foresters, by giving them practical lectures upon the management of trees. But not to enter upon this subject, the object of this letter is, to press upon your notice, the propriety of recommending the formation of an institution, where young gardeners might be examined, and diplomas be given them,

in a manner similar to what you have recommended to be done, in the case of those young men who might study the principles of Arboriculture. Although a mismanaged garden is an evil easier rectified than woods, which have been neglected, or ill taken care of, yet when we compare the sciences together, and see how much more attention and watchfulness are required in the one than in the other, surely the adoption of a system which would be so advantageous to foresting, by placing the axe or the pruning hook in the hands of those who were capable of using them aright, must likewise be beneficial to gardening, as it would remove carelessness and inattention, prove a stimulus to application, and foster those abilities which at present are often allowed to remain unnoticed and neglected. Some institution of this nature is daily becoming more imperative, not only for the advantage of those, who, by persevering study, have made some proficiency in knowledge, but also for elucidating the art of Horticulture, and enabling it to maintain an equality at least, with those arts and sciences which we see making such rapid strides towards perfection.

Far from depreciating the extent of the general knowledge, which gardeners have been allowed to possess in times that are past, it will require but little observation and acquaintance with mankind to perceive, that *now*, instead of being superior in their mental acquirements, it is to be feared, they are falling behind the generality of tradesmen and mechanics. Formerly, the working-classes of society were contented, if by attending to the instruction given them, they obtained a knowledge of their profession, by following in the same routine tract in which thousands had travelled before them; but now a spirit of enquiry having been produced, knowledge is taking the place of ignorance, and men, exerting those powers of the understanding which formerly had remained unexercised, have seen the propriety of examining for themselves, distrusting what appeared to have no other authority than custom, antiquity, or the sanction of some great name, and founding their opinions upon the broad basis of science, and the principles of inductive philosophy. What has been the result? The knowledge of those sciences, which had engaged the attention of the philosopher, and which their less learned brethren considered to be attended with so many difficulties as to be entirely beyond their reach; have now become the study of the labouring mechanic, who, combining the understanding of the first principles upon which the operations of his art are founded, with daily practice in it, has been enabled to shed a light over many things formerly dark and obscure, and even been the author of researches which had

escaped the penetration of the more learned but less practical investigator. Thus from men being led to study first principles, a new era has been produced in the annals of the arts and sciences, and to the same source, we must trace the present advanced, but (in comparison with many other arts) still very imperfect state of gardening. This imperfect state must be apparent to every one, who reflects upon the diversity of opinions which prevail on almost every subject connected with it, and the reason of this requires but little discrimination to perceive. In many of the other arts, we see the workmen adding their own ingenuity, and acquaintance with the principles of their profession, to the researches of the philosopher; but in gardening we observe the generality of young men, contenting themselves with the ability of using the various tools which are put into their hands, and acquiring a few practical rules from the pages of Abercombie; whilst the study of those first principles upon which the success or failure of all their operations depend, are left for the consideration of the philosophic Amateur. Not only is there a carelessness and inattention upon this subject, amongst the great body of gardeners, but in many cases prejudice and opposition. I recollect when living at a place in Scotland, where six young men lodged together, one of the number who had heard some lectures on chemistry and other sciences, commenced making some experiments, for the purpose of improving himself, and giving us a taste for scientific pursuits; but instead of hailing this as a favourable opportunity for advancement in knowledge, we considered that such pursuits, were not necessary to the practical gardener, that it was impossible for a young man to make that attainment in them, which could enable him to understand the principles of his profession, and some turned the idea altogether into ridicule, and considered such pursuits to be more productive of evil than good. From the number of young men with whom I have been acquainted, I can safely say, that this is far from being a solitary case; for however, the knowledge of gardeners has lately been so much spoken about, the truth of the matter is, that they who are paying attention to scientific pursuits, and the first principles of their profession, form exception from the general body, and consequently cannot be brought forward as instances upon which to found a general inference.

Now since one of the principal objects you profess to have in view, is to advance the art of gardening by imparting knowledge to the practicers of it, it becomes of great importance that errors and misconceptions be removed, that men be convinced that their mental faculties are unlimited, and not merely able to comprehend this thing,

or that thing; that to possess knowledge of whatever nature, nothing more is necessary than the desire to do so, united with industry and application, and then point to some object for the attainment of which their efforts ought to be directed. It is this which has improved the mechanic. From having an opportunity of attending lectures upon the several sciences, and obtaining the privileges of an extending library, a new impulse has been given to his actions, he sees the pleasures and the advantages of knowledge; and when he beholds one of his companions, with no better opportunity for his improvement than himself, receiving a prize for some useful invention, or an essay or some subject connected with natural or experimental philosophy, he feels his mind glowing with the desire of reaching the same attainments, and resolves that he perseveringly will continue his exertions, until at least he equal if not excel, the individual whom he now considers so much his superior. Let similar inducements to mental improvement be held up to gardeners. Form societies where their abilities may be tried, and diplomas awarded to them according to their merit; give out prize-essays, the rewards for which however small, their intrinsic worth, may possess a value on account of the honour which they confer, and a spirit of emulation being aroused, we may expect the beneficial effects to follow. Then, instead of wasting their spare hours, if not in unbecoming, at least in trifling pursuits, we shall see young gardeners directing their attention to studies, which will give them a scientific knowledge of their profession, and make them more useful members of society, and then the art of gardening being reduced to its first principles, and divested of much of its obscurity, we shall be enabled to suit our operations to the circumstances under which we are placed, and not so often witness the failure of plans which had been recommended by, (and even answered well with) others where soil, situation, and climate were different. Much has been done to encourage the growth of good vegetables and fruits, by Horticultural societies, but nothing has been attempted by them to encourage mental cultivation amongst young gardeners, upon whose abilities the future state of our art depends. I am far from being so vain as to suppose that any suggestion of mine will lead to the adoption of such a system, but, convinced of its importance, I lay it before your attention, hoping it will receive the notice of some of your correspondents, who will be better qualified to do the subject justice.

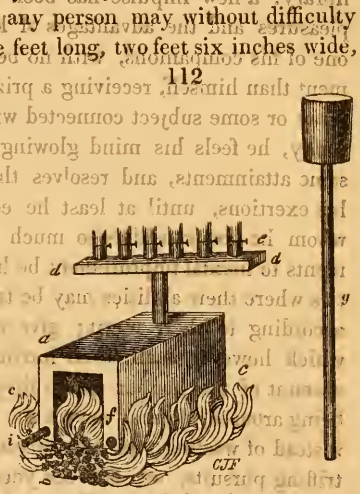
R. F.

Staffordshire, June 13th, 1832.

ARTICLE III.

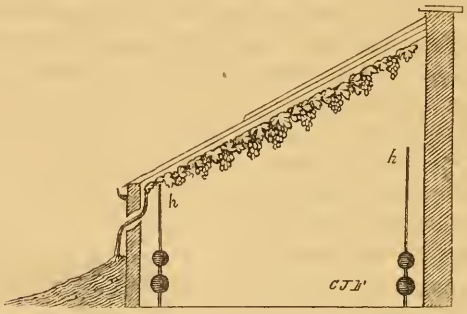
PLAN AND EXPENSE OF ERECTING A HOT-WATER APPARATUS FOR HEATING A VINERY.—By J. Waldron.

The apparatus I am about to lay before your readers is so simple that when the pipes are obtained, any person may without difficulty fix them. The boiler (a) is three feet long, two feet six inches wide, and two feet six inches deep down the sides. The fire is made in the middle (b) and leaves but six inches depth of water over it; the water coming down each side of the body of fire, and the flames also spreading around the outside (c c) soon causes the water to boil; the fire-place one foot six inches wide, and three feet long; and from the great body of fire it will contain, the boiler is capable of answering the purposes of several houses; and the fire when once got into full action consumes comparatively little fuel. On the top of the boiler is fixed a box (d) from which issues as many pipes as there are houses to be heated, allowing one pipe to each house. Each of these pipes has a stop-cock at its base (e) to turn the water, and heat on or take it off any house required. A similar box is fixed at (f) for the return pipes, and on the top of it is fixed a feeding pipe (g) to allow the air to escape from the circulating pipes, and also to supply the boiler with water; the size of the feeding pipe must be regulated by the quantity of water the boiler and pipes hold; every twenty gallons, when hot, becomes twenty-one by expansion, for every twenty gallons therefore, the boiler and pipes hold, one gallon must be allowed for the feeder: for instance if the boiler and pipes hold 160 gallons, the feeding pipe must hold eight to allow for expansion. There are two small pipes (fig. 113, h h) of half an inch bore placed upon the top pipes at the turning, to carry off the air, that the water may circulate freely. These are carried up from four to six feet high, and if placed against the wall, will not be much seen; if the pipes have to pass a door-way, they may be sunk under the walk and raised again after the manner



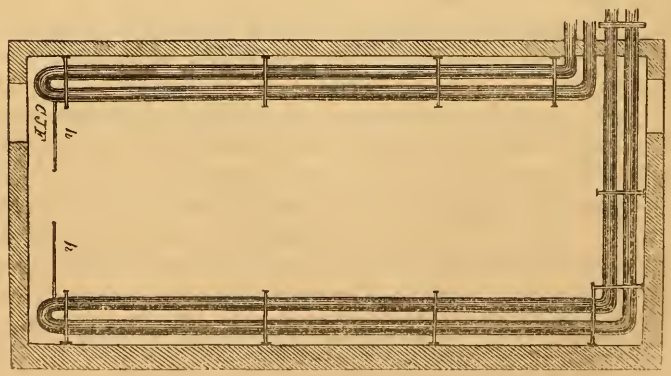
of a flue, but previous to sinking them a small pipe similar to (h h) must be fixed to carry off the air or they will not work well off from the boiler and pipes when required.

The boiler is a close one and should be well made, and put together with fire cement, nuts and bolts; it will cost about twenty shillings per cwt. 113



If the boiler is only intended to heat one house, the boxes will not be wanted, as a pipe will be fixed on the top of the boiler, and the return one at (f): exclusive of the boxes and cocks, the expense of heating a house thirty feet long will amount to:

	£,	s.	d.
For Boiler 5 cwt. at 20s. per cwt.....	5	0	0
Piping and Elbows.....	11	4	0
Nuts and Bolts 30lb. at 5d.....	0	12	6
Canvass, red and white lead, &c.....	0	12	6
	£17	9	0
If more houses than one to be heated the additional expenses of the boxes.....	3	0	0
Stop-cocks for each.....	0	7	6
114	£20	16	6



The pipes may be had of Messrs, John Davies, & Sons, or at the Birmingham coal company's foundries, Tipton, Staffordshire. All the difficulty lays in sending a correct statement of the length of the elbows, and the proper quantity of six feet and nine feet pipe wanted. You may then put them together yourselves, allowing a fall of half an inch in every nine feet of pipe, each pipe to be four inches in diameter inside, and to be fastened at each joint by four nuts and bolts. A nine feet pipe of four inches bore, thickness of metal $\frac{3}{8}$, weight 1 cwt. 1 qr. 10lb. at 10s. per cwt. Elbows 12s. per cwt. Boiler as stated before; nuts and bolts, 4 to the pound, at 5d. Red and white lead, canvass, labour, &c. to each joint 7d. The plan of the boiler will answer for any number of houses, if it and the fire place be made wider and longer, according to the power required. If I have not intruded too far, I shall most likely trouble you again with the expenses of building pits and houses. JAMES WALDRON.

* We shall be glad to receive the promised favours of our correspondents.

ARTICLE IV.

CULTIVATION OF ANNUALS, BY CUTTINGS,

BY THE AUTHOR OF THE DOMESTIC GARDENER'S MANUAL.—C. M. H. S.

IN the fourth article of your ninth number, that for March, page 397; I gave a description of an experiment upon the propagation of the balsam, *(Impátiens balsámina)* by cuttings, &c. in the autumn. I have subsequently found that by a similar mode of operation, the plant can be multiplied to an almost unlimited extent in the spring. From various, though not accurately noted trials, I am satisfied, that many of the best annuals which are universally raised from seeds only, can successfully be cultivated by cuttings. A double advantage must result from this mode of cultivation; for, first the trouble and risk attendant on the progress of the young seedlings during the dark and humid autumnal and winter months, will be obviated; and secondly, the periods of flowering will be altered and greatly extended. One recent instance, I can point out with sufficient accuracy. Referring to my diary, I find, under the date September 21st, 1831, that four cuttings of *Coreopsis Tinctoriá* were taken off from an old plant, at the axillæ of the leaves (i. e. the points where the leaf-stalks emerge from the stems;) and placed in pots, in

a soil composed of light loam and leaf-mould: each cutting might be about three inches long. The pots were plunged in the earth of a melonry, and covered with a small bell-glass.

I could not pay the plants that attention which they really required, in consequence of an alteration that was made in the pit; and by which many of its vegetable tenants were greatly injured. I however succeeded well with one of the cuttings, and this was finally placed in a small pine stove, during the winter. Here, the temperature was never very high, because my object was not to force any plant to grow during the dark months; and therefore, as the climate very frequently did not exceed from forty-five to fifty degrees during many of the winter nights, I am confident that a good dry greenhouse, or even a sitting-room, would have afforded sufficient protection.

The plant was kept in the stove till it attained the height of about three feet: it had one simple and erect stem, and was in strong and vigorous health. In May, it disclosed the first flower-bud at the summit, and then the plant which had been kept in a pot of the forty-eight size, was removed to a thirty-two. I at that period took it from the stove, and placed it in the dwelling-house, in a window with a south-east aspect; and in a few days afterwards removed it from the pot, and planted in a flower-border.

By so doing I acted prematurely, for not only was the plant exposed to frosty nights, but it suffered severe assaults from violent winds, by one of which the summit was broken off; and I thus lost my first blossom-buds. The plant however did not suffer materially, for it threw out six or seven fine lateral shoots, and *now* stands four feet high, with a branchy head, covered with its beautiful orange-coloured blossoms. The larger flowers are of the diameter of a crown-piece, the smaller are as large as half-a-crown; and twenty or thirty of such flowers on a plant so erect and well balanced as mine is, form a beautiful, and at this period of the summer, a rather peculiar object.

I wish to call the reader's attention to one fact of importance, it is this, the Coreopsis may not only be propagated in the autumn by cuttings, but it will endure almost any variety of temperature, after being once fairly established, and in a healthy growing condition. My house was frequently heated by the sun to eighty-five, ninety, and one hundred degrees, (the thermometer suspended in the shade) during the months of March and April; and after the plant was removed into the open border, the external temperature was in several instances below thirty-five degrees.

The fact that various annuals, the balsam, coreopsis, and others,

may be raised from cuttings, is doubtless known *now* to many; but the constitutional hardihood by which some can support great and sudden transitions, may not be so generally known.

Though I may not have added much to the stock of scientific information, by this communication, I hope I shall be fortunate as to induce many persons to prosecute experiments upon subjects which may afford much pleasure and rational enjoyment; and perhaps, lead to discoveries of great and permanent utility.

G. I. T.

July 2nd, 1832.

ARTICLE V.

THE METHOD OF FORMING THE TREE MIGNONETTE.

BY THOMAS JOHN KNOWLYS, ESQ.

Heysham, Lancashire.

As Floriculture is so much patronized by the ladies, I send a little communication, which I hope may be of some use to your fair readers in particular; the method is not new, but as it is generally considered, that the tree mignonette is a different species from the common, I beg to say it is not, as there is not one distinguishing mark between them; all that is necessary in forming the tree mignonette is, that there should be about a third of sand mixed with the soil in the pots.

In the month of March, sow a few seeds of the Réseda odorata or common mignonette, in pots of five inches width by seven deep, filled with rich sandy loam; place them in a melon or cucumber frame where there is a good moist heat; when they have made about four leaves, pull out all but one strong plant in each pot, as it grows, pick off all the side shoots, leaving the leaf at the bottom of each shoot to carry nourishment to the stem. When the plant is drawn up by plenty of heat and moisture to the height of about eleven inches, it will shew its blossom, which must be nipped off: leave it about a week longer in the melon frame, taking care to nip off all side shoots, then remove it into the green-house, where it should have less water, but plenty of air; let it be carefully tied to a thin stick with bass. After a short time it will begin to send out another shoot from near the top, which must be led up the stick, and all side shoots again nipped off, but the bottom leaves again left to strength-

en the stem; by this means it will be about eighteen inches high, the bloom must be again cut off, and the plant kept in the green-house; in the autumn it will put forth plenty of shoots from the top, and make a handsome bush, and will come into flower early in February or March, according to the heat in which it may have been kept.

By this means I am enabled to gather mignionette for bouquets all the spring, and the same plants by being cut, send forth fresh shoots which flower all the summer. I hope I have not been tiresome in my directions, as my object is to be so clear, that I may be thoroughly understood by any gardener's labourer.

T. J. Knowlys.

Heysham, June 1832.

ARTICLE VI.

TREATMENT OF THE VERBENA MELINDRES, &c.

BY WM. THORN.

I have lately received a packet of seeds brought by a friend from China, part of which, I now beg your acceptance of; but I regret that I cannot give you the names, as they are all written in the China characters. (They arrived quite safe, and return many thanks to our correspondent.)

In reply to G. L. page 571, I had a very fine plant of the Verbena Melindres growing in the open border last summer, which was covered with a hand-glass through the winter; it is now very healthy and in full bloom: the hand-glass was occasionally taken off for a few hours in the middle of the day in mild weather, and it had no water but the rain which soaked to it from the outside of the glass. I was not so successful in my treatment of the Maurandia Barclayana; about the end of November last, I cut down a very luxuriant plant, transplanted it from the border to a large pot, and kept it in doors with other green-house plants through the winter; it produced a few weak shoots in the spring, is now in a very sickly state, and I think will not survive long. Had it remained in the border, and been covered with a glass, it might now have been a healthy plant.

Wm. Thorn.

Gilstone House, near South Molton, Devon, June 11th, 1832.

ARTICLE VII.

TREATMENT OF THE RHODODE'NDRON ARBO'REUM.

BY A. Z.

This very magnificent species, according to Sir I. E. Smith, in Exotic Botany, 6, "was first noticed by Captain Hardwicke, on a tour to Sireenagur, in 1796, growing in the mountainous tract, called the *Sewallic chain*, which separates the plains of Hindostan, between 75 and 85 deg. east longitude, from the Himmaleh mountains. It is generally found in elevated situations, in forests of oak: the soil a rich black vegetable earth, on a stoney bed. The natives use the wood for making the stock of matchlocks, or common musquets of Hindostan. The stem is columnar, twenty feet or more in height, sixteen to twenty-four inches in diameter. From its natural situation, it is irrigated by the melting of the snow above, which continues to take place most part of the season of flowering and making its shoots, it will therefore be readily seen, that there exists a necessity for it to have an abundant supply of water, during its growing and flowering season: it is not sufficiently hardy to endure our winters generally, although some plants have stood out, planted in an American shrubbery, throughout the whole year when the weather was not very severe, and did not seem to be affected by it; they certainly are, when in flower, very splendid ornaments, in our conservatories. They grow freely in sandy peat, and strike root readily by layers of the young wood, they are sometimes grafted upon the R. ponticum, but never make such handsome tree-like plants as when propagated by layers or seeds. They seldom flower until they are several years of age, and are then rather capricious not flowering every year in succession, although receiving precisely the same treatment. Individuals, who have not the convenience of a conservatory or greenhouse, may keep them very well in a cold pit or frame through our most severe winters. They will come beautifully into flower in the beginning of April, and the flowers secrete such a quantity of honey, that when they are shaken it falls from them like large drops of rain. Mr. Knight thinks a spike may yield upwards of a dessert-spoonful at a time, and after being exhausted, a fresh supply is secreted. It is, however, considered unwholesome, as is all collected from the other species of Rhododendron, and Azalea, although most part of the Ericeæ produce honey free from any deliterious qualities. A. Z.

ARTICLE VIII.

REMARKS ON THE CAMELLIA.—By G. A. L.

(Continued from page 636.)

24. CAMELLIA JAPONICA SPLENDENS, splendid Camellia, commonly called Halnuts Splendens. A very pretty seedling from the gardens of Mr. Halnut, of Clapham. The habit of this plant is exceeding neat, the flower is of a fine red colour, rather small, but in general very double and regular. One or two other varieties have been also called Splendens, but the plant of Mr. Halnut claims that cognomen by the rights of priority, although it may be surpassed in beauty by its rivals.

25. C. JAP. ROSEA, rosy or Le Blanc's C. I am perfectly ignorant of the history of this beautiful variety, but having had the gratification of seeing it in bloom this season, at Messrs. Chandler's nursery, I do not hesitate to predict, that it will become a general and universal favourite, if, in future, it retains these peculiar characters, which then marked it as a most distinct and elegant variety. The flower is small, very double and very regularly imbricated; it is of a colour rather deeper, I think, than that of the monthly rose, and has a greater tinge of pink. I am not aware that this plant has yet been figured in any of the publications. It is as yet very scarce; the only plant Mr. Chandler had was a very small one, which he had received from the Horticultural Society.

26. C. JAP. CRASSINERVIS, thick leaved or Mr. Kent's C. A variety much resembling the C. jap. anemone-flora or waratah, but its flowers do not fall so soon, and continue in full beauty much longer than those of that variety. *The crassinervis* well deserves notice. It is sometimes (but improperly) called *heraugulous.*

27. C. JAP. WOODIN, Woods C. A pretty but variable seedling variety, raised four or five years since by the Messrs. Chandler, and named by them in honour of Mr. Wood, of Camberwell-Grove. When the plant blooms well, the flower very much resembles a provence rose.

28. C. JAP. ELEGANS, elegant C. Another seedling raised about the same time with the woodsu, and by the same persons. This is a handsome plant, the flowers are large, well made, and of a different red to those of the woodsu, nor do they appear to sport so much.

29. C. JAP. PAUNTATA, dotted flowered, or Gray's Invincible C. sometimes called Press's Invincible, having been raised by Mr. Press, gardener to E. Gray, Esq. This variety and the two following ones, (marked 30 and 31, raised also by Mr. Press,) are certainly three splendid plants; their chief fault consists in the great similarity they bear to each other; but notwithstanding this defect, they are sufficiently *distinct* in character to form three *distinct* varieties. The general character of their flowers, is a white ground, beautifully spotted or else touched with delicate hair lines of pale red, the shade of which is somewhat different in each variety. The plants were raised from seeds of semi-double red, the flowers of which had been impregnated with *farina* from the single white. Here I must be allowed to digress a little, for the purpose of warning those who may be commencing the cultivation of this admired genus, against a disappointment they will often meet with, I mean the disappointment so often experienced, arising from the extreme tendency of the seedling varieties to what is called by gardeners, *sporting*. The flowers, when expanded, are frequently of a ragged and irregular shape, besides being but semi-double; nor is this all, the colour is at times not so true as it should be, more particularly the colours of those plants, which are termed the variegated or striped varieties. Frequently after purchasing a fine new variety, I have had the mortification of seeing it open a poor and (comparitively speaking) worthless flower; besides being exposed to the laughter of those to whom I had extolled the beauty and splendour of my new purchase. However a second flower, or at most, the next season, has amply rewarded me for my expense, trouble, and vexation; but to return from this rather long digression.

30. C. JAP. ROSA MUNDA, vel venusta, Gray's venus C. (See C. jap. punctata.)

31. C. JAP. SPLENDIDA, Gray's Eclipse C. (see C. jap. punctata.)

32. C. JAP. PAPAVERACEA, poppy-flowered C. A fine seedling from the Vauxhall Nursery. This, although a single variety, I must recommend to the notice of every cultivator. The flowers are large, numerous, and of a dark red colour, well relieved by the very prominent Stamina, rendered still more conspicuous by their large and bright yellow anthres. The plant is still scarce, although it has a very rapid sale, so much so, that the Messrs. Chandler had but one plant left a few months since.

33. C. JAP. COLVILLII, Colville's Carnation C. A very first-rate flower, raised four or five years since, at the nursery of the late Mr. Colville, of the King's Road, Chelsea. The flower is very large,

well made, and remarkably double; the ground-colour is white, beautifully spotted and striped with pink, altogether very much resembles a fine picotée carnation. It must be classed with Gray's Invincible, venus, and eclipse, which it also much resembles; but the pink, if I recollect rightly, is darker and in greater abundance than in those varieties. It is very scarce, and indeed must remain so for a long time yet, few persons being able to pay the price demanded for the smallest plants. It was figured in Sweet's "British Flower Garden," for June, 1829.

34. C. JAP. PARKSII, Park's striped C. I am personally unacquainted with this variety; but am informed, that its chief attraction arises from the accident of the flowers being sweet scented.

35. C. JAP. RUBRICAULIS, Ly. Ab. Campbell C. A pretty but variable variety.

36. C. JAP. SABINIANA. Sabine's white C. A plant named in honour of Mr. Sabine, late Honorary Secretary to the Horticultural Society's Report speaks highly of this variety, but I am myself unacquainted with it.

37. C. JAP. EXCE'LSA, lofty or noble C. A pretty white seedling raised at the Tooting Nursery, a few years ago. What quality it may possess, which entitles it to be called *excelsa*, I cannot conjecture.

38. C. JAP. ALBA SIMPLEX, single white C. A plant of slow growth, and but of little beauty. However many fine seedlings have been procured by impregnation from this variety, and therefore must not be despised by those who wish to raise new varieties.

(To be continued.)

ARTICLE X.

CULTURE OF THE NATURAL ORDER AMARYLLIDÆ.

BY ARTHUR.

PERHAPS no family of plants exhibit more brilliancy of colours, combined with delightful fragrance than do the flowers of those belonging to this order. The lillies of the field have excited admiration from the earliest ages of botanical study, and the accounts which have been transmitted to this country by Botanists and other travellers, leave no doubts as to these being the flowers intended. They are all bulbous rooted, and differ but little in the figure and general appearance of the leaves. The order contains thirty genera, many of

which are found deeply rooted in the burning shores of Islands in the torrid zone, where scarcely a blade of grass will grow. These will only thrive in the stove under peculiar treatment, which will be afterwards explained. Many are found in the damp and sultry woods of South America, where they are completely overshadowed by trees and never see the light of the sun; these also require shade, and a place in the stove. Some grow intermingled with Ixias and Gladioluses in southern Africa; these for the most part require no greater heat than the greenhouse or vinery. Others again are to be met with in the cooler provinces of Europe and Asia, many of which are perfectly hardy, and the others require only the shelter of a frame through the winter. Below is an appended list of the genera.

1 Hæmánthus	11 Phycélla	21 Pancratium
2 Galánthus	12 Vallòta	22 Ismène
3 Leucòjum	13 Griffinia	23 Eucròsia
4 Strumària	14 Sternbèrgia	24 Eùrycles
5 Crìnum	15 Zephyránthes	25 Calostémma
6 Cyrtánthus	16 Habránthus	26 Chlidánthus
7 Gastronèma	17 Doryánthes	27 Chrysiphiála
8 Brunsvígia	18 Gethy'llis	28 A'cis
9 Neri'ne	19 Alstrœme'ria	29 Cobúrghia
10 Amary'llis	20 Narcíssus	30 Clivea

Genus 1st.—Hæmánthus (*Haima* blood, *anthos* a flower) blood-flower. These all require the temperature of the greenhouse, and the most part will thrive in any rich mould; there are a few, however, which seem to prefer a considerable portion of peat and sand, mixing with the mould, as H. maculàtus, hyalocàrpus, rotundifòlius, pumílio, and càrneus. H. crássipes, and orbiculàris, will flower better if potted in quite strong loam; let them stand on the front curb, or any situation near the glass, and be cautious not to give them water when in a dormant state. They are very easy of culture and may be propagated by offsets.

2. Galanthus (*Gala* milk, *anthos* a flower) snow-drop. The treatment of this genus is too well known to require any explanation.

3. Leucójum (*Leukos* white, *ion* a violet) snow-flake. These much resemble the last in habit; the L. autumnàle, the handsomest species, increases rather slowly, and is apt to perish, particularly if the land be heavy. They all do the best in sandy-loam, on the open border.

4. Strumària (*Strumá*, a tubercle,) all natives of the Cape of Good Hope, and consequently greenhouse plants, they grow freely

in sandy loam, mixed with about equal parts of leaf mould, or peat soil, and require the same treatment as Hæmánthus.

5. Crínum; (*Kírnon;* Greek for lily.) There has existed considerable difference of opinion as to the distinctive characters of the two genera Crinum and Amaryllis; Mr. Gowen says, "there is no difference between the true Crinums and those placed under Amaryllis, than a slight variation in the form of the corolla, and in the inclination of the filaments. The form of the bulb constitutes no essential distinction, as it varies greatly in the acknowledged members of the genus; being spherical, or conical, or cylindrical, or of mixed form; these forms graduate into each other, and in some species the trace of a bulb is hardly to be made out, the leaves, diverging at once from the root stock. In C. erubéscens which never loses its leaves, the bulb is scarcely to be traced. In C. asiaticum, the poison-bulb, and its allies, it is decidedly columnar, and the foliage persistent (not falling off;) these inhabit the deep alluvia of rivers; and exposed to inundation during the periodical rains; and are always sufficiently supplied with moisture, to be kept in a state of growth." Crinum scábrum, and all its kindred Amarylloid Crinums, have true bulbs, and in our collections cannot be preserved in health without a season of absolute rest; their foliage is deciduous, in many, sloughing off completely from the bulb. They inhabit dry ground in their native regions, and are exposed to long periodical returns of great drought, and to the utter loss of their foliage." From these observations, we gather that all those species, the roots of which are perfect bulbs, and foliage entirely deciduous, must have no water during the time they are dormant, and be watered at all times with care; the soil, although rich, should be light by a mixture of leaf-mould, peat, and sand, and the pots well drained with potsherds, and be placed in a situation near the glass, yet in a very hot part of the stove: by this treatment, and keeping them dry when dormant, they will flower very freely, particularly if potted every year in fresh mould previously to their beginning to grow again. All those species where the bulbs grow, with a long thick neck, somewhat resembling a leek, as C. amábile, the finest species of the genus, and C. bracteátum which although amongst the smallest, is elegant and very fragrant, C. pedunculátum, C. riparia, &c. require a great quantity of water during their flowering season, and a moderate portion throughout the year, they grow freely in rich mould, with a little sand mixed to keep it from binding: these should be planted in large pots, and plunged in the bark-bed, or placed upon the flue, and if well drained they can scarcely be overwatered, particularly the C.

riparia and C. longifolium, the former of which was found by Mr. Burchell in 1816, in a tract of country in Southern Africa, till then untraversed by any European, "it grew in large bunches on the banks of the Nugareip or Black river, in similar situations to those occupied by the common yellow flag, (Iris Pseud-Acorus;) where it is frequently under water whenever the river rises a little above its ordinary level;" and the C. longifolium in North America, is cultivated as an aquatic, being planted in ponds and reservoirs the same as water-lilies; these are all increased by suckers from the root, or by a kind of bulbiferous seed which they occasionally ripen, particularly the Botany Bay lily (C. pedunculatum) when they are shy in throwing up suckers; cutting down near to the root will cause them to produce abundance, indeed, if the root gets wounded by any means, it in general produces the same effect, and Mr. Sweet in his "Botanical Cultivator" partly recommends the practice, they are all of very easy culture.

6. Cyrtánthus, (*Kyrtos*, curved, *anthos*, a flower) the different species of this genus, require only the heat of the green-house, and only that during the colder months of the year; those who have any other convenience, may grow them to perfection in a frame, by potting the bulbs very shallow in light sandy loam, mixed with equal parts of peat earth, or leaf-mould, and watering very sparingly when not in a growing state; they however must be allowed plenty during their time of flowering, and if fresh potted just before they begin to grow, they will in general flower very freely, and occasionally ripen seeds, by which, and offsets, they are readily propagated.

7. Gastronèma, (*Gaster*, a belly, *nema*, a filament;) requires precisely the same treatment and soil as the Cyrtanthus.

8. Brunsvígia, (named by Heister in 1753, in compliment to Charles, Duke of Brunswick, Lunenburg.) The whole of this beautiful genus flowers most of the summer, and the bulbs grow to a considerable size, and do not thrive if cramped in small pots, indeed they blow very well if planted in the open borders in spring, providing the soil of the border is light and the situation warm, but they must be taken up again before the frosts commence, or they will perish, they derive advantage by having a small portion of sharp white sand, put in the hole round and underneath the bulb when planted. If planted in pots, the best soil is light turfy loam mixed with equal parts of peat and sand, chopped and well mixed together, but not sifted; plant the bulbs very shallow and place them in a warm part of the green-house, giving a good supply of water when in flower; after the flowers are dead and the leaves begin to grow, remove the

pots into a hot-house, and let them remain there, giving a moderate supply of water until the bulbs are perfected, then remove them to a cool part of the green-house, and keep them perfectly dry; in this genus is the famous poison-bulb, from which is extracted the deadly poison, used by the natives of Southern Africa, to cover the heads of their arrows; Mr. Burchell says,* "the plant is of frequent occurrence in the more acid districts of Southern Africa, growing both in sandy plains and rocky spots, on the banks of the Bushmen's river, at Rautenbacks Drift. It is also found on the great sandy plains of Litaakun. I have been assured by the bushmen themselves, that the juice of the bulb is one of the ingredients, most commonly used in the poisonous composition, with which the heads of their arrows are covered. The wild antelopes seem carefully to avoid bruising the leaves of this plant, as I have observed it always left untouched, although the surrounding herbage has been grazed over." It appears from what has been otherwise collected, that the poison used is a mixture of several substances, "the principal ingredient is always the poison taken from snakes, which being fluid and volatile is incorporated with the juice of a large kind of spurge, (Euphórbia) by which it acquires a waxy consistence, to this is added the juice of the bulb of Brunsvígia toxicárius, an alkali, supposed to add most powerfully to the activity of the poison."

9. Nerine, (Nerine the daughter of Nereus.) These are all green-house plants, and require similar treatment to the Cyrtánthus, Hæmanthus, and other Cape bulbs; the culture of the Guernsey lily (N. sarniensis) however differs in some points from these, I shall therefore take the liberty of detailing it. These bulbs are supposed to be originally natives of Japan, but have now become quite naturalized to the climate and soil of the Islands of Guernsey and Jersey, where they grow and flower in the open ground with great freedom, and from whence they are annually imported every summer; under the general treatment of other bulbs, they seldom flower after the first year of introduction, or flower so weak as scarcely to be worth harbouring: the chief art therefore in cultivating them is to grow them to perfection for many successive years, instead of having to buy a quantity every year. They are generally received in July or August from Guernsey, with the flower stems more or less advanced, they should then be immediately planted in upright thirty-two-sized pots filled with mould, composed of equal parts of rich maiden soil, peat, and leaf-mould, set them in a frame, or in the front part of the green-house, where they can have plenty of light

* Bot. Register, v. 7. fol. 567.

and air, which will greatly improve their colour; give them a moderate supply of water whenever the soil becomes dry, and they will continue in flower all through October. After the flowers have decayed, the green leaves will begin to shoot, and as on the perfection of the growth of these, the future flowering of every bulb depends, it will be necessary to render them every possible assistance, and not as is generally the case, thrust them under the stage of the greenhouse, stove, or any other place where they will be out of sight. The best method I know is to make a hotbed, and after having set on a frame, lay over the dung about a foot thick of the same compost they were potted in, then turn out each pot of bulbs with the ball perfect, for if these are broken, their growth will be much retarded, shelter them, from theseverity of winter, and give them water and air as they require it, until the bulbs are ripe, then keep the soil perfectly dry. By this treatment, many will bloom the second year with great vigour; as soon as the flower stems begin to shew, take them up with a trowel so as not to injure the small fibres that are starting, and pot them, being careful to remove none but those shewing flower. If they were allowed to stand on the bed two years, and could be kept warm through the second winter, they would bloom finer than those that are imported.

10. Amaryllis, (A Nymph of Virgils.) Of late years, this genus has been greatly increased by a number of hybrids, many of which far surpass the originals, both in the production of their flowers, and the rich variety of their colours, they for the most part, require the temperature of the stove, although some as the A. pumilio, pudica, blanda, &c. will do very well in the green-house, and two or three species as the A. belladonna, &c. will do in a frame, or even out of doors in warm situations; they are in general easy of culture, and are readily increased by offsets, and many ripen plenty of seed. A shell peeled off the bulb with a leaf attached, will grow very freely if some pollen be shaken on the stigma at the proper period: the strong growing species must be plentifully supplied with water during their time of flowering and growing, they thrive best if planted in large pots. Mr. Sweet found it an advantage to turn them out of the pots, when the bulbs were ripe, and after shaking all the soil from them, laying them upon a shelf in a dry situation, until they began to shew flowers, he then had them potted in light turfy loam, rather more than one-third of white sand, and the rest turfy peat, well chopped together, but not sifted for it takes away all the best part of the soil. All the pots should be well drained with potsherds, this, however, Mr. S. found would not do as a general rule for "A.

reticulata, and striàtifólia, or the mules raised from them, will flower much better by remaining in the pots all the year, as does also A. aùlica, calyptràta, solandræflora," these should all be kept dry during their dormant state, or they will not flower, whilst "A. reginæ crocàta, rutìla, acuminàta, fúlgida, Johnsòni, psittacina, and the mules between those, are much better turned out."

ARTHUR.

(To be Continued in our next.

ARBORICULTURE.

ARTICLE XI.—NOTICES OF FOREST TIMBER.

BY AN ARBORIST.

Continued from Page 645.

THE Mahor or wild cotton tree grows in Cuba to a vast size: there is one on an estate called Santa Anna 100 feet high. Its trunk which is forty-four and a half feet in circumference at the base, rises to 65 feet without a branch or a single knot on its white bark. The branches are worthy of the stem and cover a diameter of 165 feet. This immense tree is in itself a world, and shelters and feeds millions of insects; several parasitical plants attach themselves to it: wild pine apples grow at the top, and the vine vegetates on its boughs, and letting its branches droop to the earth, furnishes a ladder for rats, mice, and opossums, which would find it difficult to climb up a smooth bark, and enable them to reach the pine cups, which form so many natural reservoirs for the rain water. The wood-louse founds extensive republics in this tree, and establishes its large and black cities at the juncture of some of the branches, from whence it descends to the ground by a covered way, of which it provides two, one to ascend and the other to descend. This little insect is of the size of a flea, is inoffensive, and a great treat to the inhabitants of the poultry-yard when given to them in the nest altogether.

No plant is better adapted for underwood than the Yew; it will thrive under the *drip* of other trees equally with the Holly; they are often increased by cuttings and sometimes by layers. Cuttings of the young wood strike freely: when rooted, they should be transplanted into nursery-beds, or lines to attain sufficient size, age, and strength, for final planting out.

AN ARBORIST.

To be Continued.

ARTICLE XII.

THE DESTRUCTIVE EFFECTS OF IVY, (HE'DERA H'ELIX) AS AN IMPEDER OF THE GROWTH OF FOREST TIMBER.

BY ALBINUS.

THE pleasure I experience in perusing the very interesting communications I met with in the last number of the *Horticultural Register*, respecting the management and improvement of forest trees, would have been much increased, had notice been taken of the effects of Ivy (Hedera helix) which encircles and binds in particular the oak: first by impeding its luxuriance and growth, and ultimately, when it has acquired sufficient strength, destroying the tree, which, had it not been for this vegetable boa-constrictor, would have reared its head amidst the forest for ages, in all its natural strength and beauty. I am the more particular on this head, having lately had an opportunity of traversing several woods in the county of Kent, of some extent, and observing with much regret the effects of this formidable creeper, strongly indicative of the great indifference of those entrusted with the care of such property, in having permitted an enemy of the kind to make so great a progress with impunity.

ALBINUS.

3rd July, 1832.

ARTICLE XIII.

ON EXTRACTING FROM OTHER WORKS, NOTICES OF FOREST TREE PRUNING, &c. AND PLANTING THE CYPRESS FOR GARDEN HEDGES.

BY A. B.

I OBSERVE with pleasure that you are attending to the cultivation and pruning of timber. The opinions of different writers on this subject are scattered through so many books, that I think you would do well to abstract them as they appear, giving the substance in short, I say short, because you have one or two communicatoins in late numbers which might have been much condensed. Experiments are

wanting on the effects of the various modes of pruning forest trees, and it is a subject which would become the Horticultural Society to take up; their garden might be made a great experiment ground on this very important point without at all diminishing its beauty, instead of its being merely a pretty walking garden, with good gravel and turf. If you look back into some of the old writings on gardening, you will find many curious observations on the management of garden hedges, Espaliers, and what they called Topiary works. For instance, in the "Dictionarium Rusticum, Urbanicum et Botanicum 1726," you will find an account of the method of making garden hedges of the cypress of the levant, of training the spruce fir and the holly for the same purpose, of causing roses to blossom late in the year, and many other matters which were better understood when gardening was of a more formal cut than they now are, not that I recommend the return to Topiary work, but every body at some time or other may wish to shelter his garden, or shut out an obnoxious object. With respect to the cypress there is reason to believe that its timber, though of slow growth, is of great value, and as a garden hedge plant it appears to me quite unrivalled both in beauty and hardiness.

A. B.

ARTICLE XIV.

ON PRUNING FOREST TREES.

BY MR. HOWDEN.

Although I have seen much of, and written on Forest tree pruning, I think not half enough has yet been said on the subject. Your correspondent quotes the writing of a third person, who says "it is a mistaken idea, that by pruning you accelerate the growth of the tree, for more than twenty years I have witnessed its bad effects, the tree that is left to nature, invariably increases faster than one subjected to lopping and pruning. I do protest "says he" against pruning for the purpose of improving the growth of timber: if you deprive the tree of its leaves or *mouths*, the roots are unable to obtain that which enables them to perform their functions." Now I on the other hand, after forty years' experience, do *protest* against the above doctrine; if good timber is to be had, the tree should be *pruned every year*, or every two years at farthest, and this may be done with the knife, bill, or chisel, at one-tenth of the expense of the

saw or axe at the *sawpit;* I thought by this time every gardener and forester in the kingdom, had known how to renovate a poor stunted tree, or an old thorn hedge; my way is to cut them off close to the ground, depriving them of all their millions of *mouths;* mouths did I say? I not only cut off the *mouths,* but the head, neck, shoulders, and body, yet the roots no-wise daunted by the loss of such *vital parts,* throw up fresh trunks, heads, and *mouths* too.

Mr. Blakie, of Holkham, says very wisely, that "the young wood, &c. never unites with the saw or hook-marks of the amputated limb;" pray, did any gardener ever expect it would? *Wood* cut off will never unite with *wood,* or even *bark* with *bark;* but the sap and alburnum will unite and form fresh wood, and bark over the wound, which if small as in a graft of one year, will never be perceived when the tree is full grown, so neither will the wound occasioned by cutting off a branch one inch in diameter, from a tree of four inches, be any blemish when the trunk has swelled to the diameter of four feet. Mr. Blakie thinks, that knots grow out and shell off; he is mistaken, branches or knots proceed direct from the centre, and continue to increase till they die, the lower branches die first, being smallest, and growing under the droppings and shade of the upper ones: hence the butt end of the tree is more valuable than the upper end; such self-pruned butt ends are the fine grained balks we get from America, &c.: but the Americans inform us, that scarcely one tree in a hundred in their *natural* forests is fit for exportation, they sell only the very best timber, and use the inferior for local purposes, like the poor Irish farmers, and I may add the poor English ones too, who sell all their best goods, and live themselves on the unsaleable refuse! But to return, though young wood will not unite with rotten wood, neither with a live toad, nor yet with a great brag-nail, yet I have found fine clear planks laid round all three; but a few years ago, I found a large nail in nearly the heart of an oak tree, the tree itself was little the worse, but the saw was much damaged. But to conclude, I maintain, that if a tree be well pruned whilst young, you will find neither toads, nails, or rotten wood in it.

JOHN HOWDEN.

March 11*th*, 1832.

NATURAL HISTORY.

ARTICLE XV.

ON BIRDS LUBRICATING THEIR PLUMAGE.

BY A SUBSCRIBER.

MOST of your readers have heard that aquatic birds lubricate themselves with an oil, procured from a gland, situate near the rump, for the purpose of keeping their plumage impervious to the water. I am induced to take up this subject by the perusal of an able and ingenious article from the pen of Mr. Waterton, published in the magazine of Natural History, for June last. Mr. W. in the above-mentioned article flatly denies that birds do anything of the sort and ascribes, as the reason of their constantly rubbing their bills up and down their feathers, that they are only cleaning themselves from the insects, &c. which infest them. It certainly is rather bold to attempt at one stroke to upset what Linnæus, Buffon, Montagu, Rennie, and a host of naturalists have advanced, and which has hitherto been considered a settled point, but I think Mr. W's reasons are so conclusive that I am induced to coincide in this opinion. Mr. Waterton's principal objections to birds lubricating themselves are

That the bird could not extract the oil from the gland, without much pain, on account of the hardness of the bill, and the softness of the gland. That the oil, even if extracted, would spoil the plumage. Mr. W. has tried this.

That the head and neck could not be anointed, and that these parts would require it as much as the others.

To the first of these objections I am not inclined to give much weight, inasmuch as different birds have different shaped bills, and until you know whether the unctious fluid is discharged voluntarily or not, how can we judge whether any pain is caused to the bird or not. I much doubt whether the application of the hard bill of the bird to the soft gland *would* cause any pain.

Mr. Waterton has had ocular demonstration of the second objection. [See his remarks.]

The third objection, namely, that the birds, admitting they do lubricate at all, cannot apply the oil to the head and neck, is more important, for no one can for a moment suppose that the very small quantity of oil which could be obtained by rubbing the neck, on the

back, and under the wings, which is asserted by the supporters of the lubrication theory, would be sufficient for the purpose foo which it is required.

Another, and perhaps the best objection is that the bird would not be able to obtain sufficient oil from the gland to lubricate itself all over. The quantity required for this purpose will be very great, as birds (if they use it at all) use it continually.

I think Mr. W. has sufficiently refuted the idea of their using oil at all, that they (as he asserts) are catching insects when they are seen rubbing their bills up and down their plumage, appears rather doubtful. Perhaps some of your correspondents may be able to advance something in refutation or illustration of this theory; the subject will bear and well deserves attention and discussion, and I shall be happy to resume it in a future number.

A Subscriber.

Manchester, July 11th, 1832.

ARTICLE XVI.

SINGULAR INSTANCE OF THE INSTINCT OF WILD DUCKS.

BY MR. PHILLIPS.

Author of the Pomarium Britannicum, Sylvia Florifera, &c. &c.

Being engaged in improving the grounds at Hedgerley Park, Buckinghamshire, during the last winter, I was desirous that the labourers should be kept employed in frosty weather, and therefore took the opportunity of collecting a quantity of large roots and stumps of trees, which had been grubbed up at various times in the woods and hedge-rows; these were dragged over the ice to an island in the centre of the lake, for the purpose of forming picturesque towers, and ruins. During this process, I was much amused by the movements of a great number of wild ducks on the opposite side of the lake; when about fifteen or twenty of these aquatic birds were constantly swimming, diving, and violently agitating the water, so as to prevent its becoming congealed by the frost, this they effectually prevented, although the ice on the other parts of the lake was sufficiently strong to bear, not only the weight of the large stumps of trees, but also that of ten or twelve men, whose labours were necessary to drag them to the island. When these ducks became weary, and retired from the water, they were regularly relieved by about the same num-

ber of others, which had been nestling amongst the rushes on the bank, and these again after a certain time, relinquished their labours to another party, so that the water was kept in a constant state of agitation both night and day, until the frost was over. I observed, that whenever the fresh party of ducks entered the water, their first object was to swim close to the ice in a semi-circle form, so as to entirely prevent it congealing any where within their boundaries; but what struck me as the most extraordinary circumstance was, that when the well known whistle of the keeper proclaimed the feeding-time, it had no effect on the ducks then on duty, although all the others flew as usual to the spot with their accustomed clamour, a part however soon returned to the lake with a loud call for those then in the water to change situations, which was performed with an alacrity and regularity, that would have been a lesson to well disciplined troops. The ducks appeared nearly regardless of the labourers, although at other times a single footstep would have alarmed the whole flock, and put them to flight.

HENRY PHILLIPS.

21, *Russel-Square, Brighton, July*, 1832.

ARTICLE XVII.

ON THE ADVANTAGES RESULTING FROM A JUDICIOUS STUDY OF NATURAL HISTORY.

BY J. SMITHMOT.

OF the different studies which mankind pursue, few, if any, present a wider field for mental exertion than the study of natural history. Placed by an all-wise and bountiful Creator on this globe of earth, we are every where surrounded by the immensity of his works. It is much to be lamented that, notwithstanding every faculty which the present enlightened age affords for the attainment of scientific and useful knowledge, there should be, comparatively speaking, so few who manifest any desire of obtaining an intimate acquaintance with the sublime productions of nature. No one, is able to avoid being led occasionally by his own feelings, to notice the ever-varying and magnificent appearances which everywhere present themselves. All can remark the beautiful verdure of the fields, and woods, the elegance of the flowers, and the melodious singing of the birds; but how few indeed give themselves the trouble of proceeding a single step further, or exhibit any desire of examining into the nature of

these astonishing combinations of divine power. There are many who would, no doubt, most willingly devote a portion of their time to mental improvement, and to the study of nature, but their business leaves them so few opportunities, and so many obstacles present themselves, that they are compelled to relinquish the task as hopeless. With others it is not so much a want of time as a want of inclination that prevents them from attending to the improvement of their minds. There are few, I presume, who cannot spare one hour each evening, which might be applied to the pursuance of some branch of useful learning. And many, it is to be feared, who might spare more than a hour, squander their time away in carelessness and indolence, if not in a more culpable manner. Such persons pass through the world in a state of voluntary ignorance, without scarcely a single recurrence to the admirable works of their Creator; and, in too many instances, even without ever having considered the end for which they themselves were brought into existence. It is one material use of the study of nature to lead the mind to a contemplation of its great author. In his works we observe a greatness far beyond our capacities to understand. Every step we take in our observations on nature affords us indubitable proofs of his superintendence. Every object in the creation is stamped with the characters of the infinite perfection, and overflowing benevolence of its universal parent. If we examine with the most accurate discrimination the construction of bodies, and remark even their most minute parts, we see clearly a necessary dependence that each has upon the other; and if we attend to the vast concurrence of causes that join in producing the several operations of nature, we shall be induced to believe further, that the whole world is one connected train of causes and effects, in which all the parts, either nearly or remotely, have a necessary dependence on each other. Each part lends a certain support to the other, and takes in return its share of aid from them. But all the common operations of nature, surprising as they may appear, have become so familiar to us, that in a great measure, they cease to attract our attention. We all know, for example, that whenever inclination prompts to it, we can by a very slight exertion of our vital faculties, raise our hand to our head. Nothing seems more simple, or more easy than this action; yet when we attempt to form an idea of the way in which that incorporeal existence, which we call *mind* can operate upon matter and thus put it in motion, we are indeed perfectly lost in the incomprehensible immensity that surrounds us. When we try to investigate the properties of matter, we perceive, that by patience and attention we may make a

progress in attainments to which according to our limited ideas bounds can scarcely be assigned. When the anatomist considers how many muscles must be put in motion, before any animal exertion can be effected; when he views them one by one, and tries to ascertain the precise degree to which each individual muscle must be constricted, or relaxed, before the particular motion which is indicated can be effected, he finds himself bewildered in the labyrinth of calculations in which this involves him. He is still more confounded when he reflects, that it is not the human body only, that is endowed with the faculty of calling forth these incomprehensible energies, but that the most insignificant insect is vested with similar powers. A skilful naturalist has been able to ascertain, that in the body of the minutest caterpillar, there are upwards of *two thousand* muscles, all of which can be brought into action with as much facility at the will of that insect, and perform their several offices with as much accuracy, promptitude, and precision, as that with which the similar voluntary actions of man are effected. The most minute insect, whose whole life consists of but a few days, is in all its parts as perfect as the elephant that treads the forest of India for a century. Unlike the productions of men, all the minute parts of the works of God appear in greater perfection, and excite in us greater admiration, the more minutely and more accurately they are examined. If we turn our attention from the consideration of the complicated structure of animal bodies, and direct our observations to the economy by which the all-wise Creator regulates their existence, we have then abundant cause for admiration. We see that all the smaller creatures which serve as food for man, are particularly fruitful, and that they increase in a much greater proportion than others. Noxious animals in general multiply slowly, and whenever we find an unusual increase of such, we generally discover that something has been given by providence for the purpose of destroying, and counterbalancing them. Many species devour each other, and multitudes which might otherwise by their number become of serious injury to mankind, afford food for other creatures. The insect tribe increase with astonishing rapidity, and were these not destroyed by innumerable enemies, they would soon fill the air, and in the end would occasion the destruction of the whole animal and vegetable creation. The *offspring* of every animal with regard to number, bears a certain proportion to the duration of its life. The elephant lives to the age of an hundred years or upwards, the female consequently produces but a single young one at a birth, and that does not arrive at maturity till it is sixteen or eighteen years old. Nearly the same may be re-

marked of the rhinocerous, and of all the larger animals; but in most of the smaller ones, whose lives are short, or whose increase is not so injurious to man as the increase of the others would be, we always find the number of their offspring much greater. No species has ever been found to increase so as to annihilate the others; and this singular harmony, and just proportion, has now been supported for several thousand years. "One generation passeth away, and another succeedeth," but all so equally as to ballance the stock in all ages, and in all countries. Innumerable other interesting facts, will present themselves to the observations of a diligent and philosophical student of Natural History, calculated alike to expand the faculties of his mind, and to raise him in the scale of rational and moral excellence. Though the animal kingdom ranks foremost in point of importance, we may distinguish the same exquisite skill in vegetable productions; it was my intention to have enumerated a few of them, but as I have already extended my paper to a sufficient length, I will, at a future time, offer a few observations upon the subject.

In conclusion, allow me just to suggest a hint to your correspondents, in the department of Natural History, I am persuaded it might be of great use to many of your readers, who have but an imperfect knowledge of that most useful science, if occasionally, articles were written illustrative of some of the more interesting parts of it. Such a plan would place within the reach of many a mass of valuable information, attainable only by those who have the means of purchasing large and valuable works, and who have also time to read them. I must acknowledge there has been many highly useful communications already made, but I regret much, they have but been few, compared with the original communications in the other department. I feel confident, such of your correspondents, who possess means of information inaccessible to the majority of your readers, will liberally come forward, and communicate the result of their observations to those who are less fortunately situated, and to whom they will be so highly acceptable.

JOHN SMITHURST.

Lea, July 19th, 1832.

PART II.

REVIEWS AND EXTRACTS.

REVIEWS.

LIBRARY OF ENTERTAINING KNOWLEDGE, Vol, 15.

Vegetable substances used for the food of man.—Amongst the great variety of scientific and useful publications of late issued from the press, none appear to us to claim more attention, as entertaining and useful works, than those published under the superintendance of the Society for the diffusion of useful knowledge. The great fund of information is concentrated in each of their small, cheap, and comprehensive volumes, together with the valuable sterling worth of the works from which many of the extracts are taken, place very much valuable instruction in the hands of those, who otherwise might have been profoundly ignorant on the subjects. The present volume contains 396 pages of letter-press, together with upwards of seventy illustrative wood-cuts. It treats of all the different species and varieties of vegetable productions used for the food of man, tracing each, as much as possible, to the origin of its use and cultivation. The whole is interspersed with numerous lively extracts from ancient works of merit, that it is in reality part of a "Library of Entertaining Knowledge. The culture of the earth is a pursuit which, in itself offers a sufficient distinction, not only between man and the inferior orders of animate creation, but also between man while in his merely animal state, and after he has beeome humanized by adopting the arts of civilization. That man who first, among a tribe of hunters or fishers, sows a grain or plants a root, and thus brings home the advantages of forethought to the business and the bosoms of his less provident fellows, becomes their benefactor, not merely by pointing out the means for avoiding the horrors of famine, and for lessening that succession of miseries, which must attend upon a wandering life, but also by relieving their minds from the selfish exigences that previously attended every moment, affording thereby leisure and opportunity for cultivating the social and kindly affections. It is not until men have placed themselves beyond that state of merely physical existence, wherein the plenty of to-day may be followed by the destitution of to-morrow, that the higher faculties and feelings of our nature can be expanded. Vegetables form the primary source of sustenance to every thing that lives. Were the earth without them, the effects of heat and cold, of drought and rain, would be so violent. that apart from all considerations as to food, the whole world would speedily become uninhabitable. Frosts and droughts would break, and the returning water would wash away the surface, until the whole would become one wide and swampy waste. The presence of vegetation prevents this desolating action, and converts what would otherwise be destructive agents, into ministers of abundance. No vegetable productions tend so much to

bring about this beneficial result as those which are cultivated for human food. By the shade they afford to the ground in the hot season, they check that evaporation, and prevent that excessive hardening of the surface, which, in an exposed wild, render the soil impervious and inert; while, on the other hand, the humidity which they imbibe during the rainy season, is again given out by continual and gradual evaporation, and they minister to the refreshment and production of all around them. In uncultivated countries the weather is mostly in extremes. Rain, when it comes, takes the form of an overwhelming flood, not gently entering into, and moistening the soil, but rushing along the surface, tearing up one place, strewing another with the *debris*, and reducing both to a state of indiscriminate ruin; while, scarcely has the flood gone by, when the returning heat evaporates the little moisture which is left behind, and burns up the course and scanty vegetation which the rains have fostered. All vegetable productions affording food, contain, in some proportion or other, a farinacious* or non-fibrous, and granular substance, which, when dried, may be grounded or pounded into flour or meal, and if boiled in water, will form a pulpy substance. In regard to the consistency of this farinaceous principle, it exists sometimes in the form of an almost limpid fluid, and thence through different degrees of acquiring consistency, called inspissation, until in some cases, its hardness approaches to woody fibre. Those vegetable substances, which contain the largest proportion of farinaceous matter are best adapted for human food. Of this kind are both seeds and tubers. Farinaceous seeds are divided into two classes: the first of these are the seeds of annual plants, which are the true grasses, or plants of similar properties. They are styled the *Cerealia*† corn plants, or grain bearing plants, the chief of which are wheat, rye, barley, oats, millet, rice, and maize. The tribe of cereal grasses is not restricted to these seven varieties, but includes numerous others, which, if they are not equally employed as food, are neglected only on account of the smallness of their seeds. None are unwholesome in their natural state, except *Lolium temulèntum* (darnel) a common weed in many parts of England, the effects of which are undoubtedly deleterious, although perhaps much exaggerated. In the sepulchres of the Egyptian kings, which were opened by the naturalists and other scientific persons, who accompanied the French army to Egypt, was found the common wheat in vessels, which were so perfectly closed, that the grains retained both their form and their colour. The wheat buried there for several thousand years, was a proof of the ancient civilization of Egypt, as convincing as the ruins of temples, and the inscriptions of obelisks. The corn-plants, such as they are found under cultivation, do not grow wild in any part of the earth. In Sicily there is a wild grass called Œgilòps ováta, which, it has been held, may be changed into corn by cultivation. Professor Larapie, of Bourdeaux, affirms, that having cultivated the seed of the Œgilòps, the plant has changed its character, and has made approaches to that of wheat. Sir Joseph Banks, in a paper addressed by him to the Horticultural Society, in the year 1805, stated, that having received from a lady some packets of seeds, and among them one labelled, "Hill Wheat," the grains of which were scarcely larger than those of our wild grasses, but which, when viewed through a magnifying lens, were found exactly to resemble wheat; he sowed these grains in his garden, and was much surprised on obtaining, as their produce, a good crop of spring wheat, and the grains of the ordinary size. Every inquiry that

* From *farina*, meal. † From Ceres, the Goddess of corn.

was made to ascertain the history of these seeds proved fruitless. All that could be established, with regard to the place of their production, was that they came from India; but as to the particular locality, or the amount of cultivation they had received, or whether the grain was a spontaneous offering of nature, could not be ascertained. The foundation of the wheat harvests at Mexico, is said to have been three or four grains, which a slave of Cortez discovered in 1530, accidentally mixed with a quantity of rice. The Spanish lady, Naria d'Escobar, first imparted the same blessing to Peru, shortly after its introduction as is supposed into Mexico. Father Josse Rixi, or Fleming conveyed the first grains to Quito, and sowed them near the monastery of St. Francis, where the monks still show, as a precious relic, the rude earthen pot wherein the seeds first reached their establishment. The rice of Carolina is now the principal produce of that portion of North America. Mr. Ashby, an English merchant, at the close of the 17th century, sent a hundred weight from China to this colony; and from this source all the subsequent rice harvests of that division of the New World, and the large exportations of the same valuable grain to Europe have sprung.

EXTRACTS.

HORTICULTURAL INTELLIGENCE.

Horticulture of Venice.—The principal *melons* are, the Melamocesini, easily known by the stem, being from two to three inches thick, and very knobby. The Cantaloups, with yellowish or whitish flesh, the Rhampaghini, which climb on trees and shrubs, and have their fruit closely covered with a whitish net: and the Buchari (Bucharian Melon) much cultivated on the islands of the Levant. These latter melons are of an elliptic form: their skin is smooth, and of a whitish yellow, the flesh is sugary, of a white colour, and in the centre, where the seeds are contained, it is hollow. They are sometimes one and a half feet in length, and several pounds in weight; their principal merit, however is, that they will keep good till Christmas, if kept in a dry and cool place. It is remarkable, that pieces of this very sweet fruit, become intensely bitter when rotten. The seeds of the melons are generally put in good wine a short time before they are sown, which is done in April. Holes of one and a half feet in diameter are made five feet apart; they are nearly filled with dung, and five or six seeds are sown in each, and covered with light soil. Two of the strongest plants only are left after they come up, and during their growth the most luxuriant shoots are cut out. Particular attention must be paid to observe the time of ripening of the fruit, which generally occurs at mid-day, and is known by the aromatic smell thrown out, (page 234.) The melons must then be cut, and kept in a cool dry place, as they lose their flavour entirely when left a few hours on the plant after their ripening. Not only the flesh of these melons is employed for food, but also the seeds, which when bruised, and put into water with sugar, make a very agreeable liquid, (semuda,) The water-melons are also very extensively cultivated, much in the same way as the others. The seeds of the common sort are black, and those of the better variety (Angurie zuccarine) brownish yellow, with

black spots. The fruit weighs from ten to fifty pounds, and a criterion of its ripeness is, when on being struck, it gives a hollow sound; or when it cracks on being squeezed. Cucumbers are cultivated, but not much esteemed. Pumpkins are principal articles, in Venetian horticulture; and several, particularly Cucurbita Melopepo and moschata *Duchesne*, are grown to great perfection. The last of these sometimes attains from three to four feet long, and 100lbs in weight. Solanum Melongena and Lycopersicum, artichokes, carrots, radishes, spinach, and purple brocoli, are very fine; cauliflower, and several species of asparagus which are there used are plentiful; but Kohl-rabi, and common winter cabbage are not known. Celery grows wild near the sea. Fennel forms an eatable bulb above the root, for which it is much cultivated, as well as for its aromatic seeds. Lettuces are used only when young plants, they never form a head, in consequence of the heat of the climate.—*Pruss. Gard. Soc.*

Successful Experiment, tried by Mr. Knight, (Florist and Nursery-man, in the King's Road, Chelsea,) on a mulberry tree, which, except one very large branch, was either dead or decaying. When the sap had ascended, he barked the branch completely round near its junction with the trunk of the tree, and having filled three sacks with mould, he tied them round that part of the branch which had been barked, and by means of one or two old watering pots, which were kept filled with water, and placed over the sacks, from which the water gradually distilled, the mould in the sacks was sufficiently moistened for his purpose. Towards the end of the year, he examined the sacks, and found them filled with numerous small fibrous roots, which the sap having no longer the bark for its conductor into the main roots of the tree, had thus expended itself in throwing out. A hole having been prepared near the spot, the branch was sawn off below the sacks, and planted with them, the branch being propped securely. The next summer it flourished and bore fruit, and is still in a thriving state. *Jesse's Gleanings in Natural History*, page 145, extracted by

A Constant Reader.

Apples of very curious kinds are sold at Zurich, some as white as snow. The inhabitants are particularly famed for the cultivation of flowers, and excel in China asters. At Lausanna, the red currants are of an extraordinary size. In Russia, a variety of rice is used, which grows in Siberia, and is more succulent than that of America. Enquiries should be made about this, because, possibly, in it our bog soils might gain the acquisition of a new production.—*Gard. Mag.*

On the Culture of the Melon.—Seeds ten years old are preferred; they should be sown in February, and the plants be several times transplanted in a moderately warm frame, before they are put into a hot frame for fruiting. This is done when the shoots are about a foot long, and they are then shortened to three eyes. The succeeding shoots produced by those so shortened will flower abundantly; and, during their flowering, air must be freely given, otherwise they will not set well. Water-melons must not have their shoots shortened; and when swelling their fruit, they require more water than the others.—M. Ebers, Berlin.—*Pruss. Gard. Soc.*

To Preserve Grapes Ripened in the Open Air, for Table through Winter.—In the spring before the buds have begun to swell, take a healthy well-ripened shoot of the preceding year, and draw it up through the bottom hole of a flower-pot of about fifteen inches in diameter; then fill the pot with rich soil, and cover both the soil and the outside of the pot with moss to keep in

the moisture. Water now and then, according to the season. By the end of August, cut the shoot half through, just below the pot, so as to increase the number of roots, which will be formed about this time in the soil contained in the pot. In the course of the month of October, according to the season, cut the shoot quite through, and remove the pot with the vine laden with from twelve to twenty bunches of fruit, to a dry airy room, with a northern exposure; here water occasionally, till the leaves drop off, but no longer. Thus treated, the fruit will keep good on the vine till the end of February, preserving its natural flavour. The best sort for this purpose is the white sweet-water.—*Pruss. Gard. Soc.*

Germination of Seeds.—Mr. Bosse finds that the germination of seeds is accelerated by moistening them malic acid; and also that covering seeds with the pulp of rotten apples, causes them to germinate sooner than usual.—*Pruss. Gard. Soc.*

Chloride of Lime.—Unless spread very thin on the ground, it will do harm; spread thin, and intimately mixed with the soil; when the latter is in a dry state, its effects are similar to those of the common carbonate of lime.—*Pruss. Gard. Soc.*

Culture of the Carnation.—The flowers are propagated either by seed or by layers; the first is the method for raising new flowers; the other is the way to preserve and multiply those of former years. To raise them from seed; that from the best double flowers should be selected, which will produce the strongest plants, and should be sown in April in pots or boxes of fresh light earth, mixed with rotten cow manure, exposed to the morning sun, and occasionally watered. In a month the plants will appear, and in July should be transplanted into the beds of the same earth, in an open airy situation, at six inches distance, and there left to flower. When in flower, the finest kinds should be marked, and all the layers that can be, should, during the time of flowering, be laid down from them; these will have taken root by the end of August, and are then to be taken off and planted out in pots in pairs.—E. Rudge, Esq. F. R. S.—*Gard. Mag.*

Siebe's Universal Garden Syringe.—(Fig. 115) consists of only one apparatus, which can instantly by turning a pin, be applied so as to serve the purpose of four different caps. By means of a universal joint (a) the cap or head

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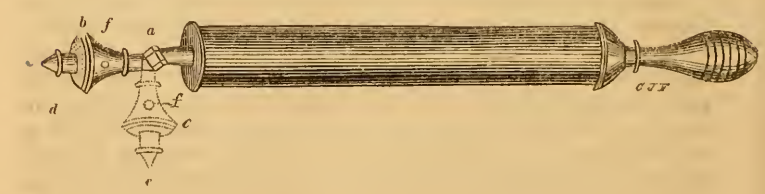


b) may be turned in any direction, and to any angle (c). The pin by which the alterations in the rose head are effected, works in a groove (d) in the face of the rose; and by it a very fine shower, a coase shower, or a single jet from one opening (e) may be effected at pleasure. The valve (f) by which the water is admitted to the syringe, is in the side of the rose.—*Gard. Mag.*

FLORICULTURAL INTELLIGENCE.

NEW AND VERY RARE PLANTS, figured in the Botanical Periodicals for August.

CLASS I.—DICOTYLEDONES, OR EXOGENES.

LEGUMINOSÆ.

DILLW'YNIA GLYCINIFOLIA.—Glycine-leaved Dillwynia. A beautiful plant. Flowers of a bright orange and dark-colour. Native of New Holland, where it was originally found in King George's sound, by Mr. Menzies, and more recently by Mr. Baxter. *Bot. Reg.* Culture.—It requires the shelter of the greenhouse and should be potted in sandy loam and peat.

ACA'CIA PENTADE'NIA.—Fern-leaved Acacia. A plant possessed of very graceful foliage. Flowers, orange-yellow. Native of the South-west coast of New Holland, where it was collected by Mr. Knight. Culture.—It will thrive with the same treatment as other New Holland Acacias, and is propogated by cuttings in the same manner.—*Bot. Reg.*

EPACRIDEÆ.

SPHENO'TOMA CAPIT'ATA. Long-leaved Sphenotomo. Flowers blue and white. Native of the South-west coast of New Holland, whence seeds were obtained by Mr. Knight. Culture.—It requires the shelter of a greenhouse, and the same treatment as the Epacrises, Styphelias, and other well known plants of the same natural family. *Bot. Reg.*

SOLANEÆ.

SOL'ANUM CRI'SPUM.—Crimped leaved Solanum. Flowers lead coloured blue, Native of Chiloe, found commonly in waste places, also abundantly in hedges, near the city of conception, and in the district of Carcamo and Palomares. Culture.—It appears likely to be perfectly hardy, in which case it will be very ornamental; if tied to a stake and thus forced to grow erect, it will throw out a great number of lateral branchlets, at the end of every one of which is a bunch of flowers. It grows in any common soil, and may no doubt be propogated by cuttings.—*Bot. Reg.*

SCROPHULARINEÆ.

SALPIGLO'SSIS ATROPURP'UREA.—Dark purple Salpiglossis. This is a very beautiful species. Flowers of an intense blackish purple colour. Native of Chile, where all the species of Salpiglóssis grow. They are found springing from the sides of dry clay banks, baked hard by the scorching sun of that climate, a situation in which the moisture that the earth contains, is parted with very slowly, and with considerable difficulty. Culture.—When grown in the open border, they are apt to die suddenly, so that only a few remain out of a whole bed: this is probably owing to the soil in such instances being too light, and therefore subject to sudden dryness, a condition which their tender roots, are not born to endure. It is a biennial. The seeds should be sown in the summer, so that the young plants may be well established by the end of autumn; they should then be kept in a good airy greenhouse during the winter, and afterwards be either shifted into large pots for flowering under glass in the succeeding summer or transferred to the open ground at the same time, and in the same manner as tender annuals.—*Bot. Reg.*

RANUNCULACEÆ LINDL. PŒONIACÆ.

Pœ'onia officina'lis var. anemoniflora.—Anemone flowered variety of the common Pœony. This plant is well deserving a place in any garden. Flowers of a rich deep crimson colour. The stamens are converted into narrow, acuminated, and spirally twisted petals, bearing the same relation to the original stock as the Anemone-flowered, or Warratah Camellia does to the true Camellia Japonica, and it is scarcely less beautiful in its appearance.—*Bot. Mag.*

ERICEÆ.

Arb'utus pilo'sa. Hairy Arbutus. Flowers white, streaked with reddish brown, stem very hairy. Native of Mexico, was raised from seeds received from Mr. Don, by Mr. Neil. Culture.—It is perfectly hardy, and will grow in sandy peat soil, and may be propagated by layers.—*Bot. Mag.*

Rhododendron indicum, var. Smithii. Smiths hybrid Indian Rhododendron. This splendid hybrid is the offspring of R. phæniceum, that had been fertilized by R. indicum, and was raised by Mr. Smith, at Coombe wood, in the spring of 1828. It partakes of the characters of both parents, and like them is rather tender, but it appears to be a more desirable plant than either, is of free growth, and produces its flowers in great abundance. Flowers of a rosy salmon colour, large and spreading, expansion from two and a half to three inches, spotted in the inside with darker spots.—*Brit. Fl. Gard.*

CAMELLIEÆ.

Camellia Japonica var. compacta.—Close flowering Camellia. This is a neat flowering shrub, distinct from every other white flowerer, having a good deal of the character of the C. Sasanqua in the flowers, but the leaves of the Japonica, it is thought to have been raised by Messrs. Young.—*Lodd. Bot. Cab.*

MALVACEÆ.

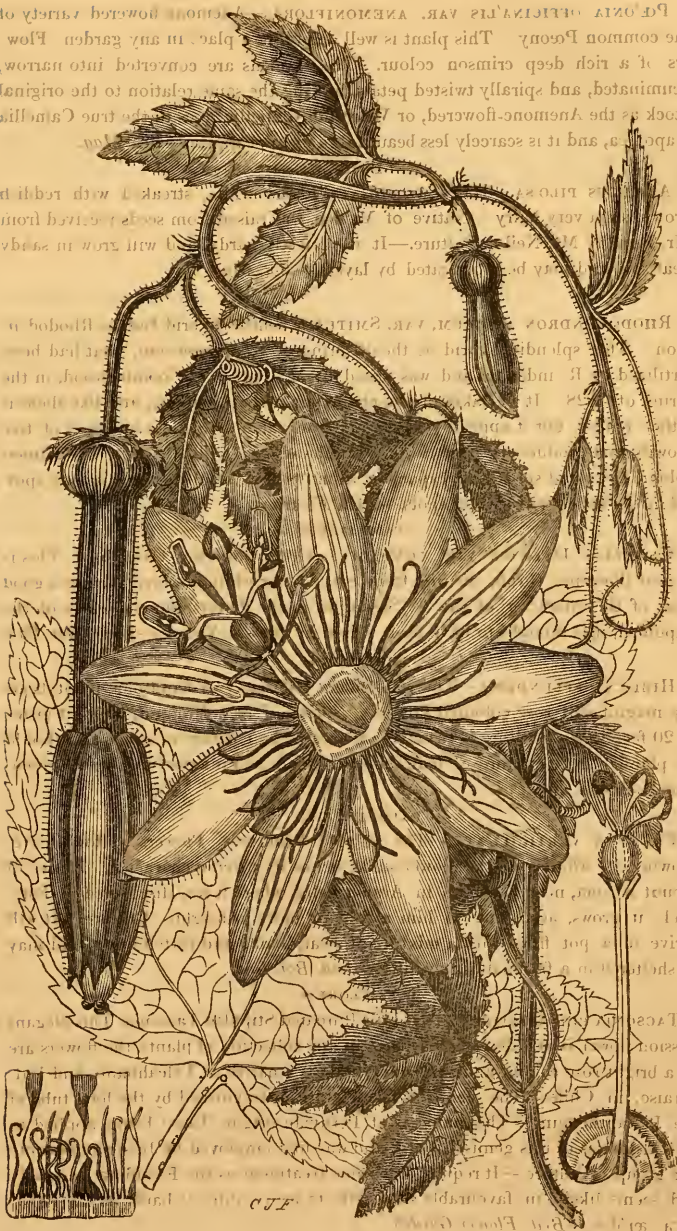
Hibiscus splendens.—The resplendent Hibiscus. A handsome plant, bearing magnificent rose-coloured flowers. Native of New Holland, where it grows to 20 feet high. Culture.—It may be increased by cuttings or seeds, and should be planted in a mixture of loam and peat, and be preserved in a warm greenhouse.—*Lodd. Bot. Cab.*

PRIMULACEÆ.

Pri'mula verticilla'ta.—The whorled Primrose. Flowers yellow, leave growing in whorls on the flower-stalk, hence its specific character. Native of mount Kusma, near Kurman, in Arabia Felix, where it was discovered by Forskael: it grows, according to him a foot or more in height. Culture.—It will thrive in a pot filled with a mixture of peat, loam, and rotten dung, and may be sheltered in a frame during winter.—*Lod. Bot. Cab.*

PASSIFLOREÆ.

Tacsonia pinnatistipula. (fig. 116) Pinnated Stipuled Tacsonia. This elegant passion-flower is well deserving a place in any collection of plants, the flowers are of a bright rose colour, and very showy. It is a native of Talcahuano, and Valparaiso, in Chile. The genus is principally distinguished by the long tube of the Perianthemum. The name is of Peruvian origin, Tacso being applied to several species of this genus in Peru, and was first employed by Jussieu, to denote this group. Culture.—It requires the same treatment as the Passifloræ generally and seems likely, in favourable situations, to prove quite as hardy as the Passiflora cærúlea.—*Brit. Flower Garden,*



LABIATÆ.

COLEUS AROMATICUS.—Sweet scented Coleus. This plant appears to be very commonly cultivated in Indian gardens, chiefly on account of its great fragrance. The leaves are frequently eaten with bread and butter, or bruised and mixed with various articles of food, drink, or medicine. It is probably also indigenous in that country: its flowers are purple and not remarkable for beauty. Culture.—It is a stove plant, and flowers from March to May: it grows in light sandy loam and peat, and may be readily increased by cuttings. In gardens it is often called Gesnéria odoràta.—*Bot. Reg.*

CLASS II.—MONOCOTYLEDONES, OR ENDOGENES.

ORCHIDEÆ.

PTEROST'YLIS BANKSII.—Large-leaved Pterostylis. This plant is a native of New Zealand, where it was first discovered by Sir Joseph Banks, at the time he accompanied Capt. Cook round the world. It was also found by Mr. Allan Cuningham, in 1826, growing on the banks of a stream, which is received into the bay of Islands.—*Bot. Mag.* Culture.—It will require the heat of the stove, and we should think would thrive in peat and loam.

MAXILL'ARIA PLACA'NTHERA.—Flat-anthered Maxillaria. A parasitic plant. Flowers yellowish green, spotted with brown. Introduced from Brazil by Mrs. Harrison.—*Bot. Mag.* Culture.—It requires a moist stove like the other plants of the same genus, and should be potted in turfy peat soil, mixed with a portion of decayed wood or saw-dust, and kept in a damp bottom.

MAXILLARIA GRACILIS. Slender Maxillaria. This curious little plant is very slender in its habit, and its height does not exceed four inches. Flowers red and yellow, native of Brazil. Culture.—It requires a moist stove, and should be potted in moss vegetable earth, and small pieces of broken pot. It may sometimes be separated for increase.—*Lodd. Bot. Cab.*

NEW SEEDLING CACTUS.—A new seedling Cactus, between speciòsa and speciósissima, flowered last April, in the gardens at Plaistow-Lodge, Bromley, Kent; the plant consists of one shoot two feet high, with three large flowers on the top, of a deep scarlet colour.—T. PRESSLEY.—*Gard. Mag.*

NEW VARIETY OF THE HAWTHORN.—This is one of the most lovely trees, and much more desirable than the old pink thorn, or as it is commonly called "scarlet thorn." The flowers of the new kind are each as large as two-thirds of the breadth of a sixpenny piece; they grow in bunches containing from twelve to twenty flowers each, the petals are of a most beautiful carmine-crimson colour, except in their claws which are white, and thus constitute a white eye surrounded by a broad crimson orbit.—*Gard. Mag.*

CULTURE OF THE HIBI'SCUS ATTENU'ATUS.—This beautiful plant can scarcely be propagated by seed. Being herbaceous, it dies down to the soil every year; it should be kept dry, and free from frost during the winter, and re-potted in light rich soil, mixed with river sand in the spring. It should be placed in a frame, and abundantly watered during summer; but in autumn, when the plant begins to lose its leaves, watering must be gradually left off, till it is in a state to have the stem cut over, and the pot containing the root placed in the back shed of a stove.—*Pruss. Gard. Soc.*

FLOWER SEEDS, when a few years old, are said to produce more double flowers than those which are sown the year after their ripening.—*Pruss. Gard. Soc.*

A CHOICE COLLECTION OF NEW AND VERY RARE PLANTS,

BY MESSRS. MACKIE, OF NORWICH,

We feel a pleasure in being able to present to the notice of our readers, the old established nursery of Messrs. Mackie, of Norwich, for the last fifty years, forest and Ornamental trees have been cultivated to a very great extent. It has of late been much improved, by a well laid out ornamental garden and walks, and great pains appears to have been taken to introduce new and beautiful plants; a list of some of the rarer sorts has been furnished us.

NEW HARDY SHRUBS.

Acàcia affînis
Auraucària imbricàta
Arbùtus procèra
Bérberis glumàcea
——— rèpens
——— aristata
Cherry, double-blossomed French
Cydònia sinénsis
Dáphne póntica rosèa
——— cneòrum máxima
Escallònia rùbra
——— viscòsa
——— montividensis
Euónymus nànus
——— obovàtus
Juuipérus recúrva
Maclùra aurantiàca
Piptánthus nepalénsis
Rìbes sanguineum
Schinus Litri
Sophòra japònica
Rúbus spectábilis
Thírty choice varieties of Ghent Azaleas.

NEW AND CHOICE HERBACEOUS PLANTS.

Alstræméra Hookéri.
——— Simsii
——— Flós Martíni
——— Psittacína
Delphinium speciòsum
——— phænìceum
Dodecàtheon Mèdia álba
Erythrònium americánum
Francoa coccinea
Gaillárdia aristàta
——— bìcolor
Gladiólus Psittacínus
——— and Herbert's collection.
Goodyéra pubéscens
Hibíscus moscheùtos
——— Munroána
Làthyrus latifòlius albiflorus
Lubínia atropurea
Lobelia Tupa coccinea
——— Lows purple
Lupinus polyphy'llus àlbus
——— plumòsus
——— lépidus
——— flexuósus
Narcissus thirty varieties
Nuttállia pedàta
Oxalis floribúnda
—— tetraphylla
Pentstèmon glandulósus
——— procèrus
——— venústus
——— speciosus, &c.
Phlóx pumìla
—— verna
—— glomeràta
—— procùmbens
—— crassifólia
—— roséa
—— odoràta grandiflora
——— elegans
Phlóx odoràta rosea
—— latifolia rosea
—— marylandica
—— hybrida
—— and forty other choice kinds.
Práttia begoniafólia
Pœonia thirty kinds

GREENHOUSE PLANTS.

Acácia pubéscens
——— conspícua
——— diffúsa
Andrómeda buxifólia
Azálea sinénsis
Cáctus Jenkinsóni
——— Curtísii
——— new scarlet
Calceolária Youngii
——— and five varieties.
——— Wheclerii
——— and five varieties
Calindrínia grandiflóra
Camélia reticulàta
——— Colvillii
——— éximia
——— punctàta
——— excélsa
——— eclipse
——— élegans
——— rósa múndi
——— Dahliaflòra
——— imbricàta
——— Rawsònia speciosa
——— rosa-sinénsis
——— corallina
Chirónia trinérva
Chorizéma Henchmánni
——— rhombea
Dorýanthus excélsa
Erica, sixty choice kinds
Eutáxia Baxtèri
Glycine coccinea
Hibíscus Lindleyàna
Hovea Celsii
——— latifólia
——— lineàris
Ixora roséa
——— coccinea
Kennédia monophylla longi-racemósa
Ledocárpum pedunculare
Malva miniata
Oxalis Bowiéana
——— Déppii
Rúellia Sabiniana
Scottia dentata
Silène règia
Sollya heterophylla
Thunbérgia alata
——— grandiflora
——— fragrans

NATURAL HISTORY.

Bats of the ordinary size, are very numerous in Jamaica; they are found in mills and old houses, especially such as are little occupied; they do great mischief in gardens, where they eat the green peas, opening the pod over each pea, and removing it very dexterously. Bishop Heber says, "the vampire bat of India is a very harmless creature, of habits entirely different from the formidable idea entertained of it in England. It only eats fruit and vegetables, and indeed its teeth are not indicative of carnivorous habits; and from blood it turns away when offered to it. During the day-time, it is, of course, inert; but at night it is lively, affectionate, and playful, knows its keeper, but has no objection to the approach and touch of others." Mr. Waterton, however, when speaking in the "Wanderings" of the vampire of South America says, "there are two species in Demerara, both of which suck living animals; one is rather larger than the common bat, the other measures above two feet from wing to wing extended. So gently does this nocturnal surgeon draw the blood, that instead of being roused, the patient is lulled into a still profound sleep." The larger vampire sucks men and other animals; the smaller seems to confine itself chiefly to birds.—*Mag. Nat. Hist.*

Experiments on Bees' Wax and Vegetable Wax.—M. Oppermann states, that the vegetable wax of the East Indies is of a yellowish white colour, transparent at the edges, more brittle and greasy to the touch, but less compact than bees' wax. Its taste is rancid when it has been masticated some time; its sp. gr. 0. 97; at 124 deg. Fahr. it melts, remains fluid at 112 deg. and solidifies at 109 deg. It is soluble both in spirit and in æther; the former solution solidifies in cooling, while the latter merely deposits light flocks Japan wax, yielded by analysis,

Carbon	70,9683
Hydrogen	12,0728
Oxygen	16,9589
	100,0000

Brazilian Wax very closely resembles the foregoing: their colour, consistence, and odonr almost the same; the Brazilian is however distinguished by the yellowish brown pellicle with which it is covered: it fuses at 120 deg. and solidifies lat 113 deg. The spirituous and ætherial solutions resemble those of the Japan wax. Brazilian wax gave by analysis,

Carbon	72,8788
Hydrogen	12,0297
Oxygen	15,0915
	100,0000

Bleached and purified bees' wax is harder than the foregoing; but the vegetable wax, dissolved in four parts of oil, gives a compound which is three times firmer than that obtained with the same quantities of bees' wax and oil; but the latter gives greater consistency to fat than the former.

Alcohol, even when hot, dissolves bees' wax with difficulty; the solution solidifies by cooling, and yields a white granular transparent mass. Æther when boiling forms a clear solution of bees' wax, which becomes turbid by spontaneous evaporation; it afterwards thickens, and the wax when separated, appears to have suffered no change. Caustic soda at first merely softens bees' wax, but afterwards converts it into soap, though not so readily as the vegetable wax. By analysis, bees' wax yielded.

Carbon	31,2910
Hydrogen	14,0726
Oxygen	54,6364
	100,0000

Ann. de Ch. et de Phys.

The Esquimaux Lake, North America.—This lake is said to extend from north to south more than one hundred and fifty miles, and about the same from east to west. It is reported to be full of islands, to be every where brackish, and to receive two large rivers besides the eastern branch of the Mackenzie. It may be plausibly conjectured, that the alluvial materials brought down by the Mackenzie, and other rivers have gradually formed a barrier of islands and shoals, which by preventing the free access of the tide, enables the fresh water to maintain the predominance behind it. The action of the waves of the sea has a tendency the height of the barrier, while the currents of the rivers and the ebb tide preserve the depth of the lake. A great formation of wood coal will, no doubt, be ultimately formed by the immense quantities of drift timber deposited on the borders of this lake.—J. Rennie.—*Mag. Nat. Hist.*

The Red or Guernsey Partridge, (Perdrix Rufa, Ray.)—This bird has been just introduced into the principality of Wales. The Rev. Mr. Lewes, of Dyffryn, having bred this year eight brace, under a bantam fowl, adopting the same system of feeding them as that of the pheasant, and chopped eggs. They much resemble ours in colour and size, with the exception of the legs and bill, which are of a vermillion red. They run much like the land-rail, (Ortygometra crex,) and are very reluctant to take wing. "Mr. Daniel says, they are plentiful near Oxford. The Marquis of Hertford, having imported many thousand eggs which were hatched under hens, and liberated; and so early as 1777, he says he saw a covey, consisting of fourteen of these birds, several of which he shot; many coveys may be found in the neighbourhood of Ipswich, or preserved manors where they seem to prefer the waste healthy ground to corn fields, the favourite haunts of the common species."—*Mont. Ornith. Dict.*

Serpents.—M. Duvernoy, who has devoted much time to the study of the organization of venomous serpents, has ascertained that, besides the venomous teeth in front, the existence of which has long been known, they have in the hinder part of the jaw longer and stronger teeth, of as great malignity. He is also inclined to think, that the secretions of the lachrymal glands in some descriptions of venomous serpents, do not go to moisten the eye-balls, but enter the mouth, and assist in communicating saliva to the food.

Tincture of Roses.—Take the petals of the common rose (centifoliæ,) place them, without pressing them, in a bottle, pour some good spirits of wine upon them, close the bottle and let it stand until it is required for use. This will keep for years, and yield a perfume little inferior to Otto of roses; a few drops will suffice to impregnate the atmosphere of a room with a delicious odour. Common vinegar is greatly improved by a very small quantity being added to it.

Skinless Oats.—At the meeting of the Warwickshire Agricultural Society, a specimen of the *Avenacea Farina*, or Skinless Oat, was produced by the Rev. Mr. Knott, which had been plucked that morning out of a piece of ground belonging to that gentleman, at Wormleighton. It was produced from seed furnished to him by Mr. Tucker, of Heanton, Punchardon, near Barnstaple, Devonshire, and grown in the season of 1830, for the first time it was ever produced in Great Britain, by Thomas Derenzy, Esq. of Clobemon Hall, who obtained the seed through a friend of his at Rotterdam, whither it was imported from Shantag, a remote district in China, and was quite unknown to Europeans till within these three years. The advantages which this extraordinary and valuable grain possesses over all other kinds of oats, are numerous, viz.:—When thrashed from the sheaf, it is exactly like oatmeal, and is fit for immediate use for culinary purposes, and every other sort which oatmeal is consumed, the grain being quite free from every particle of rind or husk. The flavour is delicious, and it contains much more farinaceous matter. There is, of course, a considerable saving of oats, and expense of kiln drying, grinding, sifting, &c. &c.; and one peck of it contains more nutrious food for a horse than three pecks of common oats. The produce is most astonishing, the average being twenty-six barrels, of fourteen stone to the Irish acre—the exact quantity grown by Mr. Derenzy on one acre. It was not sown till the 4th of May, 1830, and was reaped early in August the same year. It is remarkably hardy, and well adapted for this climate."

PART III.

I.—SOCIETIES,

CONNECTED WITH HORTICULTURE AND NATURAL HISTORY.

LONDON HORTICULTURAL SOCIETY.

At the meetings of this Society for the month of July, papers have been read in the black Corinth grape, which in a dried state, forms the currants of the shops, and on the cultivation of the Camellia, more especially as regards the propagation of the C. reticula. The first was by Mr. R. Thompson, of the Society's garden; the second by John Allnut, Esq. of Clapham, whose great success with the variety on which he particularly dwells, leads us to hope that his hints will lessen the difficulties hitherto experienced in increasing this beautiful plant.

The articles exhibited have again been of the finest description, particularly the Black Hamburgh, black Frontignac and white Constantia grapes, the black Tartarian, Bigarreau and early purple Griotte cherries, the Grosse mignonne and Royal George peaches, and the Elton, Wilmots, Superb, old pine and yellow chili strawberries. Mr. Myatt, of Manor Farm, Deptford, produced his celebrated pine apple, strawberries, which proved to possess the richest flavour. We have observed also, Hybrid Cactuses, Gladioluses, and Calceolarias. Rhododendrons, Azaleas, Oncidium fletuosum, Fuchsia globosa, Dahlias, Hollyhocks, Roses, the Magnolias glauca and Thomsoniana, Habenaria fimbriata and new sp. of Gaura and Aster from California. A very ingenious model of an Orange-box, was exhibited by Mr. Allnut; its bottom and sides were composed of slate, running in grooves in a wooden frame. The whole was of light appearance, and could be taken to pieces with the greatest facility.

In addition to the above, the prize exhibition of Roses took place on the 3rd instant, and was as beautiful as can well be imagined. The list of competitors, comprised the most distinguished of the cultivators in the neighbourhood of London. The medals were finally adjudged as follows:—the large silver Medal to Mr. John Lee, of Hammersmith, and Banksian Medals to Lord Grenville, and Mr. James Young, of Epsom, A Banksian Medal was also recommended to be given to Mr. Wm. Smith, gardener to the Earl of Liverpool, for his Yellow Nvisette Rose.

SHEFFIELD HORTICULTURAL SOCIETY.

The third Exhibition for the present year, was held in the Music Hall, on Wednesday, August 8th. The supply of fruits and vegetables were very good, but upon the whole, neither the attendance or show of flowers was equal to former exhibitions.

MANCHESTER FLORAL AND HORTICULTURAL SOCIETY.

The last meeting for this season was held in the Exchange dining-room, the Exhibition was inferior to former meetings, and the attendance of company rather thin.

LIVERPOOL FLORAL MEETING.

The third and last meeting was held on Wednesday, August 1st, in the Corn Exchange; the vegetables were generally of a superior description, the celery particularly so; there were also some very excellent grapes, but upon the whole, the show was very inferior to the corresponding one last year.

II.—MONTHLY HORTICULTURAL CALENDAR,

FOR SEPTEMBER.

The temperature now begins to decline, the nights lengthen and evaporation greatly diminishes, many varieties of fruit ripen, and should be gathered during this month. Cucumbers and melons will begin to require matting down at night. All articles used for pickling, as cucumbers, onions, nasturtiums, &c. should now be gathered, transplant all articles intended for use this autumn, which plant as early in the month as possible. Prepare the ground for planting fruit trees, and towards the end of the month, or beginning of next, if they be pretty ripe, you may remove them, p 141 and 191. At the end of the month, if the weather is cold begin to get in all your greenhouse plants, prepare mould for florists flowers, and make much of every day in this month.

FRUIT DEPARTMENT.

Peaches and Nectarine Trees, if attended to in former months, will now require merely looking over, to see that the fruit is exposed to the influence of the sun.

Cover Morella Cherries with nets, if not done before.

Figs out of doors will now be ripe, see p. 71, 95, and 386.

New Strawberry beds, should be made, if not done before, p. 95, 329.

Buds put in last month, and July, will most probably require the bandages a little loosening.

Grapes. Vines in pots, now brought into the vinery will ripen their fruit in January, p. 6. 185, 490, 536,. Vines in frames and the open air p. 73, 193, 309, 337, and 339.

Pine Stoves. If the fruit be chiefly ripe, renovate your succession pits with a good portion of new bark, and shift the plants into pots large enough for them to fruit in; for the regulation of their heat, see p. 374.

Peach houses &c. If the fruit is over expose the trees to the open air.

Peach or Cherry Trees in pots. If the wood is ripe place under a north wall to prepare them for early forcing.

FLOWER DEPARTMENT.

Carnation layers potted out last month must remain the open air, and receive gentle waterings, if required, p. 199 to 200.

Ranunculusses now planted in frames will bloom in January.

Hyacinths should be planted about the end of the month, they thrive very well, however, if planted in the beginning of Nov. see p. 588.

Pæonia Moutan cuttings may now be grafted on the tuberous roots of P. officinalis.

Camellias may now be grafted and budded, but we prefer the spring season, p. 357 to 364.

Auricula Seeds, as also those of Tulip, Ranunculusses, Anemone, &c. may now be sown in boxes of fine light mould, although we have invariably found them do better when sown as soon as they are gathered. p. 56.

Prepare beds for tulips, p. 104, Anemones and Narcissus, p. 144.

Erica cuttings, Diosmas and other delicate greenhouse plants may still be put in, p. 96, and 455.

Pink pipings, put in last month, should, if properly struck, be transplanted in beds to remove in the spring.

Propogate Pelargoniums by cuttings at the end of the month, p. 102.

Mignonette may still be sown in pots, to stand the winter in frames, p. 96, and 144.

Ten weeks stock sown early this month in pots, and sheltered in frames, come into flower early in the spring.

China Rose cuttings strike very freely now, but they sooner become finer plants, if put in during the spring months, p. 245 to 252.

VEGETABLE DEPARTMENT,

Mushroom beds should now be generally made; be careful in spawning that the heat does not rise above 55 or 60 degrees, or the spawn will be destroyed.

Celery earth up as it advances in growth, p. 96, 289, 290, and 433.

Lettuce Plants should be planted out for October, also sow three times before the 20th to preserve in frames, and warm borders throughout the winter.

Endive may be planted out two or three times in the month.

Onions must be taken up in fine weather, and spread on a floor or flue in an airy situation dry.

Cauliflower plants from seed sown last month will some of them be ready to prick out for sheltering through the winter, choose some rich light mould for the purpose, if a score or two were potted singly in 60-sized pots, and sheltered in the same frame through the winter; they will come in about a fortnight earlier than the usual time.

Herbs fit for cutting should be gathered in fine weather.

Welsh Onions may still be sown, if not done last month.

Carrot seed may yet be sown for young ones in the spring.

Raddishes for late crops may be sown twice this month, in the beginning and middle.

Normandy Cress may be sown, if not done last month.

Cabbage Plants should be planted out early in the month, in rows 12 inches apart, and six inches from plant to plant in the rows, to use as coleworts for November. Those sown last month will require pricking out in beds, to plant out early in the spring.

HARDCASTLE & JONES, PRINTERS, CHURCH-STREET, SHEFFIELD.

THE

HORTICULTURAL REGISTER.

OCTOBER 1ST, 1832.

PART I.

ORIGINAL COMMUNICATIONS.

HORTICULTURE.

ARTICLE I.—ON TRAINING FRUIT TREES.

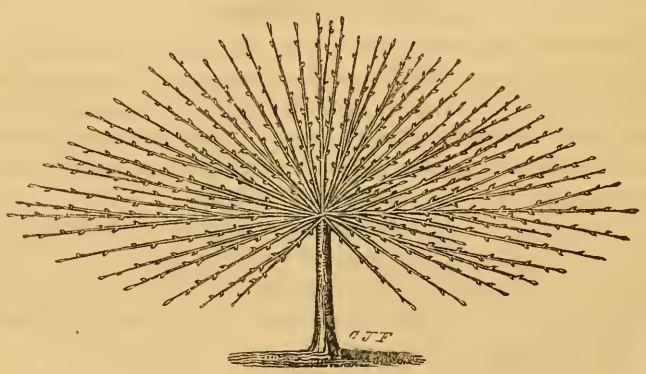
BY A JOURNEYMAN GARDENER.

IT is astonishing how deficient most practical men of our profession are in the art of training trees. We see in almost every garden, trees trained upon the old *world* fashion, that of laying in a twig wherever there is an inch of brick to be seen, without any rule or principle, which is certainly a great stigma upon the profession. Young practitioners as well as old are in the same fault, and notwithstanding the present rapid march of intellect, they go on in the same way as their fathers did in past ages. Considering a garden as a place of pleasure to amuse and delight, the enjoyments derived from it must be according to its taste and state of keeping. Now as the walls form one of the principle objects in a garden, so the trees upon them should be in a good system of training, as the beauty of the whole garden depends upon them in a great measure. Handsome trees, I admit, would be a poor recompence, if they could only be obtained at the expense of the benefits which ought to be derived from the wall, the purpose for which it was erected. But when it can by experience be shown, that the greatest crops are in general those obtained from trees possessing the greatest symmetry

and elegance, so great blame must necessarily be attached to those who have not their trees trained upon the form most suitable for utility and elegance, the blame may lie with the gardener, with his master, or with both, as the case may be: if with the gardener, he is a disgrace to his profession; if with his master, it is a disgrace to his taste; and as he is perfectly at will to please himself in that particular, so other persons are also at will to question his taste, whether it be refined or ridiculous. I have been partly induced to send you these thoughts by seeing in the Register two articles upon training, one by Mr. Mearns, and the other by Mr. Haythorn, upon both of which I take the liberty of making a few remarks.

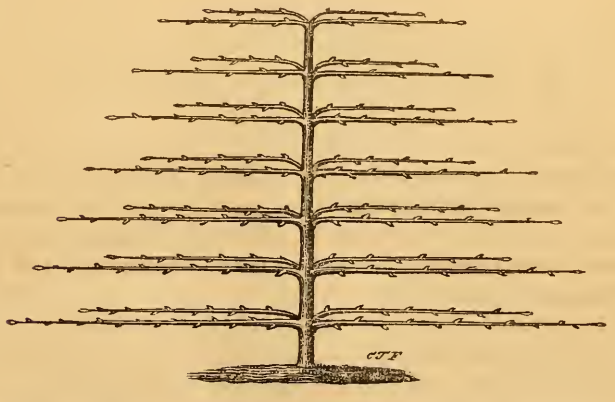
I think Mr. Haythorn did as well as could be done with the old trees he had to deal with, unless he had actually stubbed them up, root and branch, the plan I would undoubtedly have taken, had they been left to my will. I can only see that by his method, he is protracting for a very little period the existence of the aged and worn out trees, and losing time by not having his wall filled with young ones. With Mr. Mearns, it is a different thing, his way of training, I think objectionable in many respects. By his inverse mode of training upon walls, it would seem to be his maxim to stunt, and retard nature in her supplies, that she may be more liberal to him in return, a thing not to be expected. I send you a sketch of a low standard peach tree, and I leave it for you and your readers to judge, whether they would expect the greatest benefits from such a one, or from one trained after his peacock tail manner. Instead of pinching, I would let them extend to their utmost length, for which purpose, trees trained in the eliptical manner, shown Fig. 117, are well adapted.

117



If they grow too luxuriantly, they can easily be stopped, by allowing a superabundant crop of fruit to remain, which is the best method of checking them. Under Mr. Mearns's system, the trees will soon be worn out, whereas, if trained after the eliptical method, with judicious cutting and nailing, they may be made to possess the same form, and I have no hesitation in saying, to flourish for half a century. Mr. Mearns will find a great difficulty in getting his stocks to the top of the wall, if it be one twelve feet high, and I think such stocks would look very unsightly, then the same objections may be made to those trained with riders. I do not think reverse training upon walls will ever be attended with any advantage, although it might be recommended for fruit trees upon the open border, with sticks bent in the ground, or trained horizontally upon low wooden lattice work. I likewise send you a sketch of a pear tree, (Fig. 118,) trained in the usual horizontal manner.

118



With shoots laid in alongside of the old ones, its advantage is, that it keeps the tree in bearing from the stock to the extremity; it is an excellent plan for these sorts, which will bear upon the extremities alone. The young shoot in course of time, take the place of their predecessors, and other shoots are again brought along them, so keeping the trees in a healthy bearing state.

A Journeyman Gardener.

ARTICLE II.

ON THE CULTIVATION OF ONIONS, IN PORTUGAL.

BY I. T.

SOME years ago I was acquainted with a Portuguese gentleman, who assured me, that the chief cause of the superiority of the Portugal onions arose from the mode of culture, and that he grew quite as good ones in his garden in this country. He promised to give me in writing, a full account of the method, but this was forgotten; I, however, recollect that he said, in that country they sow the onions in seed-beds, and always plant them out into deep drills, in which they are plentifully watered in dry weather, this not only gives them the larger size, but also renders them of a much milder flavour than those grown after the old system in England.

I. T.

ARTICLE III.

ON TRAINING PEACH AND NECTARINE TREES.

BY MR. SEYMOUR.

I FELT much surprised at the manner Mr. Harrison treated our method of training peach and nectarine trees, in his article page 529, of the *Register;* the figures there given are altogether incorrect. Fig. 91, represents a tree nearly horizontal, and as he acknowledges to have seen our trees, he must have been aware they are not so; the side branches are shown as growing from the centre seven or eight inches apart, and single; now in our trees they are only three or four inches, and all double or treble after the first year, as represented in the second volume of the Gardeners' Magazine, figures 79 and 80, (which were taken from correct drawings, sent to Mr. Loudon by my father;) their elevation therefore must be much greater than you have represented, as the stem will be shorter when the wall is clothed with branches. Your figure 92 shews a succession of ugly protuberances, not to be found on the trees under my father's care, although some of them are nearly thirty years old. I do not consider the method ought to be condemned, because unskilful hands do not make it answer so well as he does, for according to Mr. Harrison's own confession, the plan answers better under my father's management, than he ever saw it in other places. With re-

gard to his friend's observation :—that it answers better for peaches than nectarines, it is utterly unfounded, being completely at variance with our observations: we find little or no difficulty with any except weak trees of some of the white peaches, which are thin of wood-buds; but this is very seldom the case with nectarines.

WM. SEYMOUR.

Palace Gardens, Bishopsthorp, near York, August 13th, 1832.

ARTICLE IV.

COMPARATIVE REMARKS ON WOOD AND METAL, AS CONDUCTORS OF HEAT.

BY MR. CUR.

As "Ephébicus Horticultor," has with some warmth, criticised a letter I wrote in behalf of metallic hot-houses; I consider it requisite to make some reply, in defence of what I there advanced. Mr. E. H. says, I ascertained, that metal and wood were equal conductors of heat, if kept well painted; what I meant was, that wood and metal are equal conductors of the heat of the sun, or of our atmosphere, and not of water and sand, &c. Mr. E. H. appearing to have a pretty competent knowledge of the properties of *Caloric*, must be aware of the difference of its conduction in one element, to that of another; were he to take equal sized rods of metal and wood, both being well painted, and half covered with wax, as directed by himself, page 583, and place them in the sun-shine in an erect position, he would soon see the equallization of the conduction of Caloric, for the wax on the wood would melt equally as soon as that on the metal, and I conceive this to be the more proper way of trying an experiment with regard to hot-houses, for the rafters are never immersed in water or sand. Mr. E. H. says, "when I placed the pieces of wood and iron against the south wall, I made my observations on the same side I applied the heat, and if I had felt the opposite side, I should have found a great difference; this is asserted with as much assurance as though he had been present. Now I can assure him, I felt on both sides, and found no difference; I am also in the habit of examining wood and metal rafters every day, (half of my houses being constructed of metal,) and were there any material difference, I could not fail to have observed it. My pines were ne-

ver injured, though I have always fruited in metal roofed pits, the leaves never had what Mr. Mc. Murtrie calls a "yellow hue" when in contact with the rafters, nor was their appearance unhealthy any more than those grown under wood. Was the reason J. Sabine, Esq. did not publish the letter in the Society's transactions, which Mr. Mc. Murtrie sent him, because the opinions of the writer were considered ill founded? I one day met with the oldest gardener in Derbyshire,* who told me he had the care of one of the first metalic hot-houses that was erected, and he said, he never experienced any evil effects from them. To return to my experiment which Mr. E. H. says is founded on error; he remarks, that by my plunging the wood and iron in water, nothing else could be expected but that they would be equally heated, and the reason brought forward is, that there would be a giving and receiving of Caloric, till they were all three of an equal temperature. I beg to state, that my experiment was too accurately taken, to admit of the water being affected in any other way than by the metal and wood, the water was placed in two different cellars perfectly unconnected with each other, but both of an equal temperature with the water placed in them; the metal and wood were both immersed at the same moment, and when I examined the thermometer, the temperature of one was no higher than the other. How could there be a giving and receiving of Caloric, except what proceeded from the metal or wooden rods immersed?

Supposing, however, that metal hot-houses, when painted, were greater conductors of Caloric than wood, and the heat of the hot-houses was thereby raised, could not every evil be easily counteracted, by admitting a little more air? how then could pines, vines, or any other plants be injured by heat arising from a metallic roof. I see no reason why these structures should be brought into contempt without just cause, or my opinions ridiculed without a proper foundation, by what are called Caloric experiments.

J. Cur.

July 13th, 1832.

* Our correspondent alludes to Mr. Stafford, whose opinion will be found, page 294.

FLORICULTURE.

ARTICLE V.—ON THE CULTIVATION OF THE PLANTS, BELONGING TO THE GENUS CITRUS.

BY R. AYRES, F. H. S.

Late Gardener to E. M. Mundy, Esq. at Shipley, in Derbyshire.

ACCORDING to my promise, I send you an account of my method of cultivating the plants belonging to the Genus Citrus. If you judge it worthy a place in your *Register*, it is at your service. Previous to describing my method of cultivating the plants, I cannot avoid observing, that in the usual management of oranges and other trees of this class in green-houses, however fine the plants, they only serve the purpose of ornament, and are otherwise useless, never producing any fruit fit for the table. This failure arises from the common practice of taking the trees out of the green-house, at the time the common green-house plants are taken out for the summer month; whereas the proper course which ought to be followed, is to keep them in the house through the whole season, and after the removal of the other plants, the oranges might receive the peculiar treatment necessary, to bring them into proper bearing. The compost I use is made as follows :—to twelve barrowsful of strong turfy loam, add six of good rotten horse dung, three of vegetable mould, and one of white sand ; these must be properly incorporated for twelve months previous to using. From the experience my practice has given me, I do not think oranges and other similar trees, require much warmth in the winter months, I therefore never suffer my houses to be heated above 50 degrees by fire heat, until the end of February or beginning of March, when the trees, if in good health, will begin to show blossom, the fire heat should then be increased to 55 degrees, but the houses ought never to be heated above 65 degrees at this time by sun heat, the excess of which must be checked by the admission of air, indeed, the more air the trees have during the time of blooming, the more certain will be the crop of fruit. My trees are washed with a hand syringe about twice a week in the winter months, advantage being taken of the middle of the day for that work in cold weather ; in summer they are washed every day in the morning. During the time the trees are in bloom, they require more care in

respect to watering, I therefore then use a syringe with a rose, the holes of which are so small, that they will not admit a fine needle to pass through them; clean soft water is used for all these purposes. As soon as the fruit is set, I begin to water the trees at their roots, with a sort of composition-water, made as follows:—three barrowsful of cow's dung fresh from a pasture-field, two barrowsful of fresh sheep's dung, and two pecks of quick lime, are thrown into one hogshead of soft water; the mixture is frequently stirred for a week or ten days previous to using, and when applied to the plants, ought to be about the consistence of cream, giving more or less according to discretion, the trees having no other sort of water during the summer months. In the early part of June, the green-house plants are taken out for the summer, I then begin to force the trees by keeping the heat in the house, up as near as possible to 75 degrees, I do not consider that either citrons, oranges, lemons, or limes, can be grown fine and good with less heat. Whilst the forcing is going on, particular attention is paid to the watering above described; I also in June give the trees, (whether in *borders*, or in *tubs*, or *pots*,) a top dressing of a rich compost.

This is composed of ten parts: (a wheel-barrowful is my usual integral quantity) of strong turfy loam, seven of pigeon's dung, seven of garbage from the dog-kennel or butchers' yard, seven of sheep's dung, seven of good rotten horse dung, and ten of old vegetable mould; they must be mixed together twelve months previous to use, that time being necessary to bring the ingredients into a proper state of pulverisation.

This top dressing is of the greatest advantage in swelling the fruit, and it is done in the following manner: the earth above the roots is removed with a small hand fork, taking *care* not to disturb any part of the roots, all the loose earth is then removed clear to the roots and replaced with the compost.

As respects pruning, I do not know that regular directions can be given, but I will state in what manner my trees are pruned. Early in February they are looked over, for at that time it is apparent what wood is likely to be fruitful; and as a certain quantity of old branches are yearly cut away, I take out those that seem least promising for a crop of fruit, and so make room for the younger and more productive wood; if the trees afterwards grow very strong, the shoots are shortened according to their strength, in the same manner as peach trees. Thus the branches pruned are not only fruitful, but are retained in any shape desired; no sort of fruit trees bear the knife more patiently.

There is some nicety required in thinning and arranging the crop; when the fruit is about the size of green gage plums, it is the proper time to thin them; two fruits should never be left together, for they would neither be fine nor well formed; the quantity left to ripen, must also depend on the age and strength of the tree. The thinnings have no pulp when of the size above mentioned, and are much esteemed by the confectioner for making excellent preserves.

R. Ayres.

March 2nd, 1832.

ARTICLE VI.

DESCRIPTION OF A DAHLIA STAND, WITH A TABLE SHEWING THE PROBABLE EXPENSES OF ONE MADE TO ANY SIZE.—By Mr. Saul.

Herewith I send you a design for a Dahlia Stand, to be made of cast-iron, (Fig. 119,) which may be obtained at a trifling expense, as it requires no labour in making after the uprights are cast. It merely consists of three half-inch uprights, each of which have three small hooks (a) to support the hoops when set as (b.) If the diameter of the hoops, were twelve inches the top one, eight the middle one, and five inches the lower one, it would require to make them about seven feet of quarter-inch iron, this by a reference to the table will be found to weigh about one pound, fourteen parts of a pound, and may be bought at three half-pence per pound. Supposing one of the uprights (c) to be five feet long and a half-inch thick, each stand being formed of three uprights, would make fifteen feet long of half-inch iron, by again referring to the table, it will be found to weigh nine pounds and eighty-one parts, which would cost about one shilling and two-pence. Then for instance, supposing the hoops measured in diameter eighteen inches, twelve inches, and nine inches, these hoops would require about eleven feet long of a quarter-inch size, which would weigh about one pound seventy-nine parts, and would cost about two-pence half-penny. A stand this size therefore

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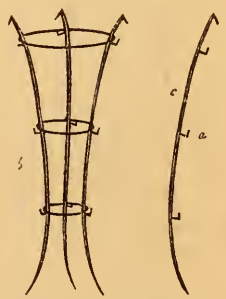

would cost about one shilling and four-pence half-penny. The following Table may be of some service for many other purposes in making calculations.

A TABLE OF DAHLIA STANDS.

Size of Iron.	Foot. 1	Feet. 2	Feet. 3	Feet. 4	Feet. 5	Feet. 6	Feet. 7	Feet. 8	Feet. 9	Feet. 10	Feet 11	Feet 12	Feet 13	Feet 14	Feet 15	Feet 16	Feet 17
Inch.	lbs. pts.	lbs. pts.	lbs. pts.	lbs. pts.	lbs. pts.	lbs. pts.	lbs. pts.	lbs. pts.	lbs. pts.	lbs. pts.	lbs. pts.	lbs. pts	lbs. pts.	lbs. pts.	lbs. pts.	lbs. pts.	lbs. pts.
$\frac{1}{4}$	.163	.327	.549	.654	.818	.981	1.3	1.14	1.47	1.63	1.79	1.96	2. 12	2.29	2.45	2.61	2.78
$\frac{3}{8}$	.368	.736	1.1	1.47	1.84	2.2	2.57	2.94	3.31	3.68	4.04	4.41	4.78	5.15	5.52	5.89	6.25
$\frac{1}{2}$	.654	1.3	1.96	2.61	3.27	3.92	4.58	5.23	5.89	6.54	7.19	7.85	8.5	9.16	9.81	10.47	11.12
$\frac{5}{8}$	1.02	2.4	3.06	4.08	5.1	6.12	7.14	8.16	9.18	10.2	11.22	12.24	13.26	14.28	15.3	16.32	17.34
$\frac{3}{4}$	1.47	2.94	4.41	5.88	7.35	8.82	10.29	11.76	13.23	14.7	16.17	17.64	19.11	20.58	22.05	23.52	24.99
$\frac{7}{8}$	2.	4.	6.	8.	10.	12.	14.	16.	18.	20.	22.	24.	26.	28.	30.	32.	34.
1 In.	2.61	5.22	7.83	10.44	13.05	15.66	17.66	20.88	23.49	26.1	28.71	31.32	33.93	36.54	39.15	41.76	44.37

ARTICLE VII.

ON PLANTING THE SA'LVIA SPLE'NDENS IN THE OPEN BORDER, OR ON LAWNS.—By Mr. G. Bedell.

On reading in your publication, an article on the Cultivation of the Sálvia spléndens, I regretted that your correspondent had not gone a little farther on the subject, by noticing the beautiful effect produced by training it with one stem only. The method of producing a tall stem with a fine head, already appears in your *Magazine* in the directions for the Cultivation of the Fuschia, and therefore needs no further notice here, than that the same method must be observed. The cuttings intended for standards should be struck in the summer months, and kept growing during the winter, and as soon as a clean stem of about five or six feet in height is obtained, (which may be, probably by the end of May or middle of June,) they may be planted out. A Lawn is, in my opinion, the situation in which they appear to the greatest advantage, a portion of the turf should be taken up and replaced as soon as the Sálvia is planted.—They may remain in the ground till the end of October should the weather prove mild, when they must be re-potted and wintered in the green-house, or any other place secure from frost until the next season.

Most of the Sálvias grow and flower much stronger when planted in the open ground, than in the green-house, and the usual Spring struck Cuttings, planted in the border and shrubbery in May, will make a fine appearance in the autumn; these may be left in the ground, as, if the weather proves mild, they will continue to bloom through the whole of December.

G. Bedell.

Grange Road, Bermondsey, July 14th, 1832.

ARTICLE VIII.

ON THE PROPAGATION OF THE POLY'GALA SPECIO'SA, AND SALVIA SPLENDENS.—By Mr. T. Heary.

On perusing the seventh Number of your *Register*, (to which I am a subscriber,) I find in your Extracts from Mr. Mc. Intosh's Flora and Pomona, a hint on the propagation of the Polygala speciosa, to which I beg to add a mode I invariably found successful. I bind down about four inches of the top of the young shoots, and leave

them hanging for about three weeks, when they will begin to form callosities, I then cut them off and pot them out singly in small pots filled with light maiden mould, and one quarter of peat, placing them in a shady situation in the green-house, and giving them occasionally a little water. The reason I would prefer this mode is, that by striking a number of cuttings in one pot they make so very few fibres, and those so fleshy and brittle that they are liable to be lost in the potting.

I beg also to add to Sage's treatise on the Salvia splendens, page 438, that I have them in flower the year round, by potting out the cutting singly into small pots, and treating them in every respect, as Mr. G. Harrison does his Pelargoniums, a system to be very much approved of; see page 102, except that the Salvia requires more heat. I also strike these cuttings very freely in water, along with the Nerium splendens, Asclepias (Hoya) carnosa, Lobelia dentata, with many others.

I fully agree with Mr. Mearns's ideas on the management of plum trees, as I partially follow the same treatment; the only precaution to be used is, not to thin the tree too much, least the shoots should grow too vigorous.

Should these hints be deemed worthy of your notice, I shall feel pleasure in following them up, with such other observations of interest as may come before me.

I wish your *Register* every success, and a more extended circulation among my brother gardeners, on this side the channel.

THOS. HEARY.

Roebuck House, near Dublin, June 1832.

ARTICLE IX.

ON THE CULTURE OF THE BLE'TIA TANKERVILLIÆ.

BY A GARDENER.

BEING possessed of a plant of the Blètia Tankervilliæ which showed no inclination to flower, I concluded the soil in which it was potted, being of a very binding nature, was unsuitable for it; I therefore mixed some good rotten leaf-mould, with an equal part of peat earth, and after dividing the offsets, I put them in half peck pots; this was done a year ago last June, they flowered very fine last February and March. I covered the surface of the soil in which they grew with with moss, this is now very full of fine roots; the pots were well drained with broken potsherds, and were placed along the curb stones in the pinery and vinery.

A GARDENER.

ARTICLE X.

CULTURE OF THE NATURAL ORDER AMARYLLIDÆ.

BY ARTHUR.

(Continued from page 696.)

11. Phyce'lla, (*phykos*, red alkanet, colour of flowers.) The P. *ignea* and *cyrtanthoìdes* will thrive in any light rich mould, and should be treated as other half-hardy bulbs; P. *corúsca* and *Herbertiàna* require the heat of the green-house, and grow best if potted in a considerable portion of sandy peat, and the bulb of the latter should be planted pretty deep in the soil; in respect to watering, &c. they must be treated like the Amaryllis.

12. Vallòta, (*Pierre Vallet*, a French Botanist.) This genus contains but one species, of which there are two varieties cultivated in our gardens; although introduced from the Cape of Good Hope, they both require the heat of the stove, and should be potted in sandy peat, mixed with equal parts of turfy loam; their general treatment is like the Amaryllis.

13. Griffi'nia, (Wm. Griffin, Esq. of South Lambert, by whom the three species were introduced.) These species resemble Amaryllis, but have stalks to their leaves, and bear blue flowers. The G. *hyacinthìna* and *parviflòra* do well if potted in any rich mould, providing it be not very heavy, if it is, mix about one-third of white sand, and beat them well together, but do not sift them; the G. *intermèdia*, requires a considerable portion of sand and peat mixing with the loam; set them in an airy part of the stove, and be careful not to give them any water when in a dormant state, but let them be well supplied when they begin to grow or show bloom; they occasionally produce ripe seeds, but are generally propagated by offsets.

14. Sternbérgia, (*Count Casper Sternberg*, a celeb. bot.) All the species of this genus are perfectly hardy, and will do well in any light rich mould; care however must be taken not to plant the bulbs too deep, or they are liable to perish in wet seasons, they are readily increased by offsets and seeds, which they produce pretty freely in fine seasons.

15. Zephyránthes, (*Zephyros*, west wind, *anthe*, flower.) The Z. cándida, atamásco, and chloroleùca, thrive well in common rich mould, and may be treated as other half-hardy bulbs; the Z. tubíspatha andròsea, will grow in the same soil, but require the heat of

the green-house; all the other species must be potted in very sandy loam, with a small portion of peat and leaf-mould, and placed like the two last in the green-house. The Z. candida closes its flowers in the evening, or if placed in the shade, after the manner of the crocus.

16. Habránthus, (*Habros* delicate, *anthos* flower.) All the flowers of this genus are very delicate, the H. versícolor and graciliförmis very fragrant, they may be planted out in light rich mould, on any warm border, and if covered in severe or very wet weather in winter, with an inverted flower pot, the bulbs will be preserved from perishing, and will flower very freely; the H. bìfidus, ròsea, Bagnóldi, and Phycelloídes, will all thrive well if planted in a border, in the front of a stove or green-house; let the bulbs be well covered in winter, to keep them from being injured by frost or wet: the H. Andersòni, lorifòlius, angústus, and spathàceus, all require the green-house, and should be treated exactly like the Amary'llis, and other green-house bulbs in this order. They are all increased by offsets, and occasionally by seeds, which, however they very seldom ripen.

17. Doryánthes, (*Dory*, spear, *anthe*, flower; stem.) This genus contains but one species, the D. excélsa, it differs materially from all the preceding genera, the flower stem growing to upwards of twenty feet high, it grows freely in a mixture of sandy loam, peat, and well rotted leaf-mould, and should be placed in the conservatory. It may be increased by suckers from the roots, which are sparingly produced.

18. Gethy'llis, (*Getheo* to rejoice; perfume of flowers.) All the species are green-house plants, natives of the Cape, and should be potted in sandy loam and peat, "the berries of the G. afra are said to be eatable, having an agreeable odour," they require the usual treatment with regard to watering, &c. as the other Cape Amaryllidæ; they are increased by offsets and seeds.

19. Alstrœmèria, (*Baron C. Alstrœmer*, a Swed. Bot.) The roots of all the species of this splendid genus, abound in a nutritive *fœcula* which may be prepared for food, the natives of Chili obtain from the roots of one of the species, a substance resembling arrow-root. They will thrive if planted in a mixture of about equal parts of rich loam, sand, and leaf-mould. A hirtélla, and ovàta, do very well on a warm border, and the former will ripen seeds very freely, which as soon as ripe should be gathered and sown in pots, and the young plants turned into the borders in the following spring. Although the Flos Martini, pulchélla or Hookeri, Simsii, Salsilla, &c.

&c. have been treated as stove plants, they grow much stronger, and flower much finer in the open border, and endure our winters pretty well with but a slight covering in very severe weather. A ligtu is often very shy at flowering, this may be easily remedied by observing the rules laid down by Mr. Sweet in his Bot. Cult. p. 16, he says, A ligtu "will blossom freely, by letting the pots be dry for a considerable time, till the shoots are all dried up; then fresh pot them, give a good watering, and put them in a moist heat. Mr. Lindley says, "the safest way to treat (all) the species, is to plant them in light loamy soil, in a border within a glazed pit, which is just heated enough to keep out frost in winter. Here they will grow with great vigour, throwing up strong suckers in all directions, and flowering beautifully: their leaves will not, on the one hand, be parched by the drying cold winds of April, nor, on the other, scorched by the sun at Midsummer. Thus protected they will perform all their natural functions as if in their native soil: and an abundance of food will be sent downwards into the roots, which will be thus prepared, upon the return of the growing season, to send up new shoots with the greatest vigour." *Bot. Reg.* 1410.

ARTHUR.

ARTICLE XI.

PRESERVATION OF PLANTS, &c. ON A SEA VOYAGE.

THE chests in which plants are sent from the Botanic Garden Calcutta, to Europe, or other distant parts of the world, are made of strong materials, and fitted out in such a manner, with moveable railed frames and covers, as to admit of their being easily sheltered from the access of sea-water, wind, and rain. Besides a number of plants placed in them and fastened to their sides, the earth is generally mixed with a considerable proportion of seeds, calculated to germinate successively during the progress of the voyage, and thus to enhance the value of these collections. The chance, however, of their arriving safely at their destination, rests almost entirely on the commander of the ship on which they are proceeding, and on the person who is so good as to undertake the immediate charge of them on the voyage, directing their kind solicitude towards protecting the plants from the least contact of salt-water, from injury being done

by vermin, poultry, &c. and from the habit which idle people sometimes indulge in, of breaking or pulling the leaves, branches, or flowers. Where such a favourable disposition exists, a strict attention to the following rules will ensure a complete success, and the greatest proportion of the plants will arrive at their destination, in a thriving and vigorous condition.

1. It is proper to keep the chests uncovered the greatest part of the day in fair or moderate weather, particularly during gentle rains, or if these should be heavy, or of long continuance, until the plants have been sufficiently refreshed. In very hot weather their lids must be alternately shut up. It is extremely important that the chests should remain open at night also, and this rule ought always to be attended to in fair weather, provided that the plants are not thereby exposed to the attacks of rats and mice, &c.

2. It is obvious, that the plants require to be watered frequently, but at the same time it must be observed, that too much moisture would do as much harm, as too little would; the safest plan is this: to give them water only when it is found that they stand in need of it, and the best time for so doing is the evening. The quantity must in a great measure be regulated by the state of the weather, though not exclusively. They want much less in a cold than in a hot climate. If care is taken to keep the chests shut up during the hottest part of the day, less water will be requisite, than otherwise. Whenever the leaves and branches look drooping and relaxed, especially towards the evening, (for in hot climates they will generally appear in that state in the middle of the day,) and if the earth appears dry, it is a sign that a little water is necessary; and the best mode of applying it is, to pour or sprinkle it over them in such a manner, that the branches and leaves, as well as the earth, may become gently moistened. It ought to be a general rule, never to let the plants get water oftener than once a day, and not to give any at all, if the earth appears quite wet.

3. Directions where to place the chests to the greatest advantage, depend on the size and accommodations of the ship, and can only be given in a general manner by observing, that they should be sheltered from strong winds and burning sunshine, as far above the reach of the sea, as is compatible with the care and vigilance, which they require; and that day-light, as well as a free circulation of air, are indispensably necessary for the preservation of the plants. The Poop, above or near the entrance to the cabin, answers generally best. The importance of preventing salt-water from reaching the plants, has been repeatedly hinted at above: indeed too much pre-

caution cannot be taken with respect to it, as the least accident from that source generally proves fatal, unless recourse is directly had to washing the leaves or branches, which have suffered, with a wet spunge or a soft piece of linen. When the seamen are cleaning the decks the danger is greatest, for it is difficult to prevent them from dashing the sea-water against the chests, when some part of it in all probability will reach the plants. As an additional guard against this danger, a tarpawlin might be thrown over them while shut up, which would also be of use in stormy and bad weather. Raising the chests to some height above the surface of the decks, might also be of great use.

4. Chests of roots, and parcels or boxes of seeds should be put in a dry and cool place of the ship, where the air is constantly circulating and renewed; the latter may advantageously be hung up under the roof of a cabin, or put in a trunk among books or clothes; and it would materially contribute to their preservation, if they were put out, occasionally, in the open air, especially if the least sign of dampness should be visible on them. Placing such packages of roots or seeds in the ship's hold, or shutting them up in chests or places, likely to become hot, damp or wet, would infallibly prove destructive to their vegetable principle, and kill them in a very short time.

ARTICLE XII.

TREATMENT OF THE MAURA'NDIA BARCLAY'ANA, &c.

BY J. M.

To "G. L." during last winter, I had the *Maurándia Barclayàna*, and *Verbena Melindres*, in a cold frame, which was covered during frost, withmats. The bottom on which the pots stood, was covered with slates, and the plants kept rather moist. The *Maurándia* should be renewed every year, either by cuttings, (which strike roots freely, if planted in sand under a bell-glass) or seeds. The *Còbea* should be cut in, a little before the buds are excited. The Verbèna pulchélla, V Aublètia, Fuchsia cónica, Calceolària arachnòidea, and Lophospermum erubéscens, survived the winter, in a healthy state, in the same frame with the above.

J.M.

Penwortham, Lancashire, July 7th, 1832.

ARTICLE XIII.

TREATMENT OF THE ALO'YSIA CITRIOD'ORA.

BY A SUBSCRIBER.

If your correspondent is not tired out with the many answers to his queries, respecting the best means of preserving the Verbena or Lemon-plant from frost, I can bear testimony to its hardiness; when I resided at Oxford, we had two very beautiful plants, fully twelve feet high, and proportionably stout in the stem, on either side of the parlour window; the only defence they received was from a covering of hay and close matting, till about April, when the gardener removed the weakly shoots of the former year, and new wood was thrown out in abundance, inviting every passer-by to pluck a shoot, the fragrance thrown into the room was delightful.

A SUBSCRIBER.

Amersham, Buckinghamshire,
August 17th, 1832.

ARBORICULTURE.

ARTICLE XIV.—ON THE MANAGEMENT OF PLANTATIONS.

BY AN ARBORIST.

In managing plantations, the object is to give at the same time a due proportion of shelter and air.—In many cases, plantations which have been well attended to, in respect of inclosing, draining, and properly planting, have thriven well for the first twelve or fifteen years; yet in fifteen years more, the forest trees have been ruined by allowing the scotch fir and larch, which had been judiciously planted for shelter, to remain for twenty-five or thirty years. The oak, ash, and sycamore have been partly destroyed, and what remains, is, for *want of air*, so drawn up, and left in such a debilitated state, that, though their oppressors be at length removed, they cannot support themselves, and the few that can stand, from *the sudden transition* which they have undergone, immediately *stagnate*, and become overgrown with *moss*.

Too great a partiality for trees, often occasions an error, which defeats the object of the planter and improver. It is as necessary to *thin* and *prune* trees *every year*, as to plant them with care and

judgment; and yet it too often happens, that those who are extremely fond of planting, cannot reconcile to their taste and judgment, to *cut away trees,* or even the *large* and *strong branches* that absolutely injure their plantations, and eventually defeat their progressive improvement. Surely no person can dispute, that a grove or plantation consisting of trees, furnished with *proper branches* and rich foliage, is not a more pleasing and beautiful object, than if such trees presented an unsightly appearance of half dead, and feeble stems; nor is it to be supposed, that trees crowded together, and robbing each other of support, and of the invigorating powers of the sun and air, can arrive at a profitable growth. It is more absurd to be tenacious of *cutting away,* and *pruning young trees* when necessary, than it is reprehensible not to plant them, when it may be done with advantage. Trees do not, like animals, wear out their organs, for they are provided with new ones every year; no necessary cause of death therefore, is inherent in their nature. The vessels and fibres forming the external layer, which add every year to the circumference of the stem, where the life of the plant principally resides are wholly new, and so unconnected with the layers of preceding years, that the latter may be removed by hollowing out without killing the tree. The concentric circles observable on the transverse section of the stem of a tree, mark successive generations. As every concentric circle on the stem is a new generation, so is every bud on the branches a new-born child, every twig, a family, and the tree a nation; and trees like nations, (olive trees especially) may be said to live *sempre!* their death, in fact, is an accident; there are indeed, living olive trees on record, known to have flourished ten centuries ago, and which were planted by the Romans. The shell of an olive tree is as picturesque as the foliage (which resembles that of a sick willow) is otherwise.

AN ARBORIST.

The Vale of Clwydd.

ARTICLE XV.

LIGHTENING.—NON-CONDUCTING PROPERTY OF THE BEECH TREE.—BY OMEGA.

INSTANCES of loss of life by lightening, arising from the circumstance of persons imprudently taking shelter under trees from rain, during thunder storms, are not of rare occurrence; this is not surprising, as trees are, more or less, subject to be attacked by the elec-

tric fluid, especially the various species of the *Oak*. The beech tree (Fagus sylvatica) presents, however, an exception in a most remarkable degree, from the effects of this dangerous element. I am the more positive in advancing this assertion, as I have not been able to trace a single instance of the beech tree, having ever been struck by lightening, in this or any other climate.

OMEGA.

August 25th, 1832.

ARTICLE XVI.

SPEECH FROM A TREE.—By a Druid.

A PRODIGAL, who was left by his father in possession of a large estate, well conditioned, impaired it by extravagance. He wanted money, and ordered a number of timber trees, near the mansion, to be felled for sale; he stood by to direct the labourers, when suddenly a hollow murmuring was heard within the trunk of a venerable Oak! and after several groans, a voice from the tree distinctly said:—"My young master, your grandfather, planted me when he was about your age, for the use of his posterity; I am the most ancient tree in your forest, and have largely contributed by my products to people it; there is therefore some respect due to my services, if none to my years: I cannot well remember your great-grandfather, but I recollect the favour of your grandfather, and your father was not neglectful of me:—my shade assisted his rest, when he was fatigued by the sultry heat, and these arms have sheltered him from sudden showers:—you were his darling, and if the wrinkles of age have not obliterated them, you may see your name traced in several places by his own hand in my trunk:—I could perish without regret, if my fall would do you any real service:—were I destined to repair your mansion, or your tenants' ploughs and carts, and the like, I should fulfil the end for which I exist; to be useful to my owner:—But to be trucked away for vile gold, to satisfy the demands of honourable cheats, and be rendered subservient to profligate luxury, is more than a tree of my spirit can bear:—your ancestors never thought you would make havoc and waste of the woods they planted:—while they lived, it was a pleasure to be a tree; the old ones amongst us were honoured, and the young were encouraged around us. Now we must all fall without distinction, and in a short time, the birds will not find a branch to build or roost upon: yet, why should we

complain? almost all our farms have followed you to London or Paris, and of course, we must take the same journey.

An old tree loves to prate, and you will excuse me if I have been too free with my tongue: I hope advice from an oak may make more impression upon you than the representation of your steward. My ancestors of Dodona were often consulted, and why should a British tree be denied liberty of speech? but you are tired, you wish me to remain dumb: I will not detain you, though you will have too much reason to remember me when I am gone: I only beg, if I must fall, that you will send me to one of his Majesty's Dock yards, where my *firmness* and integrity may be employed in the service of my country; while you, who are a slave to your wants, only live to enslave it."

The Prodigal could bear no more; he ordered the oak to be dispatched, and the venerable tree fell without a groan.

A DRUID.

Alvanley, near Frodsham.

NATURAL HISTORY.

ARTICLE XVII.

ON THE SCIENCE OF BOTANY AS A NECESSARY STUDY, FOR YOUNG GARDENERS.

BY F. F. ASHFORD,

Under Gardener at R. Wilbraham's, Esq. Rode Hall.

THE study of the Vegetable Kingdom is one of the most pleasing employments the mind of man is capable of enjoying, contemplating nature in all the various seasons of the year, climbing the mountain or descending the vale, in the forest, or in the mead, from the oak whose majestic boughs tower toward the skies, to the moss whose minute stem sports beneath its shade, every where there is something to amuse, in every thing something to instruct, something to aid us,

To look through nature up to nature's God.

Surely he must be an unconscious observer, who does not discover in every step

The work of an Almighty hand.

The study of Botany being a great acquisition to the scientific knowledge of the young gardener; it is my intention in this and fol-

lowing communications, to give your juvenile readers a succinct review of the Linnean Sexual system of Botany. It is natural to suppose the first questions that may arise in the mind of the young Tyro are these, what is Botany, and what does it treat of? the answer is short.

Botany is that science which arranges and distinguishes all plants or vegetables, and teaches us their peculiar properties and uses. The Vegetable Kingdom is extremely numerous. Naturalists enumerate 30,000 species of plants, nor will this number be so very surprising, when we consider, that the whole surface of the earth is covered with them, about 2000 of these are natives of our own Isle, of which one-third are mosses, ferns, sea-weeds, &c. but more botanically speaking Cryptogamic Plants.

The honour of having first suggested the true sexual distinction in plants, appears to be due to our own countryman Sir Thomas Millington, from whose hints Dr. Grew, as he himself acknowledges, was led to the observations he has given on this subject, in his anatomy of plants, page 171, published in the year 1682. After this, Camararius, Moreland, Geoffroy, Vaillant, Blair, Jussieu, and Bradley, pursued their inquiries and experiments, so far as to remove all doubt concerning these discoveries: and lastly, though not least, Dr. Linneus, the professor of physic and botany, at Upsal, (a considerable town in Sweden, and noted for its University,) founded his immortal system.

As it has been justly observed by the best writers, that every person who wishes to become a professed botanist, should preserve and form into a collection, the plants which he has examined; therefore it is my intention, before proceeding with the science under consideration, to offer a few instructions to the young botanical researches, concerning the forming and arranging an Hortus Siccus (Hortus a garden; Siccus to dry. Lat.) or Herbarium.

The first thing required, is a botanical press, made of two small boards of hard wood, about eighteen inches long, twelve inches broad, and two inches thick, with screws fixed to each corner by nuts. Next, some sheets of brown and unsized blotting-paper must be provided for drying. The specimens must be gathered when quite dry, and if collected at a distance, they must be carefully carried home in a tin box with their names affixed to them, to assist the memory; the specimens must be taken out of the box as soon as possible, and carefully spread on a sheet of brown paper, with the leaves and petals laid out regular, and another sheet of paper laid over them, and so on till the press is full; then screw them down,

increasing the pressure every day; they must remain till quite dry, supplying them with dry paper every day. The best way for drying Succulent and mucilaginous plants, such as Cactus, Epiphyllum, Cereus, Melocactus, &c. is with a hot smoothing-iron, the specimens placed between sheets of the blotting-paper, and ironed till they become sufficiently dry.

When properly dried, the specimens should be arranged into general classes and orders, (which will be hereafter explained) and fastened in a book, provided for the purpose, with small slips of green paper; then at the base of the specimen, should be written down the name of the genus and species, its native country, time of introduction, (if of foreign produce,) nature of the soil, colour of the flower, and time of flowering.

F. F. Ashford.

Rode Hall, Cheshire, July 10th, 1832.

ARTICLE XVIII.

ON THE STUDY OF ENTOMOLOGY.—By Rusticus.

(Continued from page 654.)

Subsection 3rd—Serric'ornes; Sternóxi Lat. With filiform Antennæ.

Family XXXII.—Buprestidæ; Cow-burners, 5 Genera.

1 Buprèstis 3 Aphanísticus
2 Agrìlus 4 Tráchys 5 Melàsis

Most of the species of this family are very rich, resplendent, and beautiful in their colours, they are all timber-eating insects, and often prove very destructive from the long period they continue in a larva state. Marshman tells us in the Lin. Trans. X. that the grub of the B. splendens was ascertained to exist in the wood of a deal table, more than 20 years. The B. flavomaculàta is very elegant, and far from being uncommon in sandy soils, where timber has begun to rot; its head enters within the thorax, and the Elytra (wing-cases) are each adorned with four, and occasionally five spots of a bright yellow colour: the upper side of the abdomen is bright blue.

Family XXXIII.—Elate'ridæ; Clickers, Skippers, &c. 12 Genera.

1 Ceratòphytum
2 Eucnèmis
3 Hemírhipus
4 Elàter
5 Unnamed by Mr. Stephen's but placed by Mr. Curtis under genus elàtor
6 Unnamed by Mr. Stephen's but placed by Mr. Curtis under genus elàtor
7 Lùdius
8 Cleniòcerus
9 Unnamed by Mr. Stephen's, but placed by Mr. C. under genus Elàtor.
10 Unnamed by Mr. Stephen's, but placed by Mr. C. under genus Elàtor.
11 Unnamed by Mr. Stephen's, but placed by Mr. C. under genus Elàtor.
12 Campylis

The insects of this family are chiefly distinguished by an elastic spine, which springs from the under side of the thorax, near the extremity, By means of this when the animals are turned upon their backs, they jump into the air with a clicking noise, and are able when they fall to recover their proper position. The Hemírhipus lineàtus, and H. obscùrus, both produce the well known wire-worms

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which often make such devastation in our corn-fields and gardens. They continue in the larva state five years, during which time they feed on the roots of oats, wheat, and most sorts of grain, as also potatoes carrots, salads, &c. They are exceedingly destructive in newly made gardens, for several years taking off almost every crop both of vegetables or flowers. Many means have been adopted to eradicate them, some of which have proved successful. The best way appears to be that of alluring them by baits of different kinds. This was first suggested by Sir Joseph Banks, and has now become pretty generally adopted; the plan is this when the insects abound: bury an inch or two under the surface of the soil, where crops are sown or planted, slices either of potatoes, turnips, parsneps, apples, or carrots, sticking a wooden skewer in each slice to take it out easily when required, as well as to shew where the bait is buried; these are to be regularly examined every day, or at furthest every other day, and the insects upon them killed. Some gardeners have given preference to sliced beet root, or cabbage stumps, and others think young lettuce plants attract them most, whichever is used there must be no neglect in examining and destroying the worms on them. Mr. Tallant, of little Houghton, a great agriculturalist, found that by sowing land with a crop of white mustard seed, previous to fallowing for wheat, the ground was quite cleared of them, the reason might probably arise from the incapability of the insect to feed on the root of the mustard, on account of its acid qualities, and by keeping the land clear of weeds or any thing else they could eat, they would die of starvation. After five years they go into a pupa state, (b) and shortly appear as a chesnut coloured beetle, (c) when their existence seems to be very limited.

Subsection 4th—Serricornis: Malacodermi, Xylophagi; Lat. with Setaceous, or abruptly Clavate Antennæ.

Family XXXIV.—Cebrionidæ ?—1 Genus Atopa.

Family XXXV.—Cyphonidæ.—2 Genera.

1 Scírtes 2 Cyphon

Family XXXVI.—Lampyridæ.—2 Genera.

1 Lámpyris 2 Lycus

The common glow-worm, (Lámpyris noctilùca) is the most conspicuous and best known of this family. The female in her perfect state, is destitute of the least vestige of wings, (Fig. 121,) whilst the the male (b) is a perfect beetle, the light proceeds from a pale coloured patch, that teaminates the under side of the abodomen. The general opinion was that the males emitted no light, but this has been found inaccurate, although it is very faint compared with that of the female. If have read that the males of the L. splendidula, shew their light very conspicuous, but have never yet seen them, or met with any person, who has captured a specimen in this country. Both male and female of our common glow-worm appear capable of concealing and extinguishing their light at pleasure. I met with a female specimen a few evenings ago, which I brought home with me, and it showed no disposition to hide its light at that time, but although it lay amongst plenty of grass, I could not observe it shine again for several days afterwards, when it appeared as brilliant as ever.

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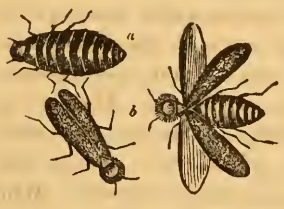

Family XXXVII.—Telephóridæ; Soft-wings, Soldiers, Sailors—2 Genera.

1 Telephorus 2 Malthinus

Family XXXVIII.—Melyridæ.—4 Genera.

1 Malachius 2 Elicopis 3 Dasytes 4 Drilus

Family XXXIX.—Tillidæ.—6 Genera.

1 Tíllus 3 Clèrus 5 Opilus

2 Thanásimus 4 Necròbia 6 Corynètes

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The Thanàsimus formicarius (fig 122) (*a*) is said to destroy the Anobium pértinax (fig. 59, page 375.) which is very destructive to furniture, &c. It may be found in Scotch and Spruce Firs that have been recently felled, it runs very nimbly, and has been named formicàrius from its resemblance in

form and manners to an ant. The larva lives under the bark of decaying trees.—*Curt. Ent.*

Family LX.—Ptinidæ.—10 Genera,

1 Xiletinus	4 Mèzium	7 Anobium
2 Ptilinus	5 Gibbium	8 Ochina ?
3 Ptinus	6 Dorcatoma	9 Choragus
		10 Ciss

The most remarkable insects in this family are those of the chair-eaters (Ptinus) these are of a diminuative size, but very destructive. They perforate indiscriminatively household furniture, clothes, furs, dried animals, in a state of preservation, and most other articles not even refusing tobacco, when caught they counterfeit death with much adroitness, and scarcely any means except the application of heat can arouse them. Also that great cause of terror to the superstious, the death-watch, (Anobium tesselatum) may be heard making its *ominous* click both in the tables, chairs, picture, or looking-glass frames, bed-posts, or even the floor, where in very old houses it exists by thousands. Perhaps all the species of this genus click also. A. pertinax (fig. 59, p. 375) and A. strìatum, may occasionally be met with in small quantities, but are not so common as the tessellatum. They have rather a depraved appetite, for although they are considered timber eaters, they will eat many filthy substances. Mr. Sheppard found the A. paniceum feeding upon dried blistering flies, (Cantharis vesicâtoria.) These like the Ptinus, will counterfeit death when in danger, particularly the A. pertinax, which will endure any torturus without moving. All the British species of the genus Cis, inhabit *Boleti,* as well as old wood. The C. Boleti is a very common insect, and may be found from February to August in the Bolètus vérsicolor, and under the bark of trees: the C. bidentatus (fig. 122) (b) may be occasionally found on the white thorn (Cratægus Oxyacántha) in June and July.

To be Continued.

PART II.

REVIEWS AND EXTRACTS.

REVIEWS.

OUTLINE OF THE FIRST PRINCIPLES OF HORTICULTURE.

BY JOHN LINDLEY, ESQ. F. R. S., &c.—2s.

It has been long remarked, that "a great book is a great evil;" and applied to the prevailing practice of spinning out to an amazing length, almost every threadbare subject; it is perhaps substantially correct. The author, however, in the formation of the present work, will not have to apologize for the commission of this evil; if there is any fault, it is on the contrary side, of not being extended enough; be that as it may, we have no hesitation in saying, that of all works on the science of Horticulture, this has by far afforded us the greatest satisfaction: and we are convinced, that every attentive reader of it, will join with us, to pronounce it the best work of the kind that has ever yet appeared. The Author very judiciously remarks in his Introduction to the "Orchard and Kitchen Garden Guide." Reviewed p. 110 and 160, that "in all books upon Gardening, a great variety of modes of operating are comprehended, each of which has, it may be supposed, its own peculiar merit under particular circumstances. In several, the very same mode is repeatedly recommended with slight variations of phraseology, in speaking of many different subjects; and it has at last become a common complaint, among those who seek for information from books upon horticultural subjects, that they can find plenty of rules of action, but very few reasons." This appears to us perfectly correct; and although the cause to intelligent men has long been very obvious, all have shrunk from the weighty "task" of reducing "the physiological principles, upon which the operations of Horticulture depend for their success, to a series of simple laws, that could be readily borne in mind by those who might not be willing to occupy themselves with the study, in detail of the complicated phænomena of vegetable life. The im-

portance of these laws is so great, that there is not a single practice of the gardener, farmer, or the forester; the reason of which, if it relates to the Vegetable Kingdom, can be understood without a knowledge of them."

All Works previously written to assist the enquiring mind of the Horticulturalist, were in such voluminous shapes, that no small portion of patience and attention was required to come to any rational conclusion, and many speculative theories were blended with discovered facts, that a good previous knowledge of the subject was indispensible, to be able to discriminate betwixt right and wrong. Mr. Lindley has completely obviated all these difficulties, by issuing so competent a work on the subject, we think we may call it a perfect one, for we know not what more could have been added to render it more complete; it may be said to be a key, to unlock the whole science of gardening, and the whole is so condensed, that every gardener may carry the book (as he would the key of his hot-houses) in his pocket. We certainly should recommend every gardener, both young and old, as well as every lover of gardens to purchase it, as they cannot fail, from the plain and explicit manner in which it is written, to derive immense benefit by its perusal, for "there can be but little mental interest in watching the success of operations, of which the reasons are unknown, compared with that which must be felt when all the phænomena attendant upon practice can be foreseen, their results anticipated, or the causes of failure exactly appreciated."

"It must also be manifest, that however skilful any person may become by mere force of habit, and by following certain prescribed rules, which experience has, or seems to have sanctioned; yet that much more success might be expected, if he acted upon certain fixed principles, the truth of which has been well ascertained, instead of following empyrical prescriptions, the reason of which he cannot understand."

"It is not, however, to be understood from this last observation, that rules of cultivation are to be neglected, because they cannot be physiologically explained. On the contrary, the mere fact of a given mode of culture, having been followed for a length of time, by persons deeply interesied in the suceess of their operations, and of much experience, ought to give it very great authority; for it is well known, that there are many important facts, the reason of which is either extremely obscure, or altogether unintelligible. This may be owing either to the defective state of our knowledge, of the exact nature of many of the phænomena of life, or to the great difficulty of

appreciating every circumstance connected with the fact in question, or to constitutional peculiaries in particular species, which, like animal idiosyncrasy, form exceptions to the ordinary laws of nature, and baffle all philosophy.

The propositions are upon the same plan as those of an elementary work on Botany, entitled "an outline of the first principles of Botany," which was originally drawn up for the use of the Botanical class in the university of London, which, from its having reached a second edition in this country—translated into French and German, and republished in North America, may be supposed to have answered the purpose for which it was intended, that of "reducing the first principles of botany to their simplest form." A similar object has here also been kept in view; the author's intention not having been to write a book on the Philosophy of Horticulture, but simply to point out in the briefest manner, consistent with clearness, what the fundamental principles of that philosophy have been ascertained to be. The application of these principles has been in all cases, very concise; but there will be no disadvantage if the work acts as an exercise of the reasoning powers, as well as a guide to practice.

The plan of its arrangement ought by no means to be lost sight of, being every way calculated to assist the reader to retain in his memory what he has read. It consists of 369 propositions explaining the different phenomena of the vegetable creation, placed under fifteen heads or chapters, treating first, on the general nature of plants; second, of the root; third, stem; fourth, leaf-buds; fifth, leaves; sixth, flowers; seventh, sexes; eighth, fruit; ninth, seed; tenth. sap; eleventh, air and light; twelvth, perspiration; thirteenth, cuttings; fourteenth, scions; and fifteenth transplantation. The whole is brought into the small compass of *seventy-two* pages. It may perhaps, be thought that several points have been omitted, which it would have been desirable to introduce, such as the influence upon vegetation of electricity, manures, pruning, training, and the various modes of grafting. But it is possible that a little consideration may show that these subjects do not strictly come within the scope of the present work, In the first place then a distinction must be drawn between the *art* and the *science* of Horticulture; the former teaches the manner, the latter the reasons of cultivation, and it is to the latter only that these propositions apply.

Secondly, the plan of this sketch excludes every thing that is merely speculative, or that is incapable of being reduced within certain fixed principles. Electricity is a power of which we know almost nothing certain with reference to vegetation: if many things

have been written about it, it must be admitted, that very little has been proved. The same may be said of manures; the theory of their action, however, is explained. Pruning and training are a part of the *art* of cultivation, dependent upon a great variety of physiological laws; the brief explanation of which, is the object of the present work. The various modes of grafting, are also a part of the *art* of Horticulture, and are deduced from laws explained in the work.

It may not be unacceptable to our readers, if we extract a few paragraphs to shew the explicit manner in which it is written: as paragraph 3. Plants are organised bodies, consisting of masses of tissue that is permeable by fluids or gaseous matter. 5. Tissue is called *Cellular* when it is composed of minute bladders, which either approach the figure of a sphere, or are obviously some modification of it, supposed to be caused by extension or lateral compression. 7. Cellular tissue, otherwise called Parenchyma, constitutes the soft and brittle parts of plants; such as pith, pulp, the spaces between the veins of leaves, the principal part of the petals; and the like. 12. *Vascular tissue* is that in which either an elactic tough thread is generated spirally within a tube that is closed and conical at each end; or rows of cylindrical cellules, placed end to end, finally become continuous tubes by the loss of their ends. 13. The most remarkable form of vascular tissue is the *Spiral vessel,* which has the power of unrolling with elasticity when stretched. 30. The office of the root, is to absorb food in a fluid or gaseous state; and also to fix the plant in the soil, or to some firm support. 31. The latter office is essential to the certain and regular performance of the former. 32. It is not by the whole of their surface that roots absorb food; but only by their young and newly formed extremities, called *Spongioles.* 33. Hence the preservation of the spongioles in an uninjured state is essential to the removal of a plant from one place to another. 60. The more erect a stem grows, the more vigorous it is; and the more it deviates from this direction to a horizontal or pendulous position, the less it is vigorous. 92. When leaf-buds grow, they develope in three directions; the one horizontal, the other upward, and the third downward. 93. The horizontal developement is confined to the cellular system of the bark, pith, and medullary rays. 94. The upward and downward developements are confined to the woody fibre and vascular tissue. 95. In this respect they resemble seeds; from which they differ physiologically in propagating the individual, while seeds can only propagate the species.

EXTRACTS.

HORTICULTURAL INTELLIGENCE.

Culture of Mushrooms in Melon Pits.—About the middle of July, a bed of long and short stable dung (fresh from the stable) which has only gone through a light course of fermentation, should be made in the pit, for the two-fold purpose of raising Melons and Mushrooms; the bed is to be spawned in the usual way, about a fortnight after the melons are ridged out; for, if done earlier, it would be too hot to receive the spawn. As soon as the bed is spawned, a quantity of stiff yellow loam, mixed with a little half-decayed leaf-mould, should be laid on twelve inches thick for the melons to grow in, and gently trodden down. The melons will ripen about the end of September, and will all be gathered about the end of October; when the bed should be cleared of the old plants, and about three inches of the mould removed from the surface, thus leaving it nine inches deep for the mushrooms. The bed should then be well watered, and again at the latter end of November, but no more all the winter. The pit may then become a shelter for green-house or half-hardy plants, which may be ranged upon the bed. About the middle of February, the mushrooms will begin to make their appearance, the plants must then be removed out of the pit altogether, and plentiful crops of mushrooms will be produced till May. By this mode of culture, the thickness of the mould, and hot atmosphere of the bed, necessary for the growth of melons, will prevent the mushrooms from appearing before February. After the month of March, the bed should be shaded from the mid-day sun, and plenty of air given, and water occasionally.—J. Collier.—*Gard. Mag.*

On the Varieties of the Pine Apple.—(Continued from page 677.)—20. Trooper's Helmet. The Cockscomb, Hussar, and broad-leaved Java of the Society's Catalogue. Leaves rather long, flat and erect, of a pale yellowish, green colour, and mealy on the under surface. Spines middle sized and regular. Flowers purple. Fruit orbicularly cyndrical, before ripining pale green and rather mealy, when ripe dark ochre, of great beauty, but not very excellent, generally weighs from three to five pounds. Pips large, flat, depressed in the centre and plaited round the margins. Scales covering half the pips, of a whitish colour, and terminating in lengthened blunt points. Flesh bright lemon colour, very juicy and high-flavoured without sweetness or brightness, rather of a coarse and stringy nature; crown large and spreading, leaves numerous.

21. Green Providence. This is the Wollaton Providence and New Green Olive of the Hort. Soc. Cat. and Green Antigua, and Royal Providence of some gardens. The leaves of this sort are very distinct from all others; they are long, very broad, slightly spreading and keel-shaped at the base, tapering to a lengthened point; the upper surface is dull green with scarcely any meal, the lower surface is very mealy. Spines middle sized and regular. Flowers purple. Fruit pyramidal, broadish at the top, before ripening of a dark green, when ripe of a pale orange, slightly mealy, weighs about from three to six pounds, and is of

considerable excellence as a summer fruit; pips rather above the middle size and slightly prominent. Scales covering the pips, with long narrow pointed ends. Flesh pale yellow, opaque, slightly fibrous, sweet and pleasant without much acid. Crown small, leaves not very numerous.

22. St. Vincent's. This is the Green St. Vincents, Green Olive, and St. Thomas's of the Hort. Soc. Cat., and Green Providence, Stubton Seedling and Sugar-loaf Bahama, of some gardens. Speechly described the leaves as being the "same length as the Queen;" if well grown they will be found much longer, and differ only from the Green Providence in being narrower, less keel-shaped, and the upper surface paler green and rather more mealy. Flowers purple, middle-sized. Fruit bluntly pyramidal, slightly mealy and of a dull olive colour, when ripe of a dingy yellow, from two to four pounds, highly-flavoured, and swells readily during the winter months. Pips middle-sized, flat, and rather depressed in the centre. Scales covering nearly half the pips; the tops are short, and adhere closely to the fruit, which gives it rather an even appearance. Flesh pale yellow, opaque, juicy, crisp, without much fibre, rich, sweet, and very highly flavoured. Crown middle-sized, leaves rather numerous and slightly spreading.

23. Globe. The English Globe of the Hort. Soc. Cat. This sort is readily distinguished by the rigid and erect character of its leaves, which are narrower and slightly keeled, a bluish green and very mealy, especially on the under surface. Spines middle-sized and regular. Flowers lilac. Fruit globular, sometimes rather cylindrical, of a dark olive colour before ripening, afterwards of a darkish yellow, slightly mealy, generally weighs from three to five pounds, but does not swell very readily during winter. Pips middle sized, very slightly prominent. Scales covering about one-third the pips, and terminating in rather lengthened points. Flesh yellow, transparent, very juicy and slightly fibrous, sweet, rich, and rather acid. Crown small, leaves not numerous.

24. Lemon Queen. Barbadoes Queen, White Barbadoes and Lemon coloured Barbadoes of the Hort. Soc. Cat., and Ripley's New Queen of some gardens. This variety is easily distinguished by its leaves, which are grooved or channeled, and the margins often involute, of a bluish green colour, with a considerable quantity of mealiness. Spines rather deep and irregular. Flowers large. Fruit cylindrical, before ripening of a bright lightish green, when ripe pale lemon colour, and slightly mealy. Pips rather above the middle-size and flat. Scales covering about one-half the pips, ending in short points which adhere closely to the fruit. Flesh pale yellow, transparent, very juicy, a little stringy, rather sweet and pleasant, although not high-flavoured. Crown middle sized, often cockscomb shaped; generally weighing from three to five pounds; does not swell very readily during winter.

25. Otaheite. The Anson's of the Hort. Soc. Cat. Leaves long, rather broad, and of erect growth, nearly equal in breadth until near the top where they terminate rather acutely; they are also particularly flat, and of a dark bluish green slightly tinged with brown, and a little mealy on the upper surface, very mealy on the lower surface. Spines middle-sized and remarkably irregular. Flowers lilac. Fruit cylindrical inclining to oval; upon ripening deep olive green, covered densely with a cinerous meal, when ripe deep orange yellow, weighing from four to seven pounds. Pips large and flat. Scales covering rather more than one-third the pips and ending in short points, which adhere closely to the pips. Flesh pale yellow, rather stringy and slightly acid, with an abundance

of juice, but not particularly well flavoured. Crown small, leaves rather few and erect. In a small and select collection scarcely worth having.

26. Surinam. Leaves rather narrow, long and slightly spreading; of a bluish green colour, a little tinged and slightly covered with mealiness. Spines rather deep and not very regular. Flowers lilac. Fruit cylindrical, of a dull green before ripening; when ripe a deep orange and rather mealy, weighing from two to four pounds. Pips roundish, middle-sized, projecting and pointed. Scales covering about one-third part of the pips, and ending in lengthened reflexed points. Flesh pale yellow, transparent, rather stringy and very juicy, but neither sweet, rich, nor acid; an inferior sort.

27. Buck's Seedling Globe. Leaves long, rather narrow, somewhat keel-shaped and spreading, of a bluish green, slightly tinged with brownish purple and thickly covered with meal. Spines not very strong, but very irregular. Flowers darkish lilac. Fruit cylindrical, somewhat inclining to a globular form, before ripening of a dingy dull green and a little mealy, when ripe darkish orange, weighs from four to five pounds. Pips somewhat below the middle-size and a little prominent. Scales covering about half the pips, and ending in lengthened narrow points. Flesh pale yellow, rather close, firm and juicy, with a rich, highly-flavoured acid. Crown small, leaves broad, short and reflexed.

Brown-leaved Sugar-loaf. This is the striped brown Sugar-loaf, and Mocho, of the Hort. Soc. Cat. Nos. 81, 47, and the Brown Sugar-loaf and Antigua Sugar-loaf of some gardens, it must not, however, be confounded with the next. Leaves rather strong, broad, somewhat keel-shaped, and slightly spreading, dark green, much tinged with purplish brown, rather mealy. Spines middle sized and regular. Flowers lilac. Fruit cylindrical, of a dingy green, and considerably covered with mealiness, before ripening; when ripe, dark yellow inclining to orange, an excellent variety, weighing from three to five pounds. Pips large, slightly prominent. Scales covering nearly one half the pips, and ending in short blunt points. Flesh deep yellow, rather opaque, and slightly fibrous, not very juicy, but highly-flavoured and particularly sweet and rich. Crown middle-sized, leaves rather numerous and spreading.

29. Brown Sugar-loaf. The leaves of this variety are different from all the other Sugar-loaves; in appearance they much resemble the Enville, but are less mealy and more tinged with brownish red; the fruit also bears a striking resemblance to that of an Enville, but is nearly destitute of mealiness. Flesh is rather firm, deep yellow, opaque, without much fibre, very juicy, rich and highly flavoured, with a little acidity. Crown resembles that of an Enville; a good and handsome pine, weighing from three to five pounds, and swells readily in winter.

30. Mealy-leaved Sugar-loaf. White Sugar-loaf, Dominica, New Mealy-leaved Sugar-loaf, and Allen's Seedling of Hort. Soc. Cat., and Green Sugar-loaf, Anson's, Otaheite, and Brown Sugar-loaf of some gardens. This is readily distinguished from all other varieties by its leaves being channeled or grooved like those of the Lemon Queen, but in a less degree; it also differs in being less mealy, and tinged with dull brown. Flowers lilac. Fruit pyramidal, of a lurid green and slightly mealy, when ripe, of a pale yellow inclining to lemon colour, weighs from three to four pounds. Pips rather below the middle-size, flattish; scales covering rather more than one-third of the pips, and ending in lengthened acute points. Flesh very pale yellow, almost white, transparent, rather soft and fibrous, sweetish without acid, slightly aromatic, not very pleasant. Crown small,

leaves rather numerous; an inferior sort, scarcely worth growing. *Hort. Trans. vol.* i. *part* 1, *New Series.*

The Peach and Nectarine Trees distinguished by their germens. Mr. John Mitchell, gardener, Slapton, Devonshire, has discovered a method of distinguishing Peach and Nectarine trees at an early stage of their growth, when both first produce blossoms; to effect this he dissects a few of the flowers of the trees about which he is doubtful; and that which produces a villous germen always proves a peach tree, whilst those producing germens smooth, and shining, always proves a Nectarine tree. *Gard. Mag.*

Method of freeing Fruit Trees from Moss and Insects. Mr. James Thomas of Derveruden Green, near Chepstow, has found the following mixture an excellent application for the purpose. The mixture is made by taking five bushels of well-burnt lime, fresh from the kiln, and slaking it with hot water, in which salt has been dissolved. When the lime has fallen to a fine dry powder, add, by small quantities at a time, a bushel of soot, stirring it in till the two ingredients are completely incorporated. Advantage is taken of the first foggy day when the trees are damp, but not dripping, to dust them over with this powder. One man may treat fifty trees in a day, and the operation, in Mr. Thomas's opinion, should be repeated twice a year; the first time March, and the next in October or November. *Transactions of the Society of Arts.*

American mode of Planting Potatoes. Dig holes three feet distant, put the usual quantity of dung at the bottom of the holes; put in each hole three or four sets, and if it should be a dry summer, the roots will have the advantage of moisture: while they are growing, frequently mould them up well, as there will be sufficient room.

FLORICULTURAL INTELLIGENCE.

New and very Rare Plants. figured in the Periodicals for September.

CLASS I.—DICOTYLEDONES, OR EXOGENES.

CACTE'Æ

Mammill'aria te'nuis.—Taper Mammillaria. This curious and beautiful little plant, ought to be obtained by every lover of succulent plants; its flowers are small, and of an ocherous-white colour; its native country is unknown to us. Introduced by M. De Candolle. Culture.—It flowers in May, and propagates readily by means of the little round hedgehog-like bulbs, which it produces in abundance. They should be planted in lime-rubbish, and a little vegetable soil kept just damp, where they will strike root, and speedily establish themselves. Once rooted, nothing but frost or over-watering will destroy them.—*Bot. Reg.*

LEGUMIN'OSÆ.

Ho'vea chorozemæf'olia.—Chorozema-leaved Hovea. Flowers dark purple. Native of New Holland, from whence it has been lately introduced. Culture.—It is a very healthy green-house shrub, and will thrive, we suppose, like the rest of the species, in equal parts of sandy-loam and peat. Young cuttings will strike in sand under a bell-glass.—*Bot. Reg.*

Choro'zema ov'atum.—Ovate Chorozema. Flowers bright scarlet, and yellow. Native of the South-west coast of New Holland, where it was collected by Mr. Baxter. Culture. Like the other species, it will probably thrive in equal parts of sandy-loam, peat, and leaf-mould; it flowers in May, and increases by ripened cuttings struck in sand under a bell-glass. It requires the protection of the green-house.—*Bot. Reg.*

DILLENIACEÆ.

Hibbe'rtia cunningh'amii.—Mr. Cunningham's Hibbertia. Flowers bright yellow, petals waved, and handsome. Native of New Holland. Introduced by Mr. Allan Cunningham.—*Bot. Mag.* Culture.—All the species thrive in an equal mixture of sandy-loam and peat, and may be readily propagated by cuttings planted under a hand-glass in the same kind of soil. They are very pretty green-house plants.

PROTEACEÆ.

Grevi'llea robu'sta.—Gigantic Grevillea. A gigantic tree growing from eighty to one hundred feet high, never yet flowered in this country. The figure drawn from a native specimen, has flowers of a tawny-orange colour. It was introduced by Mr. Allan Cunningham, who says, "in the thick moist woods, on the banks of Brisbane River, this noble species of Grevillea, vies in size and stature with the Flindérsia, O'xleya, and other large forest trees; but by none is it surpassed in height in its native woods, except by the Araucària. Some aged trunks of G. robusta, I have found to measure nine feet in circumference. From its deeply-dissected foliage, and the silkiness of the under side, it has obtained the name of "*Silk Oak*" among the pine-cutters of Moreton Bay; but its timber, which is of a tough fibre, has not been appropriated to any use."—*Bot. Mag.* Culture.—They may be potted in equal parts of turfy-loam, leaf-mould, and sand, and should be placed in the coolest part of the stove: ripened cuttings will most probably grow in a pot of sand under a bell-glass, if they are not allowed to become too damp.

ROSACEÆ.

R'osa i'ndica, *var Smithii.*—Smith's yellow Noisette Rose. Flowers about the size of the double yellow china rose, but of a much deeper colour, and like the Noisette rose, in clustered corymbs of from ten to twenty-two, and highly fragrant. Raised by Mr. Smith, of Coombe Wood, from the Noisette, fertilized by the pollen of the yellow China. Culture.—It is perfectly hardy, and may be readily increased by cuttings, like the common China rose, and may be regarded as a very valuable addition.—*Brit. Fl. Gard.*

MALVACEÆ.

Si'da au'rea.—Golden-flowered Sida. Flowers a rich gold colour. Native of India, from whence seeds were lately introduced. Culture.—It requires the stove, and will increase by cuttings. The soil should be rich loam.—*Bot. Cab*

ERICEÆ.

Er'ica villosiu'scula. Flowers of a pink colour, lately introduced from the Cape, by Mr. Lee; it grows very bushy, and flowers abundantly in May. Culture.—It requires the usual treatment of an airy green-house, and cuttings of it strike without difficulty. The soil should be sandy peat.—*Bot. Cab.*

EPACRIDEÆ.

Dracophy'llum capit'atum.—Headed Dracophyllum. Flowers white, striped with light blue, growing in a bunch or head, whence its specific name. Na-

tive of the South Coast of New Holland, discovered first by Mr. Brown, and has been lately raised by Mr. Knight, from seeds collected by Mr. Baxter. Culture.—It requires the protection of an airy green-house, and may be increased with difficulty by cuttings.—*Bot. Cab.*

CLASS II.—MONOCOTYLEDONES, OR ENDOGENES.

AMARYLLIDEÆ.

ALSTRŒM'ERIA HÆMA'NTHA. Flowers of a deep orange-red, about the size of A Simsii, and like them umbellate. Introduced from Chile by Lady Oakes. Culture.—It appears to require the same treatment as the A Simsii. *Brit. Fl. Gard.*

IRIDEÆ.

IR'IS NERTCHI'NSKIA.—Nertchinsk Iris. Flowers dark blue and yellow. Native of Nertchinsk, in Siberia, on the borders of China, from whence it was introduced by Dr. Fischer. Culture.—It is a hardy herbaceous plant, growing pretty well in a good soil, and increasing without difficulty by dividing the roots. *Bot. Cab.*

ORCHIDEÆ.

ANGR'ÆCUM EBU'RNEUM.—Ivory Angræcum. (Fig. 122.) This Genus was first established by Du Petit Thouars, in 1822. It consists as far as is at present known, exclusively of plants, native of trees in the islands of Bourbon, Mauritius, and Madagascar, and of the south-eastern part of the continent of Africa. The flowers of the present species are without scent, both the segments of the Calyx, (sepals,) and the petals are bright green; the front heart shaped segment, (Labellum,) is of a beautiful shining white, like ivory, hence its specific name. Native of the island of Bourbon, where it was found both by Col. Bory de St. Vincent, and M. Du Petit Thouars, growing upon trees. It was also met with at St. Mary's, Madagascar, by the unfortunate Forbes, by whom the only plant, that is known to exist in Europe, was sent to the Horticultural Society. It grows slowly, without manifesting the smallest disposition to branch, or provide means of propagation.—*Bot. Reg.*

A'CERAS SECUNDIFLO'RA.—One sided Aceras. Flowers of a brownish red, small. Introduced from Madeira by the Rev. Mr. Lowe. Culture.—It is a neat little plant, requiring the same kind of treatment as Ixias and other Cape bulbs; that is to say, to be kept quite dry and quiescent during summer. Under such management, Mr. Henderson, at Lord Milton's, succeeds in making it flower freely every spring.—*Bot. Reg.*


C.J. Fleming

ARBORICULTURAL INTELLIGENCE.

On Transplanting Evergreens. The seasons generally taken advantage of for transplanting evergreens are spring and autumn: that is, about the month of May, after the spring frosts are supposed to be over, or in the month of August, before the frosts set in. Mr. John Kinment, gardener at Murie, in Scotland, has invariably found, that such plants as were removed in April and May, had an advantage over those transplanted during the preceding autumn. The reasons he assigns for this circumstance are, that such plants as are lifted in August cannot be supposed to have their young wood so well ripened off as plants that remain undisturbed at that season of the year; if the plants be checked by being transplanted at that season of the year, when the young wood is imperfectly ripened, generally in place of their pushing away vigorously in spring, the young wood is apt to die back, the leaves assume a sickly yellow appearance, and the whole plant is rendered an eyesore. Take advantage of moist weather for removing the plants, and having fixed on the various situations where they are to be placed, cause the pits to be made before the plants are lifted, then take them up, with good roots and balls as entire as possible; the plant, if large, should be put into a handbarrow, made for the purpose, and carried to its destination by two or four men, according to its size or weight; let it carefully down into the pit then adjust the roots and cover them with fine mould, then gently press the soil down with the foot, and give a slight watering through the rose of a watering pot, afterwards fill up the pit and level off; gentle waterings must be occasionally given in the course of the season; in ordinary seasons two or three waterings will be sufficient. On stiff soils, or under large trees, the plants are much benefited by trenching and loosening the earth a few feet all round them the following winter or spring, after being transplanted. On dry soils, and in sheltered situations, evergreens may be transplanted during the winter months with success; but on low lying retentive soils, it is advisable to defer the transplanting of large evergreens till at least the beginning or middle of April.—*John Kinment, Mem. Cal. Hort. Soc.*

On Pruning Forest Trees. Forest trees are regarded either as objects of ornament or of profit. Ornamental trees require no assistance from the pruner. Natural forms cannot be improved by art, even when directed by the most refined taste. It is only in woodlands, raised or maintained as sources of profit, that the skill and exertions of the forest pruner are available. In such cases, the special object is to obtain the greatest quantity of marketable timber. To have timber of the finest grain or quality, no lateral branches that grow within the convenient reach of the pruner should be allowed to arrive at any considerable size: the soundness of timber is not deteriorated by pruning, provided the wounds made in the execution be no greater than will be healed during the following summer. A scar made by the axe, bill, or chisel, if exposed longer than twelve months, will always remain a flaw; for though it may afterwards be covered smoothly over with collapsing wood, it is impossible that any perfect union can take place between a surface of timber which has been exposed to the air for several months, and that which is subsequently formed over it. All wood work (except oak felling and peeling) is done in winter, chiefly because the leaves are off, and the growth has stopped. It is necessary to observe, however, that pruning performed in the

beginning of summer would be a better practice for the good of the trees. The reason is, because wounds made in winter do not begin to heal till after the summer growth takes place. It should be a rule with the pruner never to make a wound that cannot be healed in the course of six months; but he can only attend to this by a timely application of the knife or chisel. A handsaw should never be used in pruning forest trees; because, if the irregular branch be so large as to require this tool, it had better remain where it is: and because though it may injure the columnar form of the bole externally and the regularity of the grain internally, the place where it joins the main body will always be found sound, which it would not be, if cut off. Very tall handsome boles may be formed by the assistance of long ladders, handsaws, and jack-planes; but though these large and carefully polished scars, will be in a few years covered with healthy wood and bark, the marks of the tools will always remain a defect in the timber when it comes to the saw-pit. These circumstances show decidedly the necessity of early pruning, as well to secure quality as desirable forms of timber. To take care that every tree has a principal leader, is a material object of early culture, and to maintain its superiority in after growth, a chief point to be attended to. All laterals that show a rivalry, so as to divide or deform the axis, should be displaced. Very small branches, or spray, need not be taken from the stem; whether they live or die they cannot deteriorate the timber. Forest tree pruning should be done gradually, and continued till the business becomes inconvenient, or too expensive; and if judiciously done during the first ten or fifteen years, sufficiently fine forms will have been given, and proper length of bole secured. The larger the head of a tree, the larger must the trunk be also, the diameter of the latter is increased by the number of branches which are or have been produced by the former. In proportion as the roots are increased and extended, in like proportion are the head and stem. Severe mutilation of the head paralyses the energies of the roots, and *vice versa*. Reducing the number of branches, to give magnitude to the stem is ridiculous. Regulating the growth of the branches, by stopping or cutting out such as are over-luxuriant, gives supremacy and direction to the leader, but no addition to the stem, or any other part. It is wrong that any advantage derivable from wood-lands should depend on or be left to chance. Oak of the straitest or cleanest grain is required for planking, beams, posts, &c. but besides this description, in the dock-yards, cross-grained buts, and knee timbers are in request, and consequently valuable. The *former* quality is obtained in the shortest time, by rather close planting, early and careful pruning, and timely thinning if necessary; the *latter*, by open planting, and partial pruning, i. e. not by aiming at a tall smooth bole, but by leaving the branches in sets of three or four (as it may happen) diverging from one place, and clearing the trunk of all intermediate branches and spray between these sets. But in all ordinary cases, if a sufficient length of bole be gained, the branched head may be depended on to furnish knee timbers. Pine and Fir timber, for the use of builders and mast makers, cannot be too free from knots, and it is impossible to have it so, unless planted and trained up as closely as possible. Fine-grained deal cannot be produced, unless the trees are planted, or chance to stand, as those in Norway, from which battens and ladder poles are cut for exportation, so closely together as to prevent all extension of branches. All the pine and fir tribe intended for profit, should be planted to grow up, and be all cut down together, like a crop of corn. They do not admit of being partially drawn. A single fir

tree requires a large space, and produces the worst timber. Planted as nurses in young plantations of deciduous trees, they are easily kept within due bounds, by a very simple method of pruning, practised by Mr. Billington: viz. by pinching off, from time to time, the leading buds of the branches.—*J. Main, Gard. Mag.*

Successful Experiment, tried by the Author of Gleanings in Natural History, for transplanting large trees in Bushy Park, in 1831. The plan is as follows:—excavate the earth at some distance from the tree, leaving all the principal fibres, and the earth adhering to them, in a compact ball, undermining as much as possible, and taking care not to shake or injure the ball by twisting the stem of the tree, or using it as a lever to loosen the tap roots: when this is done, and a hole made where the tree is to be placed, adopt the following mode:—Two pieces of iron must be previously formed, of the breadth and thickness of a common cart-wheel tire, three or four inches wide, rather more than half an inch thick, and about six feet long, bent in the form of (Fig. 123,) which will reduce it to three feet across. This will do for trees requiring from two to four men to lift them; but a size larger and stronger in proportion will be wanted for trees, which will require eight or ten men or more to carry them. Put these irons under the ball of earth, as near the centre as possible, leaving a space between them of about two feet, and for larger trees a little more; run two strong poles about eight or ten feet long, and three or four inches in diameter, but smaller at each end. Apply these poles, as shewn in the sketch, (Fig. 124, a) to each side, passing them through the bends of the irons, so as to form a complete hand-barrow, the tree may then be lifted.

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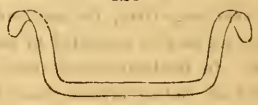
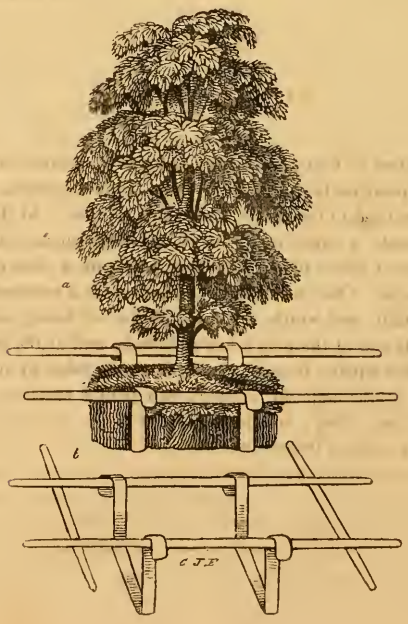


124



Cross levers may be used for larger trees, which require more men, as (Fig. 124, b) so that as many men can conveniently apply their strength to it, as are wanted, without being in each other's way. The whole is fixed and unfixed without any loss of time, and requires no tying, nor is there any danger of its slipping off. The roots which extend beyond the ball are cut off at the further side of the trench, and are left projecting. In taking up the tree, it is advisable to go much wider with the spade *from* it than the ball is intended to be; the size of the ball may be afterwards reduced with a pick, so that scarcely a root will be materially injured. In planting, spread the projecting roots out carefully in different layers, as near as possible to their original position, as the hole is gradually filled with mould. The best way of forming the ball, is to prepare it the year before the tree is to be taken up. This is to be done by digging round, and cutting most of the principal roots. This has long been practised with success; but where this precaution has not been taken, the above method will be found preferable to cutting the roots close to the side of the ball of earth. In removing very large trees, the taps and other large roots, which cannot conveniently be got at, may be separated by means of a long chisel, applied under the ball of earth. In moderate sized trees, however, this is not required. The trees removed are not so large as those described by Sir H. Stewart, had it been necessary for me to have planted larger trees, I have no doubt but I should have succeeded equally well, as by means of the cross-levers, the strength of a proportionate number of men may be readily applied. I do not find that any of the trees which I have thus planted require support, as the large ball of earth steadies them sufficiently."—Abridged and transcribed from Jesse's Gleanings in Natural History.—By

A Constant Reader.

NATURAL HISTORY.

Mode of Fishing in China.—Among the many amusing scenes which strike the eye of a European, on his first visit to China, is the ingenious mode of fishing which he sees practised in the neighbourhood of Canton. At the stern of their little punt-like boats, a small mast like a flag-staff, about eight feet high, is fixed. To the top of this a block is made fast, having a sheave to carry a one and a half inch rope. One end of this rope is fixed to a bamboo pole, twelve or fifteen feet in length, and which is hoisted higher or lower, according as it is wanted. The butt end of the pole is kept inboard; and at the other end a light net, about eight feet square, is slung; being kept distended by two slender rods, fixed diagonally to the opposite corners, and bound together in the middle, where they cross each other; and where also they are fixed to the end of the swinging-pole. A stone is thrown into the middle of the net to assist it in sinking, so that it may be, when down, spread out on the bottom of the river. When the fisherman thinks any fish are passing over the net, he suddenly hoists it above the water; and if he has made a capture, he swings the net inboard to take out the fish; if none are caught, the net is dropped again in the same or some other place.—*Mag. Nat. Hist.*

The Divi Ladner is the Tabernæmontàna alternifolia of botanists, and Eve's apple of the descendants of the Portuguese in Ceylon. (Fig. 125.) The name applied to this tree by the latter people originates in the tradition which prevailed in former days, among the Mahometans and the Portuguese, that Ceylon was the paradise described in the scriptures, that the garden of Eden was situated in it; and that the fruit of this tree was the forbidden fruit of which Eve eat. In confirmation of this tradition, they referred to the beauty of the fruit, and the fine scent of its flowers, which are most tempting: and to the circumstance of the fruit having been excellent before Eve tasted it. The shape gives it the appearance of a fruit, a piece of which had been bitten off; and its effects are so poisonous at present, that two European soldiers, shortly after the capture of Colombo in 1795, being unaware of the nature of the fruit, were tempted by its appearance to taste it, and very soon after sickened and died.—*Mag. Nat. Hist.*

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The Possibility of Naturalizing the Fire Fly.—It abounds not only in Canada, where the winters are so severe, but in the villages of the Vaudois, in Piedmont. These are a poor people much attached to the English; and at ten shillings per dozen, would no doubt, deliver in Paris, in boxes properly contrived, any number of these creatures in every stage of their existence, and even in the egg, should that be desired; and if twenty dozen were turned out in different parts of England, there cannot remain a doubt, but that, in a few years, they would be common through the country; and, in our summer evenings, be equisitely beautiful.—*Mag. Nat. Hist.*

Teal.—During the months of November, December, January, and February, the climate of Jamaica is rendered delightfully cool, by the blowing of the north-west wind, which passes over the continent of the North America, and, except an occasional light shower, the sky is always bright with constant sun-shine; so that at an elevation of one thousand eight hundred feet above the level of the sea, the thermometer ranges in the morning from 56 to 60 degrees, and at noon from 70 to 75 degrees. Through the above-named period, the island is visited by vast flocks of Teal, supposed to be the same species named by Gmelin, the Carolinénsis or American Teal. They make their way to ponds, and up the courses of rivers; and are shot in great numbers. This bird is most delicious eating. It is considered to come from the southern states of North America. It is thought some remain in Jamaica all the year, breeding in swamps and lagoons near the sea.—*Mag. Nat. Hist.*

The Nightingale.—At Goldalming in Surrey, on the 12th of December, (either 1823 or 1824,) Mr. E. Newman of Deptford, heard the Nightingale singing clearly and distinctly, although not very loudly; he had a companion with him at the time, a close observer of birds, who has several times since, borne testimony to this remarkable fact. In the same neighbourhood, the nightingale has been frequently seen in the month of October, and once in November.—*Mag. Nat. Hist.*

A Curious Fact concerning Bees.—As a small vessel was proceeding up the Channel from the Coast of Cornwall, and running near the land, some of the sailors observed a swarm of bees on the Island: they steered for it, landed, and took the bees on board; succeeded in hiving them immediately, and proceeded on their voyage. As they sailed along shore, the bees constantly flew from the vessel to the land, to collect honey, and returned again to their moving hive; and this was continued all the way up the Channel.

Silkworm.—A striking and interesting peculiarity of this insect is, that it does not wander about as all other caterpillars do, but is nearly stationary in the open box or tray where it is placed and fed; for after consuming the immediate supply of mulberry leaves, it waits patiently for more being provided. This docile quality of the worm harmonises beautifully with its vast importance to mankind, in furnishing a material, which affords our most elegant and beautiful, if not most useful of garments. The same remark applies to the insect in the fly or moth state, the female being quite incapable of flight; and the male, although of a much lighter make, and more active, can fly but very imperfectly. The latter circumstance insures to us the eggs for the following season, and thus completes the adaptation of the insect in its different stages, to the useful purpose it is destined to fulfil for our advantage.—*Mag. Nat. Hist.*

The Aracacha.—The Aracacha grows naturally in New Grenada, and other parts of Columbia, where it is known under the name of *Apio*, and is considered the most useful of all those plants, the roots of which are appropriated to the nourishment of man, being superior to the potatoe species, and its flavour more agreeable. It is tender and easily cooked, and is found to be so congenial with the stomach, that it is recommended as a food most fitly adapted both to the convalescent, and those who digest other aliments with difficulty. This plant, which grows in those countries where the temperature rarely rises above 60 deg. Fahrenheit has for some time past, attracted the attention of the Horticulturalists, both in Europe and the United States, and trials have been made with it at Montpellier, Geneva, the horticultural establishment at Fromont, and elsewhere. At Bogota, where the mean temperature is about 60 degrees, a light soil is selected for its cultivation. The roots are planted about fifteen or eighteen inches apart, and when they appear above ground, they are treated in the same manner as potatoes, care being taken to nip off the flowers as they form. In New Grenada, they are six months in coming to perfection.—*Recueil Industriel.*

Preparation of Caustic Potash.—If one part of carbonate of Potash be dissolved in four parts of water, and the solution boiled with slaked lime, the potash does not lose the smallest quantity of carbonic acid; it does not become caustic, even though lime be added to any extent, or however long the boiling may be continued. If however, six parts of water be gradually added to the above mixture, it will be found, and without further boiling, that the potash loses its carbonic acid gradually; and that after the addition of the last portion of water, the potash is perfectly caustic. If the water be added at once, the potash becomes very quickly caustic. This peculiarity is explained by the fact, that concentrated caustic potash takes carbonic acid from lime. This fact is readily proved by boiling powered chalk with concentrated potash, entirely free from carbonic acid; the solution added to muriatic acid, occasions brisk effervescence. M. Liebig states, that the carbonate of potash which is to be made caustic, should be dissolved in at least ten parts of water.—*Ann. de Chim. et de Phys.*

Fondness of Poultry for Pepper.—The Capsicum frutescens, which alone affords, when dried and powdered; the genuine Cayenne pepper, is commonly known in Jamaica by the name of bird-pepper, or hen-pepper, on account of its being so much eaten by birds, and especially by hens and turkeys, which will not leave a pod remaining on the bush, that is within their reach, by jumping up to them. They are so fond of these pods, as to eat a great number of them at a time. These peppers are called *Chilies* in England. Even the Cayenne sold in Jamaica is prepared from several sorts of red capsicums, mixed with the C. frutescens; but they are all much inferior in pungency and fine aromatic flavour; and persons who would have it genuine are obliged to prepare it in their own families.—*Mag. Nat. Hist.*

PART III.

MISCELLANEOUS INTELLIGENCE.

I.—QUERIES, ANSWERS, REMARKS, ETC.

Pæonies and Scotch Roses.—It has often come into my head to ask you, whether it would be possible to force some of the species of the Pæony, so that we might have them in the drawing-room before Christmas, and during the winter months? Could the Scotch rose be made to blossom in autumn by shearing it over in spring? Would the Scotch rose force well?

Would it be possible to make the Pæony blossom in autumn?

Can you tell me what good sized Pæony roots of the commoner sorts sell for by the dozen?

I went the other day to the Horticultural Garden. I am surprised to find they do not make more experiments of this kind. It is a very pretty and well kept garden, and abounds in Hollyhocks and Lupinus polyphyllus; I also saw the Eschschóltzia californica; all three very curious and rare plants in some parts of the world, no doubt, but not near London.

I have an old hawthorn-hedge round my garden, which is rather hollow at the bottom, could I not strengthen it and add to its beauty, by planting a row of Scotch roses? I think these plants might be used a great deal more than they are in gardens; how often do we see young plants protected against hares by twigs of gorse or furze, would not small Scotch rose plants do as well, and become very ornamental in a short time? When the plants were large enough to be safe, the rose plants might be removed, certainly these would be very ornamental nurses. An Amateur.

Answer to an Amateur.—All the species and varieties of *Pæony* will force well, but especially those of the tree (P. Moutan) varieties, which may be brought into flower at almost any time during the winter, and early spring months.

We are not aware that any means could be used to make the *Scotch roses* flower in autumn, if cut much with either knife or shears, they never flower freely, often not at all.

There is no doubt, but the *Scotch rose* will bear forcing, although we never remember seeing it tried; perhaps some of our correspondents would favour us with their experience on the subject.

The flowering of the *Pæony* could not be retarded by any means we are acquainted with, unless the entire growth of the plant could be stopped; this would always be attended with considerable difficulty, and perhaps in many cases be totally impracticable. After the roots had undergone a few years' forcing, they would annually shew a disposition to flower quite out of their usual season.

An insertion of the prices of the roots, would subject us to advertisement duty.

The bottom of an old hedge might be well filled up, and would soon appear very ornamental, by planting Scotch roses in the vacant places, it would not add much to the strength of the hedge any further than by filling up the hollow parts: if Scotch roses would prove a sufficient barrier against the depredations of hares, when planted round young trees, they would be much more ornamental than twigs of gorse or furze tied round the stem; but we are not satisfied whether they would answer the same end, having never seen them tried.—Cond.

Hoya carn'osa.—To your Correspondent *Florilegus*. The Hoya carnosa, is the most easily propagated of any stove plant I know of; it only requires to be cut into pieces, and stuck into a rich garden soil. J. Howden.

Propagation of Oranges.—Pray what is the best method of increasing the Orange, and the most proper time for performing it? B. C.

Culture of the Guernsey Lily.—I should be very glad to be informed by some of your numerous correspondents, the method of cultivating the Guernsey Lily, (Nerine sarniénsis) as I do not recollect seeing it in any work. Hortulanus

Answer.—We intend shortly to give our observations on its culture, in the mean time we refer Hortulanus to page 694 of the present number, where he will find a detailed account by Arthur.

Article on the Culture of the Pine Apple wanted.—I have perused, with some anxiety, every one of your numbers as they have appeared, hoping to meet with a paper on the Culture of the Pine Apple, but I have hitherto been disappointed. I should feel much obliged, if you, or any of your correspondents would favour me with one at an early opportunity, together with the probable expenses of erecting a house to grow them in, whether the old system of tan and fire flues, or the new one with steam aad hot water is best, as I am but a novice in the business. B. C.

Sugar Baker's Scum.—Have any of the readers of the Register, made use of this manure for Horticultural and Floricultural purposes? does it succeed? in what quantities, how and when is it applied? G. A. L.

Beautiful Varieties of Ixia, and their Culture required.—I lately noticed some beautiful varieties of the Ixia, in the collection of a friend of mine, particularly the Helèni, viridiflòra, grandiflóra, (Sparaxis grandiflora?) ròsea, (Trichonema roseum?) flexuòsa, trìcolor, (Sparaxis tricolor?) and carmine. And as I am desirous of also forming a collection of these handsome flowering plants, you would oblige me by adding such names of other varieties, besides those enumerated, that may be equal if not superior to the same. And I have further to request being made acquainted with the proper season for potting the roots, and the usual months of their being in flower. A Subscriber.

Answer.—The proper season for potting the roots is the month of October, the soil most suitable is equal parts of leaf-mould, sandy loam, and peat, well mixed. When potted, set them in a cool frame, and protect them from severe weather till the pots are pretty well filled with roots, then remove them to the green-house or room, where they are intended to flower. After the flowering season, when the leaves are dead, keep the roots perfectly dry in the pots, which is preferable to taking them up; in October re-pot them, and begin to sprinkle with a little water as they require it. The usual flowering season is chiefly in April, May, and June, although some species flower much earlier. We should recommend Sparaxis lineata, Streptánthera cuprèa, and élegans, which are new and very beautiful species. Our correspondent will see we have not strictly confined ourselves to the Ixia genus, as we observed he had not. Conductors.

Errata to the Article of Arthur.—Page 695, line 13 from the bottom *for* "and many ripen plenty of seed. A shell peeled off the bulb with a leaf attached, will grow freely if some pollen be shaken on the stigma, at the proper period, &c." *read* and many ripen plenty of seed, if some pollen be shaken on the stigma, at the proper period. A shell peeled off the bulb with a leaf attached, will grow very freely. &c.

II.—SOCIETIES,

CONNECTED WITH HORTICULTURE AND NATURAL HISTORY.

LONDON HORTICULTURAL SOCIETY.

At the last meeting of the Society, communications were received and read, from T. A. Knight, Esq. the president of the Society, and from Dr. Knight, the professor of Natural Philosophy, in Marischal College, Aberdeen. They respectively treated on the advantages of irrigating garden grounds by means of Tanks and ponds, and on the most approved method of drying plants for the Hortus Siccus.

The contributions of flowers and fruit to the Exhibition, were as usual, very numerous and beautiful. The following were among the most attractive. Noblesse peaches from the Duke of Devonshire's garden, at Chiswick; striped Hoosainee melons from T. A. Knight, Esq.; large early, Royal, Orange, and Black Apricots; Morocco, Wilmot's new early Orleans, and Cherry Plums: the latter a French variety which bears abundantly.—Citron des Carmes and green Chisel pears; late Duke and Carnation cherries, and twelve excellent sorts of gooseberries. One of these varieties was the Pitmaston green gage gooseberry, which has the good quality of hanging for a considerable period on the bush, without acquiring acidity. It is therefore good for matting up, to keep late in the autumn.

In the flower department, we observed a handsome collection of Carnations and Picotees, Dahlias, Trachymene cærulea, Eccremocarpus scaber, Madia elegans, American runner, Fuchsia virgata, and many of the beautiful varieties of Salvia, Pentstemon, and Verbena.

The meetings have now terminated until October. The meeting room being under repair.

DUNDEE HORTICULTERAL SOCIETY.

The July meeting of this Society, was held in the Caledonian Hall, when the vegetables and fruits exhibited were very excellent, and was much admired. Mr. Kinlock produced some well preserved apples; and Mr. Kidd, Rosié Priory, two young vine plants in pots, each bearing a good bunch of grapes, approaching to maturity; these plants were produced from the surplus shoots taken from vines trained on the spur system. Mr. Kidd having gathered a few of these spare shoots showing blossom bunches, planted them in pots, placed them in a close moist heat, and succeeded in rooting them, and perfecting the fruit.

THE MARKET OVERTON SOCIETY OF FLORISTS,

Held their Annual show of Carnations, on Wednesday the 1st of August, when there appears to have been a good competition, and many prizes awarded.

THE WYMONDHAM SOCIETY OF FLORISTS,

Held their Annual show, at the Hunter's Inn, in that place, on Wednesday, the 8th of August, which was well attended, and gave great satisfaction from the excellent assortment of Carnations.

III.—MONTHLY HORTICULTURAL CALENDAR.

FOR OCTOBER.

The fruit trees in most places appear to have suffered more or less from the attacks of insects this season, owing, no doubt, as we formerly noticed to the open weather last winter. The wood also appeared later in ripening than in the preceding year, owing probably to the quantity of rain which fell during July and August. This however has been chiefly remedied by the very fine weather in September, and the trees now promise well for a good show of blossom next spring. At page 192 we recommended planting all kinds of fruit trees this month, if the wood was well matured, and we urged the necessity of doing it before the leaves fell, considering them important to the welfare of the trees. If any green-house plants remain out of doors, the sooner they are brought in the better. Every exertion should be used when there is dry weather, to gather in and housing of fruits, &c. and making preparations for the ensuing year.

FRUIT DEPARTMENT.

Apples s' ould now be gathered in dry days, and carefully placed in the fruit room, or packed in earthern jars, page 192 and 563, and placed in a cellar; those who have not such conveniencies may do as recommended, page 45, 192, and 607.

Apricot Trees should be kept securely nailed to the wall, as the branches at this season, if neglected, are liable to be broken by the winds, page 192. The *Moor-park* is apt to be infected by the Canker. For Mr. G. Lindley's remedy, see p. 164.

Peach and Nectarine Trees must also be kept securely nailed until the leaves fall, for their treatment, p. 18, 192, 481, 534, 673, and 721.

Cherry and Plum Trees by the end of the month, if the leaves are all off, pruning may be commenced.

Grapes. Vines in pots, now brought into the Vinery, will ripen their fruit in the beginning of March, p. 6, 185, 490, 536. Those growing on flued walls, must be screened from all frosts until the fruit is ripened and cut; also it will be necessary to make fires to ripen the wood, p. 73; expose to the open air those intended to be trained on the rafters, until the time appointed to force them; their mode of pruning is noticed 338, and the Culture as practised in France 341

Gooseberries and Currants may be pruned when the leaves are off, and the wood ripe; this is also the best time for planting them. See Muscroft's Observations on the Gooseberry, where sorts are recommended, p. 203.

Strawberries. New beds may still be made, but they do better if planted in September, p. 192; also H. J's mode of planting, p. 329: and Mr. Fairbairn's method of making the beds, p. 262; those in pots intended for forcing, should now stand in a south aspect, p. 395.

FLOWER DEPARTMENT

Carnation layers must be protected from heavy rains, frosts, and cutting winds.

Auriculas should now be placed in frames to stand through the winter, p. 57.

Dahlias.—Lay about four inches thickness of rotten bark or leaf-mould over the roots, two feet round the stem of each plant, to prevent the crowns from being damaged by sudden frosts p. 147, and by the end of the month they will probably require to be taken up.

Hyacinths should now be planted, but they do well if not put in till November. See p. 588.

Tulips At the end of the month, or the beginning of November, tulips should be planted; this is also the time generally practised for sowing tulip seed, p. 105.

Chrysanthemums in pots should now be removed into the green-house, give abundance of air to keep them from drawing, or they will flower weakly.

Propagate Pelargoniums by cuttings, p. 102.

Forcing Plants from the natural ground, intended for forcing in spring, should now be potted carefully, as pinks, carnations, &c. &c.

Roses in pots now placed in the forcing-houses, will produce flowers about Christmas, p. 248.

Ranunculuses now planted in frames, will bloom in February.

Petunia nyctaginiflora. Seedling plants, may be turned out in a warm border.

Tigridia pavonia growing in the borders, should now be taken up, p. 187.

VEGETABLE DEPARTMENT.

Cabbages for spring crops, should now be planted. Prick out a small bed to fill up with in the spring, or plant for a second crop.

Celery should be earthed up in dry weather. See p. 192, 289, 290, and 433.

Cauliflowers should now be planted on a south aspect under hand-glasses, for an early crop, also prick out a quantity in frames, or close under a south wall; let some be potted in 60-sized pots, and sheltered in a frame, to turn out for the first crop.

Lettuce to stand the winter, should now be planted close under a south wall, and some in frames, lest those under the wall should be destroyed by frost.

Peas and Beans may be sown in favourable situations for an early crop, but they are not to be depended on.

Onions should now be taken up, if not done last month, choose dry weather for the purpose, and let them lie exposed to the sun until they are perfectly dry, then remove them to a dry airy room.

Herbs for forcing should now be potted, as Mint, Tarragon, &c.

Asparagus beds may receive a top-dressing towards the end of the month, upon Mr. Robertson's system, p. 73.

HARDCASTLE & JONES, PRINTERS, CHURCH-STREET, SHEFFIELD.

THE

HORTICULTURAL REGISTER.

NOVEMBER 1ST, 1832.

PART I.

ORIGINAL COMMUNICATIONS.

HORTICULTURE.

ARTICLE I.

THE TREATMENT OF THE CAPSICUM FRUTESCENS.

BY MR. JOHN WOOLLEY.

Gardener to the Marquis of Stafford, Trentham.

I AM induced from the request of your correspondent "Sage," to send the following account of my method of treating the Capsicum frutescens. In February, or early in March, I sow the seeds in pots of rich mould, and place them in a hot-bed. When the plants are about three inches high, I plant them in pots of four inches diameter, three or four in a pot, and again place them in the hot-bed, until they are about nine inches high, when I repot them in pots six inches in diameter. I then place them in the stove until they have established themselves, when I again shift them into pots of nine inches diameter, they are then placed in a hot part of the stove exposed to as much light as possible; in this situation they will fruit freely. In the autumn I place them in a cool house, having about the temperature of 55 degrees, here they are allowed to remain in a dormant state until February, when they are repotted in pots of 12 inches diameter, and treated as before described; in the second season they will be found to fruit very abundantly.

In the autumn I again place them in a cool house and treat them as before. These old plants are not potted in the spring, but about the end of May I begin to expose them by degrees to the weather, and by the middle of June I plant them in a warm border without disturbing their roots, they then fruit well all the succeeding summer. The composition in which I grow them is a light rich loamy soil, with nearly one-third of decomposed leaves well ameliorated by the frost.

JOHN WOOLLEY.

Sept. 27*th*, 1832.

ARTICLE II.

ON PRESERVING FRUITS AND SEEDS.

BY A PRACTICAL GARDENER.

YOUR correspondent "J. T." (p. 688) notices an instance of an importation from the East Indies of seeds, which, being mixed with charcoal dust and infolded in paper, proved to have retained their germinating powers unimpaired by the voyage. The writer adds, that he is not aware whether that method is much practiced. Upon this point I am also in ignorance, but the following extract, *verbatim et literatim*, from a somewhat rare work,—Bradley's Survey of the Ancient Husbandry and Gardening, collected from the Greeks and Romans*—will probably amuse some of your readers, and show that nearly a smilar mode for the preservation of fruits and seeds, was recommended upwards of one hundred years ago. "Wood ashes" says the author "I have experienced to be an excellent preserver of fruits, and much the best thing we know to pack tender fruits in for transportation; it will not only keep such soft fruits as peaches, nectarines, apricots, &c. from bruising in the carriage, but keep their fleshy parts from putrefaction. The late Lord Capel, who was so famous for his fine gardens at Kew Green, by this means had fruit sent him from this place to Ireland in very good perfection. The method of doing which was to gather the fruit when it was quite dry, and after laying it in flannels for some hours, a box was prepared for it with a bed of fine sifted wood ashes at the bottom, about four inches thick, upon which the fruit was laid so as not to touch one another by about an inch, and then wood ashes sifted over them till all the spaces between them were filled, and the fruit was covered about two inches; then more fruit was laid in as before, and then more ashes, and so on, *stratum super stratum*, till the fruit reached within

* Lond. 1725.

four inches of the top of the box, and then as many ashes sifted over it as could be pressed down under the lid of the box by a man's full strength; so was it carried several hundred miles without receiving the least injury. The fineness of the parts of these ashes, render them in the first place capable of being pressed so very close together, that there can no air get through them; nor are their parts such as are apt to imbibe moisture, and are therefore incapable of putrefaction; for we may keep them many years without perceiving them to alter or change from what they were when they were first made, and not only without any putrifying quality in themselves, but seem also to contain some power which is opposite to putrefaction, and therefore we never find any insects breed among them; for this reason I am apt to believe that wood ashes would be the best thing we could use to bring seeds in from foreign parts, as the East and West Indies; for in long voyages we find most seeds inclined to rot and breed insects. This way I believe will keep them sound, especially since the ancients affirm, that the Lentills which are subject to corrupt may be kept by them."—p. 163.

In preserving fruit as above described one precaution would seem obvious, namely that of wrapping each separately in soft paper.

The following practically useful matter is from the able pen of Dr. Andrew Duncan, jun. F. R. S. E. &c. Edinburgh. Currants, cherries, and damsons, gathered perfectly dry and sound, may be put into bottles closed with cork and rosin, and buried in a trench with the cork downwards. Fine bunches of grapes may also be preserved in bags, by closing the cut end of the stalk with wax, which prevents the escape of moisture, or they may be packed in very dry bran or sand. Some may even be preserved by being kept immersed in water. This is constantly practiced with regard to the cranberry, and sometimes succeeds with apples.

"The preservation of fruit is in many countries an object of much importance. In some the great object is to preserve the fruit in as natural a state as possible. This is peculiarly the case in regard to winter apples and pears, and grapes. The time for gathering fruit depends upon the exposure, and the manner of gathering them influences their keeping. After having prepared the fruit room, a fine day is to be chosen, and, if possible, after two or three days of dry weather, and about two o'clock in the afternoon the fruit is to be gathered, and deposited in baskets of a moderate size, taking care that none of it receive any bruise or blemish, for the injured part soon rots and spoils the sound fruit in contact with it. As the summer fruits ripen more quickly after they are pulled, only a few days

consumption should be gathered at once, by which means we can enjoy them for a greater length of time. Autumn apples and pears should be gathered eight days before they are ripe, and indeed some kinds never become fit for eating on the tree. If they have been necessarily gathered in wet weather or early in the morning, they should be exposed a day to the sun to dry, and they should on no account be wiped; this rubs off the bloom as it is called, which when allowed to dry on some fruits constitutes a natural varnish, closing up the pores, and preventing the evaporation of the juices. They should not be laid in heaps, which causes them to sweat and undergo a slight fermentation; for fruit thus treated, if it does not spoil, gets dry and mealy; and hence in this country the ordinary apples, imported from England and the continent, are inferior to our own. The principal requisites for a good fruit room are, great dryness, equality of temperature, and a power of excluding light. Some curious persons preserve fine pears by passing a thread through the stalk, the end of which they seal up with a drop of sealing wax, enclose each seperately in a cone of paper, and hang them up by the thread brought through the apex. Experience has also proved, that grapes keep better when hanging than when laid upon a table. The cut end should be closed with wax, which prevents exhalation. Some hang them by the stalk, others by the point of the bunch, as the grapes are thus less pressed against each other; but it is in both cases necessary to visit them from time to time, and cut off with a pair of scissors every berry that is mouldy or spoiled.

A Practical Gardener.

Newport, Isle of Wight, Aug. 31, 1832.

ARTICLE III.

ON THE NATURAL HISTORY AND CULTIVATION OF THE STRIPED HOUSAINE'E PERSIAN MELON.

By the Author of the Domestic Gardener's Manual.—C. M. H. S.

FIRST PAPER.

This is a subject of peculiar interest to me; and it is my earnest desire to render it the same to others; for, the fruit in question, well deserves the utmost attention that can, by any possibility, be bestowed upon it. Before, however, I enter upon the particular description of this individual variety of the melon, I conceive I shall be

doing your readers some service by soliciting their attention to the character of the family to which it belongs; and here I take the liberty of suggesting, that much important information would be afforded, were writers upon Horticultural subjects, to seize every favourable opportunity of conveying elementary instruction, concerning the botanical character and natural habits of the plants upon which they write. Our knowledge, or rather conduct, has heretofore been too empirical; we have taken things for granted, merely because our own practice, or that of our predecessors has been productive of certain specific results. But in the present day, when science is spreading in every direction, and men of all ranks are seeking for a knowledge of *causes*, while they observe *effects*, it becomes us not to rest satisfied, until we can trace every subject (that is deemed worthy of enquiry at all) to its fountain head.

In order to set an example of that mode of conveying instruction, which I recommend to the consideration of others, I shall commence this article by an inquiry into the origin and meaning of the botanical name, bestowed upon this family of plants: in the next place, I shall add a slight sketch of the character of the *Genus*, and of the *species* to which the individual variety belongs. This will lead me to notice very particularly, the natural habits of the interesting tribe, lately introduced from Persia, among which the *Housainee* melon stands very conspicuous, if not pre-eminent. A *second Paper* will contain a detail of an experiment, wherein many of the facts adduced in this first paper will be elucidated and confirmed.

The *Melon*, according to Loudon's Encyclopædia, No. 4869, has been known in England, since the year 1570, and it appears to have been originally brought from Jamaica. The varieties in common cultivation formerly known by the title of *Musk Melons*, have usually been considered natives of Southern Europe: they are numerous, and Loudon's Catalogue mentions and describes nineteen; but the sub-varieties and intermixtures from crossings, are almost unlimited. In fact, there is reason to believe, that if melons of several varieties be grown in one department, not only will the seeds of each fruit be more or less contaminated, but those taken from the same individual melon will be found to produce plants, whose fruit may differ very considerably in appearance and character.

The *Melon* is a species of the *genus* or family *Cucumis*, or Cucumber. This term is derived from Κεκυμαι *kekumai*, it indicates a swelling or tumidity, and to no fruit can it be more appropriate, than to the cucumber and melon. The name *Melon* (*Melo*, latin) is derived from the greek noun Μηλον *Melon*, whence M*alon*, (and

Malum, latin) an apple. *Cucumis Melo* therefore, may literally be translated the *Apple cucumber,* and with some propriety, because the fruit approaches towards the figure of an apple. But its chief and particular resemblance may be referred to the odor which it emits: in fact, so closely does the specific aroma of many melons approach to that of the apple, that persons may be deceived who are not aware of the exact situation of each.

The *Genus* or family *Cucumis,* belongs to the subclass Calycifloræ of the Jussieuean, or natural system; this division contains plants, whose petals (or flowers proper) are separate from and inserted into the *Calyx,* or external cup; and whose stamens are perigynous, or distinct from the Corolla and inserted in the Calyx; and to the order *Cucurbitaceæ,* that is to say, it is one of a tribe of plants whose natural character closely, or more or less resembles that of the Gourd, *(Cucurbita.)*

In the Linnean system, the genus *Cucumis* is found in the twenty-first class *Monœcia,* and eighth order *Monadelphia.* The compound word Monœcia is derived from the greek words *Monos,* one and *Oikos* a house: the class includes those families which have distinct male and female blossoms, but still growing on the same individual plants. The term Monadelphia from *Monos,* one and *adelphos,* a brother, expresses a peculiar structure or arrangement of the stamens or male organs; whereby they are (however numerous, may be the anthers or tips) united at their base, so that they may be detached and removed in one entire body from the flower.

The *generic character* of this genus *Cucumis,* is described as consisting of two distinct species of blossoms. The male flower has a five-toothed *calyx* (flower-cup) a bell-shaped *corolla* of one petal, divided into five parts to a considerable depth, and three stamina more or less united.

The female or fructiferous flower resembles the male in most particulars; but in lieu of the stamens, it has a three cleft pistil or central column, and a swollen roundish, oval, or very long germen *below* the blossom, which crowns and terminates it at the apex. This germen becomes the future fruit. The female does not contain stamens and anthers properly so considered. Nevertheless, I have frequently remarked in the melon, at least, three or four processes closely resembling anthers, that surround the pistil near its summit, and which, I am inclined to think, partake somewhat of the character of true anthers, and may perhaps, act as efficient organs of impregnation.

The *Housainée,* or Hoosainee melon, is one of those extraordinary

varieties, which have of late years been introduced from Persia. Of these, the Encyclopædia of gardening makes mention of two only, viz.: 1st. the *Dampsha,* the distinguishing feature of which is, that, if kept in a dark room, it will remain good during the winter months.

2nd. The *sweet Melon of Ispahan*: this is a large and very peculiar fruit, somewhat resembling in figure, a large swollen cucumber; its skin is extremely delicate, pale sulphur yellow, smooth, or with very few vermicular reticulations, flesh white, flavour luscious, abounding with a rich saccharine juice. This Melon appears to be the peculiar favourite of Mr. Knight, the venerated President of the London Horticultural Society; and some idea of his successful method of cultivating it, may be gathered, by consulting pages 263 and 302 of your *Horticultural Register.* I too, have raised this variety, and ripened the fruit during the present summer; but I withhold any paper on the subject, till my experience be more certain and determinate.

The reader will perhaps be gratified by a reference to that useful work, *Lindley's Guide to the Orchard, &c.* wherein the distinctive qualities and natural habits of the Persian tribe are ably and clearly detailed. At page 235, Mr. Lindley enumerates six varieties, and then observes, page 239, "The melons of Persia differ remarkably from the varieties commonly cultivated in Europe. They are altogether *destitute of the thick hard rind* which characterises the latter, and which renders the one-half of every fruit useless; on the contrary, they are protected by a skin so thin and delicate, that they are subject to injury from causes which would produce no perceptible effect upon the melons of Europe. Their flesh is extremely tender, rich, and sweet, and flows copiously with a cool juice which renders them still more grateful. To these important qualities, they in many cases add the merit of bearing abundant crops of fruit, the appearance of which is always extremely beautiful." Further on, when describing the proper method of their successful culture *here;* and that pursued by the Persian gardener in their native climate, Mr. Lindley proceeds thus:—"They are found to require a very high temperature, a dry atmosphere, and an extremely humid soil; while they are at the same time impatient of an undue supply of moisture, which causes spotting and decay long before the fruit is matured.—It is not easy therefore, to maintain that necessary balance of heat and moisture which in Persia arises out of the very nature of the climate and mode of cultivation. In that country, we are told, that the melon is grown in open fields, intersected in every direction by small streams, between which, lie elevated beds, richly

manured with pigeons' dung. Upon these beds the melons are planted. The Persian gardener has, therefore, to guard against nothing but a scarcity of water, the rest is provided by his own favourable climate. With us, the atmosphere, the ventilation, the water, and the heat, are all artificial agents, operating in opposition to each other."

Having thus treated generally of the melon, and referred to such authorities as may tend to prepare the reader for what remains to be said on the habits and cultivation of this newly introduced tribe; I shall proceed to speak particularly of that most interesting variety, which will form the chief subject of the remaining part of this paper.

The *striped Housainée melon,* is to the present day, scarcely known in this country; in fact, it was not at all known, until Mr. Knight gave a description of it, in the Horticultural Transactions of 1831.

A melon, (No. 19, of Lindley's Catalogue,) termed the *Green Hoosainee,* is therein described as a handsome egg-shaped fruit, five inches long, and four inches in diameter, of a fine, even, bright green colour, rather yellow when ripe, and with greenish flesh;" but this differs in many essential particulars, from the excellent variety that I shall now attempt to describe.

The striped Housainée melon is a noble fruit, one of great beauty and excellence: its skin is firm, but thin, the rind under it, and the fleshy cellular substance adjoining, to the depth of rather more than the eighth of an inch, is of a bright green, gradually becoming paler, till it meets and blends with the bulk of the flesh, which is of a pinkish buff or salmon colour; the green portion is not *quite* so tender and juicy as the internal substance; but the whole may be eaten so as to have nothing remaining but the thin exterior integument: there is no defraud in this fine fruit, all is juicy and eatable, the flavor is delicious, the odor that of a fragrant apple, and the fruit will long remain good without decay.

In its form this melon resembles an egg, the stalk-end being more enlarged than that of the blossom. It is, during its early growth, of a dark green colour, but as its age advances, the stripes become very apparent: they are of a full sombre green, and divide the surface into distinct marked portions, leaving it, however, perfectly free from grooves or furrows; and hence, this variety may be styled, *a smooth melon,* although it finally becomes reticulated with an ash-grey coloured net-work. When near to maturity, small greenish yellow spots are manifest among the interstices of the netting, and a clear yellow circle surrounds the part at the insertion of the footstalk.

There is no determinate change of colour, that absolutely marks the state of perfect maturity, at least, I have not perceived such; the general tint appears to me to be a glaucous or sea-green, covered more or less with a pale greyish tissue of vermicular reticulations. In some individuals, the green stripes remain very conspicuous to the last: in others, they become almost obliterated.

The *maturity of the fruit* upon a fine and healthy plant, is to be determined by the age, taken in connection with the increase, *in intensity*, of the yellow in the circle round the stalk, the *softness* of that part, and perhaps, by the formation of a circular crack at the spot where the stalk joins the fruit. No distinctive *odor* is to be expected. If indeed, an accident cause *disease*, or the *death* of the plant, or if the leaves be broken so as to destroy their vital energy, the fruit will be arrested in its growth, and then, it will assume a suffused *yellowish tint*, and emit the order of a melon. I had one fine fruit that enlarged with the utmost rapidity, till it weighed above five pounds; the leaves of the plant were then injured by an accident, so much so, that the plant became torpid. The fruit, from that moment ceased to enlarge, its tint changed, its substance became soft, and the odor of a melon was diffused; at the same time a still larger fruit that had begun to swell above ten days before, remained unchanged, and it continued to improve for above a fortnight, after the one injured was removed, neither varying considerably in its tint, nor giving out the slightest distinctive aroma. *Maturity* may however be ascertained by one circumstance, which (to adopt the expressive language of Mr. Knight,) will afford "an unerring induction of the time when the fruit ought to be cut. *Little globules*, apparently of water, *but really composed of the juice of the fruit*, appear at the junction of the fruit and its stalk. If such bubbles appear, and are *sweet to the taste*, the fruit should be instantly cut."

I have witnessed the correctness of these remarks, but may add, that in the largest specimen produced by me this summer, the oozing of saccharine matter took place *upon the stalk*, at a spot about half an inch above its insertion, and where it had become rather flaccid or withered: no odor was perceptible, nor could any other certain sign of ripeness be traced, although the fruit had remained upon the plant, fourteen days longer than another individual that was in the same department.

The *plant*, in *its habit of growth*, is one of the finest and most interesting objects imaginable. The stem, if led perpendicularly up to the height of three feet, will comprise about ten clear joints. From each joint, at its angle, a noble leaf nearly a foot in diameter

is produced; it is supported by a *petiole* (footstalk) about ten inches in length, that takes a most graceful double bend, in figure resembling the branch of a chandelier. The plate of the leaf is of a most vivid green, its surface rough with short bristly hairs. In shape it is obtusely heart-shaped, and very broad near the base. From the axils of these leaves, lateral shoots would naturally be sent forth, but each of these is to be removed to a certain height, for a reason that will in due time be assigned.

The *flowers* both male and female are small, frequently not exceeding three-fourths of an inch in diameter, at the extreme edges of the *limbus* or border; they are of a sulphur or pale yellow colour, rather few in number. The males, as far as my observation extends, are produced somewhat before the fertile blossoms, and this appears to be a wise provision of nature, to insure the safety and perfection of the fruit; the melons formed *above* the tenth joint are generally found to set with greater certainty, and to grow to a greater size than others that appear during the infantile state of the plant, nearer to its roots.

"The *Housainée Melon*," as Mr. Knight justly observes, is upon the whole "of very easy culture," and the plant very productive of fruit; but "that it is very long in ripening." When ripe, however, he adds, "it *remains in perfection*, a very valuable quality to the fruiterer." Another feature, and one that he deems of great moment is, that "the natural habits of the plant, which he feared would not prove *permanent*, he has found to be strictly so." I have quoted his own words to me, merely changing the person, and I may add, that the only circumstance worthy of real regret is, that the fruit is not only tardy, but somewhat irregular in the period of its ripening. Mr. Knight, with every advantage of machinery and aspect, considers fifty days as the time required, if the weather be such as it was during a considerable part of July last, that is, deficient in sunshine, with cool nights, and frequent showers. But I have had fruit which remained from sixty to eighty-four days on the plants, without evincing any decisive signs of becoming too ripe. My aspect, however, is south-east; and hence, I lose the afternoon's sun. But although this irregularity is tantalizing, there is one positive quality that amply compensates for the apparent evil; the fruit never decays, bursts, nor becomes flavourless.

My paper has extended beyond the proper limits, and much remains to be said. This I must refer to a second article, when I shall endeavour by a recital of actual facts, deduced from experiment and observation, to render the method of successfully cultivating this elegant fruit, at once perfectly intelligible and easy. G. I. T.

ARTICLE IV.—YEAST AS MANURE.

Dr. Thomson in his Annals of Philosophy (vol. 16,) mentioned having seen a curious experiment made in the early part of the summer of 1820, by Mr. Phillip Taylor, of Bromley, the effects of which he witnessed in the month of June of that year. Mr. Taylor put upon a grass field, a quantity of common porter yeast, in order to see what effect it would have as manure. In the month of June when Dr. Thompson saw the field, the effect of the yeast was very remarkable. That portion of the field which had been manured with it, was of a much darker colour, and the grass on it was much longer than on the remaining portion of the field. Thus, adds Dr. Thomson, there cannot be a doubt, that porter yeast, and every kind of yeast, may be employed as a very efficacious manure, and it is easy to imagine various cases in which yeast might be applied as a manure with considerable advantage. J. T.

FLORICULTURE.

ARTICLE V.

CULTURE OF THE NATURAL ORDER AMARYLLIDÆ.

BY ARTHUR.

(Continued from page 735.)

20. Narci'ssus (*Narke,* stupor; effects of smell upon the nerves.) All the species of this genus thrive in a light sandy soil, and force well either in pots of soil or glasses of water. They are well known inhabitants of the flower borders, and constitute one of its greatest ornaments. Many of the more choice kinds are grown in beds composed of equal parts of strong rich loam, leaf-mould and rotten dung, with a small portion of sand. In November the bulbs are planted about three inches deep, and seven inches apart. The roots should be taken up every three years and replanted, separating the offsets. The season for doing this either in borders or beds, is as soon as the tops have died down, which generally happens in July; choose a fine day for the purpose, spread them on a mat in the sun to dry for a few days, after which remove them to a cold shed, and

spread them on the floor, or other convenient place, in preference to putting them in bags, until the planting season. The offsets are to be separated and treated as the old bulbs. *Propagation by seeds.*—Gather the seeds as soon as ripe, and sow them in pans or pots filled with light maiden soil, place them in a situation not too much exposed to the sun until the end of September, when they may be set in a frame and screened from heavy rains and frost, let them have as much sun as possible all winter, and by the end of March they will be up. Keep them in the frame till the frosts are over, then place them under an east wall all summer; when the leaves are dead give the pots a top-dressing with fresh soil, and treat them through the second winter as recommended for the first. At the end of the second summer turn them out of the pots, and plant them in beds of light sandy soil about two and a half inches apart. After they have stood two years in this bed, replant them six inches apart in another bed composed of equal parts of strong rich loam, leaf mould, and rotten cow dung; here they will come into flower, after which they may be treated as the old bulbs. A. H. Haworth, Esq. after a careful and diligent research has considered it necessary from the differences of structure in the flower and fruit of the genus, to divide the species into 16 different genera called 1. Corbulária (*corbula*, a little basket,) ten species, the hoop-petticoat family. 2. Ajax —(the brave Greek in the Trojan war) 24 species; the Daffodil family. 3. Oíleus (poets lesser Ajax) 5 species; the clipt trunk family. 4. Assaracus (a brother of Ganymedes) 2 species. 5 Ilus (another brother of Ganymedes) 2 species. 6 Ganymedes (cup-bearer to the god's; crown of flower cup shaped) 5 species; contains Narcíssus pulchéllus, and other species near it. 7. Diomèdes (a valiant Greek at the seige of Troy) 3 species; N. Macleayi of the *Bot. Mag.* being one of them. 8. Tros (the father of Ganymedes) 2 species; Nar. Galanthifolius, is one. 9 Quéltia (Nicholas Le Quelt) 7 species; the Nar. incomparábilis, and approximate species. 10 Schizanthes (*schizo*, to cut, and *anthe* a flower; the crown deeply gashed) 1 species, the N. orientális. 11. Philógyne (*phileo* to love, *gyne*, a woman; approximation of anthers to stigmas) 9 species; N. odorus, is the type. 12 Jonquilla (*Juncus* a rush; leaves like rushes) 4 species; the jonquills of the gardens. 13. Chloraster (*chloros*, green, *aster* a star; segments of the perianth, like a green star) 2 species, one the N. viridiflorus of *Bot. Mag.* 1687. 14 Hermione (daughter of Helena and Menelaus) 54 species; Polyanthus-Narcissus family. 15 Helena (mother of Hermíone) 6 species; N. tenuior *Bot. Mag.* is one, and 16 Narcissus contains 12 sp., N. poéticus and

11 others of that form. These divisions however have hitherto been but little followed.

21 Pancratium (*Pan* all, *Kratys* force; medicinal qualities.) All the species of this genus are free flowerers, and most part of them inhabitants of the stove. P. canariénse, and carolinianum, however thrive well in the greenhouse, and P. maritimum, and illyricum, are perfectly hardy; the P. rotâtum also is nearly so, requiring only a slight shelter in cold or wet weather. They all grow and flower freely in a rich turfy soil, mixed with a small portion of sand and leaf-mould, to keep it open. The stove species grow much finer if plunged in a hot-bed, until the flowers begin to expand, than they do grown upon the old system of constantly standing in the stove. When the pots become filled with roots, they should be shifted into larger; by doing so the flowering season is greatly prolonged. During their growing it is necessary to give a good supply of water, but when in a dormant state, they should be kept dry, or nearly so. Previous to their beginning to grow again they should be repotted, removing about three parts of the soil from the old ball, when potted plunge them in a hot bed as above directed. They ripen seeds very freely, by which, and suckers, they are readily propagated.

22. Ismène, (the daughter of Œdipus and Jocasta.) This Genus contains three species, inhabitants of the stove, requiring precisely the same treatment as the genus Pancratium.

23. Eucròsia, (*Eu*, well, *krossos* a fringe; cup of stamens.) contains only one species, the bulbs of which grow best in a light turfy soil, mixed with a little peat earth, and a considerable portion of sand. As they are very impatient of wet, the pots should be well drained with potsherds, and the bulbs planted shallow; they only require the temperature of the green-house, and the general treatment of Cape bulbs.

24. Eurycles, (*Eurycles*, a prophet.) A genus formerly included in Pancratium, the leaves are broad, not unlike those of the Hemerocallis. They are all stove plants, and require the same treatment as Pancratium. They are propagated by offsets.

25. Calostémma, (*Kalos*, beautiful *stemma*, a crown.) The species of this genus should be potted in sandy loam and peat, and be kept in the green-house. They must have little or no water, whilst in a dormant state; and if replanted previous to their beginning to grow again, they will flower very freely, and ripen plenty of seeds, by which, and offsets they are readily increased. Their general treatment is the same as other green-house bulbs in this order.

26. Chlidánthus, (*chlideios*, delicate *anthos*, a flower.) This

genus has but one species, a very fragrant and beautiful plant with bright yellow flowers. It should be potted in similar soil to that recommended for Calostemma, and kept in the green-house. It produces its flowers before the leaves appear, similar to the Guernsey lily; every means should therefore be used to facilitate the growth of the leaves, as the flowering of the ensuing spring depends, in a great measure, on the maturity they attain unto. When the leaves have died down, the bulbs should have no water given them, but be kept in a dormant state until towards the usual time of growth, when they should be repotted, taking off all the old soil, and separating the offsets for propagation.

27. Chrysiphiàla, (*chrysos*, gold, *phiale*, a goblet; flowers.) Green-house plants with similar habits to the last, requiring the same general treatment.

28. A'cis. (*Acis*, a shepherd, son of Faunus.) All the three species are quite hardy, and should be planted in the open border, in light sandy soil, where they will grow and flower freely. They are increased by offsets, which are plentifully produced, and may be treated generally in the same manner as the snow-drop or snow-flake.

29. Cobúrghia. (Prince Coburgh.) The two species of this genus are rather shy at flowering, they may be said to be half-hardy bulbs. They require to be planted out in a warm border, under the wall of a stove or green-house, where, if the weather is not very severe, they will endure the winter; the safest plan, however, is to always take them up when the bulbs are ripe, and preserve them in bags through the winter. In April, plant them out in some good strong rich loam, when they will probably flower, and produce plenty offsets, by which they are propagated.

30. Clívea, (Named in compliment to the Dutchess of Northumberland.) The splendid species of this genus require only the heat of the green-house, and that only during the colder months, they may be grown to perfection in a frame, by planting the bulbs in a good rich turfy loam, mixed with a small portion of leaf-mould, the bulbs should be potted very shallow, and watered with care. When in a dormant state, they should be kept quite dry; and if fresh potted just before they begin to grow, they will flower pretty freely. They are propagated by offsets.

ARTHUR.

ARTICLE VI.

THE DISCONTINUATION OF THE NURSERY LISTS.

BY A LOVER OF PLANTS.

Having become a Subscriber to the *Horticultural Register* almost solely on account of the lists which it contained of "plants flowering in the nurseries round London," it is not without great mortification and surprise that I find those lists almost entirely discontinued. That you should positively have allowed the gradual decline of the most novel, and interesting feature of your work is astonishing, but it is still more so, that Nurserymen themselves should not have greedily caught at an easy and costly manner of recommending their collections to the notice of the public. Not only is the above manner of obtaining celebrity free from the expense of advertising, but, which is of far greater consequence, it is altogether untainted by the idea of "puffing," which attaches in a greater or less degree to all advertisements whatsoever. In these sentiments many of my friends coincide, who (since like myself they take in the more voluminous and expensive Horticultural periodicals) will not deem it worth while to continue the *Horticultural Register*, when robbed of a feature so exclusively its own. As an inducement to Nurserymen to furnish these lists, I may state, that I have this day received a hamper of plants from Messrs Rollissons, of Tooting, with whom, but for those lists, it would never have occurred to me to deal. I am also acquainted with many instances, where custom has been directed through the same channel, to various nursery establishments.

A Lover of Plants.

Newcastle, Sept. 12, 1832.

ARTICLE VII.

ON THE CULTURE OF THE HOYA CARNOSA.

BY WM. P. AYRES.

The Hoya carnosa is a native of China, and perhaps also of the neighbouring parts of Asia. It was first introduced to this country from China, into the Royal Gardens at Kew, in 1802. The Honourable Mrs. Barrington possessed it about the same time in her garden, at Monewell, in Oxfordshire, from whence it was figured in the Botanical Magazine in 1804, and in the succeeding year in the Exotic Botany of Sir James Edward Smith.

In the culture of the Hoya, the most important consideration is, the choice of a soil suitable to its nature and habits, the best I have tried, and in which it grows particularly well, is a mixture of vegetable mould and strong turfy loam, about equal quantities, it is not necessary the compost should be sifted; if broken fine, and the larger lumps and stones taken out, it will answer much better, as the plants will root more freely and thrive considerably better; being somewhat succulent, and making but few roots, it must be sparingly watered and but seldom repotted, more particularly if grown in the green-house, where it makes little progress and flowers indifferently.

In order to cause it to produce flowers in the greatest perfection, the heat of the stove is indispensable. It is propagated by cuttings taken from the plants in May or June, and planted in small pots filled with white sand, and plunged in a frame where there is a gentle bottom heat, where they form roots in a few weeks. It may also be propagated by leaves treated in the same manner as cuttings; but as they seldom make any progress except that of rooting, until the second year, it is but little practised.

Before I conclude, it may be as well to mention, that the flower stalk and rachis are permanent, and the latter becomes lengthened, and continues to produce the umbel in the flowering season from its extremity; this circumstance makes the careful cultivator abstain from gathering the blossoms, since each separated from the plant causes the sacrifice of an umbel, which would otherwise last as long as the plant itself.

WM. P. AYRES.

ARTICLE VIII.

TO PRESERVE DAHLIA ROOTS.

HAVING seen in the August number of your excellent Magazine, an enquiry by Alpha, for the best method of keeping Dahlia Roots through the winter, I venture to propose to him the following, as a plan which I have employed during five seasons, without losing a root.

I choose a fine dry day to take up the roots, and expose them for a few hours to the sun, to dry the mould on them. I then clear away all the dirt I possibly can, wiping each root with a cloth, if necessary. When quite *clean*, I put them into a boarded closet on shelves, there being but a very thin partition between this closet and a kitchen. In a few days, I scatter thinly all over them, some very dry sand, they are then left, and only examined from time to time, to see that they do not get mouldy, which, by the bye, I never found happen.

NIL DESPERANDUM.

ARTICLE IX.—THE GUAVA, (PSI'DIUM CATTLEI'ANUM,)

BY MR. J. SMITH,

Gardener, at Snelston Hall, Derbyshire.

AMONGST the numerous exotic plants in our hot-houses, not many have a greater claim on our attention than the Guava, (Psidium Cattleianum,) Fig. 126. Although this is a highly ornamental evergreen shrub, it has hitherto been but very slightly noticed; its dark shining foliage and pendulous branches, render it a very conspicuous object in the green-house or conservatory: and its fruit, when fully matured, makes an agreeable variety in the desert; for which reasons I think, it well deserves an extensive cultivation. By keeping a few plants in pots, they will in two or three years bear a great quantity of fruit. Young plants must be first planted in small pots, and then into larger, as the small ones become filled with roots; at length they should be planted into large pots or tubs, where they may remain for many years without further removal, when they will not fail to produce abundant crops. By confining their roots in pots or tubs, the fruitfulness of the trees is promoted. To *ripen* the fruit well off, it is advisable in the autumn to introduce two or three plants at a time into a forcing house, where the temperature is not less than 60 deg. Fahr. The Guava flourishes best in a rich loamy soil, it should be copiously supplied both at the roots and over the top with water. By this mode of treatment, a succession of ripe fruit may be obtained through the winter season. We have several young plants here, and amongst them is one about four feet high, which was put into a peck pot early in the spring, and is now loaded with not less than ten dozen of fruit, in their different stages of growth, which have a very imposing appearance.

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ARTICLE X.

ON THE CULTURE OF THE HELIOTROPIUM PERUVIANUM.

BY F. F. ASHFORD.

AGREEABLE to my promise, I send you the account of a method of growing the Heliotrope or Turnsole to great perfection, hoping it may be of some service to the more inexperienced portion of your readers. The Heliotròpium, (from *Helios,* the sun; *tropi,* turning,) is a native of the shores of Peru, and was introduced into this country in 1757. It belongs to the fifth class and first Order; Pentandria, (*pente,* five; *aner,* a man.) Monogynia (*monos,* one; *gyne,* a woman,) of the Linnean classification, and to the order Borageineæ under the sub-class Corollifloræ of the Jussieuean or Natural Arrangement. Its botanical characters are a shrubby stalk, branching numerously, three or four feet high; spear-shaped-ovate, rough, veined, hairy leaves; from the ends of the branches, issue numerous clustered umbels of pale blue flowers; Calyx monophyllus, five-cleft at the top. Corolla, monopetalous, divided into five unequal segments. Stamina five filaments and small anthera. Pistillum, four germina, slender style, and notched. Pericarpium none; seminæ oval, lodged in the calyx.

To propagate this fragrant Exotic with success, *cuttings* must be taken from the parent about the latter end of February or beginning of March, and planted in pots of rich garden soil, and plunged in a strong hot-bed or bark pit, removing all decayed leaves, &c. as they appear, or they will affect the whole. In two or three weeks, when the cuttings have grown, they must be removed to an airy part of the hot-house for a few days, to harden previous to potting. If a succession of flowering plants, through the autumn and winter months are wanted, more cuttings should be put in, during May and June.

If they are intended to be kept in pots, provide some good soil, composed of one wheel-barrowful of good maiden loam, one wheel-barrowful of good rotten horse dung, half a wheel-barrowful of sandy peat, half a wheel-barrowful of prepared leaf or vegetable mould. The whole must be well chopped and incorporated together, but not sifted; pot off the cuttings in forty-eight-sized pots, allowing as much soil to adhere to their roots as possible; cover these balls of roots about a quarter of an inch deep, pinch off the extreme ends of the plants to cause them to grow bushy, and after giving them a watering, place them in a shady part of the stove till they have ta-

ken root, then remove them into a more exposed situation, and give them plenty of air and water. Due attention must always be paid to potting them as often as the roots appear to mat, or the plants will soon assume a sickly hue; and naked unsightly plants will be the reward of all your pains. When in bloom, remove them to the green-house or conservatory, where they will continue to flower the greatest part of the year. When they have done flowering, set them in a cool part of the green-house until the following February, when they should be cut down, their balls reduced and repotted in the compost. When potted, they should be placed in a hot-bed to produce healthy shoots for propagation, after which the old stools may either be turned into the flower borders or thrown away, as young plants raised every year are to be much preferred for flowering in pots.

But if the Heliotrope is grown purposely for the flower-garden, cuttings put in during the month of September, potted off into small pots, kept in a close frame, and well protected from cold nights, by means of mats or long horse-litter, until the following spring is considered the best method. Harden them by gradual exposure to the open air, so that by the middle of May they will bear to be planted out in beds, composed of a good mellow rich earth. Should cold nights happen after your plants are turned out, (which is sometimes the case) they must be defended by means of hoops and mats, or canvass; if thus protected, they will grow and flower freely, in favourable seasons, until the chilly nights of autumn give a check to their vigour; they should then be taken up with their balls entire, and potted in good sized pots. If placed in the stove, and shaded for a few days, they will continue to flower down to Christmas when a few cuttings may be taken from them for early propagation, and the old plants thrown away.

F. F. Ashford.

ARTICLE XII.

HISTORY AND CULTIVATION OF THE POMEGRANATE,

(PUNICA GRANATUM.)—BY S. H.

The generic name *(Punica)* of this tribe of plants, seems to have arisen from the circumstance of the P. granatum, being found growing in that part of Africa where ancient Carthage stood; the ancients called the fruit Malum Punicum (Carthaginian Apple) and Pomum granatum, Kernelled Apple. The specific name *granatum*, (from

granum, grain, on account of the grains of its fruit) was borrowed from the latter. The Grecians seem to have set very great store by this fruit. The tree was first brought to Rome from Carthage in the days of Sylla; and Pliny informs us, that the colour to dye cloth, called *Puniceus*, is obtained from the flowers, and that the Romans used the rind, flowers, and every part of the fruit in medicine.—Sloane says, the rind of the fruit together with the bark of the tree, is still used in some parts of Germany, in the dying and preparation of red leather. The rind also produces as good ink as that made from galls. In its wild state, it grows to a bush from sixteen to eighteen feet high, and bears profuse crops of fruit, something after the manner of our hawthorn. Wine made from this fruit, was strongly recommended by Lord Bacon, for complaints of the liver; or if the wine could not be had, newly expressed juice might be used, he says, "let it be taken in the morning with a little sugar; and into the glass in which the expression is made, put a small piece of green citron-peel, and three or four whole cloves: let this be taken from February to the end of March." The Persians make a very favourite drink of the rinds, with the addition of cinnamon. The P. nana is used as a hedge plant in the West Indies, its leaves are diminutive, and its red flowers, although not large, are pretty conspicuous. The common Pomegranate, (P. granata) was first cultivated in England, in the year 1548, during the reign of Henry VIII. Trained against a south wall, its fine scarlet flowers have a most beautiful appearance throughout all the summer months: the fruit, however, produced in such situations, although highly ornamental, seldom has any flavour or comes properly to perfection.

Propagation and Culture.—The usual mode of propagation is by layers. Lay down the branches of the previous years' growth, in May, merely pegging them without making any incision; and by the autumn, they will have made good roots, and may be taken off any time before the buds break, and planted either in thirty-two sized pots in a mixture of good rich loam, and a small portion of sandy peat, or planted against a warm wall, as recommended hereafter. They will also strike freely by well ripened cuttings, taken off in the autumn, and planted in pots filled with equal quantities of light sandy loam and peat, covered over with a hand or bell-glass, and set in a shady part of the green-house or stove, keeping them perfectly free from mould, or over-dampness, until the following February, when they should be plunged in a bark or hot-bed, where they will speedily strike root; they should then be potted off separately, and again plunged in a brisk heat, until they have established

themselves: they may then be gradually hardened, until they will bear the temperature of the green-house, carefully repotting when required. The second year after they are struck, they may be turned out, under a south wall in front of a stove or green-house. Where they are intended to be planted, take out the soil to about the depth of twelve inches, and lay at the bottom about three inches thick of broken bricks or other hard rubble, to prevent the roots from striking deep, and induce them to run near the surface, for if once they get deep, however suitable the soil may be for their growth, they will flower but very partially. Fill up the trench with a good strong rich loam, mixed with a small portion of sand, if it is inclined to bind. Some persons recommend a light sandy soil to grow them in; some years ago, I tried the experiment, and although the plants grew very healthy and vigorous, they did not show the least inclination to flower.

Pruning.—Proper pruning will greatly assist their flowering. All the flowers are produced at the extremities of the young branches formed the same year, care should therefore be taken to bring only the strongest buds into action, instead of filling the tree very full of weak shoots; to accomplish this, cut out all the weak branches of the former year, and shorten the others according to their strength, by these means a quantity of flowering wood may be obtained throughout the whole tree.

Grafting.—The yellow, white, and double scarlet varieties are often grafted on stocks of the common one, the operation is performed in February or March, after the same manner as the apple, &c.

To bring the Fruit to Perfection, it is indispensable that the trees either be trained against a flued wall, or covered with a glass-case; for although there have been instances of its ripening on a common wall, in some parts of England, yet the flavour has little or no resemblance to those imported from Genoa and Leghorn. And although I have never yet seen them brought to the perfection I could wish, yet the method which appears to me most likely to accomplish the object, is to keep the plants in pots or tubs; and when a quantity of fruit is set, which will probably be about the middle of August, introduce them into a higher temperature to swell up, and ripen.

S. H.

ARBORICULTURE.

ARTICLE XIII.

ON PRUNING FOREST TIMBER.—By a Mountaineer.

"If a garden is neglected for some years, a portion of diligence and attention may soon bring it into good condition again: but this is not the case with a neglected forest; if once a plantation suffers from neglect, it is next to impossible to recover it. No branch of Rural affairs, without exception, has made less progress, or is upon the whole less understood" than the *pruning of trees.* Particular regard should be paid, previous to pruning, to the health and vigour, and not to the size of the trees. A vigorous tree full of sap of twenty years of age, may be pruned with more safety, than a stunted one fifteen years of age, because the parts cut over would heal sooner in the former from its being full of sap, than in the latter which was deficient in sap. Indeed the whole art of pruning consists in thinning out the large and strong branches *every year moderately,* according to the size, health, and vigour of the tree, to have the tree well poised with branches, resembling a larch, as circumstances will allow, and leaving those on the tree which will assist the general circulation of the sap.

The safe and proper time for pruning all kinds of wood is the summer months, when the sap having ascended, is stationary in the tree, and before it begins to descend. It is true, all Authors agree that to prune a tree while the sap is in motion either upwards or downwards, is the ready way to cause it to bleed excessively. But there are Authors and practical Foresters, who continue to hold the heretical opinion, that winter is safe, or even a safer period for pruning than summer. During the summer, there always exudes upon the face of the wound, a thin gummy fluid, which, in a few days, seals it up, and skins it over. I have never observed, that the plant has a tendency to renew the branches removed at this season; but when the same cut is inflicted in winter, the plant is apt to suffer from the action of the frost upon the raw wound; and moreover, when the spring months arrive, the forester will observe numerous new shoots pushed out from the scar of that which has been removed, and is thus apprized that his task is but imperfectly performed. As to the necessity of pruning in general, it is proved by a single glance at the *short stems* and *overgrown heads* of the *greater part* of the *Oaks,* found in *natural* woods, compared with the close upright

trunks of those which have annually felt a judicious application of the pruning knife. The part of the tree in the former case, which can be sawn out as useful timber, is not, perhaps, above three feet in length, whilst the stem of the latter, has been trained to the height of fourteen, twenty, or thirty feet. It is in vain to contradict these facts, by an appeal to *nature!* Nature is equally favourable to all her productions; it is the same to her, whether the oak produces timber or boughs, and whether the field produces grain or trees.

Human skill and art avail themselves of the operations of nature, by encouraging and directing them towards such results as are most useful to mankind. When we see nature raise a field of wheat, we may expect her to produce a whole forest of clear, straight, profitable timber, but till then we must be content to employ plough and harrow, in the one case, and hatchet and pruning-knife in the other. *Timely thinning* and *pruning* repeated from year to year, as occasion requires, effectually prevents the loss of hopes, plants and labour.

A Mountaineer.

(To be continued in our next.)

ARTICLE XIV.

ON PLANTING FOREST TIMBER.—By Mr. Howden.

By your observations made in page 513, I see you are using exertions towards the establishment of an Arboriculture Society in England; such a society is indeed very much wanted, I shall be most happy, to lend a helping hand to the work.

If only twenty practical men would unite, to write down their experience, and various experiments, so as to form an annual volume, the work would be sure to sell, and knowledge would thus be increased. I should not, however, recommend the owners of land to plant forest trees on lands fit for cultivation. In this Island, timber can be imported cheaper than it can be grown on such lands, but on hills and glens, the pine and oak will pay for planting; also, "belts and squares of oaks and firs" planted for the purpose of shelter will answer very well; but we must procure our best timber from countries not subject to rents, &c. I am now selling scotch fir, at one shilling and sixpence per cubic foot, and importing the same species from Sweden, at three shillings per foot; but then my trees are little

more than thirty years old, whereas the Swedish are more than three hundred, although only two feet square. England is a commercial country, a small profit and quick return is all that is wanted. The shopkeeper buys sugar at six-pence per pound, and sells it again at six-pence halfpenny; he buys his butter at a shilling, and sells it again for thirteen-pence, he thereby turns his money fifty-two times in the year: the farmer turns his once a year, whilst the forest-planter can scarcely turn his once in his life. Nevertheless, I think nothing can answer better, if a nobleman or gentleman wishes to leave a fine property to his family, than to *plant* all his *waste* lands with forest trees.

J. Howden.

RURAL AFFAIRS.

ARTICLE XV.—A DOMESTIC NATIVE COLONY.

"Sweet are the uses of adversity."—Shakespeare.

"Children sweeten labors, but they make misfortunes more bitter.—Bacon.

"Optimum elige, suave et facile illud faciet consuetudo."

It is not usual for female correspondents to appear in your pages; but this fact does not deter me from proposing to venture, where I feel certain to meet with the same polite attention which is extended to all the contributors to the *Horticultural Register*. I have been a subscriber to, and reader of your meritorious publication ever since its commencement, and am anxious that it should continue to please its (I hope numerous) readers. Whether numerous or few, however, they are not confined to gardeners:—many families in different stations, and in various occupations, doubtless anticipate with eagerness the first of every month, in the hope of perusing much that is valuable and interesting in your periodical; and I am not without hope that the little sketch I have drawn of an industrious family of my acquaintance, will be found to possess some claims to the latter quality; and as the *Hort. Reg.* professes to treat of rural affairs, it was conjectured that the present communication would not be deemed irrelevant.

In this taxed and expensive country, now too, that population pours its floods upon the land, in such a mighty stream, as nearly to obstruct all roads to competency; now that to live implies a struggle:

there must be many, very many of the respectable classes of society, who, like my friend the patriarch of "the colony," find a difficulty in placing their sons in situations with even slender expectations of their ultimate benefit. Many too, from losses in trade, are rendered unable to advance a sum of money for an apprenticeship in a respectable business. What then is to become of the children? Must a fine spirited boy, brought up in respectability, well educated, good principled, of gentle nature, and inclined to literary pursuits, must such a lad, finding no scope for his abilities, no opening, no refuge among congenial spirits, must he become a mere mechanical drudge, a ticket porter, perhaps an ostler, a slave of slaves? Yet thus doubtless have the fond hopes of parents been blighted! reared in abundance themselves, trade flourishing, youth and health, and joyous life before a married couple, who shall blame them because they possess not omniscience to foresee that trade will fail, that children will increase as means decay, that doubt and fear, and poverty, will one day canker the hearts of such unfortunate parents, and rob their darling offspring of their hoped for inheritance. But to my "colony," every circumstance of which I pledge myself is founded in fact.

My friend, we will name him Mr. Castles, was the only child of wealthy and over indulgent parents. At their death he found himself in a large and flourishing business. Competitors started, and its profits were diminished, he had married and was the father of several children, before his circumstances appeared to warrant uneasiness. Losses and crosses of various descriptions, accompanied by the strictest integrity of character, conspired to depress him; he left London, and resided for some years in a distant county. His four sons were sent to school in the neighbourhood, and trade still decreasing, he felt it a duty to seek for a small freehold, on which he might reside with his numerous family, for whom no openings offered for placing them out in the world. With the last few hundreds of his available property, (assisted by a generous relative) he at length purchased a small homestead, within forty miles of London, the little property consisting of barely two acres. This is all, though true, too common and very common place, that which follows will be more interesting. Mr. C. is of an active and intelligent mind, and he wisely resolved, since funds had failed, that his sons should devote their time to improve and turn their little spot of earth to the best account. Fortunately the dispositions of the boys were docile, affectionate, and industrious, perhaps the result of precept and example. They were set vigorously to work on the neglected grounds;

and the consequence is, that in the two years and a half, which they have occupied the estate, it is so altered and improved as to be scarcely recognisable.

One of the lads evinced talent for sketching and building; another became fond of a hammer and nails, a third has decidedly a love for botany, and the fourth a painter and jobber in ordinary to the colony; while all take pride and pleasure in trenching, digging, and other horticultural pursuits. No workman has been employed upon the premises for two years past, excepting a labourer for a few days last spring, to go through an unpleasant process which Mr. C. did not wish his sons to undertake. Every department of utility is filled by these lads, who are thus receiving the best education—a practical one; while some boys of their age and station, are learning to translate greek, black shoes, and tyranise at our public schools; others are idleing their precious time. My young friends are employed from "morn to dewy eve,"—"in summers heat, and winter's flaw,"—in every possible manner that is calculated to benefit themselves, and their little home. The happiest and healthiest lads I know, are the sons of my friend Mr. Castles.

The hothouse that they have constructed, upon scientific principles, the melonry, fancy arches, open rails, gates, &c. are not only creditable, but wonderful, and are the admiration of all who see them, and know the young artificers. So much are they respected too, that they are treated as young gentlemen in the best sense of the word, by the more wealthy families in their vicinity. The most intimate associates of the family, are those who keep their carriages. This I mention merely to prove that a genteel deportment, is not incompatible with the strictest economy, and habits of industry: the intimacy is honourable to both parties.

The recreations of my young friends, are all of a rational kind; stated hours are devoted to them; so that a joyous game of fives is successionally played with spirit; their gymnasium they have neglected; but cross bows, long bows, fishing tackle, cricket bats, and boats, are not wanting among them. If the back of the kitchen grate require attention, their mother is informed that "fire bricks and windsor loam are the best and most durable materials for the purpose," and the young mason of the colony soon finishes "the job." If a washing stand, (painted) bedroom table, bacon trough, &c. are wanted, her amateur carpenter constructs them; as well as other minor matters too numerous to mention.

A fine microscope enables the young botanist to investigate plants; and a useful library assists to enlarge the minds of the whole family.

I should mention that poultry, pigs, and a cow form their live stock, the latter animal is partly stall fed. Indian corn, Symphitum asperrimum, the orchard grass, mown, and carried to her, with potatoes and lucern form her summer feed, while I see Swedish turnips, carrots, &c. are growing for her winter provender, with a little stack of hay, which was cut from the orchard in July. The butter and cream are as fine as I taste any where, and the management of the dairy does credit to the eldest daughter, on whom it devolves. The younger girl, and pet of the family, is not suffered to be idle, and when her hours of play arrive, the premises ring with her happy voice, singing "snatches of old tunes, passages (either vocal or instrumental) from the works of Mozart, Haydyn, Beethooven, &c. The whole family is fond of music, and the boys frequently sing in (intuitive) parts while working. A very singular custom, I have noticed, in the colony, and that is, they all read at meals. Every breakfast and tea time their favourite books are as regularly taken as their food: they could not else have found opportunity to acquire so much useful information, as that which they possess. Where all are agreed on a point of this description the plan is very pleasant. I have tried it with them, and with them like it.

"Sweet are the uses of adversity," for had not my friend's circumstances deteriorated, they would never have known the blessing of a united, domesticated family; all would have been scattered on the world to sink or swim, to succeed or fail, to become corrupt or escape contamination, to be dutiful or alienated from these fond parents, as it might happen." With all the faults of our continental neighbours they possess one virtue, which is so rare as to be almost unknown in our country, I mean the amiable and affectionate custom of dwelling together in family communities, of two, three, and even four generations. Our offspring are turned out of the nest, while yet unfledged to seek their own subsistence.

I do not advocate my friends plan as a general thing either, and as many others have done, seriously ask him what he means to do with his boys, since his little estate his decidedly too limited to support them by farming &c.; his reply is, "they are gaining health, strength and experience, are living innocent lives, are preparing to become useful, and, I trust, worthy members of the community, should any contingency, of which I see no chance, arise for their removal." This is unanswerable, and I only wish that the wise and reasonable plan were widely known, and as well practised.

I hope, gentlemen, I have not exhausted your patience, or exceeded my limits, and beg to subscribe myself VIOLA.

ARTICLE XVI.

MODE OF DESTROYING RATS AND MICE.

BY MR. JOHN HOWDEN.

A Correspondent signed "G. N." wishes to know the best method of destroying the short-tailed field mouse, I would recommend the following simple trap. Take a large flower pot invert it on a board or slate, and sink it in the ground nearly level with the surface, opposite the hole in the bottom of the pot, and about two inches from the surface or entrance, may be suspended on a crooked piece of wire, a smooth wooden roller, like the castor of a bed-post, this the mouse will leap upon, and from thence be precipitated to the bottom, from whence it can never escape; and hundreds may be caught in the same trap without any trouble of re-setting. (Fig. 127) The surface may be sprinkled with chaff or short straw, and a mixture of grass and clover seeds about the hole. The roller may be besmeared with lard and dusted over with flower or oatmeal. In wet weather a sough tile may be set over the hole to keep it dry. I have invented another very simple mouse or rat trap, the difference is only in the size. An old packing box four inches deep for mice, and six inches deep for rats, is divided into lodging rooms four or six inches square.

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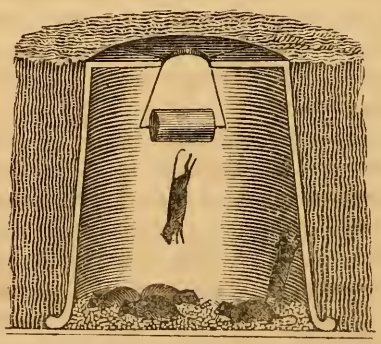

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Each lodging-room has two augur holes into it, the size of a mouse or rat, whichever the trap is intended for, as the rat particularly,

always requires to have a back door for retreat. The boxes may be placed under heaps of straw or corn in barns, sheds, or gardens. A few sheaves of half thrashed oats may be laid over them in the latter places; the place will soon become the rendezvous of the vermin, and on removing the straw or corn, they will be found in their lodging-rooms with their young ones. The box may be 18 or 24 in. wide, and of any length. (fig, 128) 1, 2, are the augur holes for ingress and egress; to prevent either, a false frame or square of hoop iron may be made to drop down over all the holes at once, and the box may then be carried off to a convenient place for the dog *Billy* to try his agility. JOHN HOWDEN.

NATURAL HISTORY.

ARTICLE XVII.

OBSERVATIONS ON THE ADVANTAGES RESULTING FROM A JUDICIOUS STUDY OF NATURAL HISTORY.

BY MR. JOHN SMITHURST.

IN my last paper, I endeavoured, though inadequately, to point out some of the advantages resulting from a judicious study of Natural History. I was compelled to leave the subject unfinished, for fear of swelling my communication to an inconvenient length. I now, however, hope again to be allowed the liberty of offering a few additional observations, for the consideration of such of your readers, as may think them worth attention. The study of Nature abounds with objects of the highest interest; there cannot be a more rational or more pleasing employment, either for the scholar, the man of business, or for the humble cottager, than that which results from an attentive inquiry, into the infinite wisdom displayed in the formation of all created things. It is not in the animal kingdom alone, we observe the most indisputable evidences of the divine skill and beneficence. The vegetable world, also, affords ample scope for observation and improvement; and it is my intention, as far as I am able, to notice a few of the numberless instances, in which the wisdom of the Deity is peculiarly conspicuous in the admirable construction of vegetable productions. When by the almighty fiat of Jehovah, the earth had been formed, and after the waters had subsided, and the land appeared dry and fit for vegetation, at the divine command, herbs, plants, trees, and the almost endless variety of the vegetable world, began immediately to appear. Thus, before God formed any living creature to dwell upon the earth, he provided abundantly for its sustenance. The great Author of all things intended, that the

whole earth should be covered with plants; therefore, that no place should be without some, he gave to each of them such a nature as might be chiefly accommodated to their own climate. Some are formed to bear the intense heat of the *torrid* zone, whilst others flourish in the colds of the *arctic* regions, amid almost perpetual frosts. Some plants delight in dry ground, some in moist, some are aquatic, whilst others spread their foliage over rocks and precipices, and by their luxuriant verdure, render pleasing the rugged features of mountain scenery. Grasses, the most common of all plants, can bear almost any temperature of air; in this the good providence of the Creator particularly appears; for all over the globe they are necessary for the nourishment of cattle, &c. The vegetable creation is endued with the power of multiplying itself by seeds, slips, &c.: it contains in itself all the rudiments of the future plants, through their endless generations. The celebrated Linnæus, in an "oration concerning the augmentation of the habitable earth," which proceeds on the supposition of a sexual system in the vegetable world, shows how from one plant of each species, the immense number of individuals now existing might arise. He gives some instances of the surprising fertility of certain plants, as of the elecampane (Corvisàrtia Helènium,) one plant of which produces three thousand seeds; of the poppy (Papaver) three thousand two hundred; of the sun-flower, (Heliánthus) four thousand; of tobacco, (Nicotiàna) forty thousand three hundred and twenty: and one grain of turkey corn produces two thousand others! But supposing an annual plant producing yearly only two seeds, even of these after twenty years, there would be 1,048,576 individuals. For it is evident, the increase would be according to the geometrical series, 2 , 4 , 8 , 16 , 32 , &c. the twentieth term of which is 1,048,576. If we connect the vast fecundity of vegetables with their number, how bountiful will the great Author of Nature appear. In the present advanced state of Botanical Science, we are presented with a catalogue of nearly fifty thousand species of plants. Messrs. Humbolt and Borpland, the celebrated travellers, collected in their five years' travels through South America, three thousand eight hundred species of plants; of which upwards of three thousand were new, and altogether unknown before to the botanists of Europe. We are indebted to the exertions of such enterprising and indefatigable naturalists, as graced the last and present centuries, for the many valuable acquisitions, which the science of botany has obtained. The knowledge which the ancients possessed on this subject was very limited, for the whole number of plants mentioned by the Greeks, Romans, and Arabians does not

exceed one thousand four hundred. Theophrastus, a Greek Philosopher, who succeeded Aristotle in his school at Athens, wrote a work, entitled "The History of Plants," in which about five hundred different plants are mentioned. Dioscorides, a physician and botanist in the time of Nero, being nearly three hundred years after Theophrastus, describes about six hundred different plants; Pliny the elder, who lived about the same time, in his voluminous work, entitled "The History of the World," gives descriptions of one thousand different species of plants. The interesting study seems to have been but little cultivated for many centuries, posterior to the time of Pliny; for Bock or Bone, a german, generally known by the name of Trague, in 1532, published a History of Plants, in which he describes only about eight hundred species. It is from the Western hemisphere, we have obtained so many choice and elegant specimens of exotic plants; the vegetable productions of America, exceed in point of number and luxuriance, those of Europe. In North America, for instance, the number of lofty trees is far greater than in Europe. In the former country, there are one hundred and thirty-seven species of trees, whose trunks exceed the height of thirty feet, while in Europe there are but about forty-five species.

There is no subject in Botany more admirable, than a contrivance visible in many plants, to take advantage of good weather, and to protect themselves from bad. They open and close their flowers, and leaves, under different circumstances. Some open to receive the rain, others close to avoid it; some close before sun-set, others after. The petals of many flowers expand in the sun, but contract at night, or on the approach of rain.

Plants, when forced from their natural position, are endowed with the power to restore themselves. A hop plant twisting round a stick, directs its course from south to west as the sun does. Untwist it, and tie it in the opposite direction, it dies. Leave it loose in the wrong direction, and it will recover itself in a single night. Twist the branch of a tree so as to invert its leaves, fix it in that position; if left in any degree loose, it untwists itself gradually, till the leaves are restored to their natural position. What better can an animal do for its welfare? The root of a tree meeting with a ditch in its progress, is laid open to the air. What follows? It alters its course like a rational being, dips into the ground, surrounds the ditch, rises on the opposite side to its wonted distance from the surface, and thence proceeds in its original direction. Lay a wet sponge near a root laid open to the air, the root will direct its course to the sponge. Change the place of the sponge, the root varies its direction. Thrust

a pole into the ground, at a moderate distance from a climbing plant, the plant directs its course to the pole, lays hold of it, and rises on it to its natural height. A honey-suckle proceeds in its course, till it is too long for supporting its weight, and then strengthen itself by shooting into a spiral direction. Comparing these and other instances, of seeming voluntary motion in plants, with that share of life wherewith some of the inferior kind of animals are endowed, we can scarcely hesitate, at ascribing the superiority to the former.

The fertility of the earth, has continued from the creation to the present time. Plants spring up, grow, flourish, ripen their fruit, wither, and at last, having finished their course die, and return to the dust again, ftom whence they first took their rise. But the earth offers again to plants what it has thus received; for when seeds are committed to the earth, they draw to themselves, accommodate to their nature, and turn into plants, the more subtile parts of the soil; by the co-operation of the sun, air, and rain: so that the tallest tree is, properly speaking, nothing but mould, wonderfully compounded with air and water, and modified by a virtue communicated to a small seed by the creator. From these plants when they die, just the same kind of mould is formed as gave birth to them originally whence fertility remains continually uninterrupted.

That the author of nature had so constituted the world, that none of the elements should be subject to destruction, might have been supposed by the ancients; but till the present advanced state of the science of chemistry, no proof of this interesting fact, could have been adduced. Of the indestructibility of matter, it may be remarked that provision has been made even for the restoration of the fallen leaves of vegetables, which rot on the ground, and to a careless observer would appear lost for ever. Berthollet has shown by experiment, that whenever the soil becomes charged with such matter, the oxygen of the atmosphere combines with it, and converts it into carbonic acid gas, and the consequence of this is, that this same carbon in process of time, is absorbed by a new race of vegetables, which it clothes with a new foliage, and which is itself destined to undergo similar putrefaction, and renovation to the end of time. I might adduce many other facts, but not to trespass longer upon your time I hope the few remarks I have made, though rather miscellaneous, may be the means of inducing some of your young readers, to study Natural History, with a view of obtaining a just conception of the infinite wisdom and goodness of the creator.

"Nature is but a name for an effect,
Whose cause is God."

PART II.

REVIEWS AND EXTRACTS.

REVIEW.

OUTLINE OF THE SMALLER BRITISH BIRDS.

BY R. A. SLANEY, ESQR. M. P.—8*vo.* FOOLSCAP, 4*s.* 6*d.* CLOTH.

THIS we have found a very entertaining little book on our Smaller British Birds, evidently well suited to interest the minds of young persons, for whom it is chiefly intended. Its subtsance is gathered from some of the best books on those subjects, and is pleasingly blended with many original remarks, and the relation of several very interesting incidents, which led the Author to make some of his observations. Our feathered gentry are divided into three sets:—winter visitors, summer visitors, and sojourners or resident birds. The winter visitors include field-fares, redwings, starlings, cross-bills, winter yellow wagtails, snow-buntings, and mountain finches. It has, we believe, been satisfactorily ascertained, that the snow-bunting and the lesser mountain finch, are one and the same bird, varying only in colour and markings, from a difference in age or sex, or from the effects of the seasons. The *old* males in summer plumage are the snow-buntings; the *young* males and *old* females, are the tawny-buntings; and the great pied mountain finches, and the young birds of the same year, both male and female, are the lesser mountain finches, and bramblins. These differ materially, however, from the common brambling, (Fringilla montifringilla, Lin.) which may every winter be met with in company with the chaffinches.

The summer visitors, include about twenty seven species. The sojourners, include nearly forty of our smaller birds, the families of owls and hawks; also the different tribes of water birds, as the families of ducks, divers, gulls, and waders. It is illustrated with a dozen engravings, and is upon the whole very neatly got up. There is, however, one very important deficiency, the want of an index; had the birds mentioned in the work been arranged together at the end, in a sort of systematic catalogue, with the scientific names, and reference to page, &c. which might have been done in a very small compass, it would have been of much advantage. We think this has been omitted rather inadvertently, as on looking the pages over again, we find page 4 in a note these words, "At the end we insert a systematic catalogue of all those birds within our limits," which seems to prove, that something of the sort was in contemplation. We have not advanced this merely to find fault; for we much approve of the work, and would most certainly recommend it to the perusal of all our young friends, as an interesting companion in their daily walks.

EXTRACTS.

HORTICULTURAL INTELLIGENCE.

Varieties of the Pine Apple.—(Continued from page 754.) 31. Black Sugar-loaf. The copper-coloured Barbadoes of the Hort. Soc. Cat. No. 25. Fruit, same form as other varieties of the sugar-loaf; colour, darkish purple, slightly mealy before ripening; when ripe light orange. Pips rather above middle size and flat, sometimes a little depressed in the centre, covered one-third by the scales, which end in a very short blunt point. Flesh very pale lemon-colour, rather stringy, very juicy and sweet, with an agreeable pleasant acid. Crown rather large, leaves few, of a purple colour, long and erect. Fruit good in summer, but does not swell freely in winter.

32. Striped-leaved Sugar-loaf. The prickly-leaved Sugar-loaf, of Nicol, striped Sugar-loaf of Brookshaw; Green-leaved with purple stripes and spines on the edges of Speechley; Purple striped Queen, Green Sugar-loaf, and Green striped Sugar-loaf of the Hort. Soc. Cat. White Sugar-loaf, striped-leaved from Jamaica, Bird's bye Bahama, and Brown striped Sugar-loaf of some gardens. Flowers very pale lilac. Fruit same form as other varieties of the Sugar-loaf, of a clear palish green colour, and rather mealy; when ripe of a bright yellow; weighs from three to four pounds, of considerable excellence. Flesh deep yellow, semi-transparent, slightly stringy, very juicy and sweet with a slight aroma, but without much acidity. Crown middle-sized, leaves rather numerous, broad, pale green, with dark purple stripes.

33. Trinidad. Pitch lake of some. Leaves keel shaped, very long and straggling, broad at the base, and tapering to the top, dull green tinged with brownish purple, particularly on the spines and inner leaves, under surface very mealy. Spines remarkably irregular and growing in clusters, they are in the middle degree of strength and thickly set. Flowers lilac. Fruit elongated conical form, the greatest diameters are twelve and a half inches in height, by five and a half inches in breadth; before ripening, dark olive and lightly covered with meal, when ripe dark orange, and slightly tinged with red on the lower part of the pips, which are large, of a roundish form, and only very slightly angular; the margins are rather elevated with their centres depressed, excepting the lower part of the fruit where they are a little prominent. Scales cover about half the pips, and end in lengthened acute points at the lower part of the fruit, but near the summit they are much shorter. Flesh pale yellow, soft, with little fibre, very fragrant, and sweet without acidity, very delicate and highly flavoured. Crown very small, contributing, in continuation from the fruit, to give the whole the sharp termination of a regular cone. Leaves reflexed and considerably tinged with reddish brown. An excellent, and very large growing pine.

34. Bucks Seedling. This resembles the Trinidad, except that the leaves are not so robust, considerably paler, more mealy, and entirely free from any tinge of brown or red. nor the spines so strong and irregular. The fruit before ripe paler and more mealy, scales much longer, and of a dull whitish grey colour. Flesh somewhat paler, richer and more highly flavoured juice.

35. Enville. Old Enville, Cockscomb, and Enville Sugar-loaf of the Hort. Soc. Cat. Leaves not very long, rather broad and strong, slightly keel-shaped, somewhat recurved, bluish green, remarkably mealy, spines middle sized, thickly set and very irregular. Flowers lilac. Fruit pyramidal, dark purple tinged with brownish red before ripening, and very mealy, cover about one-third of the pips and terminate in lengthened acute points. Pips generally about the middle-size and slightly prominent. Flesh almost white, opaque, soft and melting, without much fibre, juicy, rather rich and sweet with a peculiar and pleasant perfume. Crown small, often Cockscomb shaped. A good pine, from four to seven pounds, and swells well in the winter.

36. New Enville. Leaves differ from the last in being less mealy, spines stronger and more regular. Fruit similar in both appearance and quality, to the Enville.

37. Spring Grove Enville. Leaves short, broad and flat, with revolute edges of a bluish green colour, much tinged with brownish purple, and rather thickly covered with meal. Spines middle-sized, rather thickly set and regular. Flowers lilac. Fruit pyramidal, very broad at its base; before ripening dark green and rather mealy, when ripe dark yellow. Pips middle-sized, rather flat and somewhat depressed in the centres. Scales covering rather more than half the pips, and terminating in very short points. Flesh very pale yellow, slightly fibrous, very juicy and rather sweet, but not highly flavoured. Crown very small, leaves not numerous, weighing from three to four pounds, but not of much worth.

38. Lord Bagot's Seedling. Leaves short, broad and flat, bluish green and thickly covered with meal; spines middle-sized and rather irregular. Flowers lilac. Fruit bluntly pyramidal, before ripening, dark greenish purple and thickly covered with meal; when ripe pale yellow. Flesh white, opaque and firm, with scarcely any fibre, very juicy and highly flavoured. Crown small, leaves not numerous.

39. Blithfield Orange. Leaves resemble those of the Enville, but are much weaker and less mealy. Fruit rather broader at the top than that variety; pips somewhat larger and less mealy, colour when ripe bright ochre. Flesh pale yellow, rather soft and melting with a pleasant highly flavoured juice. Crown small, leaves not numerous.

40. Black Antigua. Brown Antigua of Speechly and Hort. Soc. Cat. Jagged-leaf Black Antigua, of Brookshaw, and Wortley's West Indian, of some gardens. Leaves very long, narrow and acute, rather spreading, of a clear bluish green, the inner leaves much tinged with a pale brown, upper surface slightly mealy, lower surface very mealy. Spines large, far apart and regular. Flowers purple. Fruit cylindrical, inclining to oval; before ripening of a dull purple green and thickly covered with meal, when ripe dark ochre; a most delicious and highly flavoured fruit, it should be cut on its first appearance of changing from green to yellow, an observation which is applicable to all those sorts abounding with juice. Pips very large and prominent. Scales covering rather more than one-third of the pips, and terminating in short blunt points. Flesh pale yellow, slightly fibrous, rather soft and melting, with a pleasant acid, remarkably juicy, sweet and highly flavoured. Crown small, leaves few and erect.

41. Welbeck Seedling. Crown, Hort. Soc. Cat. and Prickly Providence, of some gardens. Leaves long, slender and spreading; broad at the base and

tapering to a very acute point of a dull green and only slightly mealy. Spines large, far asunder and regular. Flowers small, dark purple. Fruit somewhat cylindrical, generally broader at the top than at the base, before ripening dark olive; when ripe pale lemon-colour; very mealy on the centre of the pips, which are large, flat, rather wrinkled and depressed in the centre. Scales covering nearly half the pips, ending in short blunt points. Flesh very pale yellow, almost white, semi-transparent, melting, and juicy, slightly acid, with a rich agreeable flavour. Crown rather large, sometimes cockscomb shaped, leaves not very numerous. A very good Pine.

42. Ripley. Old Ripley and Heaton House Montserrat of Hort. Soc. Cat. Montserrat of Nicol; Indian Black of St. Vincents, and Brown Sugar-loaf of some gardens. Leaves broad, rather long, and slightly recurved, dark green, much tinged, with reddish brown, and mealy on both surfaces. Spines middling strong and irregular; margins reflexed and sometimes a little waved. Flowers purple. Fruit roundish ovate, sometimes rather cylindrical, slightly compressed at either end; before ripening very deep green, and thickly covered with meal on the middle of the pips, when ripe of a pale copper colour. Pips rather above the middle size and rather prominent; scales covering about one half the pips and terminating in lengthened acute points. Flesh pale yellow, opaque, very sweet and rich, firm and crisp, not stringy, and of a very agreeable flavour. Crown about the middle size, leaves rather numerous and spreading. Grows from three to five pounds, and is excellent for winter forcing.

43. Russian Globe. Leaves rather short and broad, somewhat keel-shaped, spreading and a little furrowed; of a dull green, much tinged with a dark brown, slightly mealy. Spines long, thinly set and regular. Flowers lilac. Fruit globular, sometimes tapering to the summit, before ripening dark purplish green and thickly covered with meal, when ripe darkish orange, inclining to a copper colour. Pips large, flat, and a little depressed in the centre. Scales covering about one-third of the pips, which end in long acute points, closely adhering to the fruit. Flesh of a clear yellow, slightly fibrous, very juicy and sweet, with a rich highly perfumed flavour. Crown rather large, leaves broad and spreading. An excellent pine, weighing from three to five pounds.

44. Russian Cockscomb. Leaves strong, broad, short and somewhat furrowed, slightly spreading and rather flat, with revoluted margins of a bluish green and very lightly tinged with brown, very mealy. Spines rather strong far asunder and regular. Flowers lilac. Fruit globular, rather tapering to the summit; before ripening of a dark green and rather mealy, when ripe pale orange. Pips rather above the middle size and flat; sometimes having small tubercles at some of the angles. Scales covering nearly one half the pips, ending in long blunt points which adhere closely to the fruit. Flesh pale yellow, rather transparent, very juicy and sweet with a rich pleasant acid. Crown rather small, leaves broad and spreading. An excellent summer fruit weighing from four to six pounds.

45. Queen. Old Queen, common Queen, narrow-leaved Queen, and broad-leaved Queen of the Hort. Soc. Cat. And Ananas Ordinaire of the French. Leaves very short, broad and stiff, somewhat spreading and keel-shaped of a bluish green and thickly covered with meal. Spines strong, rather far apart and regular. Flowers lilac. Fruit cylindrical, before ripening a lightish green and mealy; when ripe a rich deep yellow. Pips rather below the middle size and a

little prominent. Scales covering rather more than one-third the pips, ending in lengthened points. Flesh pale yellow, very slightly fibrous and melting, remarkably juicy and sweet, with a rich pleasant acid. Crown middle-sized, leaves numerous and a little spreading. A valuable pine, weighing from three to five pounds.

A Detached Fumigator, (Fig. 129) which will fit any pair of common bellows, is manufactured by Messrs. Warner, and sold to the trade at a very moderate price.

129.

Rapid Mode of Raising excellent Vine Plants. At the pruning season, leave a shoot of strong young wood, over and above what may be wanted for training, of a sufficient length to bend down as a layer into a pot; and also for training it during its growth. When the vine begins to push, displace all the buds from the shoot intended for laying, except the leading one. When this is grown to about eight inches or one foot long, bend it down to the pot, and lay it so that the top joint, whence the young shoot has sprung, may be fixed with a strong crook at about one inch under the surface of the mould. As soon as it begins to take root, weaken its resources from the mother plant, by making an incision in the wood behind the pot, which enlarge by degrees, as fast as the young plant will bear it, until it be quite separated from the old one.—T. Rutger.—*Gard. Mag.*

FLORICULTURAL INTELLIGENCE.

Culture of the Oxalis floribunda.—These plants have singular fleshy roots. quite different from the other species of the same genus, and posses extraordinary beauty when in flower. On examining the root of a good plant many growing buds will be perceived; take off two or three of these buds, with part of the fleshy root, and insert them in sand under a bell glass. Give them a little water and place them in front of the stove, where they will have as much light as possible; in 10 days they are ready to pot. Water the cutting pot, and then turn them out, and plant one in each pot, in a mixture of vegetable mould and peat. After potting give them a little water, and place them in a shady part of the house, till the heart leaves begin to grow, then expose them to the light; in March remove them to the greenhouse, where they can have plenty of air, and in May turn them out into the border, where they will flower till October, when they should be again potted and placed in the greenhouse till next year.—*Gard. Mag.*

New and very Rare Plants, figured in the Botanical Periodicals for October

CLASS I.—DICOTYLEDONOUS PLANTS, OR EXOGENES.

BERBERIDEÆ.

Epim'edium dihy'llum.—Two-leaved Epimedium. A curious plant with bluish white flowers. Native of Japan. Received by Messrs. Loddiges from the Leyden Garden. Culture—It appears to be quite hardy, and should be potted in light loam, and increased by dividing the roots.—*Lodd. Bot. Cab.*

PITTOSPOREÆ.

PITTOSP'ORUM ANGUSTIF'OLIUM.—A plant of delicate habit, with a few straggling slender branches. Native of New South Wales, whence it has lately been introduced. Flowers bright yellow. Culture—It must be kept in the greenhouse, and may be increased by cuttings. The soil should be loam and peat.—*Lodd. Bot. Cab.*

BROMELIACEÆ.

ÆCHM'EA MERTE'NSII.—Mertens' Æchmea. Native of Demerara, where it grows parasitical on trees. Introduced by C. S. Parker, Esq. whilst on a visit to that country. Flowers growing in yellow green spikes, the petals are of a bright and deep rose colour, the tips of which are seen above the yellow green sepals of the Calyx, which gives it a pretty effect.—*Bot. Mag.* Culture—It must be kept in the stove, and will probably thrive in rich mould and peat mixed together.

SCROPHULARINÆ.

CALCEOL'ARIA MARTINEA'UÆ.—Miss Martineau's, Slipperwort. An hybrid raised from C. Fothergilla, fertilized by C. corymbosa, by Mr. Blair, Gardener to John Martineau, Esq. at Stamford Hill, and was named in compliment to Miss Martineau, a young lady of great botanical taste. Flowers bright yellow, blotched with dark velvet spots; very showy. Culture—It flowers freely in the open border from April to August, requires a light rich earth, and is increased by parting the roots.—*Sweets Brit. Fl. Gard.*

CLASS II.—MONOCOTYLEDONES, OR ENDOGENES.

ORCHIDEÆ.

STANHOPEA EBURNEA.—Ivory-lipped Stanhopea. An Epiphyte of considerable beauty. Flowers slightly fragrant, and of short duration; the lip when fresh like highly polished ivory. Native of Rio Janeiro, whence it was received by Messrs. Loddiges.—*Bot, Reg.* Culture—It may be potted in peat mixed with a portion of rotten wood, and should be kept in the stove.

CYMBI'DIUM MARGIN'ATUM.—An air plant with bright yellow flowers, margined with red. Native of Rio Janeiro, whence it has been received by the Horticultural Society. Culture—See treatment of Maxillaria gracilis, p. 714. which is either the same plant in a sickly state, or a very nearly allied species, Young plants may be obtained by dividing the creeping stem, when the pseudobulbs will establish for themselves an independent life, by means of the little white and green roots.—*Bot. Reg.*

CYPRIPE'DIUM MACR'ANTHOS.—Large flowered Lady's Slipper. A beautiful species with a fine purple flower. Native of the Northern parts of Asia, as far as 58 deg north latitude. Gmelin found it in all Siberia. Amman met with it blossoming beautifully in June in a birch wood, on the eastern bank of the Irtisch, above the Tartar village of Tebendrinsk. It has been frequently introduced by Dr. Fischer and other Russian botanists, but hitherto has been but partially preserved. Culture—At the Horticultural Societies Gardens, Mr. Lindley tells us, the one figured grew in a peat border, under a north wall, but appears to have perished.—*Bot. Reg.*

ONCI'DIUM CRI'SPUM.—Curled flowered Oncidium. Flowers yellow and velvetty brown-red, elegant in form. Native of Brazil, from whence it has lately been introduced. Culture—It must be preserved constantly in the stove, and potted in vegetable earth and moss, with bits of broken pots intermixed. Like the other kinds it will admit of occasioual increase by separating its roots.—*Bot. Cab.*

IRIDEÆ.

ANOMA'THECA CRUE'NTA.—Bloody-flowered Anomatheca. Flowers of a bright red. Native of the Cape of Good Hope, from whence it was lately introduced. Culture—It may be kept in a pot in the greenhouse, or will thrive if planted in a border, close to the front wall of a stove. The soil should be sandy peat. Like most of this family it increases by offsets of the bulbs, or by seeds which ripen freely.—*Bot. Cab.*

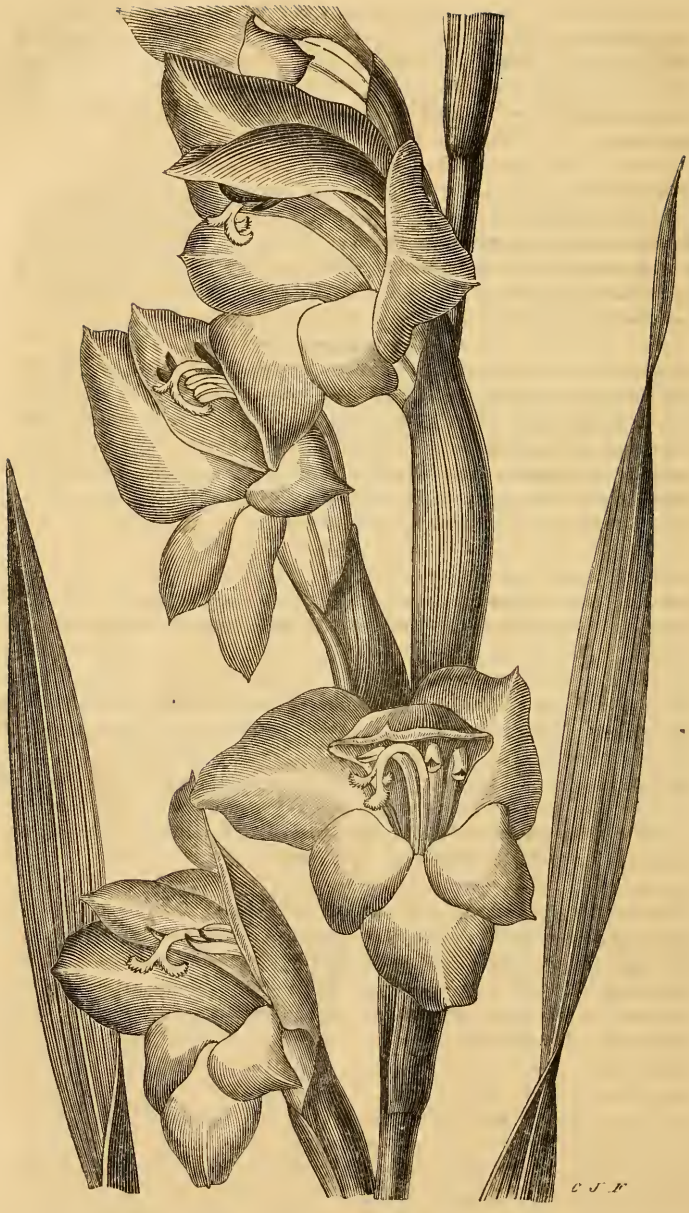
AMARYLLIDEÆ.

ALSTROM'ERIA OCUL'ATA.—Purpled-eyed Alstrœmeria. A climbing plant with rich rose-coloured flowers; handsome; received by Messrs. Loddiges, from Mr. George Eglington, of Valparaiso. Culture—It should be kept in the greenhouse, and potted in peat and loam, with one-third of rotten-dung, and may be increased by separating the roots or by seed. li is thought that it may endure the climate of this country, as many of the other kinds do, planted in a border, close to the front wall of a stove.—*Lod. Bot. Cab.*

ASPHODELEÆ.

TRICHOPE'TALUM GRA'CILE.—Slender Trichopetalum. Flowers green and white, and very feathery. Found by Mr. M'Reae near the baths of Colina, in Chile, and by him sent to the Horticultural Society. Culture—Planted in rich soil, and under good cultivation it rises to the height of three feet, flowering and seeding abundantly from June to August. It succeeds better if committed to the open ground in a frame or pit, well drained, has a southern aspect, and from which the frost is entirely excluded. In such a situation exposed to the open air all summer long, it will form its leaves in perfection, and will not lose them until they have completely fulfilled the purpose for which they are created. This is the only way in which Cape roots can generally be cultivated successfully; for few of them are capable of living, or at least of flourishing so far north of London, if treated as hardy plants.—*Bot. Reg.*

CULTURE OF GLADI'OLUS NATALE'NSIS.—(Fig 130) Bulbs of this splendid plant was received by Messrs. Loddiges from the Leyden Botanic Garden. Flowers bright yellow, richly striped and spotted with vermillion and light red. See our notice of it p 315. It bore the winter of 1830-31 perfectly well out of doors, in front of a stove, in sandy peat and soil, and appears to increase itself by offsets freely.—*Lod. Bot. Cab.*


C. J. F.

ARBORICULTURAL INTELLIGENCE.

Horse Chesnut.—The wood of the horse chesnut (Æ'sculus Hippo-castà-num) makes very durable stakes for vines. *A'lnus glutinòsa* appears to grow more rapidly in light sandy soil, than the birch (Betula alba) when placed in similar situations.

Que'rcus coccinea and Q. rùbra—The first of these trees has been known for upwards of fifty years in the park at Worlitz; and specimens are there to be found one hundred feet in height. There are four distinct varieties of the species coccínea, differing in the colour of their leaves, and in their greater or less productiveness of acorns. All of them are remarkably ornamental, from the deep red of their very late falling leaves, especially in autumn, and when the trees appear among the dark foliage of the pines. The timber is extremely firm and tough; and so suitable for furniture, that, when varnished, it becomes as dark as mahogany. Q. rùbra does not form so large or so handsome a tree as the scarlet Oak; but it is still very beautiful, and deserves a place in every plantation. It requires rather a moist soil.—M. Schoch, Worlitz Gardens. —*Pruss. Gard. Soc.*

Tamarisk planted by cuttings in the spring, in driving sands on the sea shore, will immediately take root; and the falling leaves in a few years will fix the sands. Sea weed may also be collected and spread over the sand, which the stems of the tamarisk would hold in their place. Tamarisk may be cut every spring, and thus yield an annual profit. The wood is heavy and good to burn. —*Gard. Mag.*

NATURAL HISTORY.

Food of Bees in North America.—The American black willow and the red maple are the first trees that are visited by bees. They are fond of the crocus, which is the earliest of our bulbous roots. The stercory, and piggery are next resorted to, and the extract absorbed from them, must be used a tonic. Blossoms of all kinds, except those of the red clover and honey-suckle, are excellent food; and the bees especially profit by the increased attention bestowed at present on the culture of the peach tree in some parts of America. They not only drink the nectar, and collect the pollen of the flower, but they appropriate the peach itself. The scent of bees is so acute, that every flower which has a powerful odour can be discovered by them at a great distance. Strawberry blossoms, mignonette, wild and garden thyme, herbs of all kinds, apple, plum, cherry; and above all, raspberry blossoms, and white clover, are delicious food for them; and a thriving orchard and apiary fitly go together.—*Mag. Nat. Hist.*

Mode of Decoying Wild Pigeons in New England, North America. The flight and stool pigeons as they are called, are prepared by passing a thread through the edges of both their eye-lids, which are thus closed; their legs are booted, and the flights being fastened to long strings, are thrown into the air,

and fly as far as they are permitted: while the stool pigeon is tied to a narrow board, which, at the end, when the bird is fixed, rises and falls; and both kinds of decoy, by flapping their wings, draw the attention of the passing flocks of wild pigeons, which are thus made to alight on prepared ground within reach of the concealed spring-net, or on a long pole rising a little from the horizontal line, so as to give the greatest effect to the discharge of the gun from the bush-house which conceals the sportsman. The net concealed by cut grass is sprung by a rope, which is pulled the moment after the pigeons alight upon the prepared ground.—*Silliman's Journal.*

Analysis of Gums.—M. Guérin has analysed several varieties of gums with the annexed results. Arabin, which constitutes the greater portion of gum arabic, is composed of

Carbon	43,81
Oxygen	49,85
Hydrogen	6,20
Azote	,14
	100,000

The Azote is considered non-essential. Gum arabic was found to consist of

Arabin	79,40
Water	17,60
Ashes	3,00
	100,00

Messrs. Gay-Lussac and Thenard found its composition to be

Arabin	84,16
Water	13,43
Ashes	2,41
	100,00

The difference of water found, depended upon the different methods of drying. The gum in this analysis was dried at 212 deg. in the air, while M. Guérin dried it at 257 deg. *in vaceuo*, which accounts for the larger quantity of water obtained by him. The quantity of ashes found by M. Guèrin is the same as that procured by Vauquellin; they consist of carbonate of potash, chloride of potassium, oxide of iron, allumina, silica, and magnesia.

Gum Senegal.—100 parts of this gum treated with 500 of nitric acid gave 16,70 parts of mucic and oxalic acids. It is composed of

Arabin	81,10
Water	16,10
Ashes	2,80
	100,00

Its composition is therefore essentially the same as gum arabic.

Mucilage of Linseed.—The soluble part of linseed is composed of

Arabin and azotized matter	67,50
Water	14,00
Ashes	18,50
	100,00

Bassora Gum.—This gum swells much in water; treated with boiling alcohol it yields chlorophylle, a substance resembling wax, acetate of potash, chloride of calcium and supermalate of lime. It is composed of

Arabin	11,20
Bassorin	61,31
Water	21,89
Ashes	5,60
	100,00

Bassorin is solid, colourless, semi-transparent, insipid, inodorous, uncrystallizable, and difficult to powder. It is insoluble both in hot and cold water, but it absorbs it and swells considerably; it is also insoluble in alcohol, and does not undergo the vinous fermentation. 100 parts treated with 1000 nitric acid gave 22,61 of mucic and oxalic acids. When treated with sulphuric acid it gives a crystallizable matter, which has a sugary taste, but does not form spirit by fermentation.

Bassorin is prepared by washing Bassora gum with a large quantity of cold water repeatedly, until it ceases to dissolve any thing. The residue is then to be allowed to drain, to be dried in cloth, and the water is to be finally separated by exposure to a salt-water bath in a silver capsule. Bassorin is composed of

Carbon	37,28
Oxygen	55,87
Hydrogen	6,85
	100,00

The soluble part of Bassora gum is similar to Arabin; 100 parts of water at 68 degrees dissolve 17,28 parts, and at 212 degrees 22,98 parts; 100 parts heated with 400 of nitric acid, gave 15,42 mucic acid and oxalic acid. The soluble part, or arabin of this gum gave by analysis:

Carbon	43,46
Oxygen	50,28
Hydrogen	6,26
	100,00

It is, therefore evident that it is identical with Arabin.

The insoluble portion of Bassora gum, consists of Bassorin, mixed with phosphate of lime, silica, oxide of iron, and magnesia.

Gum Tragacanth.—Its sp. gr. is 1,384, when heated to between 125 degrees and 145 deg. Fahr. it is more easily powdered than at common temperatures. It swells prodigiously when put into water and when boiled in water and treated with iodine, starch is shown to be present. It is composed of

Arabin	53,30
Bassorin and Starch	33,10
Water	11,10
Ashes	2,50
	100,00

Ann. de Chim. et de Phys.

PART III.

MISCELLANEOUS INTELLIGENCE.

I. QUERIES, ANSWERS, REMARKS ETC.

On Scarifying Fruit Trees.—Never having paid much attention to the management and cultivation of fruit trees, I was lately much astonished on noticing for the first time, an operation which had been performed on a number of young standard trees, planted about four years since, in a small orchard belonging to a friend of mine. I allude to the practice of dividing the bark in a perpendicular line, commencing from immediately below the first branches, and continued to the base of the stem; the knife penetrating at the same time, through the outer bark and the *liber* to the wood. Upon enquiring into the utility of this process, I was told, that it allowed the wood to swell and expand; that if the bark be not separated in this manner, it confines and cramps the energies of the tree, and consequently retards its growth, and impedes increase in bulk. Then again, it is said, this operation secures a vent to the exuberance of sap, which, if confined, would be injurious to the tree. These reasons are so puerile, so contradictory, so worthless in the way of argument, and so easily proved to be untenable, that I am constrained to suppose, that the practice can be supported upon other and far better principles; more especially, as I am informed, that there are men, who are esteemed to be good gardeners, who approve of and follow it. I can claim but little acquaintance with the science of vegetable physiology, still this operation appears to me to outrage every principle of that science, and reasoning from analogy, to be wholly inconsistent with nature. The question is simply this, can it be supported upon right principles? Is it beneficial, or otherwise? It will readily be seen to which side of the question my sentiments lean; but as I can only maintain them by mere hypothesis and abstract reasoning, and cannot speak from experiment and actual observation, I am desirous of further information *pro* and *con*, before I venture to form a *decided* opinion. Therefore I should feel obliged if G. I. T. and other correspondents of the Register, who may be qualified to speak on the subject, would favour me with their opinions. G. A. L.

July 25th, 1832.

Hard Water, Great Promoter of the Growth of Plants.—I was reading this morning, the introduction to Parkes's Chemical Essays, "according to Doctor Home, hard water promotes the growth of Plants, in a much greater degree than soft water." This naturally surprised me, and I would fain know the Doctor's reasons; but being unable to apply to the work itself for information, in consequence of my ignorance of its name, I am induced to hope, that one of your scientific readers, will do me the favour to enlighten me on a subject, that must be of importance to all Horticulturists, more especially to a tyro like your humble servant, PAX.

Rhubarb Plants.—My Rhubarb bed of green Giant and scarlet Goliah, was last year the admiration of this district, near Heney; many of the leaves measuring four feet in length, and the stems between five and six inches in circumference; the latter too, retaining their delicate pulp-like texture, where dressed throughout the summer and far into October.

This year, however, almost all the roots appear to have changed their character; they have thrown up a forest of tiny stalks, not thicker than my little finger, which possess, in addition to the above ill quality, that of being tough and stringy, or rather wirg, my tarts having more resembled hay than rhubarb. Do you suppose, gentlemen, that I have injured my roots, by having continued to cook them through the last summer?

I have but slender abilities in Horticultural matters, and hope for your indulgence, and the favour of a reply. Rhea.

Erythrina Christa Galli.—Having had the Erythrina Christa Galli in my possession nearly four years, and with every advantage which the stove and green house afford, not having made, amidst its luxuriance, the smallest approach to bloom; I should feel much obliged, to be made acquainted through the medium of the Horticultural Register, of the best method that may encourage some prospect of success in this respect. A Florist.

Rhubarb Plants.—In answer to the enquiry of your correspondent T. (Hort. Reg. page 666,) I have to observe, that it is, I believe, an ascertained fact, that allowing plants to seed has an exhausting effect, as well upon the plants themselves, as upon the soil they grow in. Some, which if prevented from seeding, would prove perennial, uniformly die the following winter, if allowed to seed. Others, if raised too late to blossom the year in which they are sown, are well known to produce more vigorous plants, and consequently finer flowers, the year following.

Applying this principle to my Rhubarb, I remove its blossom buds in their earliest infancy, except when I wish to perfect a few of its seeds: this, however, I have nearly attempted, as like the potatoe, it is much more speedily propagated through the medium of its roots, than by sowing the seed.

Whenever I have allowed a Rhubarb plant to ripen its seed, I have found it suffer in the vigour of its leaves, not only during the year of its flowering, but on the following year also. Edwd. Bevan.

Ferry Side, Aug. 4th, 1832.

Glycine Sinensis, as a Frontispiece for the Volume.—As the first Volume of the *Horticultural Register* will close next December, I beg to suggest, than an Engraving conveying the representation of some beautiful flower, belonging to a plant of easy cultivation, may accompany the number of that month, for the particular purpose of being bound up, as the frontispiece to the work: and should this suggestion be approved of, I beg to name the perennial climber, the Glycine Sinensis, as having great claim from its elegantly formed clusters of beautiful bright-blue flowers to this distinction: but as some of your readers may give a preference to other flowers, and as the decision may require some consideration from yourselves, I have placed the hint in train, while December is still at some distance, that there may be ample time for that purpose accordingly. A Subscriber.

Budding Roses.—Permit *a Subscriber* to enquire respecting the best method *Budding* Rose Trees, as well as the best time, and sort of bud likely to strike the best; having attempted it on several common white or dog rose trees, according to the plan laid down in Loudon's Encyclopædia of Gardening, &c. but without success since July, and no symptom of the buds striking have yet appeared, on the contrary, a dark dry withered appearance.

Perhaps you would afford a clearer account of the method, descriptive and plain, and the appearance likely to be assumed if the bud strikes; how much besides the bud may be used, &c. &c. J. Thompson.

Imfolk, Sept. 12th, 1832.

Preserving Geraniums through the Winter out of Doors.—I should feel exceedingly obliged to any of your correspondents, if they would have the goodness to inform me of the *least troublesome and expensive* method of preserving the Geraniums which have been turned out of pots, and placed in open borders through the winter; and whether it can be done *without repotting them.*

My greenhouse is not large enough to admit them, in addition to the regular stock of Geraniums in pots: yet to make the borders handsome, it is necessary to have some dozens of scarlet Geraniums. It is my request to be informed, how I can best protect them through the winter months. Would they do, if carefully taken up, the earth shaken off their roots, and packed in boxes kept in the temperature of the cellar? I am speaking of a case, where neither green house nor frames can be afforded for them. Should they be cut down? would they do, if buried in sand or saw-dust? As the winter is coming on, an *early* answer to this question would be gratefully received. J. Mitford.

Sept. 1st, 1832.

Culture of Pomegranates Wanted.—I should be much obliged by your giving, in an early number, some instructions for the treatment of the Pomegranates single or double, with a view to their free flowering. I have two fine trees against a south wall, very strong and flourishing, but I cannot succeed in obtaining many flowers from them. I have tried every method I could think of.

Petersham, near Richmond, Surrey, Sept. 17th, 1832. A Subscriber.

II.—COLLECTIONS AND RECOLLECTIONS.

Movement of Shell Fish.—The fresh water muscles, which are common in rivers and canals, are not, as might be supposed, immovably confined to the spot where they may chance to be produced. The organ with which they effect the movements is of a fleshy substance, about two-thirds of the length of the shell and thrust out through the opening near its middle. This foot, as we may term it, is about half an inch broad in the large shells, and sharp at the point. In order to move themselves from place to place, they thrust this organ under the shell, applying it with a quick motion to the bottom of the place where they lie, by which means they can, not only change their place, but turn themselves upside down.—*Notes of a Naturalist.*

Fall of the leaf.—It is not enough to acconnt for the fall of the leaf to say, it falls because it is weakened and dead, for the mere death of a leaf is not sufficient to cause its fall, as when branches are struck by lightening, killed by a bleak wind, or die by any similar cause, the dead leaves adhere tenaciously to the dead branch. To produce the natural fall of the leaf, the branch must continue to live, while its leaves die, and are thrown off by the action of its sap vessels. The change of temperature, from hot to cold, seems to be one of the principal circumstances connected with the death and fall of the leaf. Hence it is, that European trees, growing in the southern hemisphere, cast their leaves at the approach of winter there, which is about the same time of the year that they put them forth in their own climate. The native trees of the tropics are all evergreens, and like our hollies, and pines, have no general fall of the leaf, yet there is always a partial fall proceeding, and at the same time a renewal of the loss.—*Times Telescope, Notes of a Naturalist.*

III.—MONTHLY HORTICULTURAL CALENDAR.

FOR NOVEMBER.

This month is remarkable for foggy damp weather, greenhouse plants &c. must receive no water except when the soil becomes quite dry and then some should be allowed to fall upon the leaves or they will be very liable to damp off, give as much air as possible every day, and keep the place perfectly dry. Make use of every fine day to gather any remaining late pears or apples hanging on the trees. Lay a quantity of litter or half rotten horse dung about the roots of the trees planted last month. Collect soils for different purposes, and begin to make every preparation for winter. As the ground becomes vacant let it be trenched in ridges to stand more exposed to the action of the weather. Some hardy trees as cherries, plums, &c. may now be pruned, but peaches, nectarines, apricots, and the like are better deferred till towards the spring.

FRUIT DEPARTMENT.

Peach and Nectarine Trees on the walls where most of the leaves are falling, may be slightly brushed upwards with a small birch or link wisk to clear the branches off them, afterwards draw most of the nails as recommended page 240, for their general treatment see pages 18, 192 480, 534, 673, and 721.

Apricots will require similar treatment to peaches. The moor park apricot is very liable to be infected with canker; for Mr. Lindley's remedy, see p. 164.

Cherry and Plum Trees may now be pruned.

Gooseberry and Currant Trees may also be pruned, leave a good supply of young wood in them. This is also the proper time for manuring them, if the land in which they are planted be strong, horse-dung and light fresh soil should be used; but if light, cow-dung and fresh soil. See Mr. Muscroft's observations, p. 203.

Strawberries in Pots may now be introduced into the forcing houses, the first crops however set better if the pots are placed in hot bed made for the purpose, see p. 240. Geo. Harrison's observations, see p. 395.

Grapes, Vines in pots, now brought into the Vinery, will ripen their fruit about the beginning of April, see p. 6, 185, 490, and 536, keep those intended to be trained on the rafters fully exposed to the open air, until the time appointed to force them. Mode of pruning is noticed, p. 338, and the culture is practised in France, p. 341.

FLOWER DEPARTMENT.

Hyacinths should be planted, as recommended, p. 588.

Tulips should now be planted, p. 105.

Ranunculuses now planted in frames will flower in March and April, also prepare the beds for planting them in March, p. 196.

Dahlias will now require taking up, p. 147.

Chrysanthemums in the green-house will now require abundance of air to prevent the flowers from expanding weakly.

Mignonette and Ten Week Stocks sown in August must have as much air as can be given them by day, and well secured from frost by night.

Roses now brought into the forcing houses will flower in February, p. 248. Also stocks on which to bud for tree roses should now be planted.

American Plants in exposed situations, if the winds are very cutting, should have a few laurel branches stuck about them to protect them.

Prepare mould for Carnations, &c. as recommended p. 199.

VEGETABLE DEPARTMENT.

Cauliflowers fit for use, if the weather proves frosty, should be dry up and taken to the shed or cellar, as recommended p. 240. Give plenty of air to those pricked out in frames, &c.

Endive must also be taken up as soon as the frosts are severe, and blanched in a shed or cellar.

Lettuce plants may still be pricked out in frames, if enough were not done last month.

Peas and Beans sown this month, will have a better chance to stand the winter, than those sown last month; about the second week, sow some in small pots, to force for an early crop.

Asparagus beds must now have their winter dressing, p. 73. Plant strong roots in hot-beds for forcing, see p. 240.

Raddishes may now be sown in hot-beds for the first crop.

Artichokes must now have their winter dressing.

Sea Kale should now be covered with pots, and litter to blanch it for the table.

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THE

HORTICULTURAL REGISTER.

DECEMBER 1ST, 1832.

PART I.

ORIGINAL COMMUNICATIONS.

HORTICULTURE.—ARTICLE I.

LIST OF ALL THE BEST FRUITS IN CULTIVATION.

AGREEABLE to our promise made in the introduction, we present our readers with a general list of all the best fruits and vegetables in cultivation; it will be easily seen, we have only selected those we conceive to be the very best. Those marked with a * are such as we would recommend, where a selection is required for a small garden in the southern or midland counties, and those marked with a † we conceive suitable for the northern counties of Scotland.

TABLE APPLES.—SUMMER USE.

* Bowyer's Russet, fruit small, excellent bearer, ripe September and October.

Devonshire Quarrenden, middle-sized, good bearer, and rich fruit, ripe in August and September.

Dutchess of Oldenburgh, middle-sized, deserves to be cultivated, ripe in September and October.

† * Early Julien, small, rich flavoured, ripe in Aug. and Sept.

Irish Peach Apple, middle-sized, very excellent, ripe in August and September.

* Leyden Pippin, middle-sized, a profuse bearer, ripe in August and September.

Longville's Kernel, middle-sized, a good bearer, and ripens in August and September.

Maiden's Blush, large, excellent quality, ripens in September.

† * Margaret, middle-sized, high-flavoured, good bearer, ripens in August and September.

† * Oslin, middle-sized, peculiarly rich fruit, ripens from August to October.

* Summer Golden Pippin, small, fine dessert fruit, ripe in August and September.

Summer Thorle, middle-sized, very good, ripe Aug. and Sept.

Summer Pearmain, middle-sized, excellent, ripe in September.

White Juneating, small, old but handsome good fruit, ripe in July.

White Astrachan, middle-sized, excellent bearer, ripe in September and October.

Yellow Ingestrie, small, profuse bearer, ripe in Sept. and Oct.

TABLE APPLES.—AUTUMNAL USE.

† * Early Nonpareil, small, fine flavoured, in use from Oct. to Feb.

Barcelona Pearmain, middle-sized, ripens in November, requires to be planted in a good situation, or against a wall.

† * Court of Wick, small, handsome, of very excellent quality, superior in many respects to the Golden Pippin, ripens in October, and continues in use till March.

Downton, small, excellent bearer, in use from October to January.

Dutch Mignone, middle-sized, fine quality, in use from November to April.

Essex Pippin, small, resembles the Golden Pippin, in use from October to February.

† * Fearne's Pippin, middle-sized, profuse bearer, in use from November to February.

Fenouillet Rouge, small, rich and highly-flavoured, in use from November to March.

Forman's Crew, small, resembles a large Golden Pippin, in use from November to April.

† * Franklin's Golden Pippin, middle-size, rich fruit, in use from September to January.

† Golden Reinette, middle-sized, of first rate excellence, ripe in October, in use till January.

Golden Russet, middle-sized, requires a good situation, in use from November to March.

Grise, middle-sized, very good, in use from November to March.

† * Hughes's Golden Pippin, small, very excellent, in eating from October to February.

Herefordshire Pearmain, large, an established sort, in use from November to March.

Hormead Pearmain, middle-sized, a good bearer, in use from October to March.

Hubbard's Pearmain, small, very rich flavour, in use from November to April.

Isle of Wight Pippin, small, good, but rather a shy bearer, in use from October to January.

† * King of the Pippins, middle-sized, very excellent, and handsome, in use from October to January.

† * Margil, small, flavour like the Ribstone Pippin, in use from November to February.

Morris's Nonpareil Russet, small, very good, in use Nov. to Feb.

Nonsuch Park, small, resembles the golden pippin, in use from November to February.

Nine Partner's Little Russet, small, in use from Nov. to March.

Old Golden Pippin, small, requires a wall, in use Nov. to Apl.

† * Padley's Pippin, small, shrivels if not packed in fern or sand, in use from November to January.

† * Pine Apple Russet, middle-sized, very juicy and fine flavoured, in use from October to January.

† Pearmain Adams's, middle-sized, very handsome and good, in use from November to February.

Pearmain Scarlet, middle-sized, good bearer, in use, Sept. to Jan.

Pome-poire, Old, small, deserves to be more cultivated, in use from November to February.

Pennington's Seedling, middle-sized, an excellent variety, in use from November to March.

Pitmaston Nonpareil Russet, middle-sized, very excellent, in use from November to February.

* Red Ingestrie, small, nearly as high-flavoured as the Golden Pippin, in use from October to November.

* Ribstone Pippin, middle-sized, ought to be in every collection, in some soils however, liable to canker, in use from Nov. to March.

Sam Young, small, rich and highly flavoured, in use Nov. to Feb.

Syke-house Russet, small, excellent, in use from Nov. to Feb.

West Grinstead Pippin, middle-sized, does not shrivel, in use from November to April.

Winter Red Streak, middle-sized, good and useful fruit, in use from October to January.

WINTER TABLE APPLES.

* Beachamwell, small, very excellent, in use from Dec. to March.

† * Bringewood Pippin, small, good quality, in use, Jan. to Mar.

Byson Wood, small, of the first quality, in use from Dec. to Feb.

Cockle Pippin, middle-sized, good keeper, in use, Jan. to Apl.

Conquest de Wigars, middle-sized, keeps without shrivelling, in use from January to March.

Court-pendu Plat, middle-sized, good bearer, in use, Dec. to Apl.

Gilliflower Cornish, middle-sized, the best of apples, but a shy bearer, in use from December to May.

Golden Drop Coe's, small, very excellent, in use, March to May.

* Golden Harvey, small, one of the richest apples, in use from December to May.

London Pippin, middle-sized, does not shrivel, in use, Dec. to Apl.

Newtown Pippin, middle-sized, excellent, but requires a wall, in use from January to May.

* Nonpareil Braddick's, small, good and keeps sound, in use from January to April.

Nonpareil Downton, middle-sized, sharp rich flavour, in use from December to April.

Nonpareil Fair's, small, very good, in use from Dec. to Feb.

Nonpareil Flat, small, a nice juicy apple, in use from Dec. to Feb.

Nonpareil Golden, small, very handsome, in use from Dec. to Feb.

† * Nonpareil Old, small, peculiar and excellent flavour, in use from January to May,

Nonpareil Martin, small, of the first quality, in use from December to March.

Nonpareil Ross, small, Fenouillet flavour, in use, Dec. to Feb.

† * Nonpareil Scarlet, middle-sized, very handsome, in use from January to May.

† * Nonpareil Sweeney, middle-sized, good bearer, in use from January to April.

Pearman Lamb Alley, middle-sized, keeps without shrivelling, in use from January to April.

Resivette Carpentin, small, peculiar subacid, and slight Fenouillet flavour, in use from December to April.

Resivette Uelners Gold, small, excellent, tree delicate, in use from January to March,

Russet Boston, middle-sized, Ribstone Pippin flavour, in use from January to April.

Russet Nonpareil, small, of excellent quality, in use, Dec. to Feb.

De St. Julien, large, very good and bears well, in use from December to March.

SUMMER KITCHEN APPLES.

† * Alexander, large, good bearer, in use from Sept. to Jan.

Autumn Pearmain, middle-sized, rich yellow flesh—Sep. & Oct.

Broad-eyed Pippin, large, excellent, in use from Sept. to Dec.

Cole, large, of the first quality, in use August and September.

Dutch Codlin, large, good fruit, in use August and September.

† * Hawthorndean, large, a very abundant bearer—Sep. to Dec.

† * Keswick Codlin, fine for tarts as early as June, when no other are ready, in use from June to September.

Kilkenny Codlin, large, good quality, in use from Aug. to Oct.

Large Early Yellow Bough, larger, of very good quality, in use August and September.

* Mank's Codlin, large, the first quality, in use from Aug. to Oct.

Nonsuch, large, good, but soon go mealy, in use in Sept.

Spring Grove Codlin, large, excellent, in use from July to Sep.

Sugar-loaf Pippin, middle-sized, very good, in use in August.

† * Winter Codlin, middle sized, very great bearer, in use from September to February.

† * Wormesley Pippin, middle sized, excellent bearer, in use from September to November.

AUTUMN KITCHEN APPLES.

† Bedfordshire foundling, large, handsome, excellent fruit, in use from November to March.

Belle Fleur Brabansche, large, an excellent sort, in use from November to April.

† * Blenheim Pippin, large, handsome, very excellent, in use from November to February.

Burr Knot, large, strikes easily from cuttings, in use, Oct. to Jan.

Codlin, winter, middle sized, great bearer, in use, Sept. to Feb.

Caroline, large, an excellent apple, in use from Nov. to Feb.

Col. Harbord's Pippin, large, excellent, in use from Nov. to Jan.

† * Dumelow's Seedling, middle sized, very excellent, in use from November to March.

English Codlin, middle-sized, in use from Novem. to March.

Green Fulwood, large, a good apple, in use from Nov. to May.

Gloria Mundi, large, in use from Nov. to January.

† * Gravenstein, may be reckoned a rival to our Ribstone Pippin, in use from October to January.

* Hollandbury, large, very handsome, in use from Nov. to Jan.

Holland Pippin, large, good, in use from Nov. to March.

Monstrous Leadington, large, in use from October to January.

† * Lord Nelson, Kirk's, large, very handsome, in use from November to February.

Mère de Ménage, large, first quality, in use from Oct. to Jan.

† * Minshul Crab, middle-sized, good bearer, in use Nov. to Feb.

† * Reinette, du Canada, large, perhaps surpassed by no apple of its size, it deserves extensive cultivation, in use from Nov. to April.

† * Yorkshire Greening, large, apt to speck, in use, Oct. to Jan.

* Royal Russet, large, becomes soft unless kept in pure sand; excellent for kitchen use, tree bears well, in use from Nov. to May.

Waltham Abbey Seedling, large, handsome, in use Oct. to Jan.

* Watson's Dumpling, large, resembles the beauty of Kent, excellent.

WINTER KITCHEN APPLES.

Alfriston, large, valuable fruit, in use from December to April.

† * Beaufin Norfolk, middle-sized, excellent for drying, in use from January to June.

† * Beauty of Kent, large, much esteemed, in use, Nov. to Feb.

* Bess Pool, middle-sized, very excellent, in use, Dec. to April.

Calville Blanche d'Hiver, large, in use from January to April.

Calville Malingve, large, great bearer, in use Jan. to April.

Deux Ans Hambledon, large, a valuable sort, in use, Jan. to May.

† * Northern Greening, middle-sized, keeps sound, in use from December to April.

Rhode Island Greening, large, good bearer, in use, Dec. to April.

Rostocker, large, a good bearer, in use from December to May.

Rymer, large, keeps very firm, and contains a brisk juice, in use from December to April.

† * Winter Majetin, large, tree hardy, not subject to the attacks of insects, in use from January to May.

II. APRICOTS, WITH BITTER KERNELS.

† * Brussels, fruit middle-sized, colour pale yellow, bears well on a standard, comes into use in the middle of August.

† * Hemskirke, middle-sized, orange red, ripens well about the end of July, if planted against an east wall, and may be considered superior to the Moor park.

Large Early, middle-sized, brown orange, rich table fruit, ripe in July.

† * Moor Park, large, orange red, excellent, ripens the end of Aug.

† * Peach Apricot, large, orange red, the best of all Apricots, ripe the end of August.

Red Masculine, small, yellowish red, the earliest of Apricots, the trees should be planted against a south or south-east wall, where they will ripen in favourable seasons, soon after the middle of July.

Roman, middle-sized, pale yellow, good bearer, used only for preserving, ripe the middle of August.

† * Royal, large, yellow orange, very excellent, ripens the beginning of August.

WITH SWEET KERNELS.

* Breda, small, brown orange, first rate, bears well as a standard, ripe in August.

Mush Mush, small, orange red, very sweet and tender, ripens the end of July.

† Orange, middle-sized, orange red, good for preserving, ripens the middle of August.

* Turkey, middle-sized, deep yellow, excellent late fruit, ripens the end of August.

III. CHERRIES.—TABLE USE, SUCCEEDING AS STANDARDS.

Adam's Crown, fruit middle-sized, colour pale red, ripens in the beginning of July.

* Bigarreau, large, pale yellowish red, excellent bearer, ripe the end of July.

* Bigarreau à Gross Fruit Blanc; large, pale yellowish red, flesh tender, ripe in July.

Bowyer's Early Heart, middle-sized, red, good bearer, ripens the end of June.

Carnation, large, pale red, first quality, ripens the middle of July.

Gean Amber, middle-sized, pale red, abundant bearer, ripe the beginning of August.

KITCHEN USE.

English Preserve, middle-sized, good for drying, ripe in the beginning of July.

English Cherry, middle-sized, red, good variety of the Kentish, ripe in the beginning of July.

† * Kentish, middle-sized, red, good-bearer, but rather watery, ripe the end of July.

† * Kentish Drier, middle-sized, red, quality similar to the last, ripe the middle of July.

D'Ostheim, middle-sized, dark red, bears well as a dwarf, ripens the end of July.

II—TABLE USE REQUIRING A WALL.

Those marked thus: ‡ will bear good crops as Standards, but we should recommend their being placed against walls wherever it is convenient.

† * Arch Duke, large, deep red, ripens well on a north wall by the middle of July.

Belle de Choisy, ‡ large, red, very handsome fruit, ripe in the beginning of July.

† * Black Eagle, ‡ middle-sized, black, excellent early fruit, ripe the end of June.

† * Black Tartarian, large, black, fine and good quality, ripe the end of June.

Downton, ‡ middle-sized, pale yellowish red, good bearer, ripe the beginning of July.

† * Elton, ‡ large, pale yellowish red, very excellent, ripens the beginning of July.

Florence, ‡ large, pale yellowish red, succeeds best trained against an east or south-east wall, where it ripens its fruit about the end of July.

Griotte Early Purple, middle-sized, dark-red, valuable, ripens the beginning of June.

† * Holman's Duke, middle-sized, deep red, valuable when planted against a north wall for its lateness, it ripens about the middle of August.

Knights Early Black, large, black, very fine fruit, ripens the beginning of July.

† * May Duke, middle-sized, dark red, one of the best, ripens the end of June.

Waterloo, large, black, high-flavoured, very good, ripens the beginning of July.

KITCHEN USE.

† * Morrella, large, dark red, excellent for preserving, do well on a north wall, where they ripen about the middle of August.

IV.—CURRANTS.—BLACK.

† * Black Naples, this is superior to any other both for crops and size of fruit.

† * Common Black, very good but quite inferior to the preceding.

RED

† * Red Dutch. This is the most common cultivated red currant.

† * Knight's Sweet Red Currant, a very good fruit and little known.

WHITE.

† * Common White or Crystal, bunches very large and transparent.

† * White Dutch, fruit yellowish colour, superior for dessert to the last, for although the bunches berries are not so large, the flavour is much better.

V.—FIGS.

Blanche Figue, middle-sized, whitish colour, excellent for forcing, ripens in August.

* Black Ischia, middle-sized, dark violet, tolerably hardy, ripe in August.

* Brown Turkey, middle-sized, reddish brown, very delicious, ripens in August.

* Brunswick, large, brownish red, well suited for walls, apt to drop, if forced, ripens by the middle of August.

Chestnut, or Brown Ischia, large, brown, high flavoured, but very liable to burst when it ripens, ripe in the beginning of August.

* Genoa, Large White, large, pale yellow, excellent flavour, ripe the end of August.

Ischia Green, middle-sized, brownish green, high-flavoured, ripe the end of August.

Ischia Yellow, large, yellow, rather a shy bearer, ripens in Sep.

Malta, small, pale brown, very sweet and well flavoured, ripe the end of August.

* Marseilles, middle-sized, white, one of the best for foreing, ripe in August.

* Pregussata, middle-sized, dark brown, excellent quality, good for forcing, ripens about the end of August.

Nerii, small, pale greenish yellow. This is liable to cast its fruit both in the stove and open air, it succeeds pretty well under glass in a low temperature, and is a most delicious fruit.

N. B. All the sorts above named will answer for the south and midland counties, but those marked we consider the best. Far north none can be usefully grown except under glass.

VI—GOOSEBERRIES—RED—Trees Growing Erect.

† * Champagne, red, fruit small, rough of unequalled richness, excellent for table.

† * Beaumont's Red, middle-sized, rough, the leaves are downy, of excellent quality.

† * Leigh's Rifleman, large, rough, very good bearer, and ripens late.

Scotch Best Jam, small, rough, very fine preserver.

Speechley's Yaxley Hero, large, rough, excellent berry, well worth growing.

TREES SPREADING.

† * Crown Bob, Melling's, large, rough, of very good quality.

† * Keen's Seedling, middle-sized, rough, very good bearer, and earlier than the Warrington.

Raspberry, small, rough, ripens early, and is of considerable merit.

† * Red Mogul, small, rough, a very excellent dessert berry.

Rough Red, small, rough, very good, much esteemed for preserving.

Rider's Scented Lemon, large, smooth, very excellent quality.

TREES PENDULOUS.

† * Berry's Farmer's Glory, large-sized, downy, a very excellent bearer.

Red Rose, large, downy, good bearer, and first rate flavour.

† * Red Warrington, large, rough, one of the very best, will hang on the trees very long.

YELLOW.

Beaumont's Smiling Beauty, large, smooth, a very good bearer.

† * Dixon's Golden Yellow, middle-sized, smooth, very good quality.

† * Hill's Golden Gourd, large, rough, very excellent, either for table or kitchen.

TREES ERECT.

† * Champagne, yellow, small-sized, rough, very excellent for table.

† * Hebburn Yellow Aston, small-sized, rough, very good flavoured.

† * Rumbullion, small-sized, downy, chiefly grown for bottling.

Smooth Yellow, small-sized, downy, very good fruit for the dessert.

Sulphur, small-sized, rough, very good bearer.

† * Yellow Smith, small-sized, rough, greatly resembles the Yellow Champagne.

Yellow Ball, middle-sized, smooth, very good fruit, well worth growing.

GREEN.

Hebburn's Green Prolific, middle-sized, rough, very good bearer.

† * Hopley's Lord Crew, large, rough, a very excellent berry.

Late Green, small, downy, ripens its fruit late.

† * Parkinson's Laurel, large-sized, downy, good bearer, resembles Woodward's Whitesmith.

† * Pitmaston Green Gage, small, smooth, very excellent flavour.

TREES SPREADING.

Early Green Hairy, small-sized, rough, early and very good.

† * Large Smooth Green, large-sized, smooth, very good bearer.

Sabine's Green, small-sized, smooth, very good flavour.

† * Walnut Green, middle-sized, smooth, a very profuse bearer.

TREES PENDULOUS.

Green Seedling, small-sized, rough, a very good bearer.

† * Gregory's Perfection, large-sized, downy, ripens late, very good.

† * Edward's Jolly Tar, do. smooth, a very good bearer.

† * Massey's Heart of Oak, large, smooth, very good bearer.

WHITE.

† * Cleworth's White Lion, large, downy, a very good late sort.

TREES ERECT.

† * Bright Venus Taylor's, middle-sized, rough, excellent, hangs till it shrivels.

Champagne White, small-sized, rough, very good, downy leaves.

Damson, white, small-sized, smooth, excellent, skin thin.

Hedgehog, middle-sized, rough, fruit very rough, but good flavoured.

† * Honey White, middle-sized, smooth, very excellent.

Large Early White, large-sized, downy, very early fruit.

† * Sheba Queen, Crompton's, large-sized, downy, resembles Woodward's Whitesmith.

† * Wellington's Glory, large-sized, downy, skin thin, flavour excellent.

White Eagle, Cook's, large-sized, downy, very good fruit.

† * White Bear, Moores, large-sized, rough, ripens early.

† * Woodward's Whitesmith, large-sized, downy, best fruit of this colour.

TREES SPREADING.

† * Chrystal, small-sized, smooth, late, and very good bearer.

Chrystal, White, small-sized, rough, very good bearer.

Early White, middle-sized, downy, ripens early, very good.

Fig, White, small-sized, smooth, rich, but rather a tender sort.

In the above list, we have paid no regard to size; our chief aim has been to select those of the best flavour, those marked may probably be found superior to the others, where a very choice selection is required.

GRAPES.—SELECTION FOR THE OPEN WALL.

* Burgundy, Miller's, fruit black, skin thick, bears and ripens well in favourable situations.

* Cambridge Botanic Garden, black, skin thick, good bearer, ripens well.

Chasselas Prècoce, white, skin thin, resembles the sweet water, but finer.

* Muscadine, Royal, white, skin thin, bears well on a south wall.

Pitmaston White Cluster, white, skin thick, ripens well in fine seasons.

* Grove End Sweet Water, white, skin thin, early, ripens well.

* White Sweet Water, white, skin thin, good bearer, ripens well.

White Cluster, scotch, white, very hardy and early sort.

SELECTION FOR VINERIES.

Boudales, fruit red, flavour of a muscat, resembles the Red Frontignan.

Chasselas Musqué, white, skin thin, very sweet, good grape.

Frankenthal, black, thick skinned, flavour sweet, resembles the B. Hamburgh.

* Frontignan Black, thin skinned, muscat flavour, and an excellent bearer.

Frontignan Blue, fruit purple, thick skin, very good fruit.

* —— grizzly, yellow red colour, thick skinned, peculiar rich flavour.

Frontignan Red, thick skinned, flavour similar to the other Frontignans, excellent.

* Frontignan White, thin skin, very rich flavour, and good bearer.

Giberalter Black, dark red, thin skin, very good grape.

* Hamburgh, black, thick skinned, allowed to be the very best for general cultivation.

* Hamburgh, Braddick's Seedling, black, thick skinned, similar to the preceeding.

Lunel, white, thin skin, muscat flavour, very good fruit.

Muscadine, Black, thick skinned, sweet flavour, very good.

Petersburgh, fruit black, thick skin, sweet flavour.

* Oldaker's West's St. Peter's, black, thin skin, will hang till March.

Tokay Charlesworth's, white, thick skin, sweet flavour, very good.

Tokay, white, thin skin, sweet, a very abundant bearer.

SELECTION FOR STOVES.

Black Damascus, thin skinned, late, very valuable, but rather a shy bearer.

* Black Lombardy, or West's St. Peter's, thin skinned a good late sort.

Black Morocco, dark red, thick skinned, flavour sweet and sugary.

Black Tripoli, thin skinned, sweet flavour, very late.

* Muscat of Alexandria, white, thick skinned, rich flavour, suited for the warmest situations in which vines grow.

* Raisin des Carmes, purple, thick skinned, with a sweet flavour.

Varney' Seedling, black, thick skinned, sweet flavour, ripens late.

In the above list we beg to be understood, that in selecting Vines for the stove, we are not binding the grower to plant no other sorts than those named, all the best sorts under the head Vinery will bring fine early crops in the stove, but those named as stove vines, will not ripen or do so well in any but stove heat.

EARLY MELONS.

Beechwood, a good bearer, netted rind, greenish white flesh, grows from two to three pounds, very good.

Cantaloup, Scarlet fleshed, good bearer, thick rind, very sweet, grows to three pounds.

Des Carmes, thick rind, pale red flesh, very high flavoured, grows from six to seven pounds.

* Early Cantaloup, good bearer, thin rind, orange flesh, very good, grows from two to three pounds.

* Germek, large, (Persian) good bearer, thin rind, green flesh, very good, grows to six pounds.

* Green Fleshed Egyptian, good bearer, thin rind, very excellent, grows from two to three pounds,

Green Fleshed Italian, good bearer, thick rind, very excellent, grows to three pounds.

* Green Fleshed Masulipatam, good bearer, thin rind, excellent, grows to one pound.

Polignac, good bearer, thick rind, pale red flesh, fine sort, grows to three pounds.

Rock, Golden, good bearer, thick rind, pale red flesh, excellent, grows to three pounds.

* Scarlet Fleshed, smooth, good bearer, thick rind, excellent, grows to three pounds.

LATE MELONS

* Cephalonian, good bearer, thin rind, green flesh, excellent flavour, grows to ten or twelve pounds.

Daree, (Persian) good bearer, fruit green, thin rind, flesh white, high flavoured, grows to five pounds.

* Dampsha (Persian) good bearer, fruit yellow, thin rind, flesh green, grows from four to five pounds, and keeps long after it is cut, without losing its flavour.

Geree, good bearer, fruit green, rind thin, flesh green, excellent but rather tender, grows to five pounds.

* Hoosainee, Green, (Persian) good bearer, fruit green, rind thin, flesh white, high flavoured, grows from three to four pounds.

* Housainee, Striped (Persian) good bearer, fruit greenish yellow, rind thin, flesh white, very rich flavour, grows from three to four pounds.

* Keiseng (Persian) good bearer, fruit pale yellowish red, rind thin, flesh white one of the very best, generally grows from four to five pounds.

Melon of Gerger, (Persian) fruit yellow, rind thin, flesh red, very good, grows from two to four pounds.

Melon of Nukshevan (Persian) fruit yellow, rind thin, flesh white, very good, grows to eight pounds.

* Silver Rock, good bearer, fruit yellow, rind thick, flesh pale red, rich, grows from five to six pounds.

Sir Gore Ousley's Persian, good bearer, fruit yellow, rind thin, flesh white, grows from three to four pounds.

Small Levant, middling bearer, fruit yellow, rind thick, flesh pale red, high flavoured, grows to five pounds.

* Sweet Melon of Ispahan, (Persian) good bearer, fruit yellow, rind thin, flesh green, perhaps the best melon grown, generally weighs from six to ten pounds.

* Valentia, or Winter Melon, good bearer, fruit green, rind thin, flesh pale, straw coloured, sweet and juicy though not rich, its chief good property is, that if cut and hung up in a dry room, it will keep very long without losing its flavour.

* Windsor Scarlet fleshed, good bearer, fruit green, rind thick, flesh salmon coloured, very excellent flavour, grows from four to five pounds.

NUTS.

Bond Nut, large size, thin shell, rough husk, and a very good nut.

* Cob, large size, shell thick and hard, husk rough, well known.

* Cosford, large. shell thin. husk rough, very good bearer, excellent quality.

Frizzled Filbert, middle-sized, shell thick, husk rough, a great bearer.

* Northamptonshire Prolific, middle-sized, shell thick, husk rough, ripe early.

* Red Filbert, middle-sized, shell thick, husk rough, peculiar good flavour.

Spanish, large size, shell thick, husk smooth, grows very large.

White Filbert, middle-sized, shell thick, husk rough, excellent flavour.

NECTARINES—1 MELTING.

OR SUCH AS PART FROM THE STONE.

Aromatic, middle-sized, pale yellow and red colour, ripe the end of August, like the Violette Hâtive.

† * Brinion, large, pale yellow and red, ripens the end of August, very excellent.

* Duc de Tello, large, pale green and red, ripens the beginning of September, excellent.

Downton, large, pale green and red, ripens the end of August.

† * Elruge, middle-sized, pale green and dark red, ripens the end of August or beginning of September, is a fine bearer, and forces exceeding well.

* Fairchild's, small-sized, greenish yellow, ripe the beginning of August, esteemed for its earliness.

Hoy's New Seedling, middle-sized, pale green and red, ripens the end of August, resembles the Elruge.

† * Pitmaston Orange, large orange and dark red, ripens end of August, hardy, and a good bearer.

† * Hunt's Tawny, middle-sized, orange and dark red, ripens middle of August, esteemed for its earliness.

Violette Grosse, large pale green and red, ripens the beginning of September, resembles the Violette Hâtive.

† * Violette Hâtive, large, pale green and red, ripens the end of August, a very abundant bearer, is very red at the stone, which distinguishes it from the Elruge.

White, New, large, white, ripens the beginning of September, in favourable situations, this acquires excellent flavour; but under other circumstances is rather indifferent, the first are liable to fall at the time of stoning.

* White, Old, large, white, ripens August or beginning of September, excellent, but very scarce.

II. PAVIES, OR CLING STONES.

Imperatrice, large, dark red, ripens the beginning of September, shrivels like the Newington.

* Newington, large, dark red, ripens the beginning of September, good bearer, very excellent.

† * Newington, Early, large, dark red, ripens the end of August, ripens somewhat earlier, and grows larger than the Old Newington.

* Newington, Tawny, large, yellow and bright red, ripens the beginning of September, fine flavour.

† * Roman, large, green and bright red, ripens the beginning of September, the true sort is very scarce; the Elruge and Violette Hâtive are often sold under the name of Roman.

Saint Omer's, middle-sized, yellow and bright red, ripens the beginning of September, rather scarce, highly flavoured, and very juicy.

PEACHES.—1 MELTING,

OR SUCH AS PART FROM THE STONE.

* Admirable, late, large, pale yellow and red, ripe the end of September; one of the very best late peaches, very good for the peach house to succeed the earlier sorts.

† * Barrington, large, pale yellow and red, ripens the middle of September; tree grows vigorous, is a good bearer, not subject to mildew, very excellent.

† * Bellegarde, large, pale green and dark red, ripens the beginning of September; a very handsome peach, forces well, succeeds Royal George and Grosse Mignonne, but keeps better than they do after being gathered.

Braddick's Red, large, pale green and dark red, ripens the end of August; fine handsome fruit, of very good quality.

† * Col. Ansley's large, pale yellow and red, ripens the middle of September, resembles the Barrington.

* Cambray, large, pale yellow and red colour, ripens the end of August, hardy and good.

† * Chancellor, large, pale yellow and red colour, ripens the beginning of September.

* Dunnington Beauty, large, pale green and red, ripens the end of August, resembles the Noblesse.

† * Ford's Seedling, large, pale green and red, ripens the end of August, resembles the Noblesse.

Galande, Steward's Late, large, pale yellow and red, ripens the middle of September.

Hemskirke, middle-sized, pale green and red, ripens end of Aug.

* Knapp Castle Seedling, large, pale green and red, ripens the end of August, much resembles the Noblesse.

* Madelaine de Courson, middle-sized, pale-yellow and red; ripens the end of August, flesh with very little red at the stone; a good bearer.

† * Malta, middle-sized, pale green and red, ripens the end of August; tree hardy, fruit keeps well after being gathered, and bears carriage.

† * Mignonne Grosse, large, yellow and red, ripens middle of August, good bearer and forces well; trees not subject to mildew; fruit does not bear carriage so well as some others.

Mignonne Lord Fauconberg's, large, pale yellowish green and red, ripens beginning of September, a good peach, resembling the Royal Charlotte.

Mignonne Petite, small, pale yellow and red, ripens the beginning of August.

Morrisiana Pound, large, pale green and red, ripens the middle of September; one of the best of the American sorts.

Mountaineer, large, pale yellow and red, ripens the beginning of September.

Nivette, large, pale green and red, ripens the middle of September, resembles the Late Admirable.

† * Noblesse, large, pale green and red, ripens the end of August. One of the very best either for forcing, or the open wall.

Pouprée Hâtive, middle-sized, yellowish white and red, ripens the end of August. A good peach, large as the Grosse Mignonne, earlier, but more tender.

† * Royal Charlotte, large, pale green and dark red, ripens the beginning of September.

† * Royal George, large, pale greenish white and red, ripens the end of August; these two last are excellent sorts, the Royal George in particular is a fine bearer, and forces well, but is rather subject to mildew; it is sometimes cultivated under the name of Red Magdalen.

Royal George Mignonne, large, pale yellowish white and red, ripens the end of August.

Sulhampstead, large, pale green and red, ripens the end of August, resembles the Noblesse.

* Twyford, large, pale green and red, ripens the beginning of September, resembles the Noblesse.

Williams's Early Purple, large, pale green and dark red, ripens the end of August.

PAVIES OR CLING-STONES.

* Catherine, large, pale green and red, ripens the end of September. One of the best late Cling-stone Peaches.

* Catherine Williams's, large, pale green and red, ripens the end of September.

Heath, large, pale yellow and red, ripens in October; in good seasons, one of the best.

† * Newington, Old, large, pale green and red, ripens the beginning of September, very good.

N. B. Although we have marked a selection of Peaches and Nectarines for the northern counties, yet it must be remembered, that flued walls are necessary, as even in the Peak of Derbyshire, the fruit will not come to perfection without the assistance of fire.

PEARS.—SUMMER DESSERT USE,

GROWING AS STANDARDS.

* Ambrosia, middle-sized, roundish Obovate, greenish yellow, ripens in September, delicious but does not keep long.

Beurre d' Amalis, large, Obovate, greenish brown, ripens in September, first quality.

† * Citron des Carmes, middle-sized, Obovate, yellowish green, ripens in July, a good bearer, and one of the best early pears.

† * Doyenné, White, middle-sized, Obovate, pale yellow, ripens in September, a good bearer, and excellent flavour if used when in perfection.

English Caillot Rosat, large, Obtuse pyriform, greenish brown marked with red, ripens in August, a very good bearer.

Famenga, middle-sized, greenish yellow and brown, Obovate, ripens in September, very good.

Hessel, middle-sized, Obovate, brown, ripens in September, a great bearer.

* Muscat Robert, small, turbinate, greenish yellow, ripens in July, very good early pear, but lasts in perfection only a few days.

Passans de Portugal, middle-sized, oblate, pale brown, ripens in August, great bearer.

† * Rousselet de Rheims, small, pyriform, brownish red, ripens in September, peculiarly rich and sugary, dries well.

* Summer Franc Real, middle-sized, obovate, yellowish green, ripens in September.

* Summer Rose, fruit large, oblate, russety red, ripens in August, very handsome.

Valleè Franche, middle-sized, yellowish green, obovate, ripens in August.

REQUIRING A WALL.

† * Jargonelle, large, pyriform, yellowish brown, ripens in August, best at this season.

AUTUMN DESSERT USE, GROWING AS STANDARDS.

† Aston Town, small, yellowish green and brown, roundish, ripens the end of October.

† * Autumn Bergamot, small, round, greenish brown and red, ripens in October.

* Beurré Bosc, large, pyriform, russety, ripens in October, very excellent.

† * Beurré de Capiaumont, middle-sized, Obovate, brownish red, ripens in October, a great bearer, withstands the late spring frosts better than most others.

† * Beurré Diël, large, obovate, yellowish brown, ripens in October, hardy, great bearer, excellent, deserves extensive cultivation, requires the branches to be well thinned in pruning, to admit sufficient air amongst its abundant foliage.

† Bishop's Thumb, large, oblong, brownish red, ripens in October, very good.

* Bon Chretien Fondante, large, oblong, greenish brown, ripens in October, has a cool refreshing juice like the St. Germain; tree hardier, and a good bearer, a very excellent pear.

Colmar, Autumn, large, obtuse pyriform, pale green, ripens in October.

* Compte de Lamy, middle-sized, obovate, pale yellow and red, ripens in October.

† * Doyenne Gray, middle-sized, obovate, russet red, ripens in October, keeps better than the white Doyenne.

Figue de Naples, large, oblong, brownish red, ripens in November, tree grows vigorous.

Flemish beauty, large obvovate, russety red, ripens in October, must be gathered early.

† Gendeseim, large, obtuse pyriform, pale greenish yellow, ripens in October, tree hardy.

† * Glout Morceau, large, obtuse elliptic, pale green, ripens in November, and keeps in use till January, hardy, a good bearer, excellent quality, hangs late on the tree.

† Henri Quartre, middle-sized, pyriform, yellowish green, ripens in October.

† * Hacon's Incomparable, middle-sized, roundish, brownish green, ripens in October.

Louisa Bonne of Jersey, large, pyriform, greenish brown and red, ripens in October.

† * Marie Louise, large oblong, brownish yellow, ripens in October, one of the very finest, bears abundantly, succeeds also well on a north wall.

* Napolean, large, obtuse pyriform, pale green, ripens in November; tree vigorous, good bearer, fruit excellent, very juicy, should not be used till it changes to a pale colour. In the northern counties it will require a wall to bring it properly to perfection.

Parmentier, middle-sized, obovate, red, ripens in October, streaked with bright red.

† * Saint Germain, large, pyriform, yellowish green and brown, in use from November to January. This sort has sometimes been confused with the Louise Bonne, hence two varieties of St. Germain are mentioned by some.

† Swans-Egg, middle-sized, obovate, greenish brown, good bearer, ripens in August.

† * Seckle, small, obovate, brownish red, ripens in October, good bearer, very rich aroma.

Sucre Vert, middle-sized, obovate, green, ripens in October, tree vigorous, abundant bearer.

Thompson's, middle-sized, obovate, pale yellow, ripens in November, flavour of Passe Colmar.

Whitfield, middle-sized, obovate, yellowish brown, ripens in November, great bearer.

REQUIRING A WALL.

* Bergamot Gansel's, middle-sized, obovate, yellowish brown, ripens in October, excellent, superior to the autumn Bergamot, but less hardy,

* Bergamotte Suisse, middle-sized, roundish, greenish yellow, ripens in October.

Beurre Brown, large, obovate, brown, ripens in October, varies much according to the soil, climate, and situation.

* Bezi de la Motte, middle-sized, roundish, brownish green, ripens in November.

† * Crassane, large, roundish, greenish brown, ripens in November, very good pear.

* Duchesse d'Angoulême, large, obtuse obovate, brownish yellow, ripens in November, a very good bearer, grows to a very large size.

Urbaniste, middle-sized, pale-green, obovate, ripens in October, good flavour.

Welbeck, large, obovate, yellow russety, ripens in October.

WINTER DESSERT PEARS.—STANDARDS.

* Crassane Winter, large, turbinate, greenish yellow and brown, ripens in January, good bearer.

* Downton, middle-sized, pyriform, yellowish brown, in use Jan. and February, good bearer.

† * Fondante du Bois, middle-sized, obovate, greenish yellow, in use December to February, resembles the Passe Colmar.

* Forelle, middle-sized, roundish, yellowish green and red, in use from October to January.

Knight's Monarch, middle-sized, obovate, yellowish brown, ripens in January.

Ne Plus Meuris, middle-sized, roundish, brown russet, in use from November to March, one of the best late pears, although not so handsome as some.

Rouse Lench, large, oblong, pale green, in use January and Feb.

REQUIRING A WALL.

* Beurré, Easter, large-sized, obovate, greenish brown, hardy, one of the very best, in use from January to March.

† * Beurré d' Aremberg, middle-sized, obovate, pale brown, in use December and January, excellent.

† * Beurré Rance, middle-size, obtuse pyriform, brownish green, in use from March to May, the very best late sort yet known, is well deserving a wall.

* Bezi Vaet, middle-sized, obovate, yellowish brown, in use December and January, resembles the Chaumontel in flavour, bears also well as a standard.

† * Chaumontel, large, oblong, yellowish brown, in use from November to March.

* Colmar, middle-sized, obtuse pyriform, greenish yellow and brown, in use from November to February.

† * Passe Colmar, large, obovate, bright yellow, in use December and January. Tree very free from canker, much hardier than the Colmar, great bearer.

Virgouleuse, large obovate, yellowish green, in use from November to January. Tree vigorous, fruit excellent, but a shy bearer.

† Winter Nelis, middle-sized, obovate, yellowish brown, in use December and January.

PEARS FOR KITCHEN USE.—STANDARDS.

† * Bellissime d'Hiver, large, roundish, brownish red, in use from November to April, good stewing pear, bears well.

Belmont, large, obovate, pale yellowish brown, in use in November, great bearer.

Bequêne Musqué, middle-sized, oblong, yellow, in use from Nov. to January, excellent for stewing.

† * Bezi d'Héri, middle-sized, roundish, greenish yellow, in use from November to January.

Chaptal, large, obovate, brown, in use from Nov. to April.

* Franc Real d'Hiver, middle-sized, roundish obovate, brownish yellow, in use from Nov. to March, stews tender, and of a bright purple colour.

† * Uvedale's St. Germain, large, pyriform, greenish brown, in use from January to April. It requires a wall to bring it to perfection, in such situations a single fruit has been known to weigh upwards of two pounds.

PINE APPLES.

The Queen (No. 46, page 804) is one of the best varieties at present known for general cultivation, if exposed to a high temperature in the months of June, July, and August it is liable to become hollow near the core, but earlier or later in the season it is not subject to that defect. The Ripley's Queen, a slight variety of the common Queen is probably the best.

The Moscow Queen, (No 48) is an excellent variety but is rather a slow grower, the fruit is about the same size as the common Queen but superior to it in flavour.

The Black Jamaica (No. 11, p. 607) is an excellent fruit at all seasons of the year, but particularly in the winter months, when pines rarely come to perfection. It cuts firm to the core, is highly flavoured, keeps some time after it is fully ripe, and bears carriage better than any other. It is, however, rather a slow grower, and the fruit seldom attains a large size.

Brown Sugar-Loaf, (No. 29, p. 753,) is the best of the sugar-loaf kind; it is a large handsome and highly flavoured fruit, swells freely in the winter months, and its flesh is firm and juicy.

The Ripley, (No. 42, p. 804,) is large, handsome, and high-flavoured, it is a good summer fruit, and swells freely in winter.

St. Vincent.—(No. 22, p. 752.) The fruit is not large, but high-flavoured, particularly in summer; it is said to swell freely in winter.

Black Antigua, (No. 40, p. 803) is an excellent and highly-flavoured pine, if cut when it begins to turn from green to yellow; but if allowed to remain on the plant until it is quite ripe, it loses all its richness.

Enville, (No. 36, p. 803) is deserving of a place in collections as one of the handsomest pines in cultivation; although it is neither rich nor highly flavoured.

Lemon Queen, (No. 24, p. 752) is of free growth; the fruit is rich, juicy, and high-flavoured.

White Providence, (No. 9, p. 514) when grown to a large size is deficient in flavour, but is a very handsome showy kind. It may sometimes bear prematurely, and if in that case the fruit be allowed to become perfectly ripe on the plant, it is equal in flavour to a Queen.

The above varieties will probably be found most useful in a very select collection.—*Trans. Hort. Soc.*

PLUMS.—TABLE USE IN AUGUST.

SECTION I.—BLACK OR BLUE FRUITED.

† * Azure Hâtive, middle-sized, separates from the stone, excellent early fruit.

† * Nectarine, large-sized, adheres to the stone, an excellent bearer.

* Orleans, middle-sized, separates from the stone, an excellent bearer.

* Perdrigon Blue, middle-sized, adheres to the stone, this and the white Perdrigon furnish the Brignole Prunes.

Royal de Tours; large-sized, adheres to the stone.

SECTION II.—GREEN FRUITED.

† * Green Gage, middle-sized, separates from the stone, the best plum grown.

SECTION III.—RED.

Wheat, middle-sized, adheres to the stone, remarkable for its bright fiery red colour.

SECTION IV—YELLOW.

* Drap d' Or, small, separates from the stone, very excellent.

Mirabelle, small, separates from the stone, also fine for preserving.

TABLE USE IN SEPTEMBER.

† * Coe's Golden Drop, large, adheres to the stone, one of the most valuable.

† * Saint Catherine, middle-sized, adheres to the stone, excellent bearer, good for preserving.

† * Large Washington, separates from the stone, an excellent plum.

* White Magnum Bonum, large-size, adheres to the stone, good bearer.

BLACK OR BLUE FRUITED.

D' Agen, middle-sized, separates from the stone, excellent bearer.

† * Kirk's, middle-sized, separates from the stone, excellent plum.

* Reine Claude Violette, middle-sized, separates from the stone, very excellent sort, good bearer, succeeds well as a standard,

* Virgin, middle-sized, separates from the stone, resembles the last.

TABLE USE IN OCTOBER.

* Coes Fine Late Red, middle-sized, separates from the stone; a valuable sort.

† * Blue Imperatrice, large-sized, adheres to the stone, a good bearer.

YELLOW.

* Downton Imperatrice, middle-sized, separates from the stone.

PRESERVING AND KITCHEN USE.

Guimaraen, middle-sized, adheres to the stone, ripens beginning September.

† * White Bullace, small-sized, adheres to the stone, ripens in October.

* White Perdrigon, middle-sized, adheres to the stone, ripens the end of August.

BLACK OR BLUE FRUITED.

* Damson, Shropshire, middle-sized, adheres to the stone, excellent preserver.

† Goliah, large-size, adheres to the stone, ripens the end of Aug.

† * Orleans Early, middle-sized, separates from the stone, ripens the middle of August.

Quetsche de Brême, middle-sized, separates from the stone, ripens in September.

† * Imperial Diadem, large, separates from the stone, ripens the beginning of September.

† * Wilmot's New Early Orleans, middle-sized, separates from the stone, ripens in August.

Wine Sour, small, adheres to the stone, ripens the middle of Sept.

RASPBERRIES.

Red Antwerp, Yellow Antwerp, Barnet, Bromley Hill, Cornish, Double Bearing.

STRAWBERRIES.—Scarlet.

American Scarlet, ripens middle of July, and requires plenty of room.

† * Black Roseberry, handsome, a good bearer, ripens the end of June.

Charlotte, good flavour, but rather indifferent bearer, ripens the middle of June.

† * Coul Late Scarlet, excellent sort, good bearer, ripens the end of July.

Gamston Scarlet, very good flavour, ripens the end of June.

† * Grove End Scarlet, abundant bearer, excellent, ripens the middle of June.

† * Old Scarlet, excellent for preserving, ripens middle of June.

† * Roseberry, abundant bearer, excellent forcer, ripens the end of June.

BLACK STRAWBERRIES.

† * Downton, the best of this class of strawberries, ripens beginning of July.

† * Elton Seedling, a great bearer, valuable as a very late sort, ripens middle of July.

Knight's Scarlet Fleshed, ripens the end of June, more red inside than out.

Old Black, good fruit, ripens the beginning of July.

Sweet Cone, of excellent flavour, but not so prolific as the Downton, ripens the end of June.

PINE STRAWBERRIES.

† * Keene's Seedling, excellent and productive, one of the best forcers, ripens middle of June.

† * Old Pine or Carolina, this is scarcely exceeded by any, it ripens the beginning of July.

The Chili Strawberries are scarcely worth culture. Wilmot's Superb is by far the best amongst them, it is a very handsome looking fruit, but is commonly hollow, wooly, and without flavour.

HAUTBOYS STRAWBERRIES.

Black, of the first quality, ripening the end of June or beginning of July.

† * Large Flat, abundant bearer, retains its characters better than the other sorts, ripens about the end of June.

† * Prolific, or Conical, this is one of the best if not the very best of this class, ripens the end of June.

Round Fruited Muscatelle; rather a small, but a very rich fruit ripens the beginning of July.

The Green Strawberries are not worth growing, where a selection of good fruits are wanted.

ALPINE AND WOOD STRWABERRIES.

† * Red Alpine, and White Alpine, which bear fruit both through summer and autumn.

Red Wood, and White Wood, which only bear during summer.

ARTICLE II.

LIST OF THE BEST VEGETABLES IN CULTIVATION.

ARTICHOKES.—The Globular is the only variety worth cultivation.

ASPARAGUS. —Battersea and Gravesend varieties.

BEANS.—The Early Magazine, and Early Lisbon, are the best for early crops. The Long-pod is the most abundant bearer, and decidedly the best for small gardens. The Windsor, Sandwich and Token are good ones for summer crops.

BEET ROOT.—The Large Rooted, is the best to boil, and slice for table, and the Green and White, for their leaves.

BROCCOLI.—The following are the best sorts, at present cultivated in our gardens: Green Cape, Early Purple Cape, Grange's Early White, Early Sprouting Purple, Green's Close-headed Winter, Impregnated Early White, Tall large-headed Purple, Portsmouth or Cream coloured, Sulphnr Coloured, Late or Spring White, Late Dwarf Close-headed purple, Siberian or latest Green.

The Green Cape and Early Purple Cape sown in May and June will produce from August to December; sown in July and August, if the winter is mild, will produce heads in April and May. *Grange's Early White* sown at three different times, between the beginning of May to the end of June, will produce from Michaelmas to Christmas. *Early Sprouting Purple* sown in April will produce from November to February; sown in June will produce sprouts in March and April. *Green close-headed Winter,* if sown the end of May, will produce from November to February, if the winter is mild. *Impregnated Early White* sown the beginning of March will produce from No-

vember to Christmas. *Tall large-headed Purple* sown the end of March will produce in the March and April following. *Portsmouth* sown in the middle of April, will produce in February and March. *Sulphur Coloured, Spring White and late Dwarf Purple,* sown in March' will produce in April and May following. *Siberian* will endure our hardest winters, and sown the end of April will produce in May, the year following.

Cabbages.—The following are the best varieties cultivated in our gardens: Superior Early, Early Dwarf, Early Imperial, Early Battersea, Early Dutch, Large York, Large Penton, Early York, Vanack, Early Cornish, Emperor, East Ham, Late Battersea, Red Dutch.

The Early Summer crop of Cabbages require to be sown about the middle of the preceding August; and the autumn crops should be sown from the beginning of April to the middle or end of May in the same year. Red Cabbage makes the best heads for pickling if sown in April and not cut till the following winter or spring, if any are wanted for pickling early in the autumn they should be sown in August the preceding year.

Cardoons.—The Spanish Cardoon is by far the best cultivated in this country, although in France the Cardoon of Tours is considered the best.

Carrots.—For early crops the common Early Horn, and the Early Short Red Horn are the best, and may be sown on hotbeds in February or on warm borders in March. The Long Orange and Altringham as principal crops for winter use, are sown from the middle of March to the middle of April.

Cauliflowers.—Early and Late varieties, the former of these is sown about the middle of September, and produces early the following summer; the latter are sown about the end of March, which will produce in May and June, and again in May, which will produee in October and November if the weather prove mild.

Celery.—The best sorts are the Italian, Red Solid, White Solid, Celeriac or Turnip Rooted, and the Manchester Large; this last is decidedly the best sort grown, each root commonly weighing from ten to twelve pounds, and being very free from any rankness.

Cucumbers.—The following may be considered the most superior sorts: Early Frame, Early Southgate, Longford, Green Turkey, Kerrison's Hothouse, Walker's Long, Serene, Incomparable, Wandsworth Earl Grey, White Turkey.

Endives.—The best of the Batavian Endives, are the broad-leaved or common Batavian; and the small Batavian, which is prefera-

ble to the first, being very mild, and sweet without any bitterness. Of the curled sort, the small green, and the large green, are those most usually cultivated.

Kidney Beans.—The following may be considered some of the best; Chinese, Black Speckled, Canterbury, Early Dun or Buff Early Liver Coloured, Early Purple Speckled, Cream Coloured Negro, Battersea, Scarlet Runner. The sorts best for forcing are the Early Dun, Negro, Cream-coloured; and for a later forced crop, the Liver-coloured, which will bear a greater profusion than any of the other sorts.

Leeks.—The varieties are three, but the London Flag, and Common, may be considered the two best.

Lettuces.—The following may be considered the principal sorts. *Cabbage Lettuces.*—Brown Dutch, Hammersmith, Tennis Ball, Grand Admiral, Brown Silesia, Imperial, Marseilles, Black Seeded Gotte. *Coss Lettuces.*—Brown or Bath, Florence, Green Coss (black seeded,) Aleppo or Spotted, Egyptian, Dwarf Brown, Egyptian Green, Paris.

Onions.—The following may be considered the best sorts:—Deptford, True or Brown Portugal, Spanish or White Portugal, James's Long Keeping, Globe, Stratsburgh, Tripoli, Blood Red, Silver Skinned, Welsh.

Parsnips.—The Guernsey and Hollow-Crowned sorts appear to be far preferable to the Old sort, both for size and flavour.

Peas.—The varieties are numerous, these perhaps will be found the most valuable,—Double-blossomed Early Frame. Blue Prussian, Dwarf Green Imperial, Dwarf Marrow, Egg Pea, Green Marrow, Knight's Dwarf Marrow, Knight's Tall Marrow, Royal Dwarf, Spanish Morrotto, Tall Green Imperial, and Wellington.

Potatoes.—Out of a great many varieties, the following will be found amongst the best: Early Kidneys, Early Manly, Fox's Seedling, Early Dwarf, Champions, Bread Fruits, Ox Noble, Early Shaw.

Raddishes.—The most approved sorts are the Short Topped Scarlet, and Early Frame of the long sorts, and the Crimson Turnip-rooted and White Turnip-rooted, for spring and summer use; and the Black Spanish, Large Purple Winter, and White Spanish, for winter use.

Rhubarb.—Four Varieties, Buck's Rhubarb, Common, Elford, and Hybrid. The Elford is very valuable for forcing, &c.

Salsafy and Scorzonera require to be sown in April in an open part of the garden, and afterwards thinned out to eight or nine inches apart.

Sea Kale.—The seeds should be sown in March or April; in the following spring, the young plants should be taken up, and planted in rows four feet apart, and eighteen inches in the row; and at the end of the first year after planting out, they may be forced by means of large pots placed over the crowns, covered with hot dung or leaves.

Shallots and Garlic both require planting in drills, about fifteen inches apart, and six inches in the drill, about the beginning of March.

Spinach.—There are three varieties cultivated, viz.:—Prickly, Round Seeded, and Flanders. The Prickly is sown in autumn to stand the winter, and is called Winter Spinach; the Round Seeded, is sown in spring and summer, and is more tender than the other; the Flanders appears to be far superior as a Winter Spinach to the Common Prickly, being very hardy, and produces more and finer leaves.

Turnips.—The sorts mostly used in gardens are the Early Dutch, Early Dwarf, and Early Stone.

Winter Greens consist of many sorts, the following may be onsidered the best: Green Savoy, Dwarf Savoy, Brussel Sprouts, Curled Kale or German Borecole, Brown Kale or Purple Borecole, Colebrooke-Dale Borecole, Thousand-headed Cabbage, Chou de Milan, Jerusalem or Buda Kale, Egyptian Kale. The Savoys and late Greens may be sown about the end of March, and the strongest plants planted out in June and July; the dwarf kinds may be sown about the middle of May, and planted out in July.

ARTICLE III.

ANSWERS TO QUERIES ON HORTICULTURAL SUBJECTS.

The *blotching* of Grapes, named by *a Subscriber* p. 137, may possibly arise from the house being kept too close in the morning, during the time of powerful sun-shine; the berries and leaves being then covered by the condensed vapours which had arisen during the night, are very liable to be scalded. Air given early when the weather is fine, or a judicious syringing while the grapes are immature, as recommended by Mr. Plant, p. 280, will in general prove a perfect specific. *To J. D. p.* 185.—The floor of the pit is that on which the pots (l) are seen to stand; the top of the horizontal flue (a 3) is the back walk; (a 1 and 2) are in the air-chamber under the pit and

considerably below the back walk; the compartment (n) is to tie the vines in during the time they are dormant, where by opening the front ventilators, they are exposed to the open air until the time intended for forcing; the top (g) might do equally as well flat, the use of it being merely to prevent the heat finding access to the vines, and the cold entering the house, the two small holes (a, a) shew the return and termination of the flues, (a 4 & 5) in the back wall of the section. To *Thomas Bland*, page 186.—One reason why Mr. Lindley in his "Guide to the Orchard and Kitchen Garden" recommends one sort of grapes for vineries in the south and another in the north, may be that the ground being so much colder in the latter, he suspected the roots of the more tender kinds might suffer by being planted in the vine borders out of doors. If this is not his reason we cannot tell why, we have found the sorts he mentions for vineries in the south, thrive equally well in the north. To *a Constant Reader*, page 127. The vegetable marrow is very easy of culture, requiring similar treatment to cucumbers grown on ridges; it is scarcely worth growing requiring much ground which might be better occupied, we should rather recommend the advice given by Mr. George Harrison, p. 330. To "G. I. T." page 330; cuttings of Cucumbers and Melons we conceive cannot well be extended beyond the same season, they are taken off as soon as the seedling plants have produced sufficient young branches, and inserted in a pot filled with the same soil as that of the bed, they speedily take root, and are then planted in another frame for a successional crop, where they bear abundantly at an earlier age than seedlings. An article on the subject will appear early in the next volume. To *a Subscriber* p. 427; we cannot tell where *Talc* is to be purchased, neither have we ever yet seen it used, and are therefore unable to judge of its properties. Would any of our kind correspondents favour him with an answer? To "M. D." p. 475. In the formation of a vine border, a successional produce is contemplated, to continue for thirty, forty, or fifty years, without renovation except what may be received from top-dressings, the soil of those in pots may, for the most part, be renewed every year, the former bears a profusion on fifteen or twenty feet of rod, the latter on four or five; the former fill a situation with fruit, which could not be otherwise advantageously occupied, the latter stand in that part of the house which might be filled by pines, &c. requiring such situations; the flavour of grapes does not so much depend on the composition they grow in, as on their judicious management in the house, although it must be allowed where vines grow on a wet bottom, no management will render them equal to those grown in different cir-

cumstances: vines in pots, as early crops, are deserving of extensive cultivation. "F. T. O's" mode of heating conservatories is not an indirect advertisement, see p. 667. Mr. Muscroft's list of gooseberries, page 204, notwithstanding they chiefly relate to size, are nevertheless equal, if not superior, to some of the best old sorts; the selection we have made in the present number, are those of superior flavour. To "Q. P. R" p. 571. Grafting and budding will shortly be treated on and illustrated, no perfect double flowers can be propogated by seed, as the stamens instead of performing the duty allotted by nature are converted into petals, the double primrose is readily increased by divisions of the roots. To *Sage*, p. 620. The best sorts of strawberries for forcing are the Grove End Scarlet, and Roseberry for the first crops, and Keene's Seedling to succeed them. To *Mr. J. Mills*, p. 621. We cannot speak either to the utility or inutility of the sterile hautboy strawberry, we have never yet found them of sufficient importance to prove the necessity of their presence, nor have we noticed them to be of sufficient injury to warrant destruction. If hautboys be planted on good strong soil where the roots can absorb a quantity of moisture, they will never fail to bear well, if on light soil they generally soon become barren. The ensuing year however we will pay more attention to the subject, and report the results. We should be ready to conclude the vines in the grapery are planted on a wet bottom, and experience has taught us when this is the case, except the season proves very dry, and the powerful absorbtion countervailed bypowerful evaporation the fruit can never ripen kindly; allowing the vines to ripen too abundant crops has a similar effect. Perhaps the apple, "H. M. M." names may be a Cornish Aromatic or Cornish July Flower, both may be obtained at Mr. Ronald's, of Brentford, or any other nursery round London, where most probably specimens of the fruit may be viewed, which would be the safest way of deciding; for to select a particular apple out of a list of 1400, without either figure or description, is at best but conjecture and uncertainty. Mr. Howden remarks in a letter now lying before us, that it "would be better to apply for grafts to some friend in Truro." B. C. p. 760, will shortly be supplied with an article on the Pine Apple, with every necessary information. "To G. A. L." p. 766, Sugar-Baker's scum is an excellent manure, to promote the growth of auriculas and many other plants; a sixth or eighth part should be mixed with good loam, and be allowed to remain exposed to the weather for, at least, twelve months, previous to using, and be occasionally turned. To "P. p. 668." The deficiency in the descriptions of fruits has been long observed, but has hitherto been remediless, there

exists much difficulty in so describing, that a person unacquainted with the fruit, may be able to distinguish one from another, without a plate for illustration. The *Miller's Burgundy* Grape, however, cannot easily be confounded with the *Claret a Rosa*, the former carries a white downy leaf throughout the summer; the leaves of the latter becomes red by midsummer, and finally die of a deep blood colour; the fruit of the former are even-sized, covered with a fine bloom, have juice clear as water and highly-flavoured, the latter are very unequal sized, have scarcely any bloom, the juice is of a blood red, and flavour harsh and austere. *The Large Black Cluster*, and the *Pitmaston Scarlet* are synonymous, and may be readily distinguished from the *Clarette*, by the form and size of the fruit, being considerably larger and more oval, also the leaves appear green till the autumn, which those of the *Clarette* do not, and when they change it is to a bright scarlet, not to a deep blood like the Clarette. The *Small Black Cluster* has much resemblance to Miller's Burgundy in the form of its fruit, but it has nothing so good flavour, its leaves are not woolley, nor its fruit so thickly set on the branches. *The Black Sweet-Water* has some resemblance to the last, but differs in its berries being round instead of partially oval, and thickly set on the bunches, which those of the preceding are not. Any further enquiry our correspondent may wish to make, we shall feel happy to furnish him with an answer. To "W. Z." p. 667. The fruit he enquires about, is most probably the *Common Azarole*, (Cratægus Azarolus,) we believe it is much used as a dessert fruit in the south of Europe; in this country it does not ripen upon standards, and we never saw it tried against a wall. *The Cratægus odoratissima*, and *tanacetifolia* bear fruit very similar to the true Azarole, and perhaps nearly as good flavoured, both these species are ornamental and bear abundantly as standards. To "G. A. L." p. 812. Scarifying fruit trees is not an uncommon practice, when they become bark-bound; we expect the matter will be investigated by some of our physiological friends, we shall therefore decline for the present entering further into the subject. To "Noctura," p. 475, and "G. I. T." p. 541. We would say on the subject of "Cutting the leaves of Peaches and Nectarines." We propose early in the next volume to lay before our readers, the reasons of recommending it to be done.

ARTICLE IV.

ANSWERS TO QUERIES IN FLORICULTURE.

To "B. C." p. 766.—The best mode of increasing the *Orange*, is by budding upon small seedling stocks, the proper time is when the buds upon the young shoots are tolerably ripe; this will be known by the appearance of the shoots or separation of the buds. After budding, place the plants in a hot-bed frame, as the moist heat accelerates the union of the bud with the stock. H. L. T. the *Double Camellia* can be successfully propagated by cuttings, we have on several occasions put off fifty cuttings, and have succeeded in striking forty-nine of them. The method we practised has been followed by some of our friends, and was found equally successful, how long they will continue to thrive, we are not prepared to say. Our kind correspondent G. A. L. in a letter which now lies before us, "says they may be propagated by cuttings very well, but when struck they grow very slowly, and after a year or two they generally wither and die, this is the reason why it is not recommended in Loudon's Encyclopedia;" and the main reason why it was not mentioned in our article p. 362, if our plants now struck, thrive and do well, we will insert an article on the subject. The *Narcissus stellaris* grows in the garden of the Apothecaries' Company, Chelsea. We have made enquiry, but cannot find it elsewhere. Mr. Howden informs us, "it is very expensive;" this is all we know about it. To "J. Mitford."—Take up the *Geraniums* at the approach of frost, with all their fibrous roots attached; shorten all the tops, and plant them as close as possible in oblong boxes, say twenty or thirty in each box of three feet long, water and place them in a shed, where they are safe from frost; they seldom require water afterwards unless they become very dry. In May, turn them out of the boxes, and plant them in the open ground. The system named by a practical gardener, p. 196, also answers exceedingly well. "T. S." p. 331.—The *Hearts-ease*, (Viola tricolor) delights in a rich and highly manured soil, but we will insert an article on the subject early in the next volume. *The dark red China roses*, if kept in pots, require a rich turfy soil, mixed with white sand, and the pots well drained with potsherds, so that water may pass off freely, otherwise the plants will not grow well. In most situations they require the protection of a cold frame in winter. If planted in the open ground, they should be grown in a rich fresh sandy soil, raised higher than the usual level of the situation; they generally require mulching during winter. They succeed best planted in a bed by themselves, which has been well drained by a substratum of stones and brickbats to the depth of several inches; *pruning* should always be deferred until the beginning of April. They are readily increased by taking off (close to the old wood) young shoots, two or three inches long, and planting them in pots of sandy loam, and placing them in a hot-bed frame, in a stove under glass, or under a hand-glass, as recommended for the common China rose, p. 246. To "A Florist," p. 813—We have received two answers; the writer of the first who designates himself P. states, that "when the *Erythrina Crista Galli* has done flowering, he cuts it down to two or three eyes, and sets it under the stage of the green-house, and gives it no water: in February, when he commences forcing, he repots and places it in the stove, giving it a small quantity of water, increasing the quantity as it grows, until he places a feeder under it, and gives it a copious supply. In about ten weeks its stem will have grown seven or eight feet high, and will be literally a mass of flowers. The soil used is a turfy sandy loam. It is propagated by cuttings of the ripe wood, or from young shoots rubbed off at the time of its breaking. The essential points of this mode of treatment are, 1st. its remaining for some time in a state of rest, 2nd. receiving a moderate degree of heat, and 3rd. an abundant supply of water during its growing season." The other signed "An Apprentice" says, "I keep my plants dry and cool all the winter; in February I turn them out of the pots, and shake off all the exhausted soil from the roots, I then replant them in pots nine inches diameter, in good sandy loam, and place them as near the glass as possible, in either a stove or a frame. When they be-

gin to grow, I select the strongest shoot for future flowering, and strip off all the rest, and by giving a good supply of water, they grow from five to six feet high. When done flowering I cut them down to within an inch of the soil, and set them in a cool place, and keep them pretty dry, and in a month's time I start them as before. In 1830, I planted one against an open wall, where it has remained without injury ever since, and flowers beautifully; I protect it in winter with saw-dust and an outer covering of straw, to keep the saw-dust dry." In our *Compost for Camellias,* given p. 362, and enquired about p. 620, we mean the following proportions, to one barrowful of rich hazel loam, add one-third of a barrowful of fine sand, half a barrowful of peat, and half a barrowful of good rotten dung or leaf soil. To "J. Thompson," p. 814—we had intended to have fully answered his query this month, on budding roses; but are obliged to defer it for want of room. To "Alfa," see p. 668—where a successful method of preserving dahlia roots, is described.

ARTICLE V.

ANSWERS TO MISCELLANEOUS QUERIES.

The request of "X Y" p. 523, in the number of queries proposed shall be complied with, by an early article on the subjects. Page 620—In reply to our correspondent, relative to the laps of glass, we would recommend the small lap as being decidedly preferable; the broad one is an attraction for moisture, which being expanded by frost often breaks the squares, it also causes a greater shade, as well as other injuries which might be pointed out. Page 474—No method can be better adopted to eradicate couch grass from the lawn than turning, over the soil and picking out the roots. No doubt a strong application of salt would effect the object, but it would destroy the neighbouring turf for some distance around, and the destructive properties of the salt would remain in the soil for a length of time, so that a new turf could not be had so soon by forking over the ground. To "An Emigrant" page 280—We have not yet had it in our power to obtain the particulars of clearing trees from land, as practised by the gentleman to whom he alludes. To "M" page 571—We cannot tell what method can be used to eradicate the beetles (Blatta Orientalis) he complains of; if the traps were baited with something tempting they probably might enter, perhaps some of our readers could furnish us with their experience on the subject. To "G. A. L." page 571—The reference to page 516 was quite inadvertently inserted as he would percieve, the article having no connection whatever with the question proposed. We are not acquainted with the nature of the plants infested, if they are vines this is the time to completely eradicate the insects: after peeling off the old bark, apply carefully with a painter's brush the following mixture take two pounds of soft soap and dissolve it two gallons of boiling water, beating it up into a lather, then add as much cold water as will leave it about new milk warm, apply it in this state over the stems and branches of the vines, and if on other plants with a syringe to reach where the brush would be useless: also to the above mixture add about half a pint of linseed oil, and a quarter of a pint of turpentine to every gallon, with this let the walls, wood-work &c: be well washed with a brush, carefully, lest it should fall either on the vines or other plants which the turpentine and oil would materially injure. This has hitherto been found perfectly effective. To "A Subscriber," (ab initio) p. 677—We cannot inform our correspondent what is the best mode of extracting the juice of Goose grass, perhaps some of our friends will favour us with their experience. Mr. Howden has already furnished us with his: he says, "I shall give my recipe, which I once saw practised by a travelling quack, when he had disposed of all his cure-alls, he went into the fields, collected his favorite herbs, chewed them in his mouth, and spit the juice into his phials, which he readily sold at two shillings and sixpence each.

ARTICLE VI.

LIST OF ALL THE NEW AND VERY RARE PLANTS INSERTED IN THE VOLUME.

Class 1st.—Dicotyledonous Plants, or Exogenes.

ACANTHACEÆ.

Justicia (*J. Justice*, a Scotch Horticulturist and Botanist.)
asperula roughish, Stove E. Shrub, 2 ft. summer, pink, India, lt. l. cut. 25.
Barleria (*I. Barreller*, a celebrated botanist at Paris.)
lupulina hop-headed, stove E. shrub, 2 ft, Aug. yellow Mauritius, pt. l. cut 461
Eranthemum (*Ear*, spring, *anthos*, a flower.)
fœcundum ever-blowing, stove E. shrub, 2 ft, all-seas, lilac, Brazil pt. l. cut 564
Ruellia (*John Ruelle* of Soissons, bot. physician to Francis 1st.)
Sabiniana Sabines, stove E. Shrub, 2 ft April to Aug. blue, India, lt. l. cut 118

ASCLEPIADEÆ.

Caralluma (Its Indian name.)
crenulata round-notched, dry stove shrub, 6 in. br. and yel. E. Ind. lt. l. cut 410

BERBERIDEÆ.

Berberis Berberry (*Berbey's*, its Arabic name.)
dulcis sweet-fruited, hardy ev. shrub, 8 ft. March, yel. Magellan, lt. l. lay 27.
glumacea glumaceous, hardy, dec. shrub, 4 ft. April and May white, Japan, lt. l. pt. lay, 77.
Epimedium Barren Wort (growing in Media, retained by Linneus.)
diphyllum two leaved, hardy per. April and May, white, Japan, lt. l. divis. 805.
Mahonia, (Bernard M'Mahon of N. America, lover of Bot.)
diversifolia different-leaved, hardy evr. shrub, 10 ft. mar. April, yellow, Monte Video. l. p. cut, 26.

BIGNONIACEÆ.

Bignonia Trumpet-flower (Abbe Bignon, librarian to Louis 14th.
gracilis slender, stove climber, 50 ft. April, yellow, S. America, lt. l. cut. 77.

BORAGINEÆ.

Tournefortia (I. P. de Tournefort, the celebrated French bot.)
heliotropioides heliotrope-like, stove shrub, 2 ft. May, lilac, B. Ayres, lt. l. c. 168.

CACTEÆ.

Mammillaria (Mamma, the nipple, tubercles.)
tenuis taper, dry stove shrub, 6 in. white, May, peat and lime, rubbish off. 754.
Pereskeo Barbadoes Gooseberry (N. F. Pereskius, lover of bot.)
Bleo, rose-coloured, dry stove shrub. 5 ft., Oct. to Jan. rose, Mexico, l. pt. ct. 409

COMPOTITÆ.

Centroclinium (*Kentron*, sharp-point, *Kline* bed.)
reflexum reflexed-scaled, stove an. 2 ft. August, rose, Peru, lt. l. seeds. 267.
appressum appressed scaled, stove evr. shrub, 2 ft. June, rose, lt.l. seeds 267.
Madia, (*Madi*, its name in Chile.)
elegans elegant, hardy an. 18 in. August, yel. N. W. America, co. seeds 315
Vernonia (*W. Vernon*, a bot. traveller in N. America.)
axilliflora axillary-flowered, stove evr. shrub, 18 in. all-sea. lt. l. c. 26, 366.

CAMELLIÆ.

Camellia Japan rose, (*G. J. Kamel* or *Camellus* a Jesuit.)
japonica compacta close flwd. gre. evr. shrub, 10 ft. Feb. Mar. pt. l. inarch 71
Reevesiana gre. evr. shrub, 10 ft. Feb. March, pt. l. inarch 609
Sweetiana Sweets, gre. evr. shrub, 10 ft. Feb. pt. l. inarch. 462.

CARYOPHYLLEÆ.

Silene (*Sailon*, salvia, viscid frothy moisture of the stalks.)
laciniata cut petalled, gre. per. 18 in, July Mexico, lt. l. seeds, 212.

CAMPANULACEÆ.

Lobelia (*M. Lobel*, a celebrated bot. author and physician.
robusta thick-stemmed, stoveper. 3 ft. Aug. Hayti, lt. l. division, 462.

CAPRIFOLIACEÆ.

Caprifolium Honey Suckle (*Poetic*, *Goat leaf*, climbs like a goat.)
occidentale, western, hardy climbing shrub, 20 ft. June, com. cut. 315

CORDIACEÆ.

Cordia grandiflora, stove shrub, pale lilac, 611.

CRUCIFEREÆ.

Hesperis speciosa, hardy per 6 inches, rose and purple, l. division, 462.

DILLENIACEÆ:

Hibbertia Cunninghami greenhouse evergreen shrub, 3 ft. peat, cut. 755.

EPACRIDEÆ.

Dracophyllum capitatum, greenhouse evr. shrub, 3 ft. blue and white cut, 755.
Eparis nivalis, frame shrub, 2 ft. white pt. cut, 663.
Sphenotoma capitata, greenhouse evr. shrub 2 ft. blue and white, pt. ct. 711.

ERICEÆ.

Andromeda polifolia revoluta, hardy shrub, 1ft. pink, pt. lay 170.
polifolia grandiflora, hardy shrub, 1 ft. white and pink, pt. lay, 118.
Arbutus mucronata, gr. trailing shrub, 1 ft. white, l. pt. lay, 117.
pilosa, hardy evr shrub, white and brown, pt lay, 712.
Azalea nuidiflora scintillans. gre Dec shrub, 4 ft, orange and scarlet pt l lay 315
Calendulacea stapletoniana, hardy Dec shrub, 4 ft. rose pt l lay, 23.
Erica villosiuscula, gre evr shrub, 3 ft pink, p cut, 755.
vestita blanda, gre evr shrub, 2½ ft pink, pt cut, 119.
Beaumontiana gr evr shrub, 1 ft white, pt ct, 25.
undulata, gr evr shrub, 1 ft rose, pt cut, 519.
Rhododendron alta-clerense, hardy evr shrub, 15 ft pt lay, 23.
pulchrum, gr evr shrub, 3 ft rose pt lay, 267.
Farreræ, hardy evr shrub, 3 ft lilac, pt lay, 27.
Carton's, hardy evr shrub, 3 ft lilac, pt lay, 266.
ornatum, hardy evr shrub, orange and red, pt l, 519.
album, hardy evr shrub, 20 ft pt lay 610,

ESCALLONIÆ.

Escallonia montevidensis, gr. evr shrub, 6 ft white, pt l cut, 367.

FUMARIACEÆ.

Dactylicapnos thalictrifolia, frame per climber, 3 ft yel br lt l seeds 368.

GALACYNEÆ.

Francoa appendiculata, hardy per 2 ft rose pt l division, 663.

GERANIACEÆ

Geranium albiflora, hardy per 18 inches, whitish, common, division, 367.

GROSSULACEÆ..

Ribes inebrians, hardy Dec shrub, 3 ft white, co, cut, 409.
speciosus, hardy Dec shrub, 4 ft. crimson, cut, 663.

JASMINEÆ.

Jasminum, Wallichianum, hardy evr shrub, 10 ft yel lt l cut, 23.

LEGUMINOSÆ.

Acácia (*Akaza*, to sharpen; many species thorny)
pentadinia fern-leaved.—Gre E. Shrub, five feet, orange and yellow, New Holl, pt. l. cut. 711.

Adésmia (*A*, without, *desmos*, a bond; stamens free)
microphy'lla, small-leaved.—Gre Shrub, two feet, various seasons, yellow Valparaiso, lt. l. cut. 26.

Cassia (*Katsa*, to tear off; bark stripped from the tree)
Herbertiána Herbert's, stove E. shrub, nine feet, November, yellow, Barbadoes, l. pt. seeds. 116.

Chorizèma (*Choros*, dance, *zemia*, annoyance)
triangulàre triangular.—Gre E. shrub, eighteen inches, April to June, Or. N. Holl, pt. cut. 662.
ovata, ovate, gre E. shrub, 2 ft. Apl. scarlet and yellow, N. Holl, l. pt. cut 755

Dillwy'nia (*L. W. Dillwyn*, a celebrated botanist)
glycinifolia, glycine-leaved, gre. ev. shrub, 2 ft. orange, N. Holl. l. pt. cut. 711

Glycine (*Glyks*, sweet, leaves and roots of one of the species)

bileba, two-lobed, gre. clbg. shrub, 20 ft. violet, Mexico, loam & peat, seeds 24

Gompholòbium (*Gomphos* wedge, *lobos*, pod; shape)

Knightiànum, Knight's, gre. shrub, 9 inches, Aug. Sept. rose, N. Holl. pt. l. seeds. 367.

Hòvea (*A. P. Hove*, a Polish botanist)

lanceolàta lineàris linear-leaved, gre. ev. sbrub, 3 ft March, purple, N. Holl. pt. l. seeds. 116.

villòsa shaggy, gre. ev. shrub, 3 ft. April, purple, New Holl. peat, cut. 662

chorozemæfolia, chorozema-leaved, gre. ev. shrub, 3 ft. March, purple, New Holl. l. pt. cut. 754.

Lathyrus (*La*, augment, *thouros*, any thing exciting, quality)

decaphyllus, ten-leaved, hardy per climber, 4 ft. June, red and lilac, N. Amer. lt. l. seeds. 367.

Lòtus, Bird's-foot Trefoil, (probably of Egyptian origen)

arenàrius sand, hardy trailing annual, 4 in. Aprl. yel. Teneriffe lt. l. seeds 518

Lupìnus, Lupine, (*Lupus*, a wolf; impoverishes the soil)

Marshallianus, Marshall's, hardy per, 5 ft. July to Oct. blue, hybrid, lt. l. cut. and seeds. 518.

Sabinianus Sabine's, hardy per, 3 ft. May, yellow, Columbia, lt. l. seeds. 168.

Onònis Rest-harrow, (*Onos*, an ass, *onema*, to delight, grateful to)

pedúnculàris peduncled, frame per. 1 ft. April, white & rose, lt. l. seeds. 212.

Pultenæa (*W. Pulteney*, M. D. a botanical author)

mucronata, mucronate-levd, gre. per, 2 ft. April, yel. N. Holl. lt. l. seeds. 118

LOBELIACEÆ.

Lobelia (*M. Lobel*, celebrated botanical author and physician)

hypocrateriformis, salver-fld. gre. an. 1 foot, Sept. purple, peat, seeds. 25.

speciosa, Low's purple, frame per. 2 ft. May to Oct. purple, pt. l. div. 212.

robusta, thick stemmed, stove per. 3 ft. Aug. purple, Hayti, lt. l. division. 462

MALVACEÆ.

Hybiscus Genevi, stove evr. shrub, 15 ft. rose and purple, lt. l. cut. 518.

splendens, stove evr. shrub, 5 ft. Sept. rose orange, rich l. cut. 712.

Palavia rhombifolia, rhomb-levd, fr. an. 1 ft. June to Sept. rose, Co. seeds 168

Sida rosea, stove evr. shrub, 5 ft. October, rose, Brazil, pt. l. cut. 519.

aurea, stove evr. shrub, 5 ft. Sept. orange, India, rich, l. cut. 755.

MELASTOMACEÆ.

Arthrostemma nitida, gre. evr. shrub, 2 ft. July, lilac, B. Ayres, pt. l. cut. 462

Osbeckia nepalensis, stove shrub, 18 inches, Aug. white, Nepal, pt. l. cut. 409

MELANTHACEÆ.

Trillium discolor, hardy per. 9 inches, May, green, Georgia, pt. l. div. 168.

MYRTACEÆ.

Bæckea saxicola, gre. shrub, 6 inches, July, Aug. rose, N. Holl. pt. cut. 610.

Couroupita guianensis, stove shrub, 70 ft. yellow and lilac, rich l. 609.

LABIATEÆ.

Audibertia incana, hardy shrub, 18 inches, July, Sept. blue, Co. seeds. 367.

Aphanochilus blandus, stove per. 2½ ft. summer, green, Nupel, Co. l. seeds 117

Salvia foliosa, gre an, 18 inches, all season, blue, Mexico, Co. seeds. 116

strictiflora, stove evr shrub, 3 ft. Dec. br. & red, lt l, cut 411

Grahami Graham's, gre evr shr 4 ft July to Oct. red, lt l cut 518

MELIACEÆ.

Turræa? pinnata, stove evr shr 15 ft? March, rose, Silhet, l pt cut 23

ONAGRAREÆ.

Fuchsia baccillaris, gre dec shrub, 5 ft, summer, rose, Mexico, pt l cut 461

Œnothera anisoloba, hardy per, 2 ft, June, white, Co. lay seeds, 117, 461

OXALIDEÆ.

Oxalis Deppii, frame per 3 inches, Mar Nov copper red, Mexico, pt Off 27

PRIMULACEÆ.

Anagallis Webbiana, frame evr trailer, 6 inches, May to Nov, blue, Co. cut 411

Primula sibirica, frame per, 4 inches, June, July, rose, Siberia, co, division 663

verticillata, frame per, 1 ft, June July, yellow, Arabia, pt l div 712

PASSIFLOREÆ

Tacsonia pinnatistipula, frame climb. shrub, 10 ft. rose, Chile, lt. l. cut. 712

PITTOSPOREÆ.

Pittosporum Angustifolium, gre evr shrub, 5 ft. yellow, N. Holl. l. pt. cut, 806
cornifolium, gre evr shrub, 3 ft, brown, N. Z. ea pt cut 610
Sollya heterophylla, gre climber, 5 ft. July, blue, N. Holland pt. l cut 367

POLYGALEÆ.

Monnina obtusifolia grc evr shrub, 2 ft. June, reddish purple, Peru, pt l s. 316

POLEMONIACEÆ.

Phlox aristata, frame per. 6 inches, white, Carolina, pt. & loam, cuttings 213

PROTEACEÆ.

Grevillea caleyi, gre evr shrub, 70 ft. orange, Moreton Bay. l pt cut. 410
planifolia, gre evr shrub, 2 ft Apl & May, rose, N. H. l pt cut 213
robusta, gre tree, 100 ft, June, Sept, red orange, pt l cut 755
Hemiclidia Baxteri, gre evr shrub, 3 ft, June, yellow pt l cut 266

RUTACEÆ.

Dictamnus angustifolia, hardy per, 2 ft, fl lilac, July, Altai, lt l seeds 26
Galipea odoratissima, stove evr shrub, 2 ft May, white, l pt cut 76

RUBIACEÆ.

Houstonia longifolia, hardy per, 4 in, purple, peat, 168.
Rubus spectabilis, hardy Dec, shrub, 4 ft, red, l pt lay, 76.

RANUNCULACEÆ.

Aquilegia Garnieriana, hardy per 18 inches, purple, com. division 78.
Pæonia albiflora Pottsii, hardy per 3 ft crimson, lt l 168.
officinalis anemoneflora, hardy per, 2 ft crimson, common, 712.

ROSACEÆ.

Potentilla missourica, hardy per, 1 ft, yel, common division, 23
Rosa Clare's, wall evr shrub, 6 ft crimson, com cut. 168.

RHAMNEÆ.

Soulangia rubra, gre evr shrub, 2 ft brick red, pt l ct, 565.

SARRACENIEÆ.

Sarracenia minor, Frame per 6 in pur and gr bog division 519.

STYLIDEÆ.

Stylidium fasciculatum, gre shrub, 6 inches, pink, pt seeds, 315.

SALICARIÆ.

Lagerstrœmia indica rosea, rosy, gre evr shrub, 12 ft Aug and Sep, l cut, 368

SOLANEÆ.

Salpiglossis Barclayana, Barclay's, frame, bien, 3 ft brown red, lt l, 169
integrifolia entire-leaved, gre annual, 1 ft, July, rose, lt l s, 267.
atropurpurea dark purple, frame, bien, 3 ft, purple rich l, 711.

SCROPHULARINEÆ.

Browallia grandiflora, gre annual, 2 ft yellow, pt l seeds 24
Calceolaria angustiflora, gre per, 18 inches, yellow pt cut, 117.
bicolor, gre per, 2 ft, yellow bluish white, lt l cut, 461.
chiloensis, frame shrub, 2 ft, yellow, rich l cut, 409.
connata, gre per, 4 ft, yellow, lt l seeds, 565.
Martineanæ, hardy per, 2 ft, yellow, common, division, 806.
Wheeleri, frame per, 1 ft purple, pt l division, 411.
Youngii, gre per, 2 ft, ochre and dark, rich l division, 212.
Gratiola tetragona, frame per, one foot, blue, pt l division, 411.
Mimulus perfoliata, hardy per, 2 ft, yellow, pt l seeds, 24, 316.
Schizanthus Hookeri, hardy bien, 2 ft, rose, lt l seeds, 24.
Stemodia chilensis, frame per, 1½ ft, blue, pt l division, 409.

TROPÆOLEÆ.

Tropæolum tricolorum, gre per, 3 ft, vermillion, lt l cut, 663.

THYMELEÆ.

Pimelea intermedia, gre per, 2 ft, white, pt, common, 168.
diosmæfolia, gre shrub, 1 ft, rose, pt cut, 78.

UMBELLIFERÆ.

Aracacia esculenta, stove per, 3 ft. brownish red, rich l division 117.

URTICEÆ.

Dorstenia tubicina, stove per, 6 inches, green, pt l division, 461.
Ficus urophylla, stove evr shrub, 2 ft, India. pt l common, 26.

VERBENACEÆ.

Lantana nivea mutabilis, stove evr shrub, 5 ft, yel rose, pt l cut, 267.
Selago Gillii, gr shrub, one foot, rose, lt, cuttings, 610.
Verbena venosa, frame per. 2½ feet, rose, lt l seeds, 367.

CLASS II.—MONOCOTYLEDONOUS PLANTS OR ENDOGENFS.

AMARYLLIDEÆ.

Alstromeria Neilii, gr per, 2 feet, rose, l pt offsets, 212.
Salsilla, stove per, crimson and yellow l pt offsets, 25.
hæmanthe, gr per, orange and red, loam and peat, offsets, 756.
oculata, frame per, rose, loam and peat division, 807.
Coburgia fulva, gr per, 18 inches, tawny orange, pt l roots, 565.
Gastronema pallida, gr per, white and rose, pt, off, 565.
Habranthus roseus, frame per, 6 inches, red and orange, rich l off, 24.
pumilus, gr per, six inches, red, lt l offsets, 410.
phycelloides, gre per, 9 inches, scarlet, rich l offsets.
Narcissus stellaris, hardy per, april and May, white and crimson, co off, 411.

ASPHODELEÆ.

Anthericum, plumosum, frame per, l ft, white, com. division, 77.
Asphodelus luteus sibiricus, hardy per, 3 ft, yellow, common, roots, 665.
Camassia esculenta, hardy per 1½ ft, dark purple, pt, off, 520
Geitonoplesium cymosum, gr climber, one foot, green, pt l cut, 410.
Ornithogalum fimbriatum, hardy per, 6 inches, white, com, offs. 25.
bifolium, frame per, white, lt, offsets, 565.
Trichopetalum gracile, frame per, 3 feet, greenish white, lt l, offsets, 897.

BROMELIACEÆ.

Æchmea mertensii, stove per, yellow and rose, l pt, division, 896.
Billbergia bicolor, stove per, scarlet and yellow, Brazil, rich l suck 611

CANNEÆ.

Calathea macilata, stove per, yellow, Rio Jan, sandy loam division 461
Canna patens, stove per, May, red and yellow, 2 ft Rio rich l roots 26

IRIDEÆ.

Crocus vernus leucorhyncus, hardy per, 6 inches, white and blue, Co offs 23
pictus, hardy per, 4 inches, March, purple white, Co offs 168
Imperati, hardy per, 4 inches, Febrbary March, lilac, lt l offs 27
reticulatus, hardy per, 4 inches, orange, brown, com l offs 665
Gladiolus cochleatus, gre per, 18 inches, March, white, red, l pt off 520
natalensis, gre per 4 ft Avgust' scarlet yellow, pt l offs 612
Iris nertchinskia, hard per, blue and yellow, rich l division 756
bicolor, hardy per, 18 inches, May July, yellow brown, p Co off 23
Sparaxis lineata, gre per, 6 inches, Sept, white pink, C G Hope pt l off 411
Tritonia odorata, frame per, l foot, May, yellow, C G Hope, pt off 611

ORCHIDEÆ

Aceras secundiflora, gre per, l foot, red, Madeira, loam pt, roots 756
Aerides cornutum, stove per, l foot, July, India, pt rotten wood, division 520
Angræcum eburneum, stove per, white, Madagascar, pt rotten wood div 756
Brassavola elegans, stove per, l ft rose and purple, pt rotten wood, div 166
nodosa, stove per, l foot, yellow and green, pt rotten wood, div 166
Broughtonia sanguinea, stove per, 18 inches, red or, pt rotten wood, div 25
Cattleya guttata, stove per, l foot, green, white and pur, pt rot wood, div 23
Coryanthes maculata, stove per, l ft June yel pur pt rot wood, div 212
Cypripedium macranthos, 9 inches, hardy per, purple, Siberia, pt, roots 806
Dendrobium speciosum, stove per, l ft, June Aug yellow, pt rot wood div 25

Epidendron variegatum, stove per, 1 ft, green yellow, pt rotten wood div 565
odoratissimum, stove per, 1 ft, green yel, pt rotten wood div 23
Eulophia Mackaiana, stove per, 2 ft, green blue, br, pt rotten wood div 116
Govenia superba, stove per, 1 ft, March, yellow, Xalapa, lt l division 78
Habernaria cordata, stove per, yellowish green, Madeira, pt l. division 611
Herminium cordatum, stove per, yellowish green, Nov. Madeira, pt l div 665
Maxillaria tetragona, stove per, 9 in, green purp, pt rotten wood div 116, 520
picta, stove per, 9 inches, orange purple, pt rotten wood, div 566
viridis, stove per, 6 inches, green, purple, pt rotten wood, div 665
placanthera, stove per, 9 inches, green br, pt rotten wood, div 714
gracilis, stove per, 4 inches, red yellow, moss, and lt l, div 714
Oncidium crispum, stove per, 1 ft June, yel br, Brazil, moss & peat, div 807
Pterostylis Banksii, stove per, July Aug, yellow, New Zealand, pt l roots 714
Sarcanthus guttatus, stove per, 1 ft, Apl, white, violet & rose, pt rot wood 212
Stanhopea eburnea, stove per, 1 ft, July, green & white, pt rot wood, div, 806
Zygopetalon crinitum, stove per, 1 ft, June, July, bl gr yel, pt rot wood, div 25

TULIPACEÆ.

Tulipa Bonarotiana, hardy per, 18 inches, Apl, red varieg, Italy, Co. offs 213
Oculus Solis, præcox, hardy per, crim blck, Apl, r mld, Italy off 24,78

ABBREVIATIONS.

An. Annual
Bien. biennial
D. deciduous
evr. evergreen
gre. greenhouse
har. hardy
in. inches
or. orange
per. perrennial
blsh. bluish
bl. blue
blck. black
crim. crimson
gr. green
purp. purple
varieg. variegated
wht. white
yel. yellow
br. brown
co. common soil
cut. cuttings
div. division of roots
lay. layers
lt. l. light loam
pt. rot. peat & rotten
w. wood
pt. l. peat & loam

INDEX.

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