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MEDICAL FLORA;

OR,

MANUAL

OF THE

MEDICAL BOTANY

OF THE

UNITED STATES

OF

NORTH AMERICA.

CONTAINING

A SELECTION OF ABOVE 100 FIGURES AND DESCRIPTIONS OF MEDICAL PLANTS, WITH THEIR NAMES, QUALITIES, PROPERTIES, HISTORY, &c.: AND NOTES OR REMARKS ON NEARLY 500 EQUIVALENT SUBSTITUTES.

IN TWO VOLUMES.

VOLUME THE FIRST,

A——H

WITH 52 PLATES.

Medical Plants are compound Medicines prepared by the hands of Nature, &c.—Med. Princ. 31.

BY C. S. RAFINESQUE, A. M...PH. D.

Ex-Prof. of Botany, Natural History, &c. in Transylv. University of Lexington, the Franklin Institute of Philadelphia, &c.

Member of the Medical Societies of Cincinnati and Lexington—the Philos. Soc. and Lyceum of New York—the Acad. of Nat. Sc. of Philadelphia—the Amer. Antiq. Society—the Kentucky Institute—the Linnean Soc. of Paris—the Imp. Nat. Cur. Soc. of Bonn.—the Imp. Economical Soc. of Vienna—the R. Italian Inst.—the R. Inst. of Nat. Sc. of Naples, &c. &c.

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1828.

MISSOURI

Eastern District of Pennsylvania, to wit:

BE IT REMEMBERED, that on the eleventh day of January, in the fifty-second year of the Independence of the United States of America, A. D. 1828, Atkinson and Alexander of the said District, have deposited in this office the Title of a Book the right whereof they claim as Proprietors, in the words following, to wit:

Medical Flora; or, Manual of the Medical Botany of the United States of America. Containing a selection of above one hundred figures and descriptions of medical plants, with their names, qualities, properties, history, &c.: and notes or remarks on nearly five hundred equivalent substitutes.—In two volumes.

Volume the first, A——H. with fifty-two Plates.

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D. CALDWELL,
Clerk of the Eastern District of Pennsylvania.

TO

DR. TORREY,

Professor of Chemistry and Botany, in the Medical School of the University of New-York:

DR. SHORT,

Professor of Materia Medica and Medical Botany, in the Med. School of Transylvania University, in Lexington, Kentucky: and

STEPHEN ELLIOTT, ESQ.

Professor of Botany, &c. in the Medical School of Charleston, in South Carolina:

THESE PAGES,

AND FIGURES OF MEDICAL PLANTS,

ARE DEDICATED,

IN TOKEN OF

FRIENDSHIP, ESTEEM AND RESPECT,

BY THEIR FRIEND

THE AUTHOR,

C. S. R.

INTRODUCTION.

1. The Science of Botany was at all times intimately connected with medical knowledge.

2. Several ancient nations, such as the Grecians, Romans, Hindoos, Chinese, &c. considered Medical Botany as equivalent to both botanical and medical knowledge.

3. Medicine was then, and is still among rude nations, nothing more than the application of an empirical knowledge of vegetable substances.

4. Thence the usual vulgar division of Plants, into the five great Classes of Aliments, Simples, Poisons, Flowers and Weeds, or alimentary, medical, poisonous, ornamental and useless plants.

5. At the revival of learning in Europe, this notion being general, the first works on Botany, were of course mere sketches of Medical Botany, and comments on Grecian or Roman writers.

6. When Tournefort and Linnæus, about a century ago, became botanical reformers, and made Botany a separate Science, their efforts and improvements were resisted by those who at all times contend against useful innovations.

7. Linnæus in his Materia Medica, gave a model of systematical Medical Botany, equally concise, perspicuous and accurate; but destitute of the help of figures.

8. This model was followed by Schoepf in his Materia Medica of North America, the first general work on our medical plants, published in Germany and in Latin towards 1787. This small work of Schoepf has never been translated nor republished in America, although highly deserving of it.

9. When America was settled, the native tribes were in possession of many valuable vegetable remedies, discovered by long experience, the knowledge of which they gradually imparted to their neighbours.

10. This knowledge partly adopted even as far as Europe, and partly rejected by medical skepticks, became scattered through our country in the hands of country practitioners, Herbalists, Empirics and Botanists.

11. Schoepf collected his materials from them, and noticed about three hundred and sixty plants as medical; but he did not go every where, nor exhaust the subject, since nearly double that number are actually in common use in different States of the Union.

12. Since the United States have become an independent and flourishing nation, much has been done to teach and spread correct medical knowledge.

13. The establishment of Medical Schools, Chairs of Materia Medica, of Medical and Systematical Botany, Medical and Botanic Gardens, Infirmaries, Hospitals, have largely

contributed to impart Medical and Botanical knowledge, through the professional class.

14. This purpose has been aided by numerous publications of learned Physicians and Botanists, Medical Works, Pamphlets and Journals, Pharmacopeias, Dispensatories, Inaugural Theses, &c.

15. Notwithstanding all these means, it is a positive and deplorable fact, that but few medical practitioners, apply themselves to the Study of Botany, and therefore are deprived of the aid of comparative Medical Botany.

16. It is not less certain, but still more deplorable that beyond the immediate sphere of medical knowledge, the majority of the people are yet in prey to medical credulity, superstition and delusions, in which they are confirmed by the repeated failures of Theorists, and the occasional success of Empirical Rivals.

17. Even in large cities and in the centre of medical light, Empirics are thriving, because they avail themselves of the resources afforded by active plants, often neglected or unknown to the regular practitioners.

18. It is not perhaps so well known that there are in this Age and in the United States, American *Marabouts* who like the *Marabouts* of the wilds of Africa, attempt in some remote places, to cure diseases by charms, prayers, blowing, spitting, &c.

19. It is therefore needful to spread still further correct medical knowledge; and the state of medical science is such in the United States, as to require a greater diffusion of the

acquired knowledge, aided by freedom of enquiry, liberal views, and mutual forbearance.

20. The practice of medicine is now exercised in the United States by three sets of men or Classes of Practitioners. 1. The RATIONALS, 2. the THEORISTS, and 3. the EMPIRICS.

21. The RATIONAL medical men are liberal and modest, learned or well informed, neither intolerant nor deceitful, and ready to learn or impart information. They comprise the *Improvers*, *Eclectics*, and *Experimentalists*.

22. The *Improvers* study nature and the human frame, write their observations, and improve medical knowledge.

23. The *Eclectics* are those who select and adopt in practice, whatever is found most beneficial, and who change their prescriptions according to emergencies, circumstances and acquired knowledge.

24. While the *Experimentalists* are those who are directed by experience and experiments, observations, dissections and facts.

25. But the THEORISTS are often illiberal, intolerant, proud and conceited; they follow a peculiar theory and mode of practice, with little deviation, employing but few vegetable remedies, and enlisting under the banner of a teacher or sect.

26. They are divided into many Sects, always at war among themselves and their rivals: such are the *Brownists*, *Galenists*, *Mesmerians*, *Skepticks*, *Chemicalists*, *Calomelists*, *Entomists*, &c.

27. The EMPIRICS are commonly illiterate, ignorant, deceitful and reserved: they follow a

secret or absurd mode of practice, or deal in patent remedies.

28. They include the *Herbalists*, vulgarly called *Indian* or *Root Doctors*, and the *Steam Doctors*, who follow the old practice of the natives, the *Quacks* or dealers in Nostrums, the *Patent Doctors*, the *Prescribers* of receipts, the *Marabouts*, &c.

29. All these classes need instruction on the natural knowledge of medical substances, and it ought to be afforded to them, that they may become properly acquainted with those which they employ or may avail themselves of.

30. Medical Sciences have lately been widely enlarged, by borrowing the help of all the Natural Sciences; and the enlightened physicians begin to avail themselves of all the materials they can command, rendering all the Sciences subservient or auxiliaries to their pursuits.

31. By Botany, the great majority of medical Substances are ascertained and become available: while the study of natural affinities enables to detect and compare botanical and medical Equivalents.

32. Medical Botany teaching to know and appreciate the greatest number of articles employed in Materia Medica, is become indispensable to the enlightened physician.

33. Vegetable Chemistry analyses vegetable substances, discovers their active principles, relative medical value, and ascertains the equivalent or incompatible substances.

34. Even Pharmacy is become a science, by the aid of Botany and Chemistry. Druggists and Pharmacians who sell vegetable Articles or

Drugs ought to be botanically acquainted with them, so as to distinguish the genuine kinds, and detect the frauds or blunders of the collectors and herbalists.

35. Works on Medical Botany are of two kinds, with or without figures. This last kind includes all the *Materia Medicas*, *Dispensatories*, *Pharmacologies*, *Pharmacopeias*, &c. which try to convey the knowledge of medical substances by mere descriptions.

36. The other kind, and the most useful, employ, Iconography or figures, besides descriptive references, to give a complete knowledge of the officinal plants: such are the *Herbals*, *Medical Botanies*, *Medical Floras*, &c.

37. A Critical List shall be given of such Works or Essays relating to our Plants, which have been consulted: but the three principal works with figures, deserve perhaps a separate notice.

38. Bigelów and W. Barton published some years ago, and towards the same time, two voluminous and expensive Works on Medical Botany. Barton's Work in two volumes quarto, contains only fifty plants and figures, and Bigelow's sixty in three volumes quarto.

39. Several plants are described and figured in both works, reducing the total number of medical plants given to about eighty, for which the price is about forty dollars or half a dollar for every plant.

40. These imperfect and costly works have each their merit, and although not free from errors and omissions, are useful assistants to those who can afford to buy them. Bigelow's

is the most learned, accurate and useful, while Barton's has often the best figures.

41. It is to be regretted that these authors by following the expensive plan of Woodville's Medical Botany have lessened their utility and public circulation.

42. Some years before the above publications, a herbalist or spurious Botanist, Samuel Henry, printed in New York, 1814, a Medical Herbal, comprising in one octavo volume of five dollars, about one hundred sixty medical plants, with small fictitious figures.

43. This Work is merely mentioned here to warn against it. It is a worthless book, with incorrect names, wrong descriptions, erroneous indications, and figures mostly fictitious or misapplied. It is of no medical nor botanical account; yet it contains some of the Empirical concealed knowledge, available in a few instances.

44. Works of general utility ought to be accurate, complete, portable and cheap. Such alone can spread the required correct knowledge, and suit every class of readers.

45. The popular knowledge of the natural sciences has been prevented in the United States, by the first works published on them, having followed the model of the splendid European publications intended for the wealthy or public libraries.

46. It is time that we should return to the pristine Linnean simplicity, and by the addition of cheap but correct figures of objects, engraved on copper, zinc, pewter, stone or wood, speak to the eyes as well as the mind.

47. Such is the aim of the actual work, which is intended as a portable manual of Medical Botany, for the daily use of medical Students, Physicians, Druggists, Pharmacians, Chemists, Botanists, Florists, Herbalists, Collectors of herbs, heads of families, Infirmaries, &c.

48. It was many years in contemplation, and publicly proposed ever since 1816. It is now offered to the public, as a humble attempt to render one of the popular branches of medical and natural science, attainable and available by all.

49. The author has been collecting his materials for many years, while travelling through fourteen states of the Union, and lecturing on medical plants in Transylvania University.

50. His qualifications for the task result from fifteen years of botanical and medical observations and researches, and 8000 miles of botanical travels, wherein he diligently enquired and elicited from the learned and the illiterate, the result of their practical experience.

51. He has never despised knowledge because imparted by an uncouth mouth, and has often made experiments on himself and others to test peculiar facts.

52. Several Physicians and Botanists in Philadelphia, Baltimore, Washington City, Wilmington, Winchester, Alexandria, Bethlehem, Pittsburg, Wheeling, Lexington, Bowling-green, Sandusky, &c. have at different times communicated to him additional facts, or confirmed the properties of some plants.

53. He feels particularly indebted to the obliging kindness of several friends for many im-

portant facts or valuable communications, for which he feels happy to tender this public testimony of gratitude.

54. They are Dr. Mease, and Z. Collins of Philadelphia.
Drs. Short and Brown of Lexington.
Dr. Eoff of Wheeling.
Dr. Muller of New Harmony.
Dr. Drake of Cincinnati.
Dr. Crockett of Frankfort.
Dr. Graham of Harrodsburg.
Dr. Mac Williams of Washington City.
Dr. Hales of Troy.
Dr. Lawrence of New Lebanon.
Drs. L. Beck and Tully of Albany.
Drs. Mitchell and Torrey of New York.

55. It has been ascertained that there are nearly six hundred medical plants actually known and used as such in the United States: many of which are merely medical equivalents.

56. This number being too great for the purpose of a manual, one hundred and five of the most active and efficient medical TYPES have been selected, figured and described.

57. The others have been referred to these as substitutes or *succedanea*, when they possess nearly the same ostensible qualities and properties. In fact they are mostly used for each other throughout the country.

58. Those selected include all the species of Bigelow and W. Barton, with twenty-five additional species. It had been advised to reduce the whole number to fifty active plants; but such a reduction would have left out many va-

luable plants and not offered a sufficient quantity of generic TYPES or typical Equivalents.

59. When a Genus contains several medical species, only one is figured, unless their properties are quite different, and the others are mentioned with some remarks as equivalent substitutes. The plants of genera not figured are inserted in the general table or appendix.

60. The Botanical alphabetic order has been adopted, as the most easy, obvious and serviceable, since no scientific arrangement could have been equally available.

61. The medical arrangements are as numerous as the writers on Materia Medica. Every plant having commonly many properties, cannot be classed into any definite medical order, but should belong to several at the same time.

62. The defective and indelicate sexual system of Linnæus is now too obsolete for the state of the science.

63. The natural method would have been preferred, if the novelty of the attempt had not been anticipated as an obstacle to practical use.

64. Most of the figures have been drawn by the author, and a few reduced from Bigelow or Barton; they have been engraved and printed in a style suited to the assumed purpose.

65. For the sake of perspicuity and convenience every article is divided into sections. The names are at the head, and the Botanical name is the first.

66. The English, French and German names are given, next the officinal names used in Pharmacopeias, and last the vulgar or common names of the country, which are variable in al-

most every section or state. When a plant had received several botanical names, the obsolete are given as synonyms.

67. After the names follow the botanical and medical authorities connected, the generic and specific characters, the complete botanical descriptions, the locality or native places of growth, with the general history of the genus and species, forming the botanical sections of each article.

68. The medical division contains the sensible and chemical qualities of the plant, with the medical properties, including uses, doses and preparations.

69. Equivalent substitutes, and various remarks conclude the article. The plan of adding medical substitutes is borrowed from the excellent French work of Peyrilhe on Medical Natural History.

70. The knowledge of those medical Equivalents will be found very useful, when the required plants are not obtainable, while some substitute may perhaps be procured. It follows of course that each Equivalent is vice-versa a mutual substitute in most cases: although the plants are seldom identical in power and activity.

71. Botanical accuracy has been strictly attended to throughout, and all the descriptions are original. To avoid other novelties, but few improvements have been attempted or suggested in nomenclature or criticism. The localities are however greatly extended.

72. In the medical part, brevity has been adopted, without impairing accuracy. All the

matter of Schoepf and subsequent writers has been incorporated. Nothing essential has been omitted, but discussions are avoided, and experiments merely stated in result.

73. This order and plan has enabled to give a complete knowledge of the objects in all their botanical, medical, chemical and historical points of view: while the general principles of the science are prefixed as preliminary guides.

74. If this labour may suit all the classes of readers and all those who employ medical plants, the wishes and object of the author will be fulfilled.

GENERAL PRINCIPLES

OF

MEDICAL BOTANY.

FIRST SECTION—BOTANICAL PRINCIPLES.

1. BOTANY is the science and knowledge of vegetable bodies or plants.

2. A botanical species is formed by the collective association of all the individual bodies, which have a similar form.

3. VARIETIES are mere occasional deviations from this specific typical form.

4. All the individuals of the same species, have the same forms, qualities and properties, but modified in some varieties.

5. The principal branches of Botany, are, GLOSSOLOGY, NOMENCLATURE, CLASSIFICATION, DESCRIPTIVE BOTANY, BOTANICAL HISTORY and PHILOSOPHY.

6. GLOSSOLOGY gives names or Botanical terms to every Organ of plants, and to all their modifications of form or structure.

7. These names must be sought for in special botanical works; it is beyond this scope to notice them here, except in general.

8. NOMENCLATURE applies names to every species, and successive groups of species, referring their Synonyms to each.

9. These names derived chiefly from the Latin and Greek languages, become universal, and common to all languages and nations.

10. SYNONYMS are of wo kinds, 1. Erroneous or obsolete botanical names, 2. Local or variable Vulgar names employed by each nation.

11. CLASSIFICATION teaches how to co-ordinate the species in Genera, orders and classes by methodical or systematical arrangements.

12. GENERA are groups of species having the same essential Organs of fructification or reproduction, and affording the same collective characters in their structure and form.

13. ORDERS and CLASSES are successive groups of Genera affording some similar general characters. Families, Sections, Subclasses are Divisions of these groups based upon some peculiar considerations.

14. A METHOD studies, seeks and preserves all the natural affinities of plants, grouping together, those which have the greatest resemblance.

15. SYSTEMS follow a peculiar theory, or are based upon a single consideration, without attending to natural affinities.

16. DESCRIPTIVE BOTANY gives accurate descriptions of all the species and their varieties, Genera and Groups of Genera.

17. These Descriptions consist of two modes or parts 1. Complete Descriptions, 2. DEFINITIONS or abridged Descriptions, being the analytical epitome of the principal descriptive characters.

18. BOTANICAL HISTORY includes many details and considerations comprising the Etymology of names, mode of growth, time of flowering and seeding, cultivation, collection, discovering, introducing, authors who have described plants, their biography, bibliography or knowledge of Botanical Books, criticism, &c.

19. The Locality of plants is a branch of Botanical history, which has lately been separated and called BOTANICAL GEOGRAPHY; it teaches the soils, climates and places where plants grow spontaneously, and also their migrations, naturalization, &c.

20. BOTANICAL PHILOSOPHY considers plants under all their points of view, which are many; forming the following branches:

1. ORGANOLOGY, studying their organization.
2. PHYSIOLOGY—their vital functions.
3. ANATOMY—their internal structure.
4. CHEMISTRY—their component elements.
5. PATHOLOGY—their diseases.
6. CULTIVATION—their culture.
7. UTILITY—their useful or noxious properties.

21. The ORGANS are external or internal; the internal belong to botanical anatomy: the external or the most conspicuous

afford the obvious descriptive characters, and form several series according to their vital use, as follows:

22. NUTRITIVE ORGANS are the Cotyledons, Roots, Leaves, &c. The ROOTS are commonly under ground, and the LEAVES above: while the COTYLEDONS are within the seed.

23. REPRODUCTIVE ORGANS which are the Flowers, Fruits and Seeds, with the Buds, Bulbs, and Gems.

24. Upon the flowers, fruit and seeds are chiefly based the generic and other general characters; being present and conspicuous in every plant except those of the lowest orders.

25. The Roots, Leaves, Flowers, and Fruits assume a great variety of shapes, which have all peculiar names, and offer the specific characters and distinctions usually resorted to.

26. UPHOLDING ORGANS such as the stem and branches, the Scapes or leafless radical stems, Petioles, Pedicles, Nerves, &c.

27. PRESERVING ORGANS as the Barks, Cuticles, &c.

28. CIRCULATIVE ORGANS which are the Wood, Liber, Pith, Fibres, Vessels, &c. The woody plants are called Trees or Shrubs.

29. SECRETORY ORGANS, such as Glands, Pores, Hairs, &c.

30. ACCESSORY ORGANS are the thorns, bracteoles, stipules, tendrils, tubercles, down, wool, &c.

31. INFLORESCENCE is the mode in which the flowers are disposed and unfolded.

32. The essential parts of the flowers are the STAMINA or STAMENS and PISTILS: a complete flower has both; when they are separate, the flowers are called Staminate or Pistilate.

33. The essential part of the STAMEN is the ANTHER; when the filament or support is missing, the anther is called sessile.

34. The essential parts of the PISTIL are the GERM or GERMEN, and the STIGMA. The germ is the bud of the fruit; it is usually sessile; when it has a support or PODOGYNE, it is called stipitated.

35. The Germ is usually free and central; but when it is connected or coherent with the perigone, it is called adherent or inferior, and the perigone becomes symphogyne or superior.

36. The STIGMA is a pore, gland or appendage upon the Germ, single or multiple, sessile or supported by a base called STYLE.

37. The accessory parts of the flowers are the PERIGONE, NECTARIES and BRACTEOLES.

38. The PERIGONE around the Stamina and Pistils is either single, double or multiple. When single it retains that name; but when double the exterior is called CALIX, and the interior COROL or COROLLA. In the multiple perigone, the inner range is the true COROL.

39. The segments of the perigone and calix are called SEPALS, or folioles, and those of the Corol PETALS.

40. The NECTARIES are Glands, scales, crowns, disks and other appendages within the flower.

41. The BRACTEOLES are small leaves, scales, involucres, &c. around the flowers, when they resemble a perigone and surround many flowers, they are called PERIANTHE or common calix.

42. Plants being organized bodies like Animals, perform the same vital functions, three of which are essential to life, and common to all plants, 1. NUTRITION, 2. GROWTH, 3. REPRODUCTION.

43. The others are less essential, or less evident; they are 1. Circulation, 2. Respiration, 3. Secretion, 4. Irritability, 5. Calorification, 6. Solidification, &c.

44. Plants are also like Animals subject to Sleep, hyemal Torpor, Diseases, Necropsy and Death.

45. The ANATOMICAL structure of plants offers a multitude of internal apparatus (about thirty kinds) formed by the aggregation of vessels, fibres and tissues.

46. The principal are the Cellular, fibrose, glandular, absorbing, moving, vital, nutritive, reproductive, &c.

47. CHEMICAL BOTANY detects almost all the simple elements in the vegetable substances: the most abundant and prevailing are however, Carbon, Oxigen, Hydrogen, Azote, Potasum, Sodium, Calcium, Sulphur, &c.

48. The compound chemical bodies absorbed or formed by vegetable Life are very numerous, the principal are Water, Air, Oils, Acids, Aromes, Tannin, Extractive, Alkalis, Resins, Mucilage, Sugar, Fecula, &c.

49. Diseases in plants are as numerous as among Animals, if not Men; they have only been attended to as yet with fruit trees, and useful cultivated plants; many are easily curable.

50. Agriculture and Horticulture are two arts, having for special object the cultivation of useful or ornamental plants.

51. These arts are closely connected with Botany, from which they borrow their materials. The general cultivation of medical plants in medical gardens is highly desirable.

52. Useful plants have three kinds of properties, 1. Alimentary, 2. Economical, 3. Medical. The noxious and poisonous properties are included with the medical.

53. We are dependent upon vegetables for our food and drink, our solid and liquid aliments; they furnish us materials for our dress, dyes, fuel, buildings, arts and manufactures.

54. Every plant has two names and two characters, both Generic and Specific.

55. The Generic name is the first and is a substantive, the Specific follows and is an adjective appellation.

56. The Generic character is the collective definition of the principal organic indications of each Genus, which constitute the TYPE of the Genus.

57. The Specific character is an abridged description of all the individuals forming a species, and it constitutes the TYPE of the species.

58. Orders and Families, Classes and Sections have also substantive names, and peculiar characters assigned to each.

59. Three great natural classes constitute the vegetable Kingdon, 1. DICOTYLES, 2. MONOCOTYLES, 3. ACOTYLES.

60. The DICOTYLES are VASCULAR plants, with concentric fibres and vessels, and a bilobe or multilobe germination. They comprise two thirds of all the plants, shrubs and trees.

61. The MONOCOTYLES are VASCULAR plants with fascicular fibres and vessels, and a lateral unilobe germination. Such are the Palms, Lilies, Grasses, Ferns, and Mosses.

62. The ACOTYLES are CELLULAR plants without vessels nor fibres, and destitute of lobes in the germination. Such are the Lichens, Algae and Fungi.

63. These natural classes may be divided in other less natural classes, and these into natural orders and families, by the botanical process of analysis.

64. The natural orders of Linnæus were fifty-eight, Jussien has

enumerated one hundred, now upwards of one hundred and fifty are known or designated.

65. Many of these being rather natural families may be reduced to about sixty-four great natural orders, including upwards of two hundred natural families.

66. Each natural family and order has some qualities and properties, common to all their genera, and may therefore serve of Medical Indication.

SECOND SECTION—CHEMICAL PRINCIPLES OR PRINCIPLES OF BOTANICAL CHEMISTRY.

1. The knowledge of the substances which enter into the bodily composition of Plants, form a branch of Chemical Sciences called Vegetable Chemistry.

2. This branch of Chemistry is intimately connected with Medical Botany, and becomes an essential part of it.

3. By it, the three Sciences of Botany, Chemistry, and Pathology are rendered subservient to each other.

4. Chemistry borrows from Botany the true knowledge of the Plants, while Chemistry teaches Botany the nature of the Substances in these plants.

5. The Medical Sciences receive from Vegetable Chemistry the more intimate knowledge of the greatest proportion of Substances employed in practice.

6. Chemistry acquires this knowledge by tests, analytical decompositions, and reaching the first Elements or elementary bodies evolved in the plants.

7. Vegetable life assimilates or produces nearly all the Natural Bodies and creates many Substances peculiar to itself.

8. This is the foundation of three great Divisions or Classes in Vegetable Substances or their proximate Elements.

1. Class. MINERAL, common to plants, animals and Minerals.
2. Class. ANIMAL, foreign to Minerals, but common to Plants and Animals.
3. PECULIAR. Not found either in Animals nor Minerals.

9. These Classes may be divided into Orders, Genera and Species of Chemical Bodies, each possessing peculiar properties and actions.

10. Vegetable Chemistry has not yet obtained the same certainty and attention as Mineral Chemistry. It is now emerging from the Clouds of ancient errors, and becoming a Science of decided importance.

11. A small portion as yet of the endless chemical Constituents of all the plants, has become known.

12. A long time will be required before the 60,000 known plants be analyzed, or even the 5000 Species of North America.

13. But some Substances are common to many different plants, and each active Genus has generally the same active principles.

14. The special knowledge of this branch of Medical Botany must be sought for in the Chemical Works. We shall merely give here a small Table of the principal Orders and Genera, lately detected and well ascertained.

15. It must be remembered that every plant contains many Elementary bodies, and that these Bodies are all reducible to their pristine Simple Elements.

16. It is not our purpose to designate the properties of these Vegetable Substances. This knowledge constitutes Medical Chemistry, a new Science, or branch of Pharmacy.

CHEMICAL TABLE.

I. Class—MINERAL ELEMENTS.—5 Orders.

1. Order. SIMPLE ETHERIAL. G. Caloric. Light. Oxigene. Hydrogene. Azote.

2. Order. SIMPLE and COMBUSTIBLE. G. Sulphur. Carbone. Phosphore.

3. Order. SIMPLE and OXIDABLE. G. The Metals.

4. Order. OXIDES. G. Airs. Waters. Limes. Potashes. Alumines. Chalybates. Silicates, &c.

5. Order. SALTS. G. Carbonates. Citrates. Fungatès. Muriates. Malates. Gallates. Nitrates. Oxalates. Phosphates. Sulfates. Tartrates, &c.

II. Class—ANIMAL ELEMENTS—1 Order.

1. O. COMPOUNDS of Carbone, Hydrogene, Oxigene and Azote. G. Glutten. Albumine. Gelatine. Adipocire. Fungin, &c.

III. Class.—PECULIAR ELEMENTS.—4. Orders.

1. Order. AZOTES or Vegetable Alkalies, containing Azote. 3 Families. Carbonits. Oxigenits. Ammonits or true Alkalis. G. Ferment. Narcotine. Asparagine. Morphium. Quinine. Eupatorine. Cornine. Daturine, &c.

2. Order. ACIDS, formed by Carbone, Hydrogene, with Oxigene in excess. G. Acetic. Malic. Oxalic. Benzoic. Citric. Tartaric. Gallic. Moric. Fungic, &c.

3. Order. WATERS, formed by Carbone with Hydrogene and Oxigene in the proportion of Water. G. Lignites. Fecules. Saccharines. Gums. Amarines. Polychromites. Tannines. Extractives. Mucilages. &c.

4. Order. OILS, formed by Carbone, Oxigene, with Hydrogene in excess. G. Gluines. Wax. Fixed Oils. Aromes. Resins. Picrines. Acrines. Camphors, &c.

THIRD SECTION—MEDICAL PRINCIPLES.

1. Every vegetable substance produces effects on the human frame; but these effects can only take place by actual contact of the parts, or their effluvia.

2. These effects are either grateful, or unpleasant, or noxious, and either nutritive, or medical, or poisonous.

3. Nutritive substances sustain life, the noxious impair it; while the medical preserve or restore health.

4. Plants may be noxious to man, while they are innocent or nutritious for animals or cattle, and the everse may as often occur.

5. The popular belief that every country produces simples suitable to cure all their prevailing local diseases, is not devoid of truth.

6. There are many modes of effecting cures by equivalent re-

medies; but vegetable substances afford the mildest, most efficient, and most congenial to the human frame.

7. A vegetable substance is called active when producing strong or quick effects, and inactive or inert, when producing weaker or slower effects.

8. But there is hardly a plant totally inert, and not producing in large doses some sensation or effect.

9. Active plants and substances are commonly known by the senses of smell or taste: while inert plants are scentless and tasteless.

10. The most active plants are not always the best for use, being less grateful than others, and more liable to impair the functions of life.

11. Poisonous plants are all available as medicinal, and often the most active; but they are liable to the same objection, in a greater degree.

12. Active and poisonous plants, must be used with care and judgment, sparingly and in small doses only.

13. Similar or consimilar tastes or smells, indicate similar or consimilar Qualities and Properties.

14. The sensible Qualities of plants are the results of their organization, and chemical composition; their medical Properties arise from these Qualities.

15. Plants of the same Genus have commonly the same qualities and properties, more or less unfolded.

16. Genera of the same Natural Family or Order, have often consimilar qualities and properties.

17. Modifications or Deviations from these two last rules occur when the organization and locality are very different.

18. Artificial Systems, like the sexual system of Linnæus separating the most related Genera, and uniting the most remote, cannot indicate medical affinities.

19. Where the artificial systems coincide with the natural method; they may both answer the purpose of medical indications.

20. Few plants possess a single property; many are commonly blended in the same plant.

21. Different parts of a plant have often separate qualities and properties.

22. Incompatible Substances are seldom or never found in the same plant.

23. Every plant has a peculiar and specific mode of action on the human body, in health or disease.

24. Even congeneric and consimilar species have their modified effects at equal doses, which a difference in the dose may equalize.

25. The medical effects of the same plant are also modified by the soil, climate, season, and age ; also by exhibition and dose.

26. Botanical affinities indicate medical equivalents, which may be substituted to each other.

27. But Experience alone can decide if the substitution will be available and efficacious, and teach when and how it ought to be made.

28. Vegetable Equivalents are either botanical or medical, and each of three degrees.

29. In Botanical Equivalents these three degrees are: 1st CONGENERIC, belonging to the same genus: 2d AFFILIATED belonging to different genera of the same family. 3d REMOTE, belonging to remote genera.

30. Medical Equivalents have the degrees of 1. SPECIFIC or having exactly the same value, 2. SIMILAR or producing the same effects, 3. CONSIMILAR or producing effects somewhat different.

31. EVERY MEDICAL PLANT IS A COMPOUND MEDICINE PREPARED BY THE HANDS OF NATURE, in the most suitable form for exhibition and efficacy in suitable cases.

32. Medical substances becoming more powerful by admixture, those which enter by vital action into the organs of plants, are rendered more powerful by intimate combination.

33. By combining several medical plants in prescriptions their effect is increased.

34. Nauseous or noxious plants may be rendered grateful and available by combination with others of a different character.

35. But all combinations must either coincide or correct each other, else they are superfluous and useless.

36. When too many substances are mingled, or several that do not well coincide, they often impair each other.

37. The combination of substances which exert a chemical ac-

tion on each other, must be avoided, unless a peculiar medical result is required.

38. When an unexpected result happens by a combination of substances, it must be corrected by suitable changes.

39. The active principles of medical plants may be obtained in a concentrated form by chemical operations.

40. When these active principles are obtained, their effects are stronger and quicker; but less congenial to the human frame, than in their natural pristine combination.

FOURTH SECTION—MEDICAL PROPERTIES.

1. The medical properties were detected by chance, or ascertained by indication, and confirmed by experience.

2. There are four kinds of indications, 1. Botanical, 2. Chemical, 3. Medical, 4. Evident.

3. Botanical indications have already been alluded to, they are proximate or remote, and teach us Botanical Equivalents.

4. Chemical indications result from analysis and decomposition: when the same elements and substances are found in equal proportions; the presumption must be that chemical equivalents have been detected.

5. Medical indications are the result of medical inference; when substances act alike or produce similar effects in some cases, they may do the same in other cases.

6. The most obvious indications are however, those which arise from the EVIDENCE of the sensible qualities of plants.

7. These qualities are constituted by chemical elements, and evinced to our senses by contact or effluvia.

8. Each plant, and sometimes each part of a plant, has a peculiar smell and taste, hardly alike in any two of them.

9. No plant is absolutely scentless or tasteless, even the most insipid evince themselves to our nose and palate.

10. The vegetable Orders and Sapors may be classed under two great divisions, GRATEFUL or UNPLEASANT.

11. Orders may be further divided into six series, and one hun-

dred and fifty Genera: Sapors into ten series and as many genera at least.

12. The GRATEFUL Odors or Smells indicate wholesome properties, the three Series are

1. Fragrant, indication of stimulants and sudorifics, &c.
2. Aromatic—of stomachics, warm stimulants, &c.
3. Sweet—of Pectorals, Demulcents, &c.

13. The UNPLEASANT Odors indicate active properties, their three Series are

1. Fetid, indication of noxious plants, emetics, &c.
2. Graveolent—of powerful medical plants.
3. Insipid—of Emollients, inert plants, &c.

14. GRATEFUL SAPORS or Tastes, belong to plants of mild properties. Their five Series are

1. Flavored, belonging to palatable substances.
2. Spicy—to stimulants, sudorifics, stomachics; &c,
3. Acid—to Refrigerants, Diluents, &c.
4. Sweet—to Nutrients, Demulcents, &c.
5. Sapid or Saltish—to Antiscorbutics, &c.

15. UNPLEASANT SAPORS belong to plants of active properties. Their five Series are

1. Nauseous, belonging to Narcotics, Emetics, Cathartics, Antispasmodics, &c.
2. Acrid—to Salivatories, Stimulants, Epispastics, Anthelminthics, Emenagogues, &c.
3. Bitter—to Tonics, Corroborants, &c.
4. Acerb—to Astringents, Diuretics, &c.
5. Insipid—to Emollients, Demulcents, Diluents, &c.

16. The sense of feeling is susceptible of ascertaining at least five qualities in substances.

1. Coolness, belonging to Refrigerants.
2. Heat—to Stimulants and Rubefacients.
3. Stinging—to external stimulants.
4. Vesication—to Epispatics, &c.
5. Corrosion—to Escharotics, and Caustics.

17. These different qualities variously combined and modified by each other, form all the immense variety perceptible in plants.

18. Medical Properties of a corresponding nature being co-

existent with these sensible qualities, are obviously indicated by them.

19. Yet some plants of weak qualities and seemingly inert, are often possessed of unindicated active properties, resulting from chemical combinations or gazeous emanations.

20. Classifications of medical properties and remedies are endless, and of little use. Every writer on Materia Medica commonly contrives a new one.

21. As much could be done here, or some one adopted; but it will be sufficient to mention that the most general Distribution is at present in three Classes, 1 STIMULANT, 2 CHEMICAL, and 3 MECHANICAL Properties or Remedies.

22. The following alphabetical Glossary of the principal medical properties, will probably be more useful for reference.

TABLE OF PROPERTIES.

ABSORBENT, absorbing or involving noxious matter.

ABSTERGENT or DETERGENT, cleaning foul ulcers and sores.

ANODYNE, soothing the nerves, allaying pain, very similar to Sedative and Nervine.

ANTACID, chemical remedies, neutralizing Acids.

AGGLUTINANT, uniting divided solids.

ALTERATIVE, producing a change in the whole system, or altering the appearance of local diseases.

AMBROSIAL, of exquisite smell or taste, very palatable and restorative.

ANALEPTIC, gentle stimulant of the nerves.

ANTIBILIOUS, correcting the Bile.

ANTIDOTE or ALEXITERIAL, commonly counter poisons, chemical remedies correcting the effects of poisons.

ANTI-DYSENTERIC, against dysentery and bowel complaints, local and mechanical, unless astringent.

ANTILITHIC, curing the gravel and stone.

ANTISPASMODIC, diffusible stimulant, acting on the muscles, curing spasms, pains, &c.

ANTHELMINTIC, expelling worms.

ANTISCORBUTIC, useful in scurvy.

ANTISCROFULOUS, useful in scrofula.

ANTEROTIC, sedatives of venery.

ANTISEPTIC or ANTIPUTRID, Tonic useful to prevent external or internal mortification.

ANTALKALINE, neutralizing alkalies.

APERIENT, promoting excretions.

APHRODISIAC, stimulating Venery.

AROMATIC, diffusible stimulant, heating the stomach and body.

ASTRINGENT, permanent stimulant, corrugating the fibres.

ATTENUANT, or DEOBSTRUENT, local stimulant, removing obstructions of the glands, liver, &c.

BALSAMIC, mild healing stimulant.

CALEFACIENT, local stimulant, heating the parts.

CARMINATIVE, or RUCTANT, local stimulant, expelling winds.

CARDIAC or CORDIAL, acting on the heart, and increasing its muscular action.

CATHARTIC or PURGATIVE, local stimulants cleaning the bowels.

CAUSTIC, local stimulants, burning the parts,

CEPHALIC, curing the head ache.

CHOLOGOGUE, purging the bile.

CONSOLIDANT, a kind of tonic, repairing defects in solids.

CORROBORANT, a kind of stomachic, giving strength.

COSMETIC, smoothing or lubricating the skin.

DEMULCENT, mechanical remedy, shielding the surfaces from acrid matter, and lubricating the organs.

DEPILATORY, removing the hair.

DIAPHORETIC, increasing the insensible exhalation of the skin and lungs.

DIFFUSIBLE, spreading through the whole frame.

DILUENTS, diluting and expelling morbific matter, increasing the fluidity of the blood, &c.

DISCUTIENT, healing sores of the skin.

DIURETIC, stimulant, increasing the discharge from the bladder and kidneys, expelling accumulated fluids, and promoting dropsical discharges.

DRASTIC, cathartics purging with violence and pain.

EFFLUVIAL, producing gazeous emanations which affect the skin.

EMENAGOGUE, increasing the menstrual discharge.

EMETIC or VOMITIVE, local stimulant producing a discharge from the stomach.

EMOLLIENT, the opposite of tonic, relaxing the fibres.

EPISPASTIC or BLISTER, local stimulant, acting on the skin and membranes, blistering them, &c.

ERODENT, removing spots and warts of the skin.

ERRHINE, promoting sneezing and a discharge from the nose.

ESCHAROTIC, corroding and decomposing the skin and other solids.

EXHANTHEMATIC, useful for Exhanthems.

EXHAURIENT, exhausting vital powers.

EXCITANT, stimulant exciting the vital functions.

EXPECTORANT, promoting expectoration.

FEBRIFUGE, curing fevers, one of the effects of tonics.

HEPATIC, useful in diseases of the Liver.

HUMECTANT, a kind of Diluent moistening the solids.

HYDRAGOGUE, a kind of Diuretic, discharging waters.

INCITANT or INCISIVE, stimulant, acting on the glandular system.

INEBRIATING or EXHILARATING, producing intoxication in different degrees.

INVISCANT or COAGULANT, mucilaginous remedies, thickening the fluids.

LAXATIVE, useful against constipation and mild purgatives.

LITHONTHRIPTIC, chemical remedy, dissolving the gravel or stone in the bladder, or bezoars of the liver.

LOCHIAL, a mild Menagogue.

NARCOTIC or STUPEFIANT, diffusible stimulant, acting on the nervous and vascular system, producing sleep, stupor and death in large doses.

NAUSEANTS, producing Nausea without Emesis.

NEPHRITIC, local stimulant of the kidneys.

NERVINE, acting particularly on the nerves, and soothing pain, promoting sleep, useful in hysterics, epilepsy, &c.

NOXIOUS or DELETERIOUS, or PERNICIOUS, or BANEFUL, or VENOMOUS, all Synonymous of POISONS, producing pain, disease or Death.

NUTRIENT, furnishing nourishment to the body.

ODONTALGIC, allaying or curing the tooth-ache.

OPHTHALMIC, useful in diseases of the Eyes.

PECTORAL, useful in diseases of the breast and lungs.

PELLENT or REPELLENT, charging the course of discharges, or repelling the morbid fluids.

PHTHIRIAC or PSORIC, destroying Lice and Itch.

PHRENETIC or PHANTASTIC, acting on the brain, producing delirium and dreams.

PROPELLENT, moving the fluids.

PROPHYLACTIC, preserving health, or preventic, a peculiar disease.

REFRIGERANT, cooling, lessening the heat of the body, allaying local or general inflammations.

RESTORATIVE, restoring strength.

REVIVING, diffusible stimulant, relieving from faintness, torpors, and necropsy.

REPERCUSIVE, throwing back an eruption, a kind of repellent.

REVULSIVE, a local stimulant, promoting a change or revulsion in a disease.

RUBEFASCIENT, topical remedy, exciting redness and heat.

SEDATIVE, allaying inordinate motions and pains, by lessening the action of the heart and circulation of the blood.

SIALOGOGUE or SALIVATORY, exciting salivation.

SOLVENT or RESOLVENT, a kind of Diluent, promoting solution of the solids, acting on the lymphatic system, useful in scrofula, &c.

SOPORIFIC or HYPNOTIC, promoting sleep.

SORBEFACIENT, raising pimples, &c.

SPECIFIC, a remedy supposed to act especially on a disease.

STIMULANT, acting by stimulating the body or some parts of it.

STINGING, acting like nettles by producing a burning pain.

STOMACHIC, promoting appetite, useful in diseases of the stomach, and cholics.

STYPTIC, stoping bloody discharges.

SUDORIFIC, promoting a copious perspiration.

SUPPURATIVE or RESOLUTIVE, promoting suppuration of ulcers, tumors, &c.

SYPHILITIC, useful in syphilis and venereal diseases.

TONIC, permanent stimulant, acting on the whole body, increasing the tone of the fibres, &c.

TOPICAL, a remedy acting by external application.

UTERINE, acting on the uterus.

URETHRAL or STRANGURIAL, a local stimulant, acting on the Urethra, producing Strangury, &c.

VIRULENT, of strong active properties, producing powerful and somewhat noxious effects.

VULNERARY, healing wounds and sores.

CONCLUDING REMARKS.

1. Physicians do not agree on the mode of action of the properties, nor the proximate and intricate operation of remedies; but the ultimate effects and results being ascertained, they are sufficient for practical use.

2. Drugs are Vegetable substances prepared for use, and kept for sale by Druggists or Pharmacians.

3. Those which are imported, are often adulterated, or inferior kinds are substituted; for instance Peruvian Bark or CINCHONA, and Saffron or CROCUS, are hardly to be met with in the U. S.—Caribean bark or PORTLANDIA, and Bastard Saffron or CARTHAMUS, are usually sold instead, which are very weak substitutes.

4. This arises from a want of medical inspections and officinal knowledge: the results are, that prescriptions fail, physicians are disappointed, and patients suffer.

5. To avoid in part these evils, it is desirable to employ our own genuine medical substances, whenever they afford sufficient remedies and suitable equivalents.

6. Medical substances being often impaired by age, it is desirable to obtain them fresh, or in yearly rotation.

7. Fresh and genuine substances can only be obtained at all times from medical gardens, or honest dealers.

8. The best medical gardens in the United States are those established by the Communities of SHAKERS, or modern Essenians, who cultivate or collect about one hundred and fifty kinds of medical plants.

9. They sell them cheap, fresh and genuine, in a compact and

portable form. Pharmacians would do well to supply themselves with them, or to imitate their useful industry.

10. Several of our medical plants and drugs are already an object of trade to Europe and elsewhere. Many more may become in demand, when their valuable properties will be better known.

11. A new branch of trade may thus be opened, which it is our duty to encourage, by collecting and cultivating our medical plants.

12. Herbalists and Collectors are often ignorant and deceitful. The best way to prevent their frauds and correct their blunders is, by enlightening them, adopting botanical names, and refusing spurious drugs.

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EXPLANATION OF SOME BOTANICAL TERMS.

Achene, a single seed like wheat.
Acuminate, abruptly sharp.—*Acute*, same as sharp.
Adnate, connivent or growing together.
Alternate, situated on two sides, but not opposite.
Ament, catkin or spike of the oak, willow, &c.
Ancipital, having two sharp sides like a sword.
Angular, forming angles.
Annual, lasting only one year.
Anomalous, out of order or irregular.
Axillary, situated at the corner between the stem and leaves.
Biennial, lasting two years.
Bifid, divided in two, *trifid* when in three, &c.
Binate, twin leaves or flowers.
Bract, a floral leaf, *bracteole* a small one.
Bulb, scaly thick root like Onions, Tulips, &c.
Campanulate, shaped like a bell.
Capsul, a dry fruit opening by valves or holes.
Cells, the internal divisions of the fruit, one celled or unilocular, two celled or bilocular, three celled or trilocular, &c.
Ciliate, having hairs on the edges.
Cluster, or *thyrsus*, a bunch of flowers or fruit, like Lilac.
Cordate, shaped like a heart.
Corymb, umbel with scattered shafts.
Cuspidate or *mucronate* having a bristle at the end.
Cylindric, long and round like a cylinder.
Deciduous, falling off.
Decomposed, cut up in many successive segments.
Deltoid, triangular like a Delta.
Dichotome, forked several times.
Diclinous, with staminate and pistillate flowers.

Dioical, having staminate and pistilate flowers on different individuals.

Disk, the flat part of a leaf or petal, &c.

Discolor, leaves having two colors.

Distichal, in two flat rows.

Drupe, a stone fruit like Peach or Plumb.

Elliptic, oblong with rounded ends as an ellipsis.

Exsert, protruding out of the flowers, &c.

Fascicle, a small bundle of leaves or flowers, called then fasciculate.

Filiform, shaped like a thread.

Fistulose, a hollow stem, &c.

Flexuose, bent in many ways, or crooked.

Floret ar *Floscule*, a small flower in compound flowers.

Foliole or *leaflet*, a small leaf of compound leaves.

Fronde, leaves bearing the fructification, or stems shaped like leaves.

Fusiform, shaped like a spindle.

Glabrous, same as smooth.

Gladiate, sword shaped.

Glandular, having glands.

Glume, the perigone of grasses.

Hastate, halbert shaped.

Imbricate, slanting over each other, like tiles or shingles.

Inferior, below something.

Inflorescence, mode in which the flowers grow.

Involucre, bracteoles surrounding or annexed to several flowers

Labiate, flowers with one or two lips *uni* or *bilabiate*.

Lanceolate, shaped like a lance.

Legume, the pods of Peas, Beans, &c.

Ligulate, like a small tongue.

Lobe, a rounded segment, *lobed* with lobes.

Lyrate, shaped like a lyre.

Monoical, having staminate and pistilate flowers on the same plant.

Muricate, covered with short prickles.

Nerves, prominent fibres in the leaves, &c.

Neutral, flowers without Stamina nor pistils and sterile.

Oblique or *Obliqual*, having a slanting position, oblique leaves like those of the Elm, have two unequal sides.

Obtuse, not sharp, blunted or rounded.

Opposite, situated one over the other.

Orbicular, perfectly round.

Oval, shaped like an egg.

Panicle, a loose bunch of flowers, much divided.

Pappus, the downy or bristly calix of florets.

Parted, cut into segments, 2—3—4—5 parted, &c.

Pedicel, a small peduncle, or a branch of it.

Peduncle, the foot stalk of flowers and fruits.

Perianthe, the involucre or calix of compound flowers.

Petal, parts or leaves of the Corolla, *monopetal* or *peripetal* having only segments; 2—3—4—5 *petal*, having as many leaves or petals; *polypetal* having many petals.

Perennial, lasting several years.

Persistent, not falling off.

Petiole, support of the leaf: *petiolate* having a petiole.

Phoranthe, the central part of compound flowers bearing the florets.

Pinnate, leaves having many folioles.

Pinnatifid, having many deep lateral segments.

Pinnule, the segments of pinnatifid parts.

Polygamous, having complete flowers, as well as some either staminate or pistillate.

Pome, fruit similar to an apple.

Raceme, a spike with pedicels to the flowers.

Radiate, having rays or ligulate flowers around the florets.

Radical, growing from the root.

Ramose, branching, divided into branches.

Receptacle, the place where the seeds are attached.

Reniform, shaped like a kidney.

Retuse, blunt and notched.

Rugose, wrinkled or roughened by nerves, &c.

Runcinate, cut up into sharp segments like a barbed arrow.

Sagittate, shaped like a forked arrow.

Scape, stem, surrounded by radical leaves.

Segment, a part not quite divided.

Sepals, the folioles of the Calix or Perigone.

Sessile, having no support.

Serrate, toothed like a saw.

Siliqne, the pods of Turnip, Cabbage, &c.

Sinuate, having sinuses.

Solitary, standing by itself.

Spadix, a thick support of many crowded flowers.

Spatha, Involucre surrounding a Spadix, or involving flowers.

Spur, a hollow appendage to some flowers.

Stipule, appendage to some leaves.

Subulate, shaped like an awl.

Superior, standing above something.

Terminal, standing at the end.

Ternate, three by three.

Tomentose, covered with woolly hairs like cloth.

Trioical, bearing complete, staminate and pistilate flowers in three different individuals.

Tuberous, thick roots like Potatoes and Turnips.

Tubular, forming a tube.

Umbel, cluster of flowers forming a kind of umbrella, as in Carrot and Fennel.

Undulate, having waved margins.

Veins, fibres of leaves not prominent like nerves.

Verticillate, forming whorls.

No. 1.

ACORUS CALAMUS.

SWEET FLAG.

No. 1.

ACORUS CALAMUS.

ENGLISH NAME—SWEET FLAG.

FRENCH NAME—ACORE ODORANT.

GERMAN NAME—KALMUS.

OFFICINAL NAMES—Calamus Aromaticus, Calami Radix.

VULGAR NAMES—Flag-root, Sweet Cane, Myrtle Flag, Sweet Grass, Sweet Root, Sweet Rush.

AUTHORITIES—Linnæus, Michaux, Pursh, Dispensaries, Schoepf, Woodville, Thacher, Coxe, Swediaur, Bigelow's Sequel, W. Barton fig. 30 bad, &c. &c.

Genus ACORUS—Spadix cylindrical with crowded flowers. Perigone simple, six-parted persistent. Stamina six pericentric. Germen one, no style, stigma punctiform. Capsuls three celled, many seeded.

Species A. CALAMUS Var. AMERICANUS—Leaves and stems sword shaped, ancipital, stems longer. Spadix cylindrical, obtuse, solitary, oblique, submedial lateral. Capsuls oblong acute.

DESCRIPTION—Root perennial, horizontal, jointed, rugose, nearly cylindrical, from six to twenty-four inches long, joints from half an inch to an inch long, white, with triangular shades, or rings of brown and rose; the inside is spongy, and loses much by dessication; bunches of coarse fibres hang downwards, and hairy brown fibres spread upwards.

The leaves are all radical sheathing at the base, and variegated of white, rose and green; they become flat above, green and smooth, with a ridge on each side in the middle, the end is very sharp, length from one to three feet. The stems are similar to the leaves; but commonly longer and bearing near the middle on one edge, the spadix or thick spike of flowers.

Spadix solitary, oblique, cylindrical from one to three inches long, both ends tapering but obtuse.—Flowers small, crowded spirally on it, and yellow. Perigone with six equal and truncate segments—Stamina six, filaments thick, anthers bilobe—Germen one gibbose, oblong, stigma sessile, pointed—Capsul oblong with many minute, slender seeds.

HISTORY—The Genus ACORUS is so perfectly natural that the few species belonging to it, are hardly distinguished from each other. The Chinese Acorus (*A. gramineus*) has narrow leaves and the spadix nearly terminal. The Asiatic and Malabar species (*A verus,*) has a slender root and thin leaves. The European Acorus is deemed by all Botanists similar to the North American, and yet differs as much from it as the Chinese. The above specific character applies to our American variety or species: while the European plant may be distinguished by the following definition.

A. CALAMUS Var. *Europeus*—Leaves and stems sword-shaped, nearly equal, hardly ancipital. Spadix cylindrical, obtuse, oblique, lateral, often double. Capsuls trigone obtuse.

These distinctions hardly amount to specific difference, and therefore the genus might properly be considered as having a single type, which being widely spread has undergone some variations in China, India, Europe and North America. This surmise will be confirmed by the habit of these plants being perfectly identical, and all possessing the same aromatic smell and medical properties.

Acorus is a name derived from the Greek and alluding to a former belief that it was beneficial for disorders of the eyes. Calamus meant a Reed or Rush in Greek and Latin.

This genus belongs to Hexandria *Monogynia* of Linnæus ; but in the natural arrangement to the tribe of Orontides, a branch of Typhides, next to the genus *Orontium*. It is like them an aquatic plant, growing on the borders of streams and ponds or meadows, ditches, &c. throughout North America, from Canada to Louisiana, east and west of the mountains, in company with the *Iris* or Flags, *Typha*, *Sparganium*, *Orontium*, *Juncus*, and other Rushes. The fine smell of the leaves and roots, enables to distinguish it from all other Flags and Rushes at any time.

The roots are the most essential part. They form an article of trade in China, Malabar, Turkey, &c.— In the early stage of the North American Colonies, it was exported to England ; and is even now occasionally sent abroad. It might be carried to China where it is esteemed. It grows so copiously that there will be no need to cultivate it ; but when it may become expedient to produce more, it will be

very easy to raise it by planting slips of the roots in ditches and swampy grounds. To prepare the roots for use or exportation they must be dug, cleaned and dried. The best time to collect them is the spring and fall.

Cattle will not eat this plant, and it is noxious to insects; the leaves, therefore, may be used to advantage against moths and worms. This is owing to their strong smell. Leather can be tanned by the whole plant.

The blossoms appear in May or June; they are yellow and crowded on a thick spike or spadix.

QUALITIES—A chemical examination of the roots, evinces the presence of Tannin, Amarine, and an essential Oil, in which resides the aromatic smell; but this last can only be obtained in the proportion of half per cent. The bitter principle is better soluble in water than alcohol.

PROPERTIES—The roots are warm, aromatic, pungent and bitter. They are deemed stomachic, tonic, corroborant and carminative. The infusion in wine or spirits becomes bitter, but acquires a nauseous flavour. The infusion in water preserves the fine smell, and becomes pleasantly warm and bitter.

It is useful in disorders of the stomach, flatulency, vertigo, cholics, dyspepsia, &c.; candied roots and the extract, or chewing the roots and swallowing the juice, are efficient in those cases.—The warm infusion like tea, cures the wind cholic of infants, sailors, &c.

The dose of the extract is half a drachm. When

the root is masticated, a copious salivation is produced, which has cured the tooth ache. Children are fond of this root in many places, and may be indulged with it; the taste is spicy and pleasant. The candied roots are palatable and much used in Asia.—This root enters into many compound preparations, theriaca, mithridate, &c.

It has been recommended in intermittents, which it has cured when the bark had failed, but more effectual tonics, may be used.

Substitutes—*Panax quinquefolium* or Ginseng—*Anisum* or Aniseed—*Angelica*—*Illicium*—*Solidago odora* or Golden Rod—*Frasera* or Columbo—with all mild tonics and aromatic-bitter substances.

Remarks—The *Iris pseudo-Acorus* of Europe does not grow in America, and cannot be mistaken there for this. Some other Iris roots (*I. florentina*, *I. versicolor*, &c.) which are also sweet scented, but more agreeable, may be distinguished by the violet smell.

Henry calls this *Acrous!* and gives a bad figure of it.

No. 2.

ADIANTUM PEDATUM.

English Name—AMERICAN MAIDENHAIR.

French Name—Capillaire du Canada.

German Name—Frauenhaar.

Officinal Names—Capil Veneris, Herba Veneris. Filix Veneris.

Vulgar Names—Maiden-hair, Rock-fern, Sweet-fern.

Authorities—Linnæus, Michaux, Pursh, Schoepf, Charlevoix, French Dispensaries, &c. not in Barton nor Bigelow.

Genus Adiantum—Fern with divided Frond. Fructification in small interrupted marginal lines. Integument univalve, opening below.

Species A. Pedatum—Petiole glossy pedate dichotome. Frondules pinnate, folioles alternate, petiolate, oblong, trapezoid, entire before and below, jagged and fructiferous on the upper margin, obtuse and crenate at the end.

DESCRIPTION—Root Perennial, large, fibrous, brown. Frond about a foot high; stems or petioles of the Frond smooth, compressed, contorted, shining or glossy chesnut color, forked upwards, and each branch bearing upwards from four to seven frondules, the first being the largest, which gives the pedate appearance. These frondules are pinnate,

No. 2.

ADIANTUM PEDATUM.

AMERICAN MAIDENHAIR.

elongated, having each from twenty to sixty distichal folioles, which are inserted by a corner, and a small petiole. The shape is oblong quadrangular, the outside or end being rounded and crenate, while two sides are square and entire; but the upper side is jagged and bears the fructification. Color pale green, surface smooth, with many oblique nerves.

The fructification is marginal on the upper border of the folioles, of a pale yellowish color, formed by unequal and irregular marginal lines. The integument is membranaceous, growing from the margin in transversal lines, which extends under it, and open transversally below, showing the cluster of small granular capsuls which they inclose.

HISTORY—The *Adiantum Capilveneris* of Europe is the type of this genus, and has long held there a rank in medical plants, as a mild pectoral. The specific name meaning *hair of Venus*, is of old standing; the English, French and German names derive from it.

A. pedatum possessing the same qualities, being larger, and more common, has long been an article of exportation from Canada, &c. to Europe; where it has gradually superseded the other, although it is less fragrant. The specific name indicates the peculiar appearance of the Frond or foliage, the whole of which is used and being very easily dried, like all ferns, is packed up in bags. It is from Canada and Nova Scotia that most is sent, and spread all over Europe; but it could be sent from many other quarters since it grows all over the United States from

New England to Missouri and Virginia. It becomes more scarce in the South, being confined to the mountains. It delights in rich soil and deep woods, but is also found on hills and among rocks. It may be collected at any time; but must not be mistaken nor blended with the Sweet fern shrub, *Comptonia Asplenifolia*, which is a shrub with fragrant leaves.

This genus belongs to CRYPTOGAMIA *Filices* of Linnæus. The natural order of Ferns or FILICES is very easily known by having a Frond or flat foliage, bearing an inconspicuous fructification in lines or dots without flowers. All the ferns have a peculiar smell, rather grateful, and more or less fragrant; it is very perceptible in the Brake or *Pteris aquilina*, the *Thelipteris*, *Driopteris*, &c. Although but slightly unfolded in the *A. pedatum*, yet it gives a flavor to its decoction or syrup.

QUALITIES—The active qualities of this fern, reside in its mucilage united to a small portion of aroma and tannin. The same principles are found in various proportions in all the other medical ferns.

PROPERTIES—Pectoral and expectorant, mucilaginous, subastringent, subtonic. It is used in decoction or syrup. The celebrated *Syrop de Capillaire* of the French is made with it, which is a pleasant summer drink, and popular pectoral remedy throughout Europe, although little known in America, except among the French and Germans. It is found useful in all coughs and hoarseness, also in asthma and tickling of the throat, and even in pleurisy and all disorders of the bronchia, larynx and breast.

Its properties as a promoter of secretions, and a cure for the jaundice are doubtful. But it strengthens the fibres and promotes expectoration. It is a very good vehicle and auxiliary for pectoral remedies, and even for cathartics, such as Croton-oil, Castor-oil, &c. which are rendered palatable by it. Liquorice may be added to the decoction, instead of sugar, to render it more efficient.

Influenza is often cured by using some of the syrup to sweeten its own decoction or any other suitable herb tea. It has the advantage that it may be used ad libitum, or in any chosen dose. My own experience has tested the value of this plant and its syrup. in cough and influenza, and I can recommend the following cathartic, as one of the most effectual and withal pleasant to the taste: One single drop of Croton Oil dissolved in a spoon-full or cup-full of this syrup.

Substitutes—*Althea officinalis* or Marsh Mallow—*Agrimonia*—Violet flowers—*Gaultheria procumbens* or Mountain Tea—*Tussilago* or Coltsfoot—*Pulmonaria Virginica* or Lungwort—*Inula Helenium* or Elecampane—*Evonymus atropurpureus* or Wahoon—*Crategus crusgalli* or American Hawthorn—*Marrubium Vulgare* or Horehound, and many sweet *Filices*, &c. &c

Remarks—In Henry's herbal the figure of this plant is nothing like it; perhaps the *A. capilveneris* is meant; which, however, does not grow in America.

No. 3.

AGRIMONIA EUPATORIA.

English Name—COMMON AGRIMONY.
French Name—Aigremoine Commune.
German Name—Gemeine Oderminig.
Officinal Names—Herba Agrimonia.
Vulgar Names—Cockle-bur, Stickwort, &c.
Authorities—Linnæus, Decandolle, Michaux, Pursh, Henry, Schoepf, Dispensaries, &c.—Not in Bigelow nor Barton.

Genus Agrimonia—Calyx permanent urceolate five toothed, bristly outside. Corolla with five petals inserted on the calyx. Stamina twelve to fifteen inserted on the calyx. Two germens, two styles, and two seeds surrounded by the calyx—Leaves pinnate.

Species A. Eupatoria—Stem simple; leaves interrupted pinnate, folioles opposite, sessile, oval, oblong, deeply serrate, the terminal petiolate; interfolioles short and jagged

DESCRIPTION—Root Perennial—Stem hairy, rounded, one or two feet high, seldom branched.—Leaves alternating, the inferior larger, hairy, pinnate or compound, having from five to nine larger folioles and some smaller ones interposed, which are broad but short, and much divided. All the folioles are sessile and opposite except the last. Shape oval or oblong, acute at both ends, margin deeply and une-

No. 3.

AGRIMONIA EUPATORIA.

COMMON AGRIMONY.

qually serrated. Inflorescence in a terminal slender spike.

Flowers small, sessile. Calyx green, bearing the Corolla and Stamina, bristly, five toothed. Corolla yellow, with five oblong petals. Stamina yellow, short, anthers oval. Fruit, a small green bur, formed by the permanent Calyx, enclosing two seeds, convex outside, flat inside, and crowned by the two styles. This bur often sticks to clothes, like other bristly burs.

HISTORY—This plant has a wide range, being found in Europe, Asia, and North America, with hardly any change. It has been deemed medical very anciently, and although not very powerful, is not destitute of efficiency.

The Genus contains but few species; the *Agrimonia parviflora* is another found in North America, and probably equal in properties; it merely differs from this by narrower leaves, more numerous folioles, longer slender spike, and smaller flowers, but more fragrant. The *Agrimonia Eupatoria* is spread from Canada to Missouri and Carolina, and grows in woods, fields, glades and near streams. The *Agrimonia parviflora* is more common in the west and south. Both blossom in summer. The whole plant is used and is slightly fragrant.

The Genus belongs to the natural order of ROSACEA or RHODANTHES, next to *Poterium* and *Waldsteinia*. In the Linnean arrangement it is placed in DODECANDRIA *Digynia*. The name is a classical one, and *Eupatoria* comes from Eupator, to whom many

useful plants were dedicated by the Greeks: here it is employed for the species, while in *Eupatorium* it becomes a generic denomination.

QUALITIES—Similar to Adiantum; but it has less mucilage, and more tannin, with some gallic acid. The Aroma is different, rather similar to that of Melilot or Clover.

PROPERTIES—A mild astringent, tonic and corroborant. Useful in coughs, and bowel complaints. Being a very mild astringent it may be given in diarrhea, dysentery and relaxed bowels. It has been recommended in many other complaints, and is said to have cured the asthma. The best way to take it, is in a strong decoction sweetened with honey or Maiden-hair syrup. The dose is four cups every day. Both root and plant may be boiled.

SUBSTITUTES—*Adiantum pedatum* or Maiden-hair—*Solidago odora* or Golden-rod—*Geum virginicum*—*Glechoma Hederacea* or Ground Ivy—Rose flowers and all mild vegetable astringents.

REMARKS—This is one of the few plants which Henry has not altogether mistaken either in name or figure; yet his figure has both leaves and flowers too large and too sharp.

No. 4.

ALETRIS FARINOSA.

MEALY STARWORT.

No. 4.

ALETRIS FARINOSA.

English Name—MEALY STARWORT.
French Name—Aletris Meunier.
German Name—Mehlige Sterngrass.
Officinal Name—Aletris Radix.
Vulgar Names—Star-Grass, Blazing Star, Aloroot, Bitter Grass, Unicorn Root, Ague Root, Ague Grass, Star-root, Devil's-bit.

Authorities—Linnæus, Wildenow, Michaux, Schoepf, Pursh, Elliot, Cutler, Bigelow Mat. Med. fig. 50 bad, Bigelow Sequel, &c.

Genus Aletris—Perigone simple, corolliform, tubular, persisten , six cleft, wrinkled, six stamina inserted at the base of the segments. Germ one oblong. Style one triangular tripartible Capsul three celled, many seeded, opening at the top—Leaves radical, stem simple, scaly, flowers in a slender spike.

Species Al. Farinosa—Leaves lanceolate mucronate membranaceous, scales adpressed, subulate, flowers cylindrical, white, farinaceous.

DESCRIPTION—Root perennial small, black outside, brown inside, ramose, crooked—Radical leaves from six to twelve, spreading on the ground like a star ; but all unequal in size, sessile, lanceolate, entire. very smooth, membranaceous, with many longitudinal veins, sometimes canaliculate, very

sharp at the end: they are of a pale green or glaucous, and bleach in winter or by drying; the longest are four inches—Stem from one to two feet high, very simple and upright, scapiform or nearly naked, with remote scales, whitish, adpressed, sometimes changing into leaves, subulate, acute.

Flowers white, forming a long slender scattered spike; each flower has a minute bract and very short pedicel; shape oblong, spreading into six acute segments like a star at the top, the outside has a mealy, rugose appearance—six short stamina are inserted near the mouth, anthers cordate. Germ one, central (not inferior) pyramidal. Style one, separable into three. Capsul triangular, clothed by the perigone, triangular, three valved at the top, three celled, and with many central minute seeds.

HISTORY—A true natural genus peculiar to North America, and containing two species very similar to each other. The *A. Aurea* differs merely by narrower leaves, and yellow flowers more campanulate. The *A. fragrans*, and others of Africa, must form a peculiar genus, the *Osmanthes*, different from this in habit and fruit. Both American species have the same properties.

This genus does not belong to *Liliacea* nor *Asphodelides*; but to ALOIDES, next to *Aloes* and *Crinum*, in the natural arrangement. In the Linnæan it ranks in HEXANDRIA *Monogynia*. Aletris means a miller in Greek, and *farinosa* means mealy in Latin; both names allude to the mealy appearance of the flowers.

This species has a wide range, being found from New England to Georgia, and west to Kentucky and Missouri. But the *A. Aurea* is confined to the south from Carolina to Alabama. The A. farinosa is also more abundant in the south, and always confined to dry and poor soils, in sunny glades and fields. It is unknown in the rich limestone soils and alluvial regions. In Kentucky and the west it is confined to the hilly glades, open prairies and barrens of the knob-hills. It is estival, blossoming in June and July.

Many vulgar names given to it are common to other plants, dissimilar in properties if not in aspect.

The *Veratrum luteum* or *dioicum* which is also called Star-grass, may be distinguished by its thick plumose dioical spike. The *Sisyrinchium*, another Star-grass, has single, blue and triandrous flowers, besides long grass leaves. Unicorn-root is also a name of *Veratrum* and of *Neottia*. Ague-root is a name applicable to a dozen roots. Such is the confusion arising from vulgar names. The root is the part employed, and being small, does not afford much hope to become an article of trade.

Qualities—The root contains an intense bitter emulsive resin, soluble in Alcohol, somewhat similar to Aloes, but less cathartic. This bitter principle is also partly soluble in water. The tincture is rendered milky by water. The resin is therefore different from Amarine and Aloine, and is perhaps a peculiar compound, *Aletrine*, formed by Amarine, an oil and a gum.

PROPERTIES—The root is intensely bitter, like Quassia and Aloes. It is a pure resinous bitter, and not cathartic like Aloes. It is tonic, stomachic, narcotic and repercussive. It is employed by many country physicians, and Indian Doctors, and highly valued by them as well as the Indians. But small doses only must be used, because large ones produce nausea, dizziness and narcotic effects; twelve grains of the powdered root is to be the largest dose. In repeated small doses it invigorates the appetite. The infusion or decoction is still preferable and may be substituted to Quassia. It cures the flatulent and hysteric cholic and is said to relieve the chronic rheumatism, either in powder, tincture or cordial. In fevers it avails speedily. Bitters made of it are too powerful. A mild cordial is the best spirituous preparation. Dose three small glasses each day.

SUBSTITUTES—Quassia—*Frasera* or Columbo—Gentians—*Sabbatia angularis* or Centaury, &c. and all the pure intense bitter plants.

REMARKS—The figure given for Aletris by Henry is perhaps the *Neottia Cernua;* and his account is full of blunders as usual with him. Bigelow's figure makes the root green, the leaves too green and too broad, &c.

Schoepf calls it a mild cathartic, and one of the plants used against the bite of rattle-snakes.

No. 5.

ANDROMEDA ARBOREA.

SORREL TREE.

No. 5.

ANDROMEDA ARBOREA.

ENGLISH NAME--SORREL TREE.
FRENCH NAME—ANDROMEDIER.
GERMAN NAME—SAUER BAUM.
OFFICINAL NAME—Andromeda folia, lignum, &c.
VULGAR NAMES—Sour Tree, Sour Wood, Elk Tree, Elk Wood, Sorrel Wood, Sour Leaf.
AUTHORITIES—Linnæus, Clayton, Michaux Flora and Sylva, Pursh, Elliot, Schoepf, W. Barton Flora fig. 30.

Genus ANDROMEDA—Calix minute five parted. Corolla ovate or cylindric, border five cleft. Stamina ten inclosed equal. One Pistil superior inclosed, style pentagonal. Capsul five celled, five valved, valves septiferous, many minute seeds.

Species A. ARBOREA—Leaves petiolate, oblong acuminate, smooth, beneath glaucous ; Panicle terminal and loose, flowers racemose and lateral. Corolla ovoid pubescent, anthers linear mutic.

DESCRIPTION—A small tree from fifteen to forty feet high, seldom fifty to sixty. Branches cylindrical, slender. Bark of the stem light brown, of the old branches reddish, of the young shoots green.

Leaves large, crowded, alternate and petiolate, from three to six inches long, from one to two broad, oblong, base acute, end acuminate, margin often un-

dulate, entire, or sometimes serrulate, nerve with regular veins, surface smooth, glossy, green above, glaucous beneath, the young leaves are slightly downy at first.

Flowers white, terminal, one third of an inch long, forming a large, loose panicle, composed of many long and loose racemes, bearing each from twelve to twenty flowers pedunculate, alternate and secund—Calix small, greenish, with five acute teeth—Corolla pubescent ovate with five acute teeth—Stamina and Pistil inside of the Corolla; ten equal filaments, anthers small mutic linear—Pistil one, germ oval, style pentagonal persistent, stigma obtuse—Capsuls ovate mucronate, reddish brown, with five cells containing many small subulate seeds, imbricate and membranaceous.

HISTORY—The Genus *Andromeda* belongs to the natural order of ERICIDES or extensive heath tribe; and to DECANDRIA *Monogynia* of Linnæus. The name is poetical or mythological, being dedicated to the Nymph Andromeda.

This species is the largest and the only tree of the genus, whence its specific name; all the others being shrubs, many of which are ornamental like this, and mostly native of North America. This tree attains its largest size in the most southern states; but becomes almost a shrub in Tennessee and Kentucky. It blossoms in May.

The common names of this tree have all a reference to the acidity of the leaves and wood. The elk and deer eat those leaves, and even cattle like them.

They are palatable and allay thirst when chewed by the hunters in want of water.

LOCALITY—The Alleghany mountains, and the hills and valleys diverging from them, as far as their most southern limits in Georgia and Alabama; but seldom met north of Virginia and Kentucky, although Schoepf gives New York as its northern range. It is unknown in the alluvial and limestone regions.

QUALITIES—A fine acid, (is it the malic acid?) similar to that of the cranberries and whortleberries is diffused throughout this tree, and most unfolded in the leaves; but united to some astringency owing to a mixture of gallic acid.

PROPERTIES—The leaves and wood are a fine astringent acid, refreshing, cooling, allaying thirst, and antifebrile. Clayton says that a decoction of the leaves mitigates the ardour of fevers, and helps their cure. It is useful in all cases where a refrigerant astringent is needed. A kind of lemonade can be made with it. It may be substituted to the *Rhus glabrum*, or shumac, and the cranberries. Like shumac the leaves impart a black color to wool. The wood is soft, reddish, and will not burn; but like the buckeye wood may be used to make chip hats and paper.

SUBSTITUTES—Shumac berries—Pomegranate—Strawberries—Cranberries—Currants—Sorrels, &c.—with many other mild vegetable astringents and acids.

REMARKS—B. Barton mentions the *A. Mariana* another species as pernicious, but a decoction of it useful in ulcers of the feet, for which this might be perhaps substituted.

No. 6.

ANTHEMIS COTULA.

English Name—WILD CAMOMILE.
French Name—Camomile Puante.
German Name—Stinkende Kamille.
Officinal Names—Cotula, Camomila Spuria.
Vulgar Namer—May-Weed, Dog's Fennel, Dilly, Dilweed, Fieldweed, &c.

Authorities—Linnæus, Wildenow, Pursh, Lamark, Schoepf, Dispensaries, Bigelow Seq. W. Barton Mat. Med. fig. 14.

Genus Anthemis—Flowers compound radiate Perianthe hemispherical imbricate. Rays above five, female. Phoranthe conical, chaffy. Seeds naked.

Species A. Cotula—Annual puberulent, stem angular, furrowed, branched. Leaves bipinnatifid, sessile, carinate, pinnules linear, acute. Peduncles grooved, naked, thicker above; chaff bristly, seeds obovate, four sided, furrowed.

DESCRIPTION—Root annual, crooked, fibrous. Stem and leaves covered with short, adpressed, wooly hairs. Stem from one to two feet high, erect and very much branched, irregularly angular and striated; branches corymbose. Leaves alternate sessile, flat, doubly pinnatifid, or almost pinnate, carinate beneath in the middle; pinnules flat unequal, linear, acute, entire or trifid.

No. 6

ANTHEMIS COTULA.

WILD CAMOMILE.

Flowers many, forming a terminal corymb; each on a naked peduncle, erect, grooved and thicker upwards. Perianthe or common calyx, hemispherical, imbricated hairy, rough; scales linear, pale green, nearly equal, scariose on the margin and end. The central florets of the disk are numerous and bright yellow; those of the rays are ligular, from seven to twelve, and white. Phoranthe or common receptacle conical, covered with short bristly chaff, or palea.

Central florets tubular, glandular, five-toothed, with five stamina, anthera united. Germ inferior obovate. Style filiform bifid. Stigmas two filiform reflexed.

Rays or ligular florets without stamina, oblong, two nerved, bidentate or tridentate at the end.

Seeds brown, obovate, four sided, grooved and tuberculated.

HISTORY—The genus COTULA of Tournefort has been blended with ANTHEMIS by Linnæus, from which the naked seeds, without a membranaceous appendage, and the conical instead of convex phoranthe, partly distinguish it, so as to allow of a subgenus or section at least.

There appears to be some differences between the *A. Cotula* of the north and south of Europe and our American plant; but although the various botanical descriptions offer several trifling diversities, they hardly amount to specific distinctions. Our description applies to the American plant. The European is smoother, more fetid, and sometimes described with bipinnate leaves, and trifid folioles. I have

seen both, and once had distinguished this by the name of *A. Cotuloides;* but being unwilling to innovate in this work, I have followed our Botanists in uniting the plants of both continents, although I greatly doubt the botanical propriety of it.

It blossoms from June to November, affording a profusion of flowers in succession, of the size of Camomile, but never double. The whole plant has a strong graveolent smell, disagreeable to some persons, but not fetid. It is not eaten by cattle nor domestic animals.

The name of *Anthemis* is Greek, and applies to the profusion of flowers. *Cotula* is a diminutive of *Cota*, another plant of the same genus.

Anthemis belongs to the natural tribe of RADIATES, section of *Anthemides*. In the Linnean system it is placed in class SYNGENESIA. Order *Polygamia Superflua*.

Abundant as it is, the collection of it becomes easy; the whole plant may be dried when in bloom, or the blossoms alone may be collected.

LOCALITY—Our plant is indigenous and not naturalized as mentioned by some Botanists. It is spread all over the United States from Maine to Louisiana; but confined almost every where to open fields. It is never found in woods, but delights in the sun, road sides, stony places and old fields, or near towns and villages. It is scarce in mountains, but prefers the limestone soils and plains. It is extremely abundant on the Ohio and in the Western States, covering neglected fields, and alternating in fallows with the Iron-

weed or *Vernonia.* It is deemed a troublesome weed, although being annual it is easily destroyed by early ploughings.

QUALITIES—Graveolent, bitter, and nauseous; the smell of the plant resides in a Volatile Oil, possessed of a strong or graveolent aroma, and diffused throughout the plant, although more concentrated in the flowers. It is similar to the smell of Camomile, but more pungent, and less balsamic. This oil is bitter and communicates a bitterish acrid taste to the whole plant.

PROPERTIES—The same as those of Camomile, but weaker and less pleasant to the taste: it may be substituted thereto with safety. It is an active tonic, sodorific, stimulant, anodyne, emetic, and repellent; extensively used throughout the country for rheumatism, hysterics, epilepsy, dropsy, asthma, scrofula, &c. both internally and externally. The external use in warm baths or fomentations is proper in rheumatism, hysteric fits, suffocations, hemorrhoidal swellings, pains and contusions. The decoction and infusion are given for colds, fevers, rheumatism, asthma, &c. but a single cupful, if too strong, may produce vomiting, and even a weak infusion nauseates the stomach. It acts always as a sudorific, promoting copious sweating, and is often beneficial as an auxiliary to an emetic. In large doses it becomes emetic: in small ones it is a gentle tonic and diaphoretic, useful whenever it is needful to promote perspiration in fevers. Its advantages in epilepsy, dropsy and scrofula, are doubtful. The European plant is said to blister the hands, which is not the case with ours.

SUBSTITUTES—Camomile or *Matricaria Chamomila*—*Eupatorium perfoliatum*—*Ruta vulgaris* or Rue—*Hedeoma pulegioides* or Penny-royal—*Marrubium Vulgare* or Horehound—*Achillea millefolium* or Yarrow—*Tanacetum* or Tansey, with all the graveolent bitter tonics and sudorifics.

REMARKS—The figure in Henry's, under the name of Mayweed, is quite fictitious, having entire leaves; but his article applies to this plant.

No. 7.

APOCYNUM ANDROSEMIFOLIUM.

BITTER DOGSBANE.

No. 7.

APOCYNUM ANDROSEMIFOLIUM.

ENGLISH NAME—BITTER DOGSBANE.
FRENCH NAME—APOCYN AMER.
GERMAN NAME—FLIEGEN FANGEMDES.
OFFICINAL NAME—Apocynum radix.
VULGAR NAMES—Milk-weed, Bitter-root, Honey-bloom, Catchfly, Flytrap, Ipecac.
AUTHORITIES—Linnæus, Kalm, Michaux, Pursh, Schoepf, Elliot, Bigelow, fig. 36, &c.

Genus APOCYNUM—Calyx five cleft. Corolla bell shaped, five cleft. Five Corpuscles surrounding the germ. Five Anthers alternating with them, connivent and adhering by the middle to the stegyne or cover of the pistils, which are two, small and concealed; succeeded by two follicles, with numerous downy seeds.

Species A. ANDROSEMIFOLIUM—Smooth, stem erect, dichotome; leaves petiolate, opposite, entire, acute; cymes nodding, lateral, and terminal, beyond the leaves. Follicles linear.

DESCRIPTION—Root perennial, large, bitter and milky like the whole plant. Stem very smooth as well as the leaves, lactecent and with a tough fibrous bark: from three to five feet high, with few branches and leaves, cylindrical, often rose coloured: forked several times upwards. Leaves opposite, petiolate,

pale beneath, ovate, acute, entire, two or three inches long, with one large nerve.

Flowers on cymose racemes, lateral and terminal; always longer than the leaves, lax nodding and few flowered. Minute acute bracts on the peduncles. Calyx short, five cleft, acute. Corolla white, tinged with red, similar to a little bell, divided into five spreading acute segments at the top. Stamina five, with short filaments, anthers connivent arrow shaped, cohering with the stegyne or singular body covering and concealing the pistils, (mistaken for a stigma by many Botanists): it is thick and round. Five glandular corpuscles, (called nectaries by some,) alternate with the stamina. Two pistils ovate, concealed, two sessile stigmas. Fruit a pair of follicles, slender, linear, acute, drooping, cylindrical. Seeds numerous, oblong, embricate, seated on a central receptacle or spermophore, and crowned by a long down.

HISTORY—A pretty and interesting plant belonging to a very distinct genus, which gives name to a large natural tribe of plants the APOCYNES, distinguished by the singular stegyne, double follicles, &c. In the Linnæan system they are put in PENTANDRIA *digynia*, although the stegyne was mistaken for a single stigma.

Apocynum means dogsbane in Greek, and the specific name implies the similitude of the leaves to *Androsemum*. There are some other species of the same genus in North America, but none so pretty. All have small white flowers, while in this the flow-

ers are larger, flesh or rose coloured. The *Ap. cannabinum* has been used by the Americans to make a kind of hemp: the fibrous tough bark of all the species are calculated to afford it by maceration. All have a bitter milky juice, and yet the flowers smell of honey, and produce that sweet substance.

Bees and other insects, collect this honey; but small flies are often caught by inserting their proboscis between the fissures of the anthers, where it is not easy for them to extricate it; they are often seen dead in that confined situation, after unavailing struggles. Whence one of the names of this plant, Catch-fly. No animals eat it.

LOCALITY—Rather a common plant, found from Canada to Georgia and Missouri. It grows in woods, hills, dry or sandy soils, along fences, and over old fields: it is rare in limestone soils, and rich land. It blossoms in summer from June to July.

QUALITIES—Kalm has mentioned this plant to be poisonous and blistering like *Rhus Vernix*; but it is quite harmless. The root when chewed has an intensely bitter and unpleasant taste, perceptible in the whole plant in a lesser degree, except the flowers, and arising from the bitter milk it contains. The decoction is of a red colour and very bitter. The spirituous solution is colourless but bitter. It contains therefore a bitter principle soluble in water and alcohol, and a colouring principle not soluble in alcohol; besides a volatile oil and caoutchouc.

PROPERTIES—This is a very active plant, highly valued by the Southern Indians. It is tonic,

emetic, alterative and syphilitic. The root is the most powerful part: but it must be used fresh, since time diminishes or destroys its power. At the dose of thirty grains of the fresh powdered root, it acts as an emetic, equal to Ipecacuana; in smaller doses it is a tonic, useful in dyspepsia and fevers. The Chickasaw and Choctaw Nations employ it in syphilis, and consider it a specific, they use the fresh root chewed, swallowing only the juice. This later use has been introduced into Tennessee and Kentucky as a great secret. It must act as a tonic in all those cases, tonics being often emetic and antivenereal. An objection to this plant is its nauseous bitter taste. Many substitutes may be found of a less disagreeable nature.

SUBSTITUTES—*Ipecacuana*—*Eupatorium perfoliatum*—*Prenanthes opicrina*—*Lobelia siphilitica*—*Aletris farinosa*—*Sanicula marilandica*—*Euphorbia Corollata & E. Ipecacuana*—*Frasera*—*Mezereon*—*Guayacum*, &c. and all bitter tonics or emetics.

REMARKS—Barton and Henry have not mentioned this plant. Bigelow represents it with leaves too sharp or acuminate. All the other species of the same genus have the same properties in a lesser degree. The *A. cannabinum* is distinguished from this by smaller leaves and flowers in shorter panicles; while the *A. hypericifolium* has prostrated stems with narrow leaves, and grows only on the banks of streams and lakes.

No. 8.

ARALIA NUDICAULIS.

SMALL SPIKENARD.

No. 8.

ARALIA NUDICAULIS.

English Name—SMALL SPIKENARD.

French Name—Petit Nard.

German Name—Nardwurzel Aralie.

Officinal Names—Aralia radix, Nardus Americanus.

Vulgar Names—Spiknard, Sassaparil, Sarsaparilla, Wild Liquorice, Sweet-root.

Authorities—Linnæus, Wildenow, Michaux, Pursh, Schoepf, Colden, Dispensaries, Bigelow Sequel.

Genus Aralia—Calix united or superior five-toothed. Petals five entire. Stamina five epigyne alternate. Pistil united to the calix, five styles and stigmas. Berry crowned by the calix and styles, five celled, five seeded—Flowers in simple umbels.

Species A. Nudicaulis—Stem naked, straight, smooth, bearing three umbels without involucrum: leaves radical, biternate; folioles ovate, acuminate, serrulate.

DESCRIPTION—Root perennial, brown, yellowish, cylindrical, creeping twisted, sometimes many feet long, thickness of the finger. One stem and one leaf mostly rising together, and less than two feet high. The stem is straight, leafless, cylindric, with three small simple naked umbels at the end. Leaf

biternate or with nine folioles, the lateral ones sessile, the terminal ones petiolate, all ovate, oblong, rounded at the base, end acuminate, margin serrulate, surface smooth. Sometimes some folioles are coalescent.

Flowers from twelve to thirty in each umbel, pedunculate, small, yellowish. Calix greenish, obconical, united to the pistil, crowned with five teeth. Petals five, oboval, obtuse, yellowish white. Five stamina and five styles filiform. Berries small, round, similar to Elder berries in size.

HISTORY—The genus *Aralia* is the type of a natural tribe the ARALIDES, to which *Panax* or Ginseng belongs likewise; this last differing only by having two styles and two cells instead of five. This family differs from the UMBELLATE by producing berries instead of two seeds. All the plants of this genus and family have active properties. Two other American species *A. racemosa* and *A. hispida*, have the same properties as this, and may be used for each other. The *A. spinosa* or Angelica Tree partakes of the same, and also of the properties of Angelica root and *Xanthoxylum*.

Aralia belongs to PENTANDRIA *pentagynia* of Linnæus.

This species blossoms in summer. It is often called Sarsaparilla, the root being similar to that article, and having similar properties. It might become an article of trade as such, and deserves to be cultivated.

LOCALITY—Found from New-England to Carolina, and Indiana, more common in the north than the

south : it delights in deep woods, shady groves and valleys, good soils, &c.

QUALITIES—The whole plant is balsamic, fragrant, and has a warm aromatic sweetish taste ; most unfolded in the root and berries. They contain mucilage, aroma, and an essential milky oil or balsam.

PROPERTIES—All the Spikenards or Aralias are popular medical plants throughout the United States : they made part of the Materia Medica of the native tribes, and are extensively used by country practitioners. They are vulnerary, pectoral, sudorific, stimulant, diaphoretic, cordial, depurative, &c. The roots and berries are most efficient ; in *A. spinosa* the bark.

The roots bruised or chewed, or in poultice, are used for all kinds of wounds and ulcers by the Indians. Fomentations and cataplasms are useful for cutaneous affections, erysipels and ring-worms. An infusion or a decoction of the same, are efficient substitutes for those of Sarsaparilla, (and more powerful,) in all diseases of the blood, syphilitic complaints, chronical rheumatism, local pains, cardialgy, belly-ache, &c. As a pectoral both roots and berries may be used in syrups, cordials, decoctions, &c. and have been found useful in coughs, catarrh, cachexia, langour, pains in the breast, &c. The cordial of Spikenard berries is recommended for the gout, and the juice or essential oil for the ear-ache and deafness.

SUBSTITUTES—All the Aralias—Elder—Sarsaparilla—Guayac—Angelica-root—*Cunila mariana*—Sassafras—Ginseng—*Eryngium aquaticum*—*Xan-*

thoxylum or Prickly Ash—Magnolia Bark—*Collinsonia Canadensis*, &c. and many aromatic stimulants.

Remarks—Henry calls this plant *Nardus Americanus*, and his figure is fictitious, being like Fennel.

Since all our species may be substituted to each other, and we can only give the figure of one at present, it may be well to add a short notice of each.

A. racemosa or Large Spikenard—Root larger and thicker. Plant larger. Stem leafy, leaves similar to *A. nudicaulis*, but with larger and cordate folioles. Flowers in large axillary clusters, formed of many racemose umbels—Common from Canada to Alabama.

A. hispida or Rough Spikenard—Stem hispid, leaves decomposed, folioles small oval, umbels terminal, &c.—Confined to Canada, New-England, New-York, and the Alleghanies.

A. spinosa or Spikenard Tree, called also Angelica Tree, Tooth-Ache Tree, and Prickly Elder—A small tree full of thorns, leaves ample, decomposed, prickly. Flowers terminal, forming an ample panicle of umbels—From New-York to Georgia, and west to Missouri, &c.

No. 9.

ARBUTUS UVA-URSI.

BEAR-BERRY.

No. 9.

ARBUTUS UVA-URSI.

English Name—BEAR-BERRY.
French Name—Bousserole Raisin d'Ours.
German Name—Erdbeartege Sandbeere.
Officinal Name—Uva-Ursi.
Vulgar Names—Mountain Box, Redberry, Upland Cranberry.

Authorities—Linnæus, Woodville, Michaux, Pursh, J. S. Mitchell, Murray, Girardi, Dispensaries, Schoepf, Ferriar, Dehaen, B. Barton, Bigelow, fig. 6, and Sequel, &c.

Genus Arbutus—Calix five parted and free. Corolla ovate, five toothed. Stamina ten basilar, filaments hairy, anthers bifid, each part bipore. One pistil, one style, stigma simple. Berry free, five celled.

Species *A. Uva-Ursi*—Stem procumbent; leaves scattered, cuneate, obovate, entire, coriaceous: flowers in small clusters, peduncles reflexed, bracteolate: berries globular, smooth, five seeded.

DESCRIPTION—Roots perennial, creeping, slender. Stems procumbent, trailing, cespitose, radicate, the young shoots tending upwards, cylindric, cuticle pealing off. Leaves numerous, scattered, variable in shape, narrow or broad, always acute and alternate at the base, on short petiols, thick, coriaceous, evergreen,

and smooth, shining above, pale beneath, margin entire, thick or rounded, and nearly obtuse.

Flowers nearly terminal in a small racemose cluster, from six to twelve together, of a pale, rosy, flesh color. Peduncles shorter than the flowers, colored, reflexed, with some minute acute bracts, two of which in the middle. Calix colored, with five rounded acute segments. Corolla ovate, urceolate, white with a rosy tinge, transparent at the base, contracted above, hairy inside, with five acute, short, and reflexed segments or teeth. Ten equal stamina inserted at the base of the corolla, with hairy, short, cuneate filaments, anthers equal in length, bifid, each part with two pores. Germ round, style straight, longer than the stamina, stigma obtuse. A black indented and persistent ring around the base of the germ, called nectary or gynophore. Berries globular, depressed, of a scarlet color, pulp insipid, mealy, five seeds almost coalescent together.

HISTORY—The G. *Arbutus* is very near to *Vaccinium*, (whortleberry,) differing chiefly by the free calix and berry, and to *Andromeda*, which has a capsul instead of a berry for fruit. It is divided into two sections or subgenera, (by some considered as genera.) 1. *Unedo*, having a rough, many seeded berry. 2. *Mairania*, a smooth five seeded berry. To this last belongs our actual species. *Arbutus* is an ancient name, *Mairania* is dedicated to the French philosopher Mairan, *Uva-Ursi* means Bear's-grape in Latin. It was known under this last name to the Greeks, and Galen mentions it as a medical plant.

Belonging to the natural order of ERICINES, (heath tribe,) section with berries: and to DECANDRIA *monogynia* of Linnæus.

LOCALITY—This plant is scattered throughout the northern hemisphere in Europe, Asia and America. In Europe, found from Lapland to the Pyrenees and Apenines. In Asia, from Armenia and the Volga to Kamtschatka. While in America it grows from Iceland and Greenland to Hudson Bay and Alaska, extending south to Canada, New-England, the highlands, and hills of north New-Jersey. It covers dry, stony and gravelly soils, barren spots, and even sandy woods.

It blossoms late, and the red berries are ripe in winter. These are eaten by bears, and many other animals.

The leaves are chiefly used, and may be easily dried. In Sweden and Russia they form an article of trade, being used to tan Russia leather. They begin to be collected in America.

The Indians smoke them like tobacco, and call them Sagack-homi in Canada. They dye black.

QUALITIES—Taste astringent, styptic and bitterish; inodorous. It abounds in Tannin, which is the active principle, and is easily soluble in water. The other substances are mucus, resin, lime, and bitter extractive.

PROPERTIES—Astringent, tonic and diuretic. It was extolled once in Europe as a remedy against gravel; but has since been found to be only a tolerable palliative in nephritis, gravel, calculous cases,

disury, strangury, acting as an astringent, useful even when other remedies fail. Dr. Wistar, B. Barton, Mitchell, Bigelow, &c. recommend it in those cases. It has also been used for leucorhea, gonorhea, the catarrh of the bladder, menorhagia, debility, diabetes, ennuresis, disentery, ulcerations of the kidneys and bladder, and has often given relief or even cured; yet more efficient tonic remedies may be substituted.

It was once recommended in pulmonary consumption; but it only abates the hectic fever.

The powder, decoction or syrup, may be used. The doses are from five to twenty-five grains of the powder, or a wine glass of the decoction every hour. A syrup of the leaves and berries is made in Sweden, which is preferable.

Substitutes—*Chimaphila* or Pipsiseva—*Erigeron Philadelphicum*, &c.—*Heuchera* or Alum-root—*Geranium maculatum*—*Statice Caroliniana*—Asparagus—Strawberries—Tannin—and many astringents, acids, tonics and diuretics.

Remarks—The figure of Henry is fictitious.

No. 10.

ARISTOLOCHIA SERPENTARIA.

SNAKEROOT BIRTHWORT.

No. 10.

ARISTOLOCHIA SERPENTARIA.

ENGLISH NAME—SNAKEROOT BIRTHWORT.
FRENCH NAME—SERPENTAIRE DE VIRGINIE.
GERMAN NAME—SCHLANGEN *Osterluzey.*
OFFICINAL NAME—Serpentaria *Virginiana.*
VULGAR NAMES—Virginia Snakeroot, Snakeweed, Snagrel.

AUTHORITIES—*Linnæus,* Schoepf, Woodville, Pursh, Elliot, Catesby, *Colden, Cornutus,* Moseley, B. Barton, Bigelow fig. 49, W. Bart. 2. fig. 28, and all the Dispensaries, Pharmacopeías and Materia Medicas, &c.

Genus ARISTOLOCHIA—Perigone tubular colored, base swelling, *tube tortuose, limb* labiate, often ligular. No corolla. Germ inferior: stigma *sessile* lobed, surrounded by six stamina epigynous sessile. Capsul six celled, many seeded.

Species A. SERPENTARIA—Stem simple flexuose; leaves lanceolate, *cordate, entire,* and acuminate: flowers bilabiate subradical, peduncles *curved,* uniflore, scaly and jointed.

DESCRIPTION—Root perennial, knotty and gibbose, brown and very *fibrous,* fibres long, small, yellow when fresh—Stems round, *slender, weak,* flexuose, jointed, less than a foot high, bearing from three to seven leaves, and from one to three flowers—Leaves

alternate and petiolate, oblong or lanceolate, base cordolate, end acuminate, margin entire, sometimes undulate, surface smooth or pubescent, of a pale green.

Flowers nearly radical and solitary, on peduncles curved, jointed, colored, with some small scales. Germ inferior, perigone redish or purplish, tube crooked, limb bilabiate, upper lip notched, lower entire, both short and lobular. Six sessile anthers, oblong, obtuse, attached to the sides of a large round sessile stigma. Capsul oboval, with six angles, six cells, and many minute seeds.

HISTORY—The genus *Aristolochia* requires a thorough investigation and reform, being rather a family than a genus: two subgenera at least must be made of it.

1. *Glossula.* Flowers unilabiate and ligular. True type of the genus.

2. *Pistolochia.* Flowers bilabiate and ringent. To this belong *A. serpentaria, A. ringens, A. bilabiata*, &c.

While many species widely deviating from the generic characters must form peculiar genera, such as

Siphisia. Flowers not labiate, limb equal trilobe. Such are *A. sipho, A. tripteris, A. tomentosa*, &c.

Endodeca. With twelve stamina, Ex. *A. dodecandra*, and perhaps Bigelow's *A. serpentaria.*

Einomeia. With only five stamina, capsul five celled, such as *A. pentandra*, &c.

The actual species is by no means very definite as yet. The Virginia Snakeroot of Commerce is collected from half a dozen species or varieties, *A. has-*

lata, *A. tomentosa*, and many called *A. serpentaria*, because they have consimilar leaves and roots, while the flowers are different. The *A. serpentaria* of W. Barton appears to be a peculiar variety, with long slender peduncles, having few scales and not colored, while the flowers are small, purple, and hardly bilabiate.

Bigelow's plant, which is from the Southern States, has the leaves trinervate, less acuminate, and more undulate; while the flowers are large, bilabiate and red, scales many and broad, stamina twelve! and stigma lobed convolute. This may be a distinct species belonging perhaps to *Endodeca*.

Our figure is from a large flowered variety of the western glades; but many other varieties exist there, one has broad leaves.

All these plants blossom but seldom or once in their lives, in May or June; being very similar to each other, (except *A. tomentosa*,) they are collected indiscriminately. The roots alone enter into Commerce, and sell for more than the Seneca Snakeroot. They are an article of exportation to Europe.

Aristolochia belongs with *Asarum* to the natural order of ASARIDES. Linnæus has put it into GYNANDRIA *hexandria*.

LOCALITY—In shady woods from New-England to Florida and Missouri, most abundant in the Alleghany and Cumberland mountains, scarce in the alluvial and limestone regions.

QUALITIES—The root has an agreeable, penetrating, aromatic smell, somewhat similar to Valerian and

Spruce: and a warm bitterish pungent taste. It contains pure camphor, a resin, a bitterish extractive, and a strong essential oil. By distillation a pearly fluid is produced. By infusion in alcohol, it gives a yellow or green tincture; and in water a brown liquor: the tincture is most powerful. By decoction or distillation much of its active principles evaporate.

PROPERTIES—Diaphoretic, tonic, anodyne, antispasmodic, cordial, antiseptic, vermifuge, exanthematic, alexitere, and a powerful stimulant of the whole system. It was first introduced into Materia Medica as a remedy against snake bites, whence its name, and was used as such by the Indians, with many other plants: it acts then as a sudorific and antiseptic. It is useful in the low stage of fevers to support strength and allay irregular actions: too stimulant in inflammatory fevers and disorders; but an excellent auxiliary to Peruvian bark and other tonics in intermittents, enabling the stomach to bear them, and increasing their effects. In remittent fevers it is preferable to bark. It is deservedly a popular country remedy in infusion, for pleurisy, exanthems, cachexia, catarrh, rheumatism, &c. acting as a sudorific. In bilious pleurisy it has been found highly serviceable: in bilious complaints it checks vomiting and tranquillizes the stomach. In typhus and typhoid pneumonia it has beneficial effects, promoting perspiration, checking mortification, and abating the symptoms.

Thus the Snakeroot may be deemed an active and valuable medicine, it is often associated with other tonics, and camphor, opium, valerian, &c. to increase

their action. It is probably a good substitute for camphor and valerian in many cases. The doses of the powder are from ten to thirty grains, often repeated, or an ounce of the warm infusion every three hours. Wine is an excellent vehicle for it in fevers. Many compound tinctures contain it. When too stimulant Spikenard (*Aralia*) and Elder (*Sambucus*) may be substituted to advantage.

Substitutes—Camphor—Rosemary—Seneca Snakeroot—*Eupatorium perfoliatum*—*Asarum Canadense* and *Virginicum*—All the native *Aristolochias*—*Gaultheria procumbens*, and many other tonic and diaphoretic stimulants.

Remarks—The bark, seeds, and roots of the *A. Sipho*, (or *Siphisia glabra*,) called vulgarly Dutchman-pipe flower or Pipe Vine, may be substituted, having the same properties. It is a tall vine, with large cordate smooth leaves, and brown flowers like a pipe with a trilobe mouth, growing on the Ohio, &c.

A. tomentosa (or *Siphisia tomentosa*) is a low vine, with cordate woolly leaves, growing in the Western States.

A. hastata is a small plant, with long narrow leaves, having obtuse auricles at the base: it grows in the Southern States. The roots of these two last are often mixed with the common kind in the shops.

Henry's figure represents probably the *A. tomentosa*, but the leaves are too sharp.

No. 11.

ARUM TRIPHYLLUM.

English Name—THREE-LEAVED ARUM.
French Name—Pied-de-Veautriphylle.
German Name—Dreyblattrige Aron.
Officinal Name—Arisarum trifolium, Arum radix.
Vulgar Names—Indian Turnip, Dragon Root, Dragon Turnip, Pepper Turnip.
Authorities—Linnæus, Michaux, Pursh, Elliot, Schoepf, Dispensaries, Bigelow fig. 4, Sequel, &c.

Genus Arum—Spathe univalve cucullate, convolute at the base. Spadix naked above: no perianthe. Stamina and pistils naked separated at the base of the spadix: filaments with two or four anthers; berries conglomerate, one celled, few seeded.

Species *A. triphyllum*—Leaves radical, ternate, folioles sessile, oval, acuminate, entire and smooth: scape with one spathe ovate acuminate, inflexed: spadix club shaped, shorter: flowers polygamous, trioicious.

DESCRIPTION—Root perennial, round, flattened, tuberous, with many white fibres around the base: skin dark, loose, and wrinkled.—Leaves one or two on long sheathing petiols, three folioles very smooth and sharp, pale beneath, oval or rhomboidal or oblong, entire or undulated, with regular parallel nerves.

No. 11.

ARUM TRIPHYLLUM.

THREE-LEAVED ARUM.

Scape or leafless stem, tunicated at the base by vaginated membranaceous acute sheaths, supporting one large upright spathe, tubular at the base, hooded at the top, either green or purple, or variegated with both colours in stripes within. Spadix cylindric, obtuse at the top, also variable in colour, bearing the flowers at the base where it is contracted. Some plants have only stamina, others pistils, and others have both, wherefore it is polygamous trioicious. Anthers two or four on short crowded filaments. Pistils crowded below, round, without styles, stigma punctiform. Sometimes abortive pistils and stamina intermixed. The upper part of the spadix withers with the spathe, while the pistils grow into a large compact head of shining scarlet berries.

HISTORY—*Arum* is the type of a natural family, the Aroides, among Monocotyle plants. In the Linnæan system it has been put in *Gynandria* or in *Polyandria;* yet many species are polygamous. Linnæus did very improperly, and against his own botanical rules, change the previous name of Tournefort *Arisarum* into *Arum,* which is a mere termination of many other genera, *Asarum, Comarum,* &c.: *triphyllum* means three leaved.

The *A. tryphillum* blossoms with us from May to July, and in the summer bears its bright scarlet berries. The vulgar names are common to all the North American species, which have similar roots. Their leaves are sensible to a harsh grasp like *Onoclea sensibilis,* and the *A. dracontium* coils them when plucked. The seeds and roots may be rendered edible like

A. esculentum (notwithstanding their caustic pungency) by long coction; they were eaten by the Indians roasted and otherwise.

LOCALITY—All over North America in woods: it is said to extend to South America as far as Brazil; but probably a different species is found there. All soils and regions appear to suit this plant: it delights however in good, rich, and shady grounds.

QUALITIES—The whole plant, and particularly the root, is violently acrid, pungent, and even caustic to the tongue, but not to the skin. It burns worse than *Capsicum* or Cayenne pepper. This active principle is a peculiar substance, *Aroine*, highly volatile, having no affinity with water, alcohol, oil or acids, and becoming an inflammable gas by heat or distillation. The roots yield one fourth of their weight of a pure amylaceous matter, like starch or arrow-root, or a fine white delicate nutritive fecula, by the same process as Cassava or *Jatropha manihot*.

PROPERTIES—Powerful acrid, stimulant, incisive, restorative, expectorant, calefacient, carminative and diaphoretic. The fresh roots are too caustic to be used internally, unless much diluted, and when dry they are often inert, unless they have been dried very quick, or kept buried in sand or earth. It must be used in substance mixed with milk or molasses, since it does not impart its pungency to any liquor; or the fresh roots must be grated, or reduced to a pulp, with three times their weight of sugar, thus forming a conserve, the dose of which is a tea spoonful twice a day.

In these forms it is used for flatulence, cramp in the stomach, asthmatic and consumptive affections. It quickens circulation, and promises to be a useful topical stimulant when the acrid principle may be rendered available. It has been found beneficial in lingering atrophy, debilitated habits, great prostration in typhoid fevers, deep seated rheumatic pains, or pains in the breast, chronic catarrh, &c.

SUBSTITUTES—*Capsicum*—*Salep*—*Erythronium*—Squill—Arrow-root—*Polygonum hydropiper*—*Salvia urticifolia*—*Cyclamen europeum*—*Arum dracontium*, and other native Arums—besides *Ranunculus bulbosus*, and some other acrid pungent substances.

REMARKS—*A. dracontium* has a large pedate leaf, with five to fifteen oblong segments, and grows in the Southern and Western States.

A. virginicum has sharp, wide, cordate leaves, and grows in Virginia, &c.

A. sagitefolium has sharp, long, sagittated leaves, and grows from New-York to Carolina. All these have similar roots, seeds, and properties.

Henry has assumed the name and figure of the European *A. maculatum* for this plant.

No. 12.

ASARUM CANADENSE.

English Name—BROADLEAF ASARABACCA.
French Name—Asaret du Canada.
German Name—Canadische Haselwurz.
Officinal Names—Asari Canadensis, radix and herba.
Vulgar Names—Wild Ginger, Indian Ginger, Canada Snakeroot, Heart Snakeroot, Coltsfoot, &c.
Authorities—Linnæus, Schoepf, Michaux, Pursh, Cornut, Coxe, Dispensaries, B. Barton, W. Barton, fig 32, Bigelow fig. 15 and Sequel.
Synonyms—*A. latifolium* of Salisbury. *A. carolinianum* of Walter.

Genus Asarum—Perigone urceolate trifid. Stamina twelve epigynous, anthers adnate. Germ coalescent with the base of the perigone, style short, stigma stellated six parted. Capsul six locular, many seeded.—Stemless, leaves radical geminate, flowers solitary in the bifurcation.

Species *A. Canadense*—Leaves broad, reniform, entire, puberulent: flower woolly, tripartite, segments lanceolate reflexed.

DESCRIPTION—Roots perennial, creeping, fleshy, cylindric, jointed, with scattered fibres, brown outside, white inside.—Radical leaves, geminate, pubescent, with long and round petioles, reniform or

No. 12.

ASARUM CANADENSE.

BROADLEAF ASARABACCA.

kidney shaped, broad, entire, tip often mucronate but obtuse, surface puberulent, veined like a net work, and often spotted, glaucous beneath. No stems. Flower solitary between the two leaves, on a curved peduncle, tomentose, purple, darker inside. Perigone with three equal segments, acuminate reflexed. Stamina twelve unequal, filaments mucronate, anthers adnate laterally. Three filiform nectaries or abortive stamina, alternating with the segments. Style conical grooved, or six coalescent styles, crowned by six thick revolute stigmas. Capsul round, hexagonal, crowned, and with many small seeds.

HISTORY—A humble stemless plant, with flowers nearly concealed in the ground. It has many varieties, with small or large leaves, rounded or mucronate, spotted or unspotted; the flowers also vary in colour from greenish purple to dark purple: they blossom in May and June.

Asarum is an ancient name, the genus gives name to a natural order ASARIDES, called *Aristolochides* by Jussieu, and *Sarmentacea* by Linnæus. In the Linnean system it is placed either in *Dodecandria* or *Gynandria*. It has been called *Canadense*, because first noticed in Canada, the name *latifolia* of Salisbury would be preferable.

The names of Wild Ginger, Heart Snakeroot, &c. are common to all the other species. The roots are often collected and sold for Virginia Snakeroot, although very different in appearance, but similar in taste, smell and properties. They deserve to be collected more extensively, as an article of trade and ex-

portation; being an excellent substitute for ginger in every instance.

Locality—From Canada to Carolina and Missouri, in shady woods, it is most abundant in hills, valleys, and rich alluvions.

Qualities—The whole plant, but particularly the root, has an agreeable aromatic bitterish taste, intermediate between Ginger and *Aristolochia serpentaria;* but more pleasant, warm, and pungent. The smell is spicy and strong. The active substances are a volatile oil, possessing the taste and smell of the plant, with a red and bitter resin, both soluble in alcohol; they contain besides much fecula and mucilage.

PROPERTIES—Aromatic stimulant and diaphoretic, cordial, emenagogue, subtonic, errhine, &c.; but not properly emetic like the *A. europeum,* although often mentioned as such. It is a grateful substitute of the Serpentaria in many cases. It is useful in cachexia, melancholy, palpitations, low fevers, convalescence, obstructions, hooping-cough, &c. The doses must be small and often repeated, since it becomes nauseous in large doses. The best preparation is a cordial made with the tincture and syrup; the tincture is coloured dark red by the resin.

The dried leaves make a fine stimulating and cephalic snuff, when reduced to powder, which may be used in all disorders of the head and eyes.

A grateful wine or beer may be made by the infusion of the whole plant, in fermenting wine or beer.

Substitutes—Ginger—*Aristolochia serpentaria*—*Aralia* species—*Helenium autumnale*—Spices—*Lau-*

rus benzoin, with many aromatic stimulants, and all the other American species of this genus.

REMARKS—*A. Virginicum* may be known by its smooth cordate leaves; it is found from Maryland to Georgia and Tennessee, particularly in mountains, and is still more grateful than *A. Canadense.*

A. arifolium has smooth, hastated, spotted leaves, and a tubular flower; it is found in Carolina and Tennessee.

The figure of Henry represents the leaves sharp, which is never the case, and he calls it Swamp Asarabocca, although never growing in swamps.

No. 13.

ASCLEPIAS TUBEROSA.

ENGLISH NAME—ORANGE SWALLOW-WORT.
FRENCH NAME—HOUATTE TUBEREUSE.
GERMAN NAME—KNOLLIGE SCHWALBENWURZ.
OFFICINAL NAME—A. tuberosa radix.
VULGAR NAMES—Pleurisy root, Butterfly weed, Flux root, Wind root, White root, Silk weed, Canada root, &c.

AUTHORITIES—Linnæus, Schoepf, Michaux, Pursh, B. Barton, Chapman, Thacher, Dispensaries, Parker, Tully, Bigelow, Med. Bot. fig. 26 & Seq. W. Barton M. Med. fig. 22, &c.

Genus ASCLEPIAS—Calix quinquefid. Corolla five parted, flat or reflexed, bearing five auricles with appendages, and a large central truncate stegyne, supporting and concealing the five stamina, covering the two pistils: which are succeeded by two follicles.

Species A. TUBEROSA—Hairy, leaves scattered, variable, nearly sessile, oblong or lanceolate, entire: umbels with subulate bracts, flowers lax and orange color.

DESCRIPTION—Root perennial, large, fleshy, white, of variable form, fusiform, crooked or branched—Many stems either erect or ascending or procumbent, round, hairy, green or red—Leaves scattered, sessile, or on short petiols, very hairy, pale

No. 13.

ASCLEPIAS TUBEROSA.

ORANGE SWALLOW-WORT.

beneath, entire or undulate, oblong or lanceolate, or nearly linear, obtuse or acute.

Several terminal or lateral umbels, divaricate, with subulate bracts for involucre. Flowers erect, pedunculed, and of a bright orange color. Calix small reflexed, five parted. Corolla reflexed, five parted, segments oblong; auricles erect, nearly as long, cuculate, with incurved appendages or horns. Stegyne tough, pyramidal, having five coalescent stamina around, each with two cells and two masses of pollen suspended by a threat. Two pistils completely concealed by the stegyne: germs ovate with short styles, stigmas obtuse.—Follicles two, often abortive, lanceolate, acute, erect, downy, dehiscent laterally; seeds many, imbricate, flat, ovate, connected to a longitudinal receptacle by long silken hairs.

HISTORY—The beautiful genus ASCLEPIAS belongs to the natural order of APOCYNES, section *Asclepides*. In the Linnean system, it has been put in PENTANDRIA *digynia*; but the singular structure of the flower is such as to puzzle Botanists, and it might as well be considered as decandrous, or monadelphous! the flowers appear to have a double corolla, the inner one has five lobes called nectaries or auricles. This structure renders, however, the genus very natural and easily recognizable. It is dedicated to *Esculapius*, the ancient god of medicine, under his Grecian name of Asclepias.

This species is easily known at first sight by its bright orange flowers blossoming in July and August, among all the numerous American congeneric

species; which are upwards of thirty. It is a very ornamental plant, although inodorous, while many others are sweet scented. The roots which are nearly tuberous, have given name to it, although the *A. acuminata* is also tuberous. The *A. decumbens* of some Botanists is only one of its varieties: it is very variable in the stems and leaves.

All the Asclepias are milky; but this less than others. They all produce a fine glossy and silky down in the follicles or pods; which has been used for beds, hats, cloth and paper. This down makes excellent beds and pillows, being elastic, and one pound and an half occupying a cubic foot. Light and soft hats are made with it: the staple is too short to be spun and woven alone; but it may be mixed with flax, cotton, wool and raw silk. It makes excellent paper, and the stalks of the plants afford it likewise, as in flax and *Apocynum*. The *A. syriaca* or Silky Swallow-wort producing more of the down, has been cultivated for the purpose, and a pound of down produced from forty to fifty plants. Its young shoots are edible like poke, and the flowers produce a honey by compression.

The *A. syriaca*, *A. incarnata*, and several other species, have similar medical properties, and may be substituted to this, although somewhat less active.

Locality—Found all over the United States, but most abundant in the South; it prefers open situations, poor and gravelly soils, along gravelly streams and on hills. Rare in rich and loamy soils.

Qualities—The root is brittle when dry, and easi-

ly reduced to powder; it is somewhat bitter, but not unpleasant: it contains a bitter extractive and fecula, both soluble in boiling water. When fresh the root, as well as the whole plant, is rather unpleasant, subacrid and nauseous.

PROPERTIES—Subtonic, diaphoretic, expectorant, diuretic, laxative, escarotic, carminative, antispasmodic, &c. It is a valuable popular remedy, and a mild sudorific, acting safely without stimulating the body. It is supposed to act specifically on the lungs, to promote suppressed expectoration, and to relieve the breathing of pleuritic patients. It appears to exert a mild tonic effect, as well as stimulant power over the excretories. It relieves the dyspnœa and pains in the chest. It often acts as a mild cathartic, suitable for the complaints of children; it is also useful in cholic, hysteria, menorhagia, dysentery, &c.

In the low state of typhus fever, it has produced perspiration when other sudorifics had failed. In pneumonia and catarrh it is always beneficial. It restores the tone of the stomach and digestive powers. It has been given in asthma, rheumatism, syphilis, and even for worms.

All these valuable properties, many of which are well attested, entitle it to general notice, to become an article of commerce, be kept in shops, &c.

The doses are from twenty to thirty grains of the powdered root three times a day, or a gill of the decoction and infusion every few hours: a vinous infusion and a decoction in milk are also recommended in some cases.

SUBSTITUTES—Snakeroots—Myrrh—Spikenard—Squill—Asarabaca—Sassafras—Tolu—*Apocynum androsemifolium*—Liquorice—Ginseng—Many other Swallow-worts, &c.

REMARKS—It may be useful to notice some other species possessing the same properties.

A. syriaca or common Silkweed, grows all over the United States near streams; it has large oblong opposite leaves, white beneath, and large globular umbels of sweet scented flowers of a lilac color.

A. incarnata, grows also near streams every where, has lanceolate leaves, opposite and acute; flowers flesh colored or red, scentless.

A. acuminata, also near streams in New-Jersey, &c. with opposite ovate acuminate leaves, flowers red and white.

A. quadrifolia, from New-York to Kentucky in woods, beautiful little plant with leaves like the foregoing, but four in a whorl, flowers flesh coloured and very fragrant.

Henry calls our plant *A. decumbens*, but his figure is a very bad one of *A. incarnata*.

No. 14.

BAPTISIA TINCTORIA.

YELLOW INDIGO-BROOM.

No. 14.

BAPTISIA TINCTORIA.

ENGLISH NAME—INDIGO-BROOM.

FRENCH NAME—INDIGO TREFLE.

GERMAN NAME—FARBENDE BAPTISIA.

OFFICINAL NAMES—Baptisia tinctoria, herba & radix.

VULGAR NAMES—Wild Indigo, Indigo weed, Horsefly weed, Yellow broom, Clover broom, Rattle-bush, Yellow Indigo.

SYNONYMS—*Sophora tinctoria*, Lin. *Podalyria tinctoria*, Mich. &c.

AUTHORITIES—Linnæus, Michaux, Pursh, Elliot, Weems, Thacher Dispensary, Comstock, Schoepf, Bart. M. Med. fig. 29.

Genus BAPTISIA—Calix bilabiate, four cleft. Corolla papilionaceous, petals nearly equal, vexillum laterally reflexed. Stamina ten, free unequal. Pistil stipitate, ventricose, many seeded—Leaves ternate.

Species B. TINCTORIA—Very smooth and branched, leaves small nearly sessile, folioles cuneate, obovate, obtuse; racemes terminal, few flowered; pods ovate on long pedicles.

DESCRIPTION—Root perennial, large and woody, irregular, blackish outside, yellowish within, fibres lighter. Stems two or three feet high, round and smooth, yellowish green with black dots, very much

ramified; but branches thin and with small leaves. These leaves are alternate, and with three folioles nearly sessile, obovate, smooth, of a bluish green; stipules minute, evanescent, oblong, acute.—Flowers bright yellow, in small loose spikes at the end of branches, pea like, but smaller.—Calix campanulate bilabiate, upper lip entire or notched, lower trifid.—Stamina inclosed deciduous.—Pistil single and stipitate, succeeded by a swelled oblong pod of a bluish black color, with a row of small rattling seeds.

HISTORY—This plant has the appearance of a small shrub and broom: it blossoms in July and August. The whole plant (even the flowers) often become black in the fall or in a herbarium; it dyes a kind of blue like Indigo; but greatly inferior. The young shoots are eaten like those of Poke in New-England, and are like it of a drastic nature. It is often used to keep off the flies from horses, as these insects appear to avoid it.

Several other species grow in the Southern and Western States, which have probably similar qualities. The *B. australis* with large blue flowers, very ornamental, grows on the banks of streams: the *B. alba* has white flowers, &c. These plants were annexed to *Sophora* by Linnæus, and to *Podalyria* by other botanists, until properly separated by Ventenat, &c.

Baptisia belongs to the great natural order of LEGUMINOSE plants, (bearing pods,) and to the section *Lomentaceous*, having free stamina: also to DECANDRIA *monogynia* of Linnæus.

LOCALITY—Found all over the United States from Maine to Louisiana and Illinois, in woods, and on hills; it prefers dry and poor soils, is unknown in rich loamy soils, and seldom met in alluvions.

QUALITIES—The whole plant, but particularly the root, is nauseous, subacrid, subastringent, but inodorous. It is active and dangerous in its fresh state, if taken internally; but loses much of its action by long keeping, and by boiling. Its active principles are little known; it contains tannin, indigo, and an acid.

PROPERTIES—Astringent, antiseptic, febrifuge, diaphoretic, purgative, emetic and stimulant. It is a valuable remedy for all kinds of ulcers, even the foulest, either gangrenose, phagedenic, or syphilitic: also for almost every sore, such as malignant ulcerous sore throat, mercurial sore mouth, sore nipples, aphthous, chronic sore eyes, painful acrid sores, and every ulcerous affection. It must be used externally in strong decoction as a wash or in fomentation, also in poultice, or ointment with lard or cream.

This is one of the most powerful vegetable antiseptics in putrid disorder and in internal mortification, it may be given internally at the dose of half an ounce of a decoction, made with twenty times its weight of water. It stops gangrene, has cured Scarlatina anginosa, inverted uterus, and sometimes putrid and typhus fevers. As a cathartic and emetic, it is inconvenient and variable in results.

SUBSTITUTES—*Kalmia latifolia*—Charcoal—Tonic Barks—*Rubus villosus*—*Collinsonia Canadensis*—*Solanum dulcamara* & *S. virginicum*, &c.

No. 15.

BERBERIS CANADENSIS.

English Name—BARBERRY.
French Name—Epine Vinette.
German Name—Berberitze.
Officinal Name—Berberis baccae, &c.
Vulgar Name—American Barberry bush.

Synonyms—*Berberis Vulgaris* Var. *Canadensis* of Linnæus, Michaux, &c.

Authorities—Linnæus, Michaux, Pursh, Schoepf, several Dispensaries, and Mat. Med.

Genus Berberis—Calix free with six sepals or folioles, and three small bracts outside. Corolla with six petals, biglandular at the base. Stamina six, opposite to the petals. One free pistil, germ oblong, stigma sessile and umbilicate. Berry one celled, two-four seeded.

Species B. Canadensis—Shrubby, upright, branches dotted, with triple thorns; leaves fasciculate obovate, remote serrulate: racemes nodding or drooping.

DESCRIPTION—A pretty shrub rising from four to eight feet high, with long bending branches, having many confluent dots and some small thorns, often three together. The leaves are crowded and unequal in each fascicle; on short petiols; they are smooth and glossy, oboval, obtuse, with small remote teeth. The flowers are on slender and lax racemes, either

No. 15.

BERBERIS CANADENSIS.

BARBERRY BUSH.

nodding or pendulous; they are yellow, on long pedicels, and rather small. The petals are oblong obtuse, and have each two glands and a stamen at the base. The berries hang in loose bunches, they are oblong and red, smaller and less juicy than in the common garden Barberry of Europe.

HISTORY—*Berberis* is an ancient name, it is the type of the natural order of BERBERIDES. In the Linnean system it is placed in HEXANDRIA *monogynia*. This species was considered a variety of the *B. vulgaris* of Europe, till Pursh separated it, and it hardly differs from it. It blossoms in April and May, and ripens the berries in June; but they are sometimes abortive.

The stamina of the flowers are irritable, and bend with elasticity towards the pistil. It is supposed that the vicinity of this shrub is injurious to wheat, and this has been noticed as one of the instances of vegetable antipathy or incompatible vicinity. It is liable to the rust, sterility, and many other diseases.

LOCALITY—From Canada to Virginia, in mountains, hills, among rocks, &c. Common in New-England in rocky fields: rare in the West and in rich soils.

QUALITIES—The whole shrub (even the root) is acid; in the berries this acid becomes very pleasant, and is probably the tartaric; but mixed with some astringency; the bark is yellow and bitter.

PROPERTIES—Antiseptic, acid, subastringent, refrigerant, &c. The berries, leaves, bark and roots, may be used in putrid fevers, dysentery, bilious di-

arrhea, summer flux, and all kinds of acute inflammations. A syrup, jelly, conserve, &c are made with them, which prove very palatable, cooling, and beneficial in those complaints, as auxiliary remedies. It has also been used in the jaundice and other diseases; but with less success and certainty. The bark has very different properties: it is tonic and purgative; it has been given in Leucorhœa, aphthes, jaundice, &c. it also dyes of a yellow color.

Substitutes—Red Currants—Pomegranate—Lemon Juice—Cream of Tartar—*Andromeda Arborea*—*Callicarpa Americana*—*Oxalis*—Common Barberry—Tamarinds, and all strong vegetable acids—also Elixir of Vitriol, &c.

No. 16.

BOTROPHIS SERPENTARIA.

BLACK SNAKE-ROOT.

No. 16.

BOTROPHIS SERPENTARIA.

English Name—BLACK SNAKE-ROOT.
French Name—Serpentaire noire.
German Name—Schwarz Schlangewurz.
Officinal Name—Serpentaria nigra.
Vulgar Names—Squaw root, Rich weed, Rattle weed, Rattle-Snake-root, Black Cohosh &c.

Synonyms—*Actea racemosa*, Lin. &c. *Cimicifuga Serpentaria*, Pursh, &c. *Macrotrys*, Sub-G. Rafinesque and Decandolle.

Authorities—Linnæus, Schoepf, Colden, Michaux, Pursh, B. Barton, Elliot, Decandolle, some Dispensaries, Tully, Big. Sequel, &c.

G. Botrophis.	G Actea.	G. Cimicifrega.
1. Cal. four leaved	Calix four leaved.	Calix four leaved.
2. Corolla, with *many minute flat petals.*	Corolla, with four large flat petals.	Corolla with four urceolate petals.
3. Stamina many.	Stamina many.	Stamina many.
4. Pistil *one.*	Pistil one.	Pistils several.
5. *Capsul* dehiscent longitudinally.	Berry not opening.	Several dehiscent capsuls.
6. Seeds many lateral.	Seeds lateral.	Seeds scaly.

Species B. Serpentaria—Leaves ample, decomposed or tripinnate, folioles ovate acute, serrate or

jagged; raceme terminal, very long, more or less bent: flowers scattered, peduncled, bracteolate.

DESCRIPTION—Root perennial, blackish, thick, with long fibres.—Stem simple straight, from three to six feet high, smooth, angular, furrowed, often crooked—leaves few and alternate, one nearly radical, remote, ample, decomposed, tripinnate, upper one bipinnate; folioles sessile, opposite, three to seven on each last division of the petiole, oval or lanceolate, acuminate, smooth, pale beneath, with yellowish reticulated veins, margin unequally jagged, or sharply serrate, particularly outside: the last foliole is trifid.

Flowers in a long terminal raceme, from one to three feet long, often with one or two shorter ones near its base. This raceme is cylindrical, white, always bent or crooked at first; the flowers are scattered, lax, often geminate or fasciculate, on short peduncles, with a subulate bract. The calix is white, like a corolla, with four thick rounded and obtuse sepals; the petals are very small, shorter than the calix and stamina: these last form a pencil, the filaments are white, club shaped; the anthers yellow, oblong, terminal. Pistil oval, without style, stigma sessile, lateral and flattened. Capsul blackish and dry, with one cell and a longitudinal receptacle, opposite to the opening, to which many flat seeds are attached.

This plant has many varieties, one is dwarf, a foot high, with a triangular stem, leaves small, biternate, and with several racemes: growing in the mountains of New York. If it is a peculiar speeies; it might be called *B. pumila*.

HISTORY—Notwithstanding my reluctance to innovate in this work, I am compelled to separate this plant from the Genera *Actea* and *Cimicifuga*, to which it has been by turns united. I did so ever since 1808, calling it *Macrotrys*, which meant *long raceme*, which name Decandolle has adopted as a subgenus of *Actea*; but this name being delusive, too harsh, and an abbreviation of *Macrobotrys*, I have framed a better one, meaning *Snake raceme*: the raceme or long spike of flowers being mostly crooked, and like a snake. To convince any one of the necessity of this change and impossibility of leaving this plant with *Actea* or *Cimicifuga*, I have given the characters of the three genera in opposition to each other, whereby the striking difference in the corolla, pistils and fruit, will be perceived at once.

Actea and *Botrophis* belong to a peculiar natural family, the ACTEIDES, having single pistils and fruits: while *Cimicifuga* belongs to RANUNCULIDES with several pistils. *Botrophis* must be put with *Actea* in POLYANDRIA *monogynia*, while *Cimicifuga* belongs to POLYANDRIA *pentagynia* or *polygynia*.

The *Actea japonica* is probably a *Botrophis*. The American species has an extensive range, and was used by all the Indians. It blossoms in June and July. The whole plant, and even the flowers are medical.

LOCALITY—All over the United States, from Maine to Florida, Louisiana and Missouri, also in Canada and Texas; very common in open woods, rich grounds and sides of hills; less common in rocky

mountains and sunny glades, very rare in moist and wampy soils.

QUALITIES—The root and plant have rather an unpleasant smell, and a disagreeable nauseous taste. Schoepf considers it as nearly poisonous, and to be used with caution, yet powerful and heroic. It has not been analyzed, but appears to contain extractive and a fetid oil.

PROPERTIES—Astringent, diuretic, sudorific, anodyne, repellent, emenagogue, subtonic, &c. It is an article of the materia medica of the Indians, much used by them in rheumatism, and also in facilitating parturition, whence its name of Squaw-root. It has been found useful in sore-throat, as a gargle: also in dropsy, hysterics and psora, in decoction alone, or united with *Sanguinaria Canadensis*. It is a beneficial auxiliary in the treatment of acute and chronic rheumatism. It is used by the Indian doctors for agues and fevers, which it cures like *Eupatorium perfoliatum*, by a profuse perspiration. Yellow fever is said to have been cured by it, after an emetic had been taken.

This is one of the numerous Indian cures for the bites of snakes: they use the root chewed and applied to the wound; but they consider the *Eryngium aquaticum & E. yuccefolium* (corn Snake-root, or Rattle-snake flag) as by far more powerful and efficient. A decoction of the root cures the itch! It is useful for the diseases of horses and cattle, is said to purge them, expel their worms and cure the murrain, given as a drench.

SUBSTITUTES—*Actea alba & A. rubra—Eryngium aquaticum & E. yuccefolium—Eupatorium perfoliatum*—Snakeroots—Spikenards or Aralias—Cohosh or *Caulophyllum*—Juniper and other similar sudorifics and diuretics.

REMARKS—Not figured in Bigelow nor Barton's works. Henry's figure of the Squawroot, which he wrongly calls *Asclepias purpurascens*, is a bad representation of this plant; but his description and text apply to some other plant.

The *Actea alba* or Whiteberry Snakeroot, which has the same properties, will be known by a shorter stem, smaller leaves, short, oblong raceme, with round white berries like wax. It grows from New York to Tennessee, in rich woods.

The *A. rubra* or Redberry Snakeroot, hardly differs from *A. alba*, but has red berries and is less common.

These two plants are also called Baneberries, and their berries are poisonous. They are called White and Red Cohosh by the Indians: the blue Cohosh is the Caulophyllum, and the black Cohosh the Botrophis.

No. 17.

BRASENIA HYDROPELTIS.

English Name—WATER-SHIELD.
French Name—Hydropelte.
German Name—Wasserschild.
Officinal Name—Gelatina aquatica, Brasenia.
Vulgar Names—Frogleaf, Little Water Lily, Water Jelly, Deerfood.
Synonyms—*Hydropeltis purpurea*, Michaux, &c.
Authorities—Schreber, Wildenow, Persoon, Michaux, Pursh, Elliot, Nuttal, &c.

Genus Brasenia—Perigone simple, colored, coroliform, with six equal sepals or petals, stamina many, shorter, hypogynous, anthers adnate: many pistils, germs sessile with a style. Fruit, many small one-seeded achenes.

Species B. Hydropeltis—Roots creeping, leaves floating, alternate, peltate, elliptic, entire, gelatinous beneath: flowers axillary, solitary, peduncled.

DESCRIPTION—The roots are perennial, creeping under water and mud, cylindric, jointed with bundles of fibres at the joints—Stems many, growing till the leaves reach the surface of the water, almost similar to the roots—Leaves alternate, on very long slender petioles, floating on the water, of a regular elliptic form, like an oblong shield, entire and obtuse, smooth and lucid above, with regular radiating veins,

No. 17.

BRASENIA HYDROPELTIS.

WATER SHIELD.

white and veinless beneath, but covered with a coat of pale jelly, sometimes purplish : the leaves are two or three inches long.

Flowers on long axillary and solitary peduncles, similar to the petioles: these flowers are of a dark purple color, the six petals are oblong and acute : Stamina from twenty to thirty, shorter than the petals, surrounding the pistils which are from twelve to twenty, germs oblong, styles short, stigma obtuse. Achenes or small nuts naked, maturing under water, oval oblong.

HISTORY—This plant was unknown to Linnæus; it was first described by Schreber, and called *Brasenia*, from a German botanist, Brasen : Michaux changed improperly that name into *Hydropeltis*, meaning water-shield in Greek ; both names may be retained, but *Brasenia* has a prior claim to be the generic. Only one species is known.

It belongs to the natural order of RANUNCULIDES, and to POLYANDRIA *polygynia* of Linnæus. It blossoms in July and August. The flowers are pretty, but have no smell : the leaves are very singular, and afford one of the few instances of pure homogenous vegetable jelly, being spontaneously produced, and covering the whole under surface of the leaves, the stems and petioles are also more or less covered with it. Deer and cattle are very fond of eating these leaves : they resort to the places where they grow plentifully, and even swim in the water in search of them.

LOCALITY—From Carolina to Kentucky, and Flo-

rida, rare in Virginia, Missouri and Kentucky, found only in some local places, but there extremely abundant, and spreading so as to cover the whole surface of ponds, lakes, marshes and sluggish streams.

QUALITIES—The plant has no smell, but the taste is subastringent and bitterish; the jelly is a pure mucilage similar to that of Lichen and *Sesamum*, and spontaneously evolved; becoming gummose in drying.

PROPERTIES—Mucilaginous, astringent, demulcent, tonic, nutritive, &c. Intermediate between *Lichen Islandicus* and the Water Lilies. The fresh leaves may be used like Lichen, in pulmonary complaints and dysentery: when dry the gelatinous matter almost disappears, yet they impart mucilage to water. If no virose quality exists in this plant, as the taste of deer for it appears to indicate, it may become a useful substitute or auxiliary to Lichen in phthisis, inflammations, debility, &c. boiled into decoction or jelly.

SUBSTITUTES—Lungwort or *Pulmonaisa*—Lichens—ARROW-ROOT—Salep—*Nymphea* & *Nelumbium*—*Polypodium*—*Adianthum*—*Tussilago*—Elecampane—Liquorice—Marshmallow—*Sesamum*—Flaxseed.

REMARKS—Unnoticed as yet by all medical writers, but well known to the Indians.

No. 18.

CASSIA MARILANDICA.

AMERICAN SENNA.

No. 18.

CASSIA MARILANDICA.

English Name—AMERICAN SENNA.
French Name—Senne' d'amerique.
German Name—Marilandische Cassia.
Officinal Names—Senna Americana, folia, &c.
Vulgar Names—Wild Senna, Locust plant.
Authorities—Linnæus, Michaux, Pursh, Schoepf, Coxe, Thacher, Chapman, B. Barton, W. Bart. fig. 12, Big. fig. 39, & Seq. &c.

Genus Cassia—Calix five parted, colored, deciduous and unequal. Corolla with five unequal petals. Stamina ten, unequal and free, the three upper sterile, the three lower longer, anthers linear curved. Pistil stipitate. Pod bivalve, curved, many celled transversally—Leaves even pinnate.

Species C. Marilandica—Herbaceous, leaves with eight or ten pairs of oblong mucronate folioles, petiole uniglandular : racemes axillar and terminal, panicled : pods linear, flat and pendulous.

DESCRIPTION—Root perennial, contorted, irregular, woody, black, fibrose—Stems many, nearly smooth, upright, from three to six feet high, cylindrical and simple—Leaves alternate, not many, large, horizontal ; petioles compressed, channelled above, with an ovate stipitate gland at the base, bearing from eight to ten pairs of folioles or leaflets, which are—

smooth, green above, pale beneath, with short uni-glandular petioles, shape ovate, oblong or lanceolate entire, equal, mucronate at the end—stipules subulate, ciliate, deciduous.

Flowers of a bright or golden yellow, forming a panicle, although partly axillary and in short racemes, having each from five to fifteen flowers; peduncles furrowed, pedicels long, glandular, with short bracts. Calix colored, with five oval obtuse and unequal segments. Petals five, spatulate, concave, obtuse, unequal, two lower larger. Stamina with yellow filaments and brown anthers, the three upper filaments have abortive anthers, the three lower filaments are longest, crooked, with long rostrated anthers, all the anthers open by a terminal pore. Germ deflexed with the lower stamina and hairy, style ascending, stigma hairy. The fruits or pods are pendulous, linear, hardly curved, flat and membranaceous, a little hairy, blackish, from two to four inches long, holding from twelve to twenty seeds, or small brown beans.

HISTORY—The genus *Cassia*, although very striking by the structure of its flowers, varies much in its pods, and must be divided into many genera; Tournefort and Gaertnesr had separated the *Cassia fistula* &c. with cylindrical, pulpy, evalve pods, calling the others *Senna*; but Persoon, &c. called the *Cassia fistula* by the new name of *Cathartocarpus*, leaving the name of *Cassia* to the Sennas. This was superfluous, and if I was not unwilling to increase this confusion, I would call this species *Senna riparia*, the name of *Marilandica* being also improper; it was

given to it because sent first from Maryland to Europe.

Cassia is an oriental name, derived from *Ketsich*, name of the *Cassia lignea* and *fistula*. The genus belongs to the natural order of LEGUMINOSE, section *Lomentaceous*. In the Linnean system it is placed in DECANDRIA *monogynia*, although it has only seven fertile stamina.

This plant blossoms from June to August; the best time to collect it, is in September, when the pods are ripe; since they are with the leaves, the efficient parts of the plant. It has been ascertained that this plant is more efficacious than the Senna of Egypt; it ought therefore, to supersede it altogether with us, and even to be exported to Europe: but the East India senna is said by Bigelow to be a little stronger.—The Senna of the shops is obtained from different plants, *Cassia lanceolata*, *C. Senna*, *C. italica*, &c. and even from *Cynanchum olefolium*.

LOCALITY—Found from Massachusetts to Missouri and Georgia, in rich moist and alluvial soils, near streams principally. Very common in the western States.

QUALITIES—The taste of the leaves is slightly nauseous: they have no smell; they contain resin extractive and a volatile oil. The infusion and decoction have the taste of the plant; the distilled water is nauseous; the tincture is dark brown and rendered turbid by water.

PROPERTIES—All the Sennas are simple cathartics, some kinds occasion gripings and yet are not

so active as rhubarb or jalap. This kind operates with mildness and certainty, at the dose of an ounce in decoction: both the leaves and pods are employed; the infusion is weaker, the tincture is less available, although stronger. They may enter into compound laxatives and cathartics, &c.

SUBSTITUTES—Senna—Cassia fistula—Rhubarb—*Juglans Cinerea*—*Podophyllum peltatum*—Castor oil, and all mild purgatives, besides the following species of *Cassia*; which are, however, still left active.

REMARKS—Clayton and Schoepf, mentions the *C. ligustrina* as equal to Senna: it grows from Virginia to Georgia, has seven pairs of lanceolate, unequal folioles, and oblong curved pods.

C. chamecrista, small plant found every where in dry soils; it has many pairs of linear folioles, and large geminate flowers with two purple spots.

C. nictitans, or sensitive Senna, similar to the foregoing, but with very small flowers: common.

C. toroides, N. Sp. or sickle Senna, is perhaps the *C. tora* of some botanists; found from Georgia to Kentucky, it has three pairs of ovate folioles and long fulcated axillary pods.

All the American Sennas have yellow flowers.—Schoepf, says that the *C. biflora* is antisyphilitic.

Henry's figure of the American Senna is fictitious, having four pairs of folioles and regular terminal flowers.

No. 19.

CAULOPHYLLUM THALICTROIDES.

BLUEBERRY COHOSH.

No. 19.

CAULOPHYLLUM THALICTROIDES.

ENGLISH NAME—BLUEBERRY COHOSH.

FRENCH NAME—COHOCHE BLEU.

GERMAN NAME—BLAU COHOSCH.

OFFICINAL NAME—Caulophyllum radix.

VULGAR NAMES—Cohosh, Cohush, Blueberry, Papoose root, Squaw root, Blue Ginseng, Yellow Ginseng.

SYNONYMS—*Leontice thalictroides* Linnæus, &c.

AUTHORITIES—Michaux, Pursh, Elliot and some dispensaries. Not in Barton nor Bigelow.

Genus CAULOPHYLLUM—Calix colored with six equal sepals. Corolla with 6 small petals, opposite to the sepals of the calix and much shorter. Stamina six opposite to the petals, anthers opening laterally. One central free pistil, one Style and Stigma. Fruit a globular one seeded drupe.—Leaves three on a trifurcate stem.

Species C. THALICTROIDES—Very smooth, three leaves with three dissected or lobed folioles, the terminal cordate: in the centre a dichotome corymb, shorter than the leaves.

DESCRIPTION—Whole plant from two to four feet high.—Root perennial, yellow inside, brow outside, hard, irregular, knobby, branched, with n

fibres—Stem upright, straight, smooth, trifurcate at the top or dividing into three leaves, in the centre of which comes out the panicle of flowers—Leaves petiolate smooth, pinnate lobed, with three, very seldom five folioles, the lateral ones nearly sessile, oval or oblong, inequally bifid and acute: the terminal foliole separated, larger, subcordate, with five, seldom three, unequal lobes or segments, oval and acute.

Flowers in a short central loose corymb, yellowish green, rather small; rachis slender, dichotome, with minute bracts at each division. Each flower pedunculed, with six equal elliptic obtuse sepals—Petals six very small, opposite and notched, with each an opposite longer stamen, filaments short, anthers elliptic bilocular, opening on each side—Germ globular, style short, stigma obtuse—Drupes resembling berries succeed the blossoms; they are smooth of a dark blue, globular, rather large, with only one hard seed.

HISTORY—This genus which includes only one species, was united to *Leontice* by Linnæus; but separated by Michaux; they both belong to the natural family of BERBERIDES, and to HEXANDRIA *monogynia*. *Caulophyllum* implies that the stem and leaves are connected as it were, and the specific name alludes to the leaves being similar to many Thalictrums—Cohosh was the indigenous name of this plant, and a better one than Blueberry, the usual one in many parts: it blossoms in May and June, while the leaves are yet tender and small, the berries are ripe in summer; they are dry, sweetish, insipid, similar to huckle berries, but larger.

This is a medical plant of the Indians, and although not yet introduced into our officinal books, deserves to be better known. I have found it often used in the country and by Indian Doctors; Smith and Henry extol it.

Locality—All over the United States, from Canada and New England to Missouri and Georgia; but chiefly on mountains and shady hills, rare in plains and glades, yet often found in deep fertile soils, swampy and moist grounds; in river islands, &c.

Qualities—The root is the only part used: in smell and taste, it partakes of Ginseng and Seneca root, and is sometimes mistaken for both. It is sweetish, a little pungent and aromatic: the infusion and tincture are yellow—it contains a gum, resin and oil.

Properties—Demulcent, antispasmodic, emenagogue, sudorific, &c. It is used by the Indians and their imitators for rheumatism, dropsy, cholic, sore tion of uterus, &c. It appears to be particularly able for female diseases, and Smith asserts that the Indian women owe the facility of their parturition, to a constant use of a tea of the root for two or three weeks before their time. As a powerful emenagogue it promotes delivery, menstruation, and dropsical discharges. It may be used in warm infusion, decoction, tincture, syrup or cordial.

Substitutes—*Sanguinaria canadensis*—Pennyroyal—*Polygala Senega*—Snake roots—Red Cedar—Spikenard—Camphor—Ginseng, &c.

Remarks—The figure of Henry has trifoliate leaves and the berries on the leaves!

No. 20.

CEPHALANTHUS OCCIDENTALIS.

English Name—BUTTON-WOOD SHRUB.
French Name—Cephalanthe d'amerique.
German Name—Americanische Weissball.
Officinal Names—Cephalanthus Cortex, &c.
Vulgar Names—White Ball, Little Snowball, Swampwood, Pond Dogwood, Globe flower, in Louisiana *Bois de Marais.*

Authorities—Lin. Mich. Pursh, Elliot, Robin, W. Bart. Fl. fig. 91.

Genus Cephalanthus—Flowers crowded on a globular and hairy phoranthe. Calix [illegible], margin small fourtoothed. Corolla tubular-funnelform, four cleft, epigyne, bearing four stamina equal and protruding. Pistil one coherent with the calix, style long, stigma globose. Capsule two celled, two seeded, nearly bipartible, and each cell nearly bivalve, valves uniserial.

Species C. occidentalis—Leaves ternate or opposite, petiolate, oval-accuminate, entire and smooth: heads of flowers terminal, peduncled, upright.

DESCRIPTION—A fine ornamental shrub from five to fifteen feet high, very branched; bark yellow brown spotted with red, rough on the stems. Leaves ternate or opposite, with red petiols from two to four

No. 20.

CEPHALANTHUS OCCIDENTALIS.

BUTTONWOOD SHRUB.

inches long, oval, base acute, end acuminate, margin often undulate, smooth on both sides, but glaucous beneath, nerves often red, veins yellow.

Flowers terminal peduncled, forming round balls of a cream white color, and sweet scented, fringed all over by the protruding Stamina and styles, nearly as large as a walnut. Phoranthe or common receptacle globular and hairy, flowers crowded all over it. Calix coherent with the pistil, with four small acute teeth—Corolla inserted on the Pistil, tubular or nearly funnel form, with four ovate segments. Stamina and style filiform, double the length of the Corolla, anthers and stigma yellow—Capsuls small, crowded, formed by two semibivalve cells, the valves opposite to each other, the two outside valves angular, each cell has only one seed.

LOCALITY—All over the United States from Canada to Louisiana, Missouri and Florida; mostly found near streams, ponds, swamps, lakes, &c.

HISTORY—*Cephalanthus* means head-flower in Greek, alluding to the globular form of the blossoms. Linneus only knew this species, and gave to it the name of occidental. It is peculiar to North America; the same kind said to be found in Cochinchina is a different species; but there are several varieties in the United States, not yet well noticed, some of which may be perhaps peculiar species; such are

Var. *pubescens*, with pubescent leaves, in Georgia.

Var. *macrophylla*, with large leaves half a foot long, corolla hairy inside: in Louisiana, &c.

Var. *obtusifolia*, leaves oval-oblong, obtuse, not undulate: in New York.

They all blossom in summer, July and August: the flowers have a peculiar fragrant smell, similar to Jessamine. The wood is brittle and useless.

The Genus belongs to the great natural order of RUBIACEOUS, forming with *Nauclea*, &c. a peculiar section or family, with capitate flowers. It ranks in TETRANDRIA *Monogynia*.

QUALITIES—The whole shrub active, and bitterish, the bitterness is most enfolded in the bark of the roots: this bark and the inner bark of the stem are brittle, somewhat resembling Cascarilla and Dogwood, in appearance and qualities. It has not been analyzed; but contains an essential oil, besides the usual principles of tonic barks: the oil is most abundant in the flowers.

PROPERTIES—Tonic, febrifuge, cathartic, diaphoretic, &c. The flowers, leaves, bark of stems and roots, are used by the Southern Indians, and the French settlers of Louisiana. It has not yet been noticed in our materia medica, and is even omitted by Schoepf and Henry; but it deserves further attention. A fine fragrant syrup may be made with the flowers and leaves, which is a mild tonic and laxative. The most efficient part is the bark of the root. A decoction of it, cures intermittent fevers, acting on the bowels at the same time, is useful in relaxed bowels, &c.

SUBSTITUTES—*Cornus* or Dogwood—*Magnolias*—*Pinckneya*—*Liriodendron*—*Cascarilla*, &c.

REMARKS—The *Platonus occidentalis* or Sycamore, also called Button-wood is a large tree.

No. 21.

CHENOPODIUM ANTHELMINTHICUM.

WORMSEED GOOSEFOOT.

No. 21.

CHENOPODIUM ANTHELMINTICUM.

English Name—WORMSEED GOOSEFOOT.

French Name—Anserine Vermifuge.

German Name—Wurmsamen Gansefuss.

Officinal Name—Chenopodium seu Botrys Anthelminticum.

Vulgar Names—Jerusalem Oak, Wormwood, Worm seed, Stinking weed.

Authorities—Linnæus, Michaux, Pursh, Schoepf, B. Barton, Mease, Wilkins, Coxe, Thacher, Chapman, Stoker, Big. seq. W. Bart. Mat. Med. fig. 44.

Genus Chenopodium—Perigone simple persistent, caliform, five parted, Stamina five perigyne. Pistil free with a bifid style. Seed single, lenticular, covered by the perigone.

Species Ch. anthelminticum.—Leaves oval-oblong, sessile, sinuate-toothed: flowers terminal, sessile, in glomerules, forming leafless panicled slender spikes.

DESCRIPTION—Root perennial and branched—Stem upright, grooved and branched, branches fastigiate, giving a shrubby appearance to the whole plant, which rises from two to five feet in height—Leaves sessile, alternate or scattered; attenuated at both ends, oval or oblong, rather thick, dotted beneath, margin sinuate by large unequal obtuse teeth, nerves very conspicuous.

Flowers very small, numerous and yellowish green

like the whole plant, forming large, loose leafless terminal panicles, composed of many slender alterning small spikes, and these of many small scattered unequal glomerules, containing from five to twelve sessile flowers. Calix or simple perigone with five short oval segments; stamina opposite to the segments, and protruding. Styles bifid or trifid, filiform, longer than the stamina. Seed flat, lenticular, shining, covered by the persistent calix.

HISTORY—The whole plant has a strong, pungent smell, somewhat like valerian, which is disgusting to many persons; this smell is easily known and enables to distinguish it from some other consimilar species, which are often blended with it: such are the *Ch. ambrosioides* & *Ch. botrys*, whose smell is agreeable and fragrant, although strong.

The genus belongs to the natural order of ATRIPLICES, and to PENTANDRIA *digynia* of LINNÆUS. The generic name means Goosefoot in Greek, the specific refers to its value against worms.

It blossoms from July to September, at which time the plant may be collected and dried; but if the seeds are wanted, October is the best time, although they ripen in succession during all the autumn. The plant is now sometimes cultivated for medical uses, both in America and Europe. The dried plant retains the peculiar smell.

LOCALITY—From New England to Missouri and Georgia, more abundant and larger in the South: common in old fields, along fences, in alluvions, gravel, rubbish, and even in streets; but never in woods nor mountains.

QUALITIES—The strong and lasting smell of the whole plant, is owing to an essential oil, very penetrating or pungent, and in which resides the medical property. It is diffused throughout the plant, particularly in the globular dots of the leaves, and the seeds. The taste is bitter, acrid and aromatic.

PROPERTIES—A powerful vermifuge used both in America and Europe; found equal to the officinal wormseed, which is the *Artemisia Santolina*, a very different plant, native of Syria and Africa. It expels speedily, the Lumbrics and other worms of the intestines. It must be given in repeated small doses, and the most palatable form: the seeds and their essential oil are the most efficacious, eight or ten drops of the oil, mixed with sugar are a common dose for a child, or a table spoonful morning and night fasting, of an electuary mode of the pulverized seeds with honey. A [illegible] tion in milk, of the leaves, (or even their juice,) are also used. Children often dislike the strong smell of this medicine, and it must be disguised by orange peel or sweet substances. The seeds and oil are now kept in the pharmacies, but the last is often adulterated with oil of Botrys or of Turpentine; which lessen its power; it may then be known by a less pungent smell.

This plant has only been employed against worms, as yet, but it possesses probably all the properties of the *Ch. Botrys* and *ambrosioides*, which are pectoral, resolvent, carminative and emenagogue: useful in asthma, suppressed menstrations, &c.

SUBSTITUTES—*Spigelia* or Pinkroot—*Lobelia*

cardinalis—Wormwood—*Silene Virginica*—*Polanisia graveolens*, and all other vermifuges.

Remarks—Many other species of *Chenopodium* are medical; but none vermifuge like this: those which approximates in appearance and smell are the following; which must not be mistaken for this although useful in other respects.

Ch. botrys or sweet Jerusalem oak, has oblong obtuse sinuate leaves, and crowded panicles. Common all over the United States, in sand and gravel near streams.

Ch. ambrosioides or Fragrant Jerusalem oak, has narrow or lanceolate toothed leaves, and leafy panicles, with a very fragrant smell, stronger than in the foregoing. Grows promiscuously with *Ch. anthelminticum*.

The whimsical name of Jerusalum oak has been given to these plants, from a fanciful similitude to the leaves of the oak.

Henry's figure represents probably the *Ch. botrys*.

No. 22.

CICUTA MACULATA.

AMERICAN HEMLOCK.

No. 22.

CICUTA MACULATA.

English Name—AMERICAN HEMLOCK.

French Name—Cigue d'Amerique.

German Name—Americanische Schierling.

Officinal Names—Cicuta Americana.

Vulgar Names—Snakeweed, Death of man, Water Parsley, Poison root, Wild hemlock, Children's bane.

Authorities—Linnæus, Schoepf, Pursh, B. Barton, Ely, Stockbridge, Bigelow, fig. 12.

Genus Cicuta—Flowers umbellate: No involucres, involucels many leaved and short; calix symphogyne, crown five toothed: petals oboval, entire, inflexed; five long stamina; Fruit orbicular, crowned; with ten furrows, bipartible, bisperme.

Species C. maculata—Root fasciculate, tuberose: Stem hollow and striated; leaves tripinnate, folioles lanceolote, serrate, acuminate, teeth mucronate, veins exmedial: involucels acute, flowers lax.

DESCRIPTION—Root perennial, composed of many oblong fleshy tubers, of a finger's size—Stem from three to six feet high, hollow, striated, jointed, purple or green, smooth and branched.——Leaves smooth, decomposed, alternate with petioles clasping at the base, bilobe, membranaceous; decreasing in size upwards, where they are only ternate, while the lower are tripinnate or triternate, folioles sessile, op-

posite, lanceolate, serrate, acuminate, with veins ending at the notches, which is very unusual.

Flowers white in terminal umbels, without involucres, umbels with seven to twelve umbellules, each having from twelve to twenty flowers, upright, not crowded: Involucels very short, oblong, acute; calix connected with the pistil, crowned, crown with five minute segments. Petals five obovate, white, entire, end inflexed. Filaments longer filiform, anthers oval. Two short recurved styles. Fruit nearly globular, divisible into two seeds as in all the umbellate plants, each is flat inside, convex outside, with five furrows.

LOCALITY—In wet meadows, pastures, and ditches; near streams and swamps, from New England to Georgia and Ohio: also in the mountains of Pennsylvania and Virginia.—Blossoming in summer, from July to August.

HISTORY—The genus *Cicuta* is one of the poisonous hemlocks; the *Conium maculatum*, is, however, considered as the true hemlock and the most virulent: but the deadly poison of that name (rendered famous by the death of Socrates) was a compound beverage. In the United States, the same name is capriciously given to a beautiful and useful species of Fir-tree.

Both *Cicuta* and *Conium* belong to the natural order of UMBELLATE, or Umbelliferous plants, and to PENTANDRIA *digynia* of Linnæus, although they have only one pistil.

Cicuta was the old latin name, *maculata* means spotted; but the plant not being spotted, it is a very

bad specific name; which Bigelow would have changed into *fasciculata*, if changes of old names should not be avoided.

Many umbellate plants growing near waters are poisonous, although the Sweet Sisily or *Myrrhis* is not. The root of the last is often sought for by children, who like its sweet taste; but are apt to mistake this and many other poisonous plants for it, by which mistake several have been poisoned. It would be well to avoid all similar plants; or at least to attend to their different smell and taste, which is strong and disagreeable in all the pernicious kinds.

These deleterious plants appear to lose some of their virulence when growing in a drier soil, or cultivated in gardens. Sheep and goats eat them with impunity, and even cattle do not appear injured by them when mixed with hay.

Several persons searching for Angelica root, Sweet flag, Sweet Sisily (which have all a pleasant aromatic smell and taste,) have eaten this root by mistake, and some have died in an hours time. The effects of the poison were violent convulsions, a frothing mouth, a bleeding nose, dilated pupils, fixed eyes, &c. When vomiting was produced naturally, they were saved, after being very sick for three days, with stupor, paleness, &c. Persons poisoned in this way, ought therefore to evacuate the stomach, by tickling the throat, or taking an emetic; sulphate of zinc is the most speedy. Vinegar or Lemon juice may also be given to neutralize the narcotic poison, and next Castor oil, mild purgatives, strong coffee, &c. after vomiting.

QUALITIES—The root has a strong penetrating smell and taste, its bark contains a yellowish juice in small cavities. The juice of the root is viscid, resinous, dissolves in alcohol, and is precipitated by water. It produces a thick volatile oil by distillation, and a resin of a dark orange color is left. The decoction of the root is whitish. The extract of the whole plant is dark and has a nauseous smell.

PROPERTIES—A strong narcotic, solvent, and good substitute for the *Conium maculatum*, being more powerful, and requiring a lesser dose. A few grains of the dried leaves or extract have been given in schirrose and scrofulous tumors and ulcers, with equal advantage; but a larger dose produces nausea and vomiting: the doses should be very small, often repeated and gradually increased. It has been used in gargle for the sore throat, but safer substances ought to be preferred.

SUBSTITUTES—*Conium maculatum*—*Angelica atropurpurca*, and other violent narcotics.

REMARKS—The Indians when tired of life, are said to poison themselves with the roots of this plant and the purple Angelica, *Ax. atropurpurca*.

No. 23.

COLLINSONIA CANADENSIS.

BROADLEAF STONEROOT.

No. 23.

COLLINSONIA CANADENSIS.

ENGLISH NAME--BROADLEAF COLLINSONIA
FRENCH NAME—COLLINSONE DU CANADA.
GERMAN NAME—CANADISCHE COLLINSONIE.
OFFICINAL NAME—Collinsonia.
VULGAR NAMES—Richweed, Richleaf, Heal-all, Horseweed, Knot-root, Stone-root, Knot-weed, &c.
AUTHORITIES—Lin. Mich. Pursh, Schoepf, Mease, &c.

Genus COLLINSONIA—Calix campanulate, bilabiate, ~~five toothed. Corolla tubulose, limbus~~ unequal sub-bilabiate, campanulate, upper lip very short, notched, lower lip fringed. Stamina two or four, or rather four, two of which are often sterile, or without anthers. One pistil, one style, stigma lateral. Fruit four seeds, often only one or two by abortion—Leaves opposite, flowers terminal panicled, commonly yellowish.

Species C. CANADENSIS—Smooth; leaves few, ample, petiolate, cordate, serrate, acuminate: panicle lax, teeth of the calix subulate, equal to the tube of the corolla, two fertile stamina.

DESCRIPTION—Root perennial, knotty, depressed, hard with many slender fibres—Stem simple, round, straight, about two feet high.—Only two or three pairs of large thin leaves, on long petioles, cor-

date at the base, broadly ovate, acuminate, with broad teeth, surface smooth, with small veins.

Inflorescence in a terminal leafless panicle, formed by branched racemes—Flowers opposite on long peduncles, with short subulate bracteoles. Calix campanulate, with five subulate teeth. forming two lips, the lower lip is longer and with two segments. Corolla yellowish, tubular at the base, spreading above in two lips; the upper lip is very short and notched, the lower lip is lobed on the sides, and fringed around. Two long protruding stamina, filaments filiform, anthers oval. Style protruding. Seeds often abortive, and only one ripening.

HISTORY—*Collinsonia* is a genus peculiar to North America, and dedicated to Collinson, an English botanist and philosopher. It was at first formed by this single species, but has since been increased by many others, which have all the same habit: whereby the genus is easily distinguished from the *Salvia* (Sage), *Monarda* and *Lycopus*, genera belonging to the same natural order of LABIATE, and section of *Diandrous*. But this genus offers the anomaly of having some tetrandrous species: wherefore it might be placed both in *Diandria*, *Tetrandria* or *Didynamia* of Linnæus!

The species with four stamina are *C. Anisata*, *C. longiflora* & *C. Verticillaris* fl. ludov. They must of course form a peculiar subgenus, which I have called *Hypogon*; and perhaps consistency requires to make a genus of it, in order to obviate the anomaly in classification. However, they all possess the same

qualities and properties, as well as the striking habit of large leaves and panicled fringed flowers often yellow.

The *C. canadensis* is a handsome estival plant, blossoming from July to September.

Locality—Found from Canada to Carolina, in woods; rare towards the south and confined to rich valleys; very common in the mountains of Pennsylvania and New York. It disappears west of the mountains; but is replaced by other congeneric species.

Qualities—The whole plant has a strong balsamic smell, somewhat similar to that of *Salvia Sclarea*: it is sweeter and stronger in the blossoms and worse in the root. It affords by distillation an essential oil, possessing the same smell. The taste is pungent and warm.

PROPERTIES—Vulnerary, coroborant, carminative, subtonic, diuretic, and a warm stimulant. It appears to combine the properties of Sage, Mint and Woundwort: (*Anthyllis Vulneraria*) therefore it may be substituted to them. It is one of the plants called *Heal-all*, in the United States, because they cure sores and wounds: the Indians employ this plant for hat purpose. In the mountains and hills of Virginia, Kentucky, Tennessee and Carolina, this genus is considered as a panacea, and used outwardly and inwardly in many disorders; it is applied in poultice and wash for bruises, sores, blows, falls, wounds, sprains, contusions, and taken like tea for head aches, cholics, cramps, dropsy, indigestion, &c. The whole plants

are used, both fresh and dry: they are also employed for the sore-backs of horses.

According to Schoepf, it is useful in the dumb fever, lochial cholic, bites of snakes, and for rheumatic pains, in strong frictions of the leaves. Dr. Mease relates that the root infused in cider has cured the dropsy.

SUBSTITUTES—*Acorus Calamus*—Aniseed—*Salvia* or Sage—*Monarda* or Horsemint—*Mentha* or Mint—*Cunila* or Dittany—and many other labiate plants.—For sores *Baptisia tinctoria*—*Solanum Virginicum*—*Galax rotundifolia*, &c.

REMARKS—All the other species of this genus have the same smell, taste and properties: they are equally employed. The *C. anisata* has a finer smell, somewhat similar to aniseed, by which it may be easily known. The other species are so much alike as to be easily blended, or taken for each other. They have, however, narrower leaves, often hairy: and the *C. tuberosa* has a larger softer root.

The most common and officinal in Kentucky, Ohio &c. is a new species, which I have called *C. angustifolia;* it is about a foot high, has smooth lanceolate or oblong leaves, three inches long, acute at both ends, margin crenate serrate; racemes slender, flowers small, yellowish, teeth of the calix acute, shorter than the tube; corolla less fringed than in the others; two long stamina.

No. 24.

COMPTONIA ASPLENIFOLIA.

SHRUBBY SWEETFERN.

No. 24.

COMPTONIA ASPLENIFOLIA.

English Name—SHRUBBY SWEETFERN.
French Name—Comptonier odorant.
German Name—Streifenfarren.
Officinal Names—Comptonia, Dulcifilix folia.
Vulgar Names—Sweet-fern, Sweet-bush, Sweet-ferry, Fern-bush, Fern-gale, Spleenwort-bush, &c.
Synonyms—*Liquidambar peregrinum & L. asplenifolia* of Linnæus. *Myrica asplenifolia* Gronovius.
Authorities—Linnæus, Aiton, Michaux, Pursh, Schoepf, B. Barton, W. Barton, M. M. fig. 19, &c.

Genus Comptonia—Monoical, amentaceous—M. fl. in long cylindrical catkins, scales one flowered, perigone two-leaved, three forked stamina, six anthers. F. fl. in globular inferior catkins, scales one flowered, perigone six leaved, one pistil, two styles, fruit ovate, evalve, one-seeded nut or achene.

Species C. Asplenifolia—Shrubby, leaves crowded, sessile, narrow lanceolate, alternately crenate-sinuate.

DESCRIPTION—A small shrub from two to five feet high, with many crooked branches and long horizontal roots—Leaves alternate, crowded, sessile, with two small oval acute stipules at the base, from three to five inches long, half an inch broad, acute at both ends, with a strong middle nerve; each side regular-

ly sinuate by large equal obtuse lobules—Flowers appearing before the leaves; the male in many superior lateral and cylindrical catkins, the female inferior in a few globular or oval lateral catkins—scales of both catkins imbricated concave, reniform, acuminate, caducous and one flowered. Male flowers with a two-leaved perigone, shorter than the scales, each part equal and keeled. Six stamina or anthers, on three short forked filaments. Female flowers with a bristly perigone of six filiform persistent segments, longer than the scales. Pistil oval, two capillary styles. Seeds evalve oval nuts or achenes, compressed yellow, forming a round burr.

HISTORY—This pretty shrub forms by itself a solitary genus of the natural order AMENTACEOUS, dedicated by Solander and Aiton to Compton, an English bishop, and friend of Botany. It may be placed in MONOECIA *triandria or hexandria* or *triadelphia!*

It has been called Sweet-fern, owing to its singular leaves, similar to the Spleenwort fern, and having a pleasant spicy scent. It blossoms very early in March and April, before the leaves are unfolded.

Linnæus had united it to *Liquidambar* or the sweet gum tree, and Gronovius before him to *Myrica* or wax shrub, which have a similar inflorescence.

LOCALITY—From New England to Carolina, on hills and alluvial plains, in poor, rocky and sandy soils, forming vast glades in thin woods. Common both on the Allegheny mountains and the plains of

New Jersey, &c. but nearly disappearing west of the mountains, and unknown to the western plains.

QUALITIES—The whole plant, but chiefly the leaves have a peculiar strong smell, of a sweet and balsamic nature; becoming stronger by pressing or bruising them. It contains the benzoic acid, tannin and a resinous substance. The taste is balsamic and pungent.

PROPERTIES—Astringent, tonic, calefacient, cephalic, balsamic, expectorant, &c. It possesses all the properties of the tonic and astringent balsams. Barton recommends it for diarrhea, loose bowels and the summer complaint of children, or cholera infantum, in the form of a weak decoction; but it is used in Pennsylvania and Virginia for many other diseases, such as all children's bowel complaints, (where it forms a grateful drink for them) in rhachitis, in debility, in fevers as a diluent tonic; in rheumatism and contusions it is less available. The root chewed stops blood-spitting, according to Schoepf. Upon the whole this shrub appears to be deserving of further attention, I have seen it employed throughout the country as a substitute or auxiliary to the more expensive balsams, in asthma, bronchitis, &c.

SUBSTITUTES—Storax—Tolu—-Sassafras—*Laurus benzoin*--Agrimony—*Mitchella repens*---*Gaultheria procumbens*, and all mild balsamic astringents,

No. 25.

CONIUM MACULATUM.

English Name—COMMON HEMLOCK.

French Name—Cigue commune.

German Name—Gemeine Schierling.

Officinal Name—Conium, Cicuta officinalis.

Vulgar Names—Poison Parsley, Spotted Parsley.

Authorities—Linnæus, Schoepf, Murray, Cullen, Coxe, many Dispens. Bigelow, fig. 11, and Seq.

Genus Conium—Flowers umbellate, with many leaved involucres, and dimidiate involucels. Calix concrete with the pistil, margin entire. Petals five entire inflexed. Stamina five, Styles two. Fruit bipartible, two seeded, oval, compressed, ribbed, ribs wrinkled or crenate.

Species C. Maculatum—Stem round, hollow, striated, and spotted: leaves decomposed, bi or tripinnate, folioles opposite, sessile, pinnatifid: fruit with undulated ribs.

DESCRIPTION—Root biennial, elongated, branched or fusiform—Stem from two to four feet high, branched, smooth, round, striated, hollow, jointed, and with oblong purplish dotts—Leaves smooth, decomposed, two or three times pinnate, with short sheathing petioles, leaflets or folioles pinnatifid, oval, nearly obtuse, often confluent.

No. 25.

CONIUM MACULA'TUM.

COMMON HEMLOCK.

Flowers in terminal peduncled umbels, with an involucre of ten to twelve lanceolate, reflected, acute leaflets—Umbellules from six to nine on long pedunclés, involucels with three or four similar leaflets situated on one side. Flowers very small and white. Calix without apparent teeth—Petals five, oval, inflexed, obtuse and entire at the end—Stamina five, as long as the petals. Pistil coherent with the calix, rounded, bearing the petals and stamina : Styles two, reflexed outside. Fruit nearly oval compressed, with crenate ribs, separating into two elliptical seeds, flat inside, convex outside.

HISTORY—The *Conium* of the Greeks and the *Cicuta* of the Romans, was a poisonous plant, the juice of which was used to produce death in Ceos and Athens. Socrates and Phocion, two virtuous, eminent and innocent Athenians, were condemned to drink it, and their death has rendered famous, that poisonous potion. Either this plant or the *Cicuta virosa* of Europe afforded it, or a compound beverage was made from several poisonous umbelliferous plants, which procured a speedy but tranquil dissolution.

It has since been found, that these plants, like many other poisons, have valuable medical properties, nearly similar in all the deleterious species of this family. The *Conium maculatum*, is the most employed, and must be distinguished from others, either more or less active, by its botanical characters; besides its strong smell, spotted stems, parsley leaves, &c. The power of this plant vary exceedingly, ac-

cording to the place and climate where it grows, the time when collected, and the preparations of it.

It is most powerful in warm climates, in the summer, and when full grown. Some persons are hardly affected by it: while others are more susceptible; on these it produces dizziness, nausea, disturbed sight, faintness, &c. which symptoms appear in half an hour and last half a day or more. A large dose produces worse symptoms, vertigo, paralysis, convulsions and death. There is little danger of being poisoned by this plant through mistake, owing to its bad smell: yet there are instances on record that children have taken it for parsley and the root for carrot: whereby sickness and death have been produced. In the United States, the *Cicuta maculata* is more dangerous on that score.

This plant blossoms in summer from June to August. It belongs like all the UMBELLATE to PENTANDRIA *digynia* of Linnæus.

LOCALITY—Native of Europe; but now naturalized in New England, New York, Pennsylvania, Virginia, Ohio, &c. mostly found in old fields, near roads and fences, on the banks of rivers, &c. Very common in some local spots; but not found every where.

QUALITIES—The whole plant has a disagreeable virose smell (somewhat like the urine of a cat) which becomes stronger when the leaves are bruised. The root contains in the spring a milky juice, highly virulent. The essential active acrid principle of this plant appear to reside in a green resinous substance, called *Coneine*, dissipating by exposure to air and

light, but not by fire. It contains Gum, Extractive, a green fecula, Resin, Albumen and many alkalies; but no essential oil. The taste is bitter and nauseous.

PROPERTIES—A powerful acrid narcotic and resolvent; but the uncertainty of its action lessens its value. It is never dangerous in very small doses, often repeated, and gradually increased. It is also an efficient anodyne, sedative and antispasmodic, useful to allay pain in acute diseases. It has been recommended in many chronic diseases, such as cancer, epilepsy, mania, syphilis, &c. but in those cases it acts only as a palliation to pain, like opium, to which it is often preferable, as less constipating.

The diseases in which it has been found useful, are chronic abcesses, schirrose tumors, foul ulcers, rickets, caries, repelled itch, abdominal and internal swellings, obstructions, hemicrania, dropsy of the joints, obstinate ophthalmia and cataracts, &c. In all these cases it acts as an efficient repellent and resolvent.

True Schirrus and Cancer cannot be cured by it; but obstinate and scrofulous tumors or swelled testicles (which terminate in, or are mistaken for schirrus) have been removed by its use.

The effects of this plant are so variable, that some physicians have pronounced it inert or a mere diuretic, having been deceived in their prescriptions owing to bad preparations or otherwise.

In tic douleureux it has afforded relief or even effected a cure, when nothing else could avail. While

it is highly extolled in jaundice, removing the yellowness in a short time, and curing the disease, when not too complicated. It has also a relaxing effect in facilitating the passage of biliary concretions.

Although recommended for the whooping cough, it is not a safe medicine for children.

The best way to administer it, is that of the powdered leaves, beginning with two or three grains, and increasing the doses gradually. The leaves must preserve their green color to be efficient. Yet the most usual form is the green extract, beginning with one to five grains; but it is difficult to regulate the doses, each parcel having a different strength, and being even nearly inert when made with dry leaves, or young plants, or with too much heat, or when become old. It would therefore be desirable to procure the *Coneine* of a permanent strength. An extract from the seeds is said to be stronger and produces giddiness very soon. Externally it has been used in cataplasms for carcinoma, syphilis, leprosy and obstructions. Vinegar and lemon juice are the antidotes for the poison or over-doses of this plant.

SUBSTITUTES—*Cicuta maculata*—*Angelica atropurpurea*—*Datura stramonium*—*Hyosciamus niger*—*Solanum dulcamara*—Opium, &c.

REMARKS—The white and milky root of this plant is considered a violent poison and not used, although it might be more efficient than the leaves. It cannot contain however the active principle called *Coneine*, which is green, and it is found that whenever the leaves or extract lose their green color they become inert.

No. 26.

CONVOLVULUS PANDURATUS.

MECHAMECK BINDWEED.

No. 26.

CONVOLVULUS PANDURATUS.

English Name—MECHAMECK BINDWEED.
French Name—Liseron mechamec.
German Name—Geigenblattrige winde.
Officinal Names—Convolv. pandurati seu Pseudo-mechoacana, radix.

Vulgar Names—Wild Potatoe, Wild Rhubarb, Mechameck, Wild Jalap, Man in the ground, Mecoacan, Potatoe Vine, Kussander, Kassader, &c.

Authorities—Linnæus, Schoepf, Coxe, Disp. Bigelow Seq. B. Barton, Nuttal, W. Bart. V. M M. fig. £3.

Genus Convolvulus—Calix five parted, segments unequal imbricated. Corolla bell or funnel shaped, limbus equal, nearly entire, with five folds and teeth. Five unequal stamina on the corolla. One pistil surrounded by a glandular disk, one style, stigma bifid or bilobe. Capsule bilocular, few seeded.

Species C. Panduratus—Root tuberose; stem twining; leaves cordate, acute, entire or pandurate; peduncles multiflore, calix mutic, corolla funnel-shaped.

DESCRIPTION—Root perennial, very large, cylindric or fusiform, from two to four feet long, as thick as the arm, yellowish outside, whitish and milky inside, with many fissures, often branched below

and attenuated above.—Stem procumbent or climbing, round, purplish, from three to twelve feet long, sometimes branched—Leaves cordate at the base, broad, alternate, petiolate, margin entire or undulate, or lobed on the sides like a fiddle, very sharp, but hardly acuminate, smooth, deep green above, pale green below.

Flowers in fascicles of two to six, on long pedunCles, longer than the petioles, and axillary, pedicels unequal. Calix with five unequal segments, ovate obtuse, concave, mutic, two smaller opposite outside—Corolla large, funnel shaped, about two or three inches long, and as broad above, base tubulose, color white or incarnate or purplish. Stamina white, filaments filiform, unequal, inclosed, anthers oblong. Style white, filiform, stigma bipartite, segments linear. Capsule oblong, with two cells and four seeds.

HISTORY—A great botanical confusion had arisen in this genus, and the natural tribe of VOLVULIDES or *Convolvulacea*, of which it is the type. The genera of this family had not been well fixed, and *Ipomea* particularly was so little distinguished from *Convolvulus* that many species were considered as belonging to both! It is now ascertained (as I pointed out in a dissertation published in 1820) that the inequality of the stamina is the principal character of the family, and that *Ipomea* is distinguished, not by the variable corolla, but by the trilocular capsul and capitate or trilobe stigma. Both genera contain a multitude of species, many of which are medical, such as *C. Scamonia*, *C. turpethum*, *C. jalapa*, &c. which are all drastic or cathartic.

The true jalap of commerce has been ascribed to several plants, and a controversy exists on the subject. This plant is one of the false jalaps, the others are the *Ipomea macrorhiza* of Michaux, found from Georgia to Yucatan on the sandy shores, and several Bindweeds growing in South America. The true *C. jalapa* appears to grow on the Andes of South America and Mexico.

Our *C. panduratus* has also been mistaken for Scamony, Rhubarb and Mechoacan. The native name of Mechameck ought to be given to it as a distinctive appellation. It blossoms in summer, from June to August. It was named *panduratus* by Linnæus, because the leaves are often lobed on the sides like a fiddle; but this does not always happen, and some plants have all the leaves cordate and entire.

The cathartic properties of this plant and of *Ipomea macrorhiza* have been denied by Bigelow, Baldwin, &c. and even the latter considered as edible; but it appears that all the species of these two genera, having milky roots, are more or less cathartic, particularly when fresh.

They both belong to PENTANDRIA *monogynia* of Linnæus. *Convolvulus*, (like *Evolvulus*) derives from the twining habit of the genus.

LOCALITY—Common all over the United States, from Canada and New England to Florida and Missouri, in poor and loose soils, sandy and slaty fields, gravelly hills and alluvions, open glades and thickets; but seldom in shady woods.

QUALITIES—The taste and smell of the root, approximate to Scamony and Jalap; but are less nau-

seous and acrid. This root may be known by its size, yellowish color, and crevisses. It is milky when fresh. The extract from it resembles Scamony and possesses the same properties.

PROPERTIES—Cathartic, diuretic and pectoral. It acts like jalap, rhubarb, briony and scamony at a larger dose, when given in substance ; but the extract from the fresh root is more efficient, and is a mild cathartic at a small dose of ten or twelve grains. It is seldom used by physicians, but often by Indian doctors. It is a safe substitute for the more costly roots above mentioned, and as a root often weighs twenty pounds, it might be made an article of trade. As a diuretic it is useful in gravel, strangury, dropsy, &c. it enables to evacuate small calculous granulations, and may be taken in substance or decoction. As a pectoral it has been used for consumptive coughs and asthma ; a syrup is made of it with Skunk cabbage, for that purpose.

SUBSTITUTES——Jalap——Rhubarb—-Scamony——Briony—*Erigeron Sp.*—-*Pyrola umbellata*—*Asclepias tuberosa*, &c.

REMARKS—It is asserted that the Indians can handle Rattle-snakes with impunity, after wetting their hands with the milky juice of the root of this plant, or of *Arum triphyllum*.

Henry's figure is erroneous, having triangular leaves and bracteolate flowers.

The root must be collected at the end of summer; and if to be dried ought to be cut in slices.

No. 27.
COPTIS TRIFOLIA.

COMMON GOLDTHREAD.

No. 27.

COPTIS TRIFOLIA.

English Name—COMMON GOLDTHREAD.

French Name—Coptis triphylle.

German Name—Kleinste christwurz.

Officinal Names—Helleborus trifolius, Coptis, Fibraurea, &c.

Vulgar Names—Gold-Thread, Mouthroot.

Synonyms—*Helleborus trifolius* Linnæus, &c. *Fibra aurea* Colden and Schoepf. *Anemone groelandica* Oeder. *Chryza fibraurea* Raf.

Authorities—Linnæus, Michaux, Pursh, Salisbury, Schoepf, Pallas, Oeder, Thacher, Coxe, B. Barton, Bigelow, M. B. fig. 5, & Sequel, W. Bart. V. M. M. fig 34.

Genus Coptis—Calix corolliform and caducous, with five or six leaves. Corolla with five or six nectariform cucullate petals. Many hypogynous stamina. Pistils five to eight, stipitate, germs oblong, styles recurved. Capsuls as many, stipitate, oblong, beaked, one celled, many seeded, dehiscent longitudinally.

Species C. trifolia—Roots filiform, creeping; leaves sub-radical, ternate; folioles sessile, rounded, crenate; scapes one flowered.

DESCRIPTION—Roots perennial, creeping, filiform, of a bright yellow, with many small fibres—Caudex or base of the scapes and radical leaves, cover-

ed with imbricate scales, ovate acuminate and yellowish—Leaves evergreen, on long slender petioles, proceeding from the caudex, with ternate folioles, sessile, rounded or obovate, base acute, margin with unequal acuminate crenatures and lobes, surface smooth, firm and veined. Scapes as long as the leaves, slender filiform, with one flower and a minute mucronate bract under it.

Flowers about half an inch wide, with a white corolliform calix of five, six or seven sepals or folioles, oblong, obtuse, concave. Petals as many, shorter, nectariform, obovate, hollow, yellow at the top. Stamina many, filaments slender and white, anthers rounded, adnate and yellow. Pistils from five to eight. stipitate germs shorter than the gynophore or base, oblong, acute, compressed. Styles short and curved, stigmas acute. Capsules like the pistils naked, the calix having fallen off, umbellate, on long divaricate pedicels, oblong rostrate, unilocular, dehiscent on the inner side, and many seeds attached to the other side.

HISTORY—This plant was erroneously united to *Helleborus* by Linnæus. I proposed to call it *Chryza*, in 1808: it was since called *Coptis* by Salisbury; although my name is anterior and more descriptive, and *Fibraurea* of Colden would have been good also, I am so little tenacious as to admit the *Coptis* which has already been adopted by many. The principal distinctions are found in the stipitate pistils and capsules, besides petals not bilabiate. My new genus *Enemion biternatum*, differs from Coptis by want of

petals, and two seeded capsuls. Many botanists call the petals of this plant nectaries, and the calix corolla, thus saying that they have no calyx: but the natural affinities teach that wherever the perigone is double, the inner range is the corolla, whatever be its form.

Both *Coptis* and *Helleborus* belong to POLYANDRIA *polygynia* of Linnæus, and to the RANUNCULACEOUS tribe, or natural order ADNANTHERIA, section with irregular petals, and dehiscent fruits. This plant blossoms early in the spring of the cold regions or in May.

The roots are the only parts used; they are of a fine golden color, whence the name. They ought to be collected in the summer, and are easily dried; but not easily reduced to powder. The plant itself is a pretty evergreen, having the appearance of the strawberry plant.

LOCALITY—A borcal plant found from Canada to Greenland and Iceland on the east, and to Siberia on the west. The most southern limits are New England, New York, and the shores of Lake Erie. It is commonly found in mossy swamps and bogs of evergreen woods; but also on the rocks of the White Mountains, Labrador, Newfoundland, &c.

QUALITIES—A pure intense bitter, without smell, nor astringency, consisting of extractive matter and a bitter principle, soluble in water and alcohol: the tincture is yellow.

PROPERTIES—Tonic and stomachic, promoting digestion, strengthening the viscera, useful in dyspepsia, debility, convalescence from fevers, and whenever

a pure bitter is required; being a good substitute for Quassia, Columbo, Gentian, &c. A tincture made with an ounce of the roots in a pound of diluted alcohol, is recommended in doses of a tea spoonful thrice a day, or ten to twenty grains of the powder: both agree with the stomach.

It has been used for ulceration of the mouth, in gargle, &c. but Bigelow pretends that it is inert in that case, being devoid of astringency; and to other articles added to it, are to be ascribed the benefit it may have afforded.

SUBSTITUTES——Quassia——Columbo—*Menyanthes trifoliata*—*Frasera verticillata*—*Aletris farinosa*—*Sabbatia angularis*, and other pure bitters.

No. 28.

CORNUS FLORIDA.

COMMON DOGWOOD.

No. 28.

CORNUS FLORIDA.

English Name—COMMON DOGWOOD.
French Name—Cornouiller fleuri.
German Name—Schonbluhender Hartriegel.
Officinal Name—Cornus florida.
Vulgar Names—Dogwood, Dogtree, Boxtree, Florid Cornel, Monhacaniminschi, &c.
Authorities—Lin. Mich. Pursh, Schoepf, Catesby, Thacher, Coxe, Carpenter, Elliot, B. Barton, Big. fig. 28, and Seq. W. Bart. fig. 3, &c.

Genus Cornus—Calix symphogyne, four toothed. Petals four, small and broad. Stamina four, epigyne alternating with petals. One style and stigma. Fruit a drupe inclosing a bilocular two seeded nut.

Species C. Florida—Asborescent; leaves opposite, ovate, acuminate, base acute, glaucous beneath: Involucres corolliform, nearly obcordate; drupes ovate and scarlet.

DESCRIPTION—Stem rising from fifteen to thirty feet, with a rough blackish bark full of fissures: branches opposite, spreading, with reddish bark and rings where the old leaves grew.—Leaves opposite, petiolate, oval, entire, base acute, end acuminate, pale beneath, with strong parallel veins.

Flowers terminal, appearing when the leaves are young, with a large four leaved involucre three inches broad, commonly mistaken for the blossom, white, obcordate, veined. The true flowers are in the centre, small, crowded, sessile, yellowish. Calix campanulate, symplrogyne, with four obtuse teeth. Corolla with four oblong, obtuse petals. Stamina four erect, anthers oblong, style short, erect, stigma obtuse. Fruits several oval scarlet drupes, with a nut inside having two cells and two seeds.

HISTORY—The genus *Cornus* or Cornel, must be divided into two sections, those species having the flowers capitate, sessile, and with an involucre, are the true Dogwoods, (*Cynoxylon*), and those with cymose, naked flowers, are the true Cornels. It belongs with *Hedera* to the natural family of HEDERACES, and to TETRANDRIA monogynia of Linnæus. *Cornus* is the ancient latin name of the Cornels, and *florida* implies that the blossoms are more conspicuous than in any other species.

The *C. florida* is a handsome tree, enlivening the woods in the spring by a profusion of large white blossoms, and bearing in the fall clusters of beautiful scarlet berries. In Louisiana, where it is called *Bois bouton*, or *Bois de fleche*, (Budwood and Arrowwood) it blossoms in February; in the middle states in April and May, and more northwardly in June. It lasts a fortnight in full bloom, and every where indicates according to the Indians, when Indian corn is to be planted.

This tree grows very slow, and the wood is hard, compact, heavy and durable; it is white outside, and chocolate color in the centre, taking a very fine polish. It may be used like Boxwood, and when stained of a light yellow color, resembles it altogether. All kinds of tools and instruments are made with it, also cogs of wheels, teeth of harrows, spoons, &c.

LOCALITY—All over the United States, and almost in every soil, from Massachusetts to Louisiana, and from Florida to Missouri. Most abundant in swampy and moist woods.

QUALITIES--The bark of the root, stem and branches is bitter, astringent and slightly aromatic. By analysis it has been found to contain in different proportion the same substances as *Cinchona*, having more of Gum mucilage, extractive and Gallic acid, and less of Resin, Quinine, and Tannin. The Quinine of the *Cornus* has been called Cornine, it has all the properties of the genuine Sulphate of Quinine, but very little is afforded. The double distilled water of *Cornus* is lemon color, that of Cinchona is reddish.

The extract of *Cornus* is less bitter and more astringent than that of the best *Cinchona*, but preferable to the extract of the inferior kinds.

This extract contains all the tonic properties, the resin alone is merely stimulant. The bark of the root is the strongest; it is more soluble in water than *Cinchona*. The fresh bark frequently disagrees with the stomach, and is improved by keeping at least one year.

PROPERTIES—Tonic, astringent, antiseptic, coroborant and stimulant. It is one of the best native

substitutes for *Cinchona*, although evidently different in some respects; the powdered bark quickens the pulse, and sometimes produces pains in the bowels; but the Sulphate of Cornine and the extract are not so stimulant. They are used in intermittent and remittent fevers also, typhus and all febrile disorders. The doses of the powder are from twenty-five to thirty-five grains, often repeated. The Cornine like Quinine.

In cases of debility it acts as a corroborant; it may be joined in practice with Gentian, Colombo, Camomile, Liriodendron, Seneca root, &c. It is often used in decoction in the country, and even the twigs are chewed as a prophylactic against fevers. Drunkards use a tincture of the berries as a bitter for the same purpose and for indigestion.

The flowers have the same properties, and are chiefly used by the Indians, in warm infusion for fevers and cholics. All these preparations have a more agreeable bitterness than the Peruvian bark.

It is said that the twigs rubbed or chewed, clean and keep sound the gums and teeth. A decoction of the bark is used to cure the distemper of horses called the yellow water. Joined with sassafras it is employed in strong warm decoction to clean foul ulcers and cancers. Lastly, a kind of black ink can be made with the bark, in the usual way, instead of galls.

SUBSTITUTES—*Cinchona—Liriodendron—Magnolia sp—Pinckneya—Cephalanthus*, and most of the astringent tonics, besides several species of the same genus.

REMARKS—Almost all the species of this genus have more or less the same tonic properties, and may be

substituted to the *C. florida.* Three of the best known as most efficient will be mentioned here.

1. *Cornus Sericea* or Blueberry Cornel, vulgarly called Swamp Dogwood or Rose Willow, is a shrub from six to twelve feet high, growing from Canada to Virginia, near swamps and streams. There is a figure of it in W. Barton, fig. 9. The leaves are like those of *C. florida*, and silky beneath, but the flowers are very different, in large terminal cymes, without involucrum, yellowish white, and succeeded by large clusters of small round blue berries.—The bark is less bitter, more astringent and pleasant to the taste than in C. *florida.*

2. *C. circinnata* or Round leaved Cornel, also called Alder Dogwood, is a shrub with warty twigs, large rounded leaves, woolly beneath: the flowers are in cymes, without involucrum. It grows from Canada to Pennsylvania.—Prof. E Ives of New Haven, and Dr. A. Ives of New York, extol this kind, they say it resembles the pale Peruvian Bark, *Cinchona lancifolia*: an ounce of the bark yields by boiling 150 grains, of an astringent and intensely bitter extract. In use it is found preferable to Colombo and *Cinchona cordifolia,* it is much employed in the Northern States, in substance and otherwise, for diarrhœa, dyspepsia; but is too heating in fevers.

3. *C. alba* or Wax-berry Cornel, is also a shrub, growing from New England to Siberia in Asia, with broad ovate leaves, white beneath, flowers in cymes, berries round, white like wax.—All these blossom from May to June: many birds are fond of their berries and the beavers eat their bark.

No. 29.

CUNILA MARIANA.

English Name—AMERICAN DITTANY.

French Name—Cunile d'amerique.

German Name—Americanische cunile.

Officinal Name—Cunila herba.

Vulgar Names—Mountain Dittany, Stone Mint, Wild Basil, Sweet Horsemint, &c.

Authorities—Linnæus, Schoepf, Mich. Pursh, Elliot, Torrey, Stokes, W. Barton, fig. 42, &c.

Genus Cunila—Calix tubular, striated with five subequal teeth. Corolla tubular, rirgent, upper lip erect flat emarginate, lower lip three parted. Two exerted fertile stamina, two sterile stam. very short. Germen four lobed, style exerted, stigma lateral. Four seeds within the calix closed by hairs.

Species C. Mariana—Smooth, stems slender and branched; leaves opposite, sessile, punctate, ovate, remote, serrate; flowers in terminal fasciculate corymbs.

DESCRIPTION—Root perennial, fibrous, yellow.—Stem about a foot high, smooth, yellowish or purplish; slender, hard brittle, with many brachiate remote branches.—Leaves remote, sessile, smooth, dotted, pale green, glaucous beneath, base subserdate, end acuminate or sharp, margin with small remote acute teeth, nerves regular, texture dry.

Flowers small but handsome, of a pink or white

No. 29.

CUNILA MARIANA.

AMERICAN DITTANY.

color, forming terminal clusters or corymbs, by the union of several branched fascicles of three to seven flowers, with very small short oblong bracteoles. Each flower peduncled and naked, calix green nearly cylindrical with ten furrows, and five small sharp teeth nearly equal. Corolla twice as long as the calix, nearly cylindric, with two short lips, lower lip larger with three rounded lobes, upper lip smaller, flat and notched. Four stamina, two of which are long, slender and protruding with the style, bearing small didymous anthers: two small, very short, without anthers.—Fruit formed by four small obovate seeds at the bottom of the persistent calix, mouth of it closed by hairs.

HISTORY—This genus belongs to the great natural order of LABIATE, section with two fertile filaments, next to the genera *Lycopus*, *Collinsonia* and *Hedeoma*. It ranks with them in *Diandria monogynia* of Linnæus. It contains now only this species, which has been called *mariana* because first sent to Europe from Maryland. Linnæus had united it to *Satureja* at first, and called it *S. origanoides*. When he made a new genus of it, he united with it the *C. pulegioides*, which is now *Hedeoma pulegioides*: these are examples of the botanical vacillations and errors, to which great writers are liable when they wish to improve the science, and are not ashamed of correcting themselves.

The *C. mariana* is a pretty plant, with a very fragrant smell, similar to Marjoran and Dittany. It

is commonly called by this last name throughout the United States; but is very different from the Dittany of the gardens, which is the *Dictamnus fraxinella*, and the other Dittanies of Europe, *Origanum dictamnus*, *Marrubium pseudodictamnus*, &c. Our Dittany is peculiar to America, and distinguished by its corymbose flowers, which blossom in summer from July to September.

Locality—All over the mountains and dry hills from New England to Kentucky and Carolina, common among rocks and sides of hills, unknown in the plains and alluvions.

Qualities—The whole plant has a warm fragrant aromatic pungent taste and smell, residing in an essential oil, which can easily be extracted by distillation, and approximates to the oil of *Origanum*, but is more balsamic. It is the most fragrant of all the native labiate plants, and the essential oil has a very strong balsamic fragrance.

PROPERTIES—Stimulant, nervine, sudorific, subtonic, vulnerary, cephalic, &c. The whole plant is used, and usually taken in warm infusion: Dittany tea is a popular remedy throughout the Country for colds, headaches, and whenever it is requisite to excite a gentle perspiration. It partakes of the properties of all the grateful aromatic labiate plants, and also of Camomile, *Anthemis Cotula*, and the *Eupatorium perfoliatum*: while it affords a more palatable drink. Its fragrant tea is preferable to that of Sage and *Monarda*, it has neither the pungency of Mint, nor the nauseous smell of Pennyroyal or

Hedeoma. *Solidago Odora* comes nearest to this, by its fragrance; but is weaker and not so grateful. It relieves nervous headaches and hysterical disorders. It is used in Carolina, Kentucky, &c. in fevers to excite perspiration, and suppressed menstruations, &c. It is a useful drink in nervous diseases, cholics and indigestion. Externally it is employed like *Collinsonia* for bruises, sprains, &c. but is not so efficient. According to Schoepf, it was one of the plants resorted to for curing the bites of snakes; the juice was mixed with milk for this purpose. There are fifty plants in the United States, employed occasionally as an antidote for this purpose, which merely act as sudorifics The essential oil possesses all the properties of the plant, and a few drops of it are sufficient to impart them to mixtures.

Substitutes—Besides the plants mentioned above, all the mild sudorifics, and *Eryngium yuccefolium*, Yarrow, Tansey, Snakeroots, *Inula helenium*, &c.

No. 30.

CYPRIPEDIUM LUTEUM.

ENGLISH NAME—YELLOW LADIES' SLIPPER.

FRENCH NAME—SABOT DE VENUS JAUNE.

GERMAN NAME—GELB FRAUENSCHUH.

OFFICINAL NAME—Cypripedium radix.

VULGAR NAMES—Mocasin flower, Yellows, Bleeding heart, American Valerian, Yellow Umbil, Male Mervine, Noah's Ark, &c.

SYNONYMS—*Cypripedium Calceolus* Var. b. Lin. —*Cypr. luteum* Aiton—*C. flavescens* Redoute—*C. pubescens* and *C. parviflorum* Wildenow, Salisbury, Persoon, Pursh, Elliot, Torrey, Eaton, W. Barton, &c.

AUTHORITIES—Wildenow, Aiton, Pursh, Elliot, W. Bart. flora fig. 74, &c.

Genus CYPRIPEDIUM—Perigone symphogyne concrete with the germen at the base, with five unequal sepals or divisions, superior and often colored; the innermost or labellum larger, different, ventricose, split. Central pillar or gonophore bearing two Anthers and a terminal lobe.

Species C. LUTEUM—Stem leafy, leaves broad. often acute and pubescent; flowers with the labellum shorter than the other sepals, saccate and compressed, two inner sepals linear spiral and very long, terminal central lobe deltoid nearly obtuse.

DESCRIPTION—Roots perennial with many long, thick, fleshy cylindrical and flexuose fibres, of a pale

No. 30.

CYPRIPEDIUM LUTEUM.

YELLOW LADIES' SLIPPER.

yellowish cast, diverging horizontally from the caudex.—Stems one to five from the same caudex, simple, erect, often pubescent and angular, rising one or two feet, three to seven leaves, and one to three flowers. Leaves alternate, sessile, sheathing, ovate or oblong, acute pubescent or smooth, but always entire and with many parallel nerves, green above, paler beneath.

Flowers sessile, when more than one, each has a bracteal leaf. Germen concrete or inferior, green, cylindrical, often curved. Perigone with five unequal and different sepals, called petals by the Linnean Botanists: two are external oblong or lanceolate, acute, longer than the labellum and green: two are internal longer, narrower, spirally contorted and green: the fifth or innermost and lower, called Labellum, is totally different from the others, shorter but larger, yellow with or without red spots, hollow like a bag, convex beneath, rounded in front, split above with inflexed margins. Style and stamina concrete in the centre, above the germen, forming a central pillar, flattened above into an oblong deltoid lobe, supposed to be the stigma by some Botanists, and bearing before two anthers, lodged in separate cells.—The fruit is an oblong capsul, with one cell, three valves, and a multitude of minute seeds, as in all the Orchideous tribe.

HISTORY—The natural order of the ORCHIDEOUS to which this plant belongs, is a very striking and peculiar tribe of Monocotyle vegetables, which even Linnæus considered as natural, and put in his class

Gynandria and order *Diandria*, although most of them are truly monandrous. He called their perigone, a corolla, because often colored, and deemed the labellum a nectary, while it is evidently a part of the perigone or sexual covering. The generic name of *Cypripedium*, means Venus' Shoe; it is a splendid genus containing several beautiful American and Asiatic species. Many Botanists have made two species, *C. pubescens* and *C. parviflorum* of this, to which the previous and better name of *C. luteum* ought to be restored. I have ascertained that they form only one species, affording many varieties, some of which are

1. C. L. Var. *pubescens*, entirely pubescent even the flowers.

2. C. L. Var. *glabrum*, nearly smooth.

3. C. L. Var. *grandiflorum*, slightly pubescent, labellum very large.

4. C. L. Var. *parviflorum*, slightly pubescent, labellum small.

5. C. L. Var. *maculatum*, labellum more or less spotted, with red dots, lobule often red.

6. C. L. Var. *biflorum*, with two flowers and bracteoles.

7. C. L. Var. *concolor*, the whole flower yellow or yellowish, unspotted.

8. C. L. Var. *angustifolium*, leaves and bracteoles lanceolate.

A multitude of intermediate varieties or deviations may be seen, with undulate or spiral sepals, obtuse or acute lobule, broader or narrower leaves, &c.

This plant blossoms in May and June; it is much valued in gardens for its beauty and singularity, but it is difficult to cultivate: it will seldom grow from seeds; the roots must be taken up with earth round them, and transplanted in a congenial rich light soil. For medical use, they must be collected in the fall, or early in the spring, carefully dried and reduced to powder.

LOCALITY—Found all over the United States, from New England to Louisiana; but very rare in some places, while it is common in the hills and swamps of New York, the Highlands, Green and Catskill Mountains, and also in the glades and prairies of the Western States.

QUALITIES—The roots are the only medical parts: they have a pungent, mucilaginous taste, and a peculiar smell, somewhat nauseous. They contain extractive, gum, fecula, and perhaps a small portion of essential oil.

PROPERTIES—It is with some satisfaction that I am enabled to introduce, for the first time, this beautiful genus into our Materia Medica: all the species are equally medical; they have long been known to the Indians, who called them Mocasin flower, and were used by the Empirics of New England, particularly Samuel Thompson. Their properties however have been tested and confirmed by Dr. Hales of Troy, Dr. Tully of Albany, &c. The most efficient is the *C. luteum*, next *C. acaule*, and last *C. spectabile* and *C. candidum*. Neither Schoepf nor any other medical writer has mentioned them.

They are sedative, nervine, antispasmodic, &c. and the best American substitute for Valerian in almost all cases. They produce beneficial effects in all nervous diseases and hysterical affections, by allaying pain, quieting the nerves and promoting sleep. They are also used in hemicrania, epilepsy, tremors, nervous fevers, &c. They are preferable to Opium in many cases, having no baneful nor narcotic effects. The dose is a tea spoonful of the powder, diluted in sugar water, or any other convenient form. As in Valerian, the nervine power is increased by combination with mild tonics. The powder alone has been used; but an extract might be also efficient, unless the active principle is very volatile.

It is well known that the roots of all the tubercular Orchideous, afford the officinal Salep, which is so highly esteemed in Asia as aphrodisiac, nutritive and pectoral. The roots of many species of Orchis could afford it in America. The *Cypripedium* having long fleshy roots appear to afford a different kind of substance, by their efficiency as equivalents to Valerian and Opium.

Substitutes—All the species of this fine genus being equally nervine, it will be well to notice them, so as to be easily known.

1. *C. acaule* or Red Ladies' Slipper, Dwarf Umbil, &c.—Two radical leaves, one large red flower on a naked stem. Common in New Jersey, and on the alluvial plains of the Atlantic States. Best substitute. Roots smaller and brownish. There is a bad figure of it in W. Barton's Am. Flora.

2. *C. spectabile*, or Red and White Ladies' Slipper, Female Nervine, &c.—Stem leafy, one or two flowers white and rose colored, sepals oval and short —Rare from New York to Louisiana.

3. *C. candidum*, or White Ladies' Slipper, White Umbil, &c.—Stem leafy, flower white, sepals longer than the labellum—Rare in deep woods, Pennsylvania to Ohio.

The other succedanea may be *Valeriana officinalis* —*Humulus lupulus* or hops—*Ulmus fulva*—*Arnica Montana*—*Doronicum sp.*—*Cunila mariana*—*Inula helenium*, &c.

Remarks—The Orchideous plants which have long roots like the *Cypripedium*, appear to have different properties from those which have round or oval tubercles. The *Goodyera* is antiscrofulous.

The Genus *Cladorhiza* or *Corallorhiza*, which has fleshy branched roots, has also active properties, &c. The *Habenaria fimbriata* has anthelmintic roots, and the *Hab orbiculata* is one of the Heal-alls or common Vulneraries.

All the bulbs of our tubercular Orchideous are more or less like Salep, Aphrodisiac and Uterine. But one of them the *Aplectrum hyemale*, (called formerly *Cymbidium* and *Corallorhiza* by other Botanists,) commonly known by the vulgar name of Adam and Eve, furnishes a kind of Glue, and has active properties. A species of the same genus *Aplectrum lutescens* which grows in the Western States, is said to be a powerful Uterine, employed by the Indian Women to procure abortion.

No. 31.

DATURA STRAMONIUM.

English Name—COMMON THORN APPLE.

French Name—Stramoine vulgaire.

German Name—Gemeine Stechapfel.

Officinal Name—Stramonium.

Vulgar Names—Jamestownweed, Jimson, Stinkweed, &c.

Authorities—Linn. and all botanical writers, Schoepf, Stoerck, B. Barton, Marcet, Hufeland, Woodville, Fisher, Cullen, Murray, Chapman, Archer, Thatcher, Coxe, A. Ives, Bigelow, fig. 1. & Seq.

Genus Datura—Calix tubular, angular, deciduous, five toothed, Corolla funnel-shaped, plaited, five toothed: stamina five equal. Pistil one, style filiform, stigma bilobe. Capsule four celled, four valved, many seeded.

Species D. Stramonium—Stem dichotome; leaves alterne oval, sinuate-angular, acute, smooth: flowers solitary, capsuls erect, ovate, thorny.

DESCRIPTION—Root annual, white, crooked. Stem erect, from one to eight feet high, branched by forks or dichotome, cylindrical, often hollow, smooth or pubescent. Leaves alternate at the forks, petiolate, oval or oval-oblong, base decurrent, end acute, margin almost angular by large unequal acute teeth, sinuses rounded, and irregular.—Flowers axillary solitary, on short peduncles, erect, or sometimes

No. 31.

DATURA STRAMONIUM.

COMMON THORNAPPLE.

nodding, large, white or blueish. Calix monophylle, tubular, with five angles and teeth, deciduous, but leaving a rim at the base. Corolla twice as long, monopetalous, base tubular, subangular, limb with five angles, plaits and teeth, these last are acuminate. Stamina five, filaments coherent with the tube, filiform, equal, anthers oblong erect. Germen central, free, but the base concrete with the persistent rim of the calix, oval, hairy; one style filiform, as long as the stamina, one stigma bilobe at the base or subreniform. Fruit a large fleshy capsule, ovate, thorny, with four valves opening at the top, inside with four cells. Many black seeds filling each cell, and attached to a central receptacle in each cell, shape reniform.

HISTORY—The Genus *Datura* belongs to the LURIDES of Linnæus or SOLANEA of Jussieu; but ought to be the type of a peculiar family DATURINES, hardly different from the CONVOLVULIDES, except by having equal stamina. It is one of the numerous genera of the linnean *Pentandria monogynia.*

Some obscurity appear to exist on this species and several others, owing to mistakes of the best botanists. Linnæus blended the *Datura tatula* of Africa, with a variety of *D. Stramonium*, and the *D. metel* hardly differs from both. Individual varieties answering to these three species, are found in the United States; but they have all the same properties, as well as the *D. fastuosa* and *D. ferox* of the East Indies. The following varieties are common with us, and are linked by imperceptible changes.

1. Var. *Tatuloides.* Stem purple dotted with green, leaves subtruncate at the base, flowers purplish. This is the *D. tatula* of some botanists, but not the real one of South Africa and Asia.

2. Var. *Cordata.* Leaves cordate at the base, stem green, flowers pale bluish.

3. Var. *Angustifolia.* Leaves oblong-lanceolate, sinuate, flowers pale bluish.

4. Var. *Physaloides.* Leaves oblique at the base, viscid, flowers white.

5. Var. *Meteloides.* Stem viscid, tall, leaves subcordate pubescent viscid, flowers white, nodding.—This is the *D. metel* of some Botanists, but not the true kind of Africa, which has globose capsuls, and leaves nearly entire.

6. Var. *Alba.* Stem green without dots, flowers pure white.

This plant has handsome flowers, sometimes four inches long, with leaves from three to seven inches long, of a lurid aspect. It has been formerly cultivated for its beautiful blossoms, although they have a lurid smell. Children use them as yet for garlands, by forming strings of the flowers within each other. Notwithstanding its noxious qualities, I have seen Cows, Sheep and Goats browze on the leaves.

It blossoms from May to September, in the Southern States, and in the Northern from July to October, bearing yet blossoms when the seeds of the first flowers are ripe. It is killed by the frost with us; but in warmer climates becomes a half biennial plant.

The whole plant is a narcotic poison, producing

many strange effects on the human system, according to the doses and constitutions. The leaves eaten boiled, have occasioned delirium and intoxication for many days, without producing death, or else madness or tetanus and death. The Antidotes of this poison are emetics, vegetable acids, and strong coffee.

The vulgar name of Jimson is a corruption from Jamestown; as it is said to have spread from the town of that name in Virginia.

Locality—One of the erratic or wandering plants, common to all the parts of the world, and spreading with the utmost facility. It is probably a native of Persia and India; but has spread to Europe, Africa and America. It was once thought to be a native of North America; but it has spread in it only since its colonization: the Indians call it the White people's plant. Its migrations and colonies might be traced from Virginia, and New England. In the Western States it has sprung only since their late settlement, and from seeds carried there as a pretty garden plant. It is now become a noxious weed, infesting the fields, &c.; but as it is annual, it might easily be destroyed by pulling it before seed time. It is commonly met with near houses, along the roads, in commons, old fields, &c., never in woods nor mountains, and is found in all the States; also in Canada, and beyond Louisiana to Mexico, and even to Peru in South America.

Qualities—The whole plant has a fetid, lurid and narcotic smell, causing head ache and stupor; it has a bitter and nauseous taste. It contains gum, resin,

carbonate of ammonia, nitrate of potash, malic acid, and a peculiar alkaline principle called *Daturin*, to which most of its activity is ascribed. Daturin cristalizes in quadrangular prisms, and is only soluble in boiling alcohol: yet the plant yields its properties to Water and Alcohol, because the Daturin is combined with the acid and forms a soluble mallate of Daturin.

PROPERTIES—This loathsome weed is one of those bounties of nature scattered almost every where, and possessing energetic medical powers. It is narcotic, phantastic, antispasmodic, anti-epileptic, anodyne, sedative, &c. and externally refrigerant, detergent, resolvent, &c. It has been recommended by Physicians in Asia, Europe and America, in Epilepsy, rheumatic pains, tic douleureux, Gout and all kinds of pains, Mania, Convulsions, Asthma, Chorea, Sciatica, &c., and externally for burnings, scaldings, tumors, ulcers, cancer and piles. It is now a common article of Materia Medica every where; but it fails sometimes and requires care in the exhibition, owing to its noxious qualities when taken internally in too great quantity. It produces then Vertigo, confusion of mind, dilatation of the pupil, loss of sight, head ache, tremors of the limbs, loss of motion, dry throat, nausea, anxiety, faintness, delirium, convulsions, lethargy and death. Vinegar neutralizes the Daturin, as well as all vegetable acids; but an emetic is always serviceable when poisoned by narcotics.

The effects of this narcotic when administered internally for medical purposes, and in proper doses, is

to lessen sensibility and pain, to cause a kind of nervous shock attended with some nausea, a feeling of intoxication and suffocation, to have little influence on the pulse, to relax the bowels, to dilate the eyes, &c., followed by a sensation of ease and quiet, which induces sleep.

It has been too much extolled by some writers; but the results of the numerous cases in which it has been given, are as follows:—In asthma, it is only a palliative, useful in the paroxysms, but useless in plethoric cases, it is commonly smoked like Tobacco, a practice likely to be attended with some danger, and suitable only for smokers. In Mania it is of little use except in some cases difficult to be ascertained; but in Epilepsy and Convulsions it cures the periodical fits, while it avails not in the sudden fits. It is highly serviceable in Chronic acute diseases, such as Sciatica, Syphilitic pains, disease of the spine, paraplegia, Cancer of the breast, uterine pains, rheumatism, &c., also in chorea and dysmenorhea, strangury and Calculus, acting in all those cases as an antispasmodic. In tic douleureux it has only afforded relief in some cases, and has required repeated doses, but it has failed in others.

Externally it is a safer and certain remedy for burns, tumors, gout, ulcers, inflammations and some cutaneous eruptions. The leaves or their ointment are applied to the parts, they promote the granulations or cicatrization of the worse ulcers, and afford speedy relief in piles and painful hemorrhoidal tumors. Sur geons use them topically to enlarge the pupil of the

eye previous to the operation of Cataract. It is said that the leaves applied to the head, produce sleep and dreams. The plant may be gathered for use at any time; but it is best when in blossom. All the parts of the plant are efficient even the root; but the seeds contain more Daturin, and are preferable in some instances.

Many preparations are made for internal use; but the distilled water is nearly inert. The powdered leaves, juice, extract, decoction, tincture, &c. are all available; for external use an ointment is made by simmering one pound of fresh leaves in three pounds of lard. The doses for internal use are to be very small. Dr. Bigelow recommends the following: one grain of dry powdered leaves or extract, half a grain of powdered seeds, one quarter of a grain of extract from the seeds, and from 15 to 20 drops of the tincture. Marcet and others say that even one-eighth of a grain is a sufficient dose to begin with. One pound of seeds afford two ounces of extract, and one pound of leaves three ounces.

Substitutes—*Hyosciamus niger*—*Conium maculatum*—*Lactuca elongata*—*Solanum Virginicum* and *S. dulcamara*—*Cypripedium* Sp—Opium and other active narcotics or sedatives.

No. 32.

DIOSPYROS VIRGINIANA.

PERSIMON TREE.

No. 32.

DIOSPYROS VIRGINIANA.

English Name—PERSIMON TREE.
French Name—Plaqueminier.
German Name—Persimon Baum.
Officinal Name—Diospyros.
Vulgar Names—Persimons, Yellow Plums, Winter Plums, Guaiacan, Seeded Plums, Pishmin, &c.
Authorities—Lin. Mich. Fl. and Sylva, Pursh, Eaton, Torrey, Elliott, Schoepf, Kalm, Catesby, Woodhouse, Coxe, Brickell, Zollickoffer, &c.

Genus Diospyros—Diclinous, Calix 4 to 8 cleft. Corolla rotate or urceolate 4 to 8 cleft. Staminate flowers with 8 to 20 Stam. filaments free with one or two anthers. Pistilate fiowers with one Pistil, a short style and 4 to 6 stigmas. Berry with 8 to 12 seeds.—Trees with alternate leaves.

Species D. Virginiana—Leaves ovate oblong, acuminate, entire, smooth, pale and reticulate beneath, petiolate, petiols pubescent; Berries solitary globose.

DESCRIPTION—The Persimon is a common tree rising from 15 to 60 feet, with a smooth bark, and spreading branches. The leaves are from three to five inches long, shining above, whitish or pale and reticulate beneath, oval or oblong, base acute, end or tip acuminate, margin entire, on short alternate and pubescent petioles. These leaves vary in

size, and some varieties have them glaucous or pubescent beneath. Buds smooth.

Flowers lateral, extra axillary, solitary, nearly sessile or on a short pedicel. Calix spreading persistent, commonly 4 cleft, seldom 5 or 6 cleft, segments oval acute shorter than the Corolla, which is yellowish, with as many segments as the calix, broad ovate, acute. Diclinous blossoms on separate trees or dioical, sometimes a complete flower occurs, in which are as many stigmas as segments to the Calix, and double the number of Stamina. The filaments are short, free or inserted on the calix instead of the corolla, depressed, anthers bilobe. One Pistil, germen round, style very short, stigmas obtuse, spreading.—Fruit a globular yellow berry, similar to a plum, with a thin skin, fleshy pulp and many compressed hard seeds.

HISTORY—This genus amply evinces the absurdity of the Linnean system, since hardly two species of it have the same number of stamina. Linnæus put it in his class *Polygamia;* it is now put in *Dioecia octandria*, although many species have 10 or 12 or 16 or 20 Stamina, and 2, 3, 4, 5 or 6 Styles or Stigmas. It however belongs to a very natural family the EBENACEOUS. The whole genus appears to need reform, and ought to be divided in many Sub Genera or Genera, such as

Diospyros to which *D. Lotus, Virginiana*, &c. belong.

Embriopteris (Gaertner) 20 stam. One cruciate stigma.

Ebenum. Cal. 5 Segm. Stam. 10. Berry 10 locular.
Dimia, with 2 or 3 Styles, type *D. digyna.*
Chloroxylon, type D. ditto.
Gonopyros, Cal. and Cor. 5 fid. Berry angular or lobed.

The *D. Virginiana* is by no means a definite species. Pursh and Michaux, jun. have noticed that two species are probably blended under that name: to one of them Pursh gave the name of *D. pubescens.* I have ascertained three principal varieties at least, (and there are more) which might almost be deemed specific; they are

1. Var. *Macrocarpa.* Leaves smaller, glauceous beneath, fruit very large—Southern States.

2. Var. *Concolor.* Leaves middle size, hardly pale beneath, somewhat obtuse, fruit of a good size.

3. Var. *Microcarpa.* Leaves large acute, pubescent beneath, fruit very small.—Virginia, &c. This is the *D. pubescens* of Pursh, who says that the leaves are tomentose beneath, petioles longer, &c.

The blossoms are of a pale yellow or orange color, they appear in May and June, when the leaves are yet small and not quite unfolded. The berries are only ripe late in the fall, and after frost; they resemble a yellow plum, but are globular: before their maturity they are exceedingly acerb and astringent; but when fully ripe and soft, become sweet, and have a fine flavor. These berries were one of the spontaneous fruits used by the native Tribes; who preserved them in various ways, dried them and made a paste with them: also a kind of Beer or Wine: this

liquor contains alcohol, which has been attempted to be extracted; but too many substances afford it already.

A gum exudes sometimes from the tree, but in small quantity. The Persimon Beer is made by forming the fruits into cakes with bran, drying them in an oven, and bruising these cakes afterwards in water. The large variety has fruits as big as an egg, and deserves to be cultivated on a large scale as a fruit tree. The wood is hard and fine, suitable for tools and many other domestic articles. To make Persimon Wine the skin of the ripe fruits ought to be taken off, as it contains too much astringency.

LOCALITY—From New York to Louisiana, rare beyond the 42d degree of latitute, common in the South, in woods and groves; more common in the plains than the mountains.

QUALITIES—Bark bitter and acerb, containing Tannin, Extractive, &c. Fruit sweet and well flavoured when ripe, containing sugar, mucilage, gallic acid and several other substances.

PROPERTIES—Bark astringent, styptic, tonic, corroborant, antiseptic, &c. Ripe fruits subastringent, nutrient, antiseptic, anthelmintic, &c. The inner bark is the most officinal part: it is extremely bitter, and a good astringent tonic, useful in sore throat, fevers, intermittents, and Dysentery. In this last disorder it is often united with rhubarb. It is much used in Carolina and Tennessee for intermittent fevers. It is also a powerful antiseptic, and equal to the *Cinchona:* Some physicians consider

it, as well as its equivalent the *Sorbus Americana* as the best succedanea to *Cinchona*. It has been useful in ulcers, and ulcerous sorethroat. The doses are the same as common tonics either in substance or extract. It has not yet been analysed; but probably contains a peculiar principle, Diospyrine, which is by far more astringent than Cornine or even Quinine, owing to its union to the gallic acid.

In the South of Europe the *Diospyros Lotus*, which is very much like the Var. *microcarpa*, is called holy wood, and employed as a substitute for Guayac wood. This may perhaps possess similar properties.

The unripe fruit has nearly the same properties as the bark; but is too austere and very styptic. The ripe fruit is very palatable, sweet and vinous; it has been used to kill the worms of children.

Substitutes—*Sorbus Americana*—*Prunus Virginiana*—*Quercus rubra*—*Spirea tomentosa*—*Pinckneya bracteata*—*Cinchona* Sp. and most of the Astringent Tonics.

Remarks—The Persimons, Wild Grapes, Papaws (*Asimina*) Hickorynuts, Pecans, Walnuts, Chesnuts, Chincapins, Filberts, Whortleberries, Cranberries, Strawberries, Mulberries, Raspberries, Blackberries, Crab Apples, Wild Plums, &c. were the fruits of the native tribes. Several have been introduced already in our gardens; but the Persimon has not yet been cultivated, although no fruit deserves it better: it promises to improve in flavor and size under the care of the gardener, affording a fine table fruit, many preserves, and a peculiar kind of wine.

No. 33.

DIRCA PALUSTRIS.

English Name—SWAMP LEATHERWOOD.

French Name—Dircier triflore.

German Name—Leder-holz.

Officinal Name—Dirca.

Vulgar Names———Leatherwood, Moosewood, Swampwood, Ropebark, (Bois de plomb in Canada.)

Authorities—Linnæus, Pursh, Kalm, Bartram, Duhamel, fig. 212. Torrey, Eaton, Elliott, Locke, B. Barton, Zollickoffer, Bigelow, fig. 37, &c.

Genus Dirca—Perigone simple, colored or corolliform, tubular, funnelshaped, nearly entire, sub-eight toothed. Stamina eight perigynous, exserted, four alternate longer. Germen free oval, style lateral. Berry one seeded.

Species *D. palustris*—Shrubby, branches articulated; leaves alternate, subsessile, oval, entire; peduncles triflore drooping.

DESCRIPTION—Shrub, from three to seven feet high, with branches spreading, cylindric, flexuose articulate, green, smooth. Leaves alternate or scattered, distichal, nearly sessile, petioles very short; shape oval entire, acute at both ends, downy when young, smooth and membranous when full grown, pale beneath, unfolding after the flowers.

No. 33.

DIRCA PALUSTRIS.

SWAMP LEATHERWOOD.

Flowers blossoming early and before the leaves come out, forming in the fall within terminal buds, where they hybernate, buds with many oblong hairy scales, and three flowers. Peduncle bearing a fascicle of three flowers, formed by three cohering pedicels. Each flower yellow, half an inch long, with a simple perigone, called Corolla by Linnæus because it is colored: this perigone is drooping, tubular, contracted at the base and middle, campanulate at the end, with eight obscure teeth on the margin. Eight Stamina inserted on the perigone, with slender filaments, longer than the perigone, and alternately longer and shorter, anthers rounded. Germen oval, central free, with a long filiform curved style inserted on one side of the base, Stigma acute. Fruit a small orange berry, oval, acute, with a single seed.

HISTORY—One of the few American genera containing as yet a single species. It is a very distinct genus belonging to the natural family of DAPHNIDES, called *Thymelea* by Jussieu and *Vepreculæ* by Linnæus, and also to *Octandria monogynia* of his sexual system. The specific name *palustris* implies that it grows in swamps; but it is oftener found on the banks of rivers and even among rocks.

The blossoms are scentless and appear very early in the Spring, as soon as the Maples blossoms, long before the leaves are unfolded. The bark is very tough, can hardly be broken, and tearing in long stripes is used as yet in many parts for ropes, a practice borrowed from the Indian tribes: the wood is also flexible.

The berries are poisonous, children must avoid

them: if eaten by mistake, an emetic must be resorted to.

Locality—From Maine and Canada to Georgia near streams, and in shady swamps, rare west of the Alleghany mountains, yet occuring in Ohio and Kentucky.

Qualities—The bark and root have a peculiar nauseous smell, and unpleasant acrimonious taste; they contain an acrid resin, bitterish extractive, mucilage, &c.: the resin or active principle, is only soluble in boiling alcohol. The decoction and extract are bitter, but not acrimonious.

PROPERTIES—Emetic, cathartic, rubefacient, epispastic, &c. and the berries narcotic. The fresh root and bark in substance at the dose of five to ten grains produce vomiting, with a sense of heat in the stomach, and sometimes act as a cathartic also. They are an active and dangerous medicine, to which less acrimonious substances ought to be preferred. Applied to the skin they produce rubefaction and vesication in thirty hours; this appears a more safe mode to use them, as they might become auxiliaries to the Spanish flies. The berries produce nausea, giddiness, stupor, dilatation of the pupil and insensibility like other narcotics. Bigelow considers this plant as a substitute for the *Polygala Senega;* but this last is by far better and safer, and therefore preferable. We are not told whether it acts like the *Polygala* and is expectorant, sudorific, &c. Upon the whole this shrub possesses such active properties as to deserve attention; but we do not possess as yet sufficient evi-

dence of its utility. When the bark is chewed it produces salivation, it is so tough that it cannot be reduced to powder, but forms only a kind of lint. The watery preparations are nearly inert.

Substitutes—All the milder emetics and acrid substances, Cantharides—*Baptisia tinctoria*—*Conium maculatum*—*Polygala senega*—*Apocynum androsemifolium*—*Eupatorium perfoliatum*—*Ranunculus* sp.—*Euphorbia corollata* and *E. Ipecacuana*—*Rhus* Sp.—*Clematis* Sp. &c.

Remarks—Our native epispastics are little known as yet, and deserve attention. The *Juglans Cinerea* and the Oil of Sassafras are with the *Dirca* most likely to become practically useful.

We have also in the United States, several species of Cantharides, such as *Cantharis Vittata. C. marginata, C. atrata, C. cinerea,* &c. which are equal to the officinal Spanish flies, and would be available if not so scarce.

No. 34.

ERIGERON PHILADELPHICUM.

English Name—SKEVISH FLEABANE.

French Name—Erigeron de Philadelphie.

German Name—Skewisch Berusungskraut.

Vulgar Names—Skevish, Scabish, Sweet Scabious, Daisy, Cocash, Frostweed, Fieldweed, Squawweed, &c.

Authorities—Linn. Mich. Pursh, Pers. Torrey, Eaton, B. Barton, Depuy, Hales, A. Ives, Bigelow Seq. Thatcher, Coxe. W. Bart. fig. 20.

Genus Erigeron—Flowers compound radiate. Perianthe imbricated, folioles subulate unequal. Phoranthe naked. Rays ligulate, linear, entire, numerous, pistillate; central flowers of the disk tubular complete or staminate, five toothed. Seeds oblong crowned by a simple pappus.

Species. E. Philadelphicum—Pubescent, leaves cuneate oblong obtuse, lower petiolate, upper semi-amplexicaule, nearly entire subciliate: flowers corymbose, rays twice as long as the hemispherical perianthe.

DESCRIPTION——Roots perennial yellowish, formed by many branching thick fibres. The whole plant is pubescent and rises two or three feet, stems one to five, straight, simple, branched and corymbose at the top, a little angular. Radical and lower leaves

No. 34.

ERIGERON PHILADELPHICUM.

SKEVISH FLEABANE.

oblong, base cuneate decurrent on a long petiole, nearly obtuse, margin ciliate entire or seldom serrate: upper leaves sessile or nearly amplexicaule, cuneate, narrow oblong, obtuse, entire, alternate remote: floral leaves small lanceolate.

Flowers numerous forming a panicled Corymb, peduncles scattered, slender, bearing one to three flowers. Buds globular. Perianthe or common calix hemispherical, formed by many subulate, adpressed folioles. Flowers radiate, half an inch in diameter, with yellow disk and rays white, bluish or purplish. Rays or radial florets ligular numerous, spreading, crowding, narrow, entire, pistilate. Florets of the disk, convex, crowded, the central ones sometimes staminate and abortive. Phoranthe or common receptacle, bearing all the florets, flat, naked, pitted. Germen of the pistillate and complete florets oblong smooth, having a symphogyne calix forming above a pilose pappus which crowns the seeds. Each floret produces a single seed.

LOCALITY—Found all over the United States, although bearing the name of Philadelphian. It grows in New England, New York, Ohio, Kentucky, Missouri, and as far South as Louisiana and Georgia. It is a field plant, seldom seen in woods and mountains; but covering sometimes whole fields, dry meadows, commons and glades. In old fields it is deemed a pernicious weed, like the other kinds which commonly accompany it.

HISTORY—Three species (if not more) of this genus have similar properties, and will therefore be included in this article, the other two are,

1. *Erigeron heterophyllum*, (Aster Annuus of Linnæus) Jagged Fleabane, which merely differs from this by broader jagged difforme leaves, the radical and inferior ovate, sinuate dentate, acute, the upper one lanceolate subpinnatif, and the floral entire —Common in meadows, &c., mixed with *E. philadelphicum*. Figured by W. Barton, fig. 21. Biennual.

2. *Erigeron Canadense*, Canada Fleabane. It has linear crowded entire leaves; flowers paniculate, very small, with oblong perianthe and rays exceedingly short. One of the most common weeds from Canada to Kentucky, and yet perhaps the most efficient of the three. It infests old fields, and has been spread in Europe by chance. Very variable, principal varieties 1. *Uniflorum*, 2. *Pusillum*, 3. *Maritimum*, 4. *Virgatum*, 5. *Serratum*, 6. *Lanceolatum*, &c.

A multitude of vulgar names are applied to these plants. Fleabane is the true English name, Daisy alludes to the flowers which are similar to those of the true Daisy or *Bellis perennis*, but the *Bellis integrifolia* is the true American Daisy. Scabious is erroneous, since they are nothing like the genus *Scabiosa*, Skevish derives perhaps from Scabious or from Cocash the Indian name.

They all blossom from July to October, or until frost. They are deemed bad weeds; but are easily extirpated. The *E. canadensis* is annual.

Erigeron is a genus of the RADIATE Order next to *Aster*, of which it merely differs by numerous narrow rays. Both belong to *Syngenesia Superflua* of Linnæus.

QUALITIES—These plants have a peculiar smell most unfolded by rubbing them, which is not disagreeable. Their taste is astringent, acrimonious and bitter: the smell and taste are most unfolded in *E. canadense* and *E. philadelphicum*. They contain Tannin, Amarine, Extractive, Gallic Acid and an essential Oil. This Oil is very peculiar, as fluid as Water, of a pale yellow color, a peculiar smell somewhat like Lemon, but stronger and a very acrid taste. It holds probably in solution Acrine or a peculiar substance *Erigerine*.

PROPERTIES—These Weeds are valuable medicaments, possessing very active powers; they are Diuretic, Sudorific, Astringent, Styptic, Menagogue, Pectoral and Tonic in a high degree, and act in a mode peculiar to themselves, by means of their acrid quality. Their Oil is so powerful that two or three drops dissolved in Alcohol, have arrested suddenly uterine hemorrhagy, in the hands of Dr. Hales of Troy, who employs the Oil of *E. canadense*. This kind is most used in New England and New York, the others in Pennsylvania and New Jersey. The whole plants are available.

The Diseases already relieved or cured by these plants are Chronic Diarrhœa, Ascites, Disury, Nephritis, Gravel, Gout, Anasarca, Suppressed Menstruations, Dropsy, Hydrothorax, Dry Coughs, Cutaneous Eruptions, Hemorrhagies, Dimness, Rash, Cold hands and feet, &c. The whole plants are used fresh or dried, in infusion, decoction or tincture. Their extract is rather fetid, more astringent than the infusion

or tincture; but less than the Oil, which is one of the most efficient vegetable Styptics. This extract and a syrup of the plant have been given usefully in dry coughs, hemoptysis, and internal hemorrhages. The dose is from five to ten grains of the extract, often repeated.

As diuretic the infusion, decoction and tincture are preferable and more active; they have increased the daily evacuation of urine from 24 to 67 ounces. A pint or two of the former may be taken daily; they agree well with the stomach, even when Squill and Digitalis are intolerable: the dose of the tincture is from two to four drachms daily; it is made by digesting one ounce of the leaves in a pound of proof Spirit. They are beneficial in all diseases of the bladder and kidneys, attended with pain and irritation, in which they give speedy relief. Also in all compound cases of gravel and gout. In rheumatism they have not been tried, although they are sudorific. In all Dropsical disorders they act as diuretic. In chronic Diarrhœa as astringent and have cured it without auxiliary.

They are even useful externally in wounds, also in hard tumors and buboes, which a cataplasm of the fresh plants dissolve as it were. But the most valuable property is the astringent and styptic power of the Oil, which has saved many lives in parturition and uterine hemorrhagy. A saturated solution of the Oil in Alcohol is applied and a little given in a spoonful of Water; and an instantaneous stop takes place in the bloody flow.

Since these plants appear to increase as well as to prevent several discharges from the body, they must not act as other diuretic and astringent remedies; but by a peculiar acrid effect on the system, worthy of investigation. I highly recommend these plants to medical attention. They were known to the Northern Indians by the name of Cocash or Squaw-weed as menagogue and diuretics, and are often employed by Herbalists. They may be collected for medical use at any time when in blossom.

SUBSTITUTES—*Eryngium yucefolium* and *Aquaticum*, or Corn-snake root, said to be the strongest diuretic and sudorific of the Southern States—*Botrophis Serpentaria*—*Pyrola umbellata, maculata,* &c.—*Daucus Carota* and other diuretics.—For astringents *Spirea tomentosa*—*Heuchera Sp.*—*Statice Caroliniana*—*Arbutus Uva Ursa*—*Geranium maculatum*—*Comptonia asplenifolia*, &c.

REMARKS—Other species of this genus may possess the same properties: they are very similar to each other. The following might be tried.

E. bellidifolium or Daisy Fleabane, a vernal kind.

E, Integrifolium, or Slender Fleabane.

E. purpureum, or Purple Fleabane.

E. strigosum, or Rough Fleabane, &c.

No. 35.

ERYTHRONIUM FLAVUM.

English Name—YELLOW SNAKELEAF.
French Name—Dent-de-Chien Jaune.
German Name—Gelb Hundzahn.
Officinal Name—Erythronium.
Vulgar Names—Yellow Adder's tongue, Adder-leaf, Dog-Violet, Rattle Snake violet, Lamb's tongue, Scrofula root, Yellow Snow drop, &c.

Synonyms—*E. flavum* Smith. *E. americanum* Ker, Nuttal, Torrey, &c. *E. dens-canis* Mich. Eaton, &c. *E. lanceolatum* Pursh. *E. longifolium* Poiret.

Authorities—Michaux, Pursh, Smith, Nuttal, Elliott, Torrey, Bigelow, fig. 58, and Sequel, W. Barton, flora fig. 33, Coxe, Zollickoffer, &c.

Genus Erythronium—Perigone corolliform, with six deciduous colored sepals, subequal, campanulate; the three inner ones with a fossule at the base. Stamina six subequal, inserted at the base of each sepal. One pistil, germ turbinate, Style fistulose, Stigma clavate three lobed. Capsul obovate, three celled, three valved, with many ovate seeds.—Stem with two opposite leaves and one flower, root bulbous.

Species E. Flavum—Leaves subequal, subradical, lanceolate, mucronate, smooth, entire, flower nodding, sepals oblong-lanceolate, obtuse, the inner ones bi-

No. 35.

ERYTHRONIUM FLAVUM.

YELLOW SNAKELEAF.

dentate near the base: Stigma with three united lobes.

DESCRIPTION—Root perennial, a solid pyriform bulb, deep in the ground, white inside, covered outside with a brown loose tunic, sheathing the base of the Stem, fibres of the root inferior, thick and short. Stem partly under ground with two leaves appearing radical because near the ground, the whole plant smooth and shining; Stem white below, greenish purple above, slender cylindrical from five to twelve inches long, two sessile leaves: on the first year of the growth only one leaf is produced, and it is commonly broader and elliptic. Leaves a little unequal, one being commonly narrower or smaller, they are from three to seven inches long, lanceolate or oval-lanceolate, shining and glabrous, veinless and with a single nerve, often spotted by large irregular spots of a dull brown above, pale and unspotted below, and with an obtuse callous point.

A single flower at the end of the Stem, one inch long, nodding, of a yellow colour, sometimes with a mixture of red outside by a stripe or veins on the external sepals or petals, which are lanceolate reflected, sometimes acute, while the inner ones are oblong lanceolate, obtuse, quite yellow, veinless, with a calous notch on each side at the base, and a furrow in the middle above the fossule or little pitt of the base, above the Stamina, which are inserted quite at the base, shorter than the sepals, yellow, with depressed subulate filaments, and depressed linear anthers. Germ turbinate triangular, Style fistulose, Stigma clavate

prismatic trilobe above. The Capsul is naked, turbinate triangular, with three cells and many large oval seeds.

HISTORY—This pretty genus was long formed by a single species *E. dens-canis* growing in Europe and Asia, to which was referred this at first. Several species have since been discovered in America, and they afford many varieties, some of which may on further attention be deemed peculiar species. They all possess the same properties as well as a striking peculiar generic habit, somewhat similar to *Claytonia, Clintonia, Mayanthus, &c.* The Stem has been mistaken for a Scape by many, because it is partly subterraneous. When this species was distinguished from *E. dens-canis*, several names were given to it by Botanists nearly at the same time, I have chosen the best if not the oldest also, applying to its yellow flowers, while all the others have white flowers; the name of *Americanum* so often proposed, is become absurd now. The varieties of this yellow species which I have detected are,

1. Var. *Viperinum*, Leaves canaliculate with large reddish brown spots; external sepals acuminate, veined with red outside, all the sepals with small purplish dots inside, Stigma entire, trigone, pubescent. This is probably the kind figured by W. Barton.

2. Var. *Croceum*, Leaves narrow flat with small spots, flower drooping, external sepals partly red outside and obtuse, Stigma trilobe smooth. This is figured by Bigelow.

3. Var. *Bracteatum*, Leaves unequal, Stem with

a lanceolate bract, flower small. This is the *E. bracteatum* of Boott and Bigelow, from Vermont and the Alleghany; probably a peculiar species.

4. Var. *Lucidum*, Leaves unspotted, flat shining, oblong lanceolate, flowers quite yellow. This is figured here.

5. Var. *Glaucum*, Leaves unspotted glaucous, flower yellow with some red veins.

6. Var. *Latifolium*, Leaves broad oval or elliptic, flat, seldom spotted, flower yellow.

7. Var. *Grandiflorum*.

8. Var. *Parviflorum*, &c.

Many strange vulgar names have been given to these plants, the spotted kinds are called Snakeleaf, Adder's tongue or leaf, because compared to Snake's spots, while the unspotted kinds become Lamb's tongue. The *Goodyera* and *Hieracium Venosum* are also called Rattle Snake leaf and used as equivalents. Snow-drop alludes to its early blossoms, coming often through snow. In fact it is in the United States the representative of the *Galanthus nivalis* or true Snow-drop of Europe, blossoming in March and April, while snow is yet falling. The *E. albidum* is called White Snow-drop. They are both pretty vernal blossoms, deserving to be cultivated in gardens although scentless.

Erythronium is a generic name of Greek origin, applying to the red spots of the leaves. The genus belongs to the fine natural order of LILIACEA, near *Tulipa* and *Fritillaria*. It belongs to *Hexandria monogynia* of Linnæus.

Locality—It grows from New England to Ohio and south to Carolina; in the Western States it is often superseded by the *E. albidum*, which extends from New York to Missouri and Tennessee. They both grow in woods, and under the shade of trees, shrubs or plants.

Qualities—The whole plant, but particularly the root, contains fecula, mucilage, a resin, and some volatile principle rather acrid. When dry, the root is farinaceous and loses its unpleasant flavor.

PROPERTIES—The root or bulb and the leaves are emetic, emollient, suppurative and antiscrofulous when fresh, nutritive when dry. The plant appears to possess nearly the same properties as the bulbs of many Lilies; but with the addition of an acrid emetic effect, which is lost by drying, boiling, roasting, &c. The dose to produce the emesis is twenty-five grains of the fresh root, or forty of the recent dried root. As it loses its activity by keeping, it is an inconvenient and unsafe emetic. Bigelow proposes to try it as a substitute of *Colchicum*: although they belong to different Natural Orders. This plant promises better as an antiscrofulous, for which purpose it is employed as well as the *E. albidum* from New York to Kentucky, &c. the fresh roots and leaves are stewed with milk and applied to the scrofulous sores as a poultice, healing them speedily: this new medical property was first communicated to me by Dr. Crockatt. Many bulbs of Lilies have been used in the same way for sores, but the active acrid principle of this, may act beneficially on the

scrofulous sores. Bigelow mentions that even bulbs of Tulips and Daffodils have acted as emetics sometimes. The roots and leaves of this plant may be eaten after boiling, like those of *E. dens-canis;* but the broth is emetic and nauseous, while it is said that the *E. dens-canis* makes good broth in Siberia. Salep could be made of these roots by scalding them and drying them afterwards.

Substitutes—*Erythronium albidum* and *Goodyera pubescens* for Scrofula, Salep, Roots of Acrid Liliaceous plants, many Emetic roots, &c.

Remarks—The *E. albidum,* White Snakeleaf or Snow-drop, will be known by its bluish white blossoms, and trifid stigma. It offers as many varieties as the *E. flavum,* such as 1. *Cerulescens,* 2. *Candidum,* 3. *Maculatum,* 4. *Angustifolium,* 5. *Bracteatum,* 6. *Grandiflorum,* 7. *Parviflorum,* 8. *Clandestinum,* 9. *Glaucum,* &c. Found from New York to Missouri and Kentucky.

No. 36.

EUPATORIUM PERFOLIATUM.

ENGLISH NAME—BONESET.

FRENCH NAME—EUPATOIRE PERCEFEUILLE.

GERMAN NAME——DURCHWACHSENER WASSERDOST.

OFFICINAL NAME—Eupatorium perfoliatum.

VULGAR NAMES—Thorough-wort, Boneset, Joe-pye, Teazel, Feverwort, Sweating-plant, Thoroughstem, Crosswort, Indian Sage, Agueweed, Thoroughwax, Vegetable Antimony.

SYNONYM—*E. connatum* Michaux.

AUTHORITIES—Lin. Mich. Pursh, Colden, Schoepf, Cutler, Stokes, B. Barton, Torrey, Eaton, Elliott, Thatcher, Coxe, Anderson, Guthrie, Burson, A. Ives, all the Dispens. and Mat. Med. Bigelow, fig. 2 and Sequel, W. Barton, fig. 37.

Genus EUPATORIUM—Flowers compound floscu-lose. Perianthe imbricate, unequal, oblong or cylindric. Phoranthe naked. Floscules five toothed, Style exserted bifid. Seeds oblong angular. Pappus subplumose.—Leaves commonly opposite or verticil-late, flowers corymbose.

Species E. PERFOLIATUM—Stem villose, cylindric; leaves opposite connate-perfoliate, oblong, tapering, acute, serrulate, rugose above, tomentose beneath: flowers with a dozen of floscules.

No. 36.

EUPATORIUM PERFOLIATUM.

BONSET.

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DESCRIPTION—Root perennial, horizontal, crooked, with scanty fibres, and sending up many Stems, which are upright, simple at the base, branched above in a trichotome form, forming a depressed corymb; from two to five feet high, round, covered with flexuose hairs; the whole plant has a greyish green color, and even the flowers are of a dull white. Leaves opposite, decussate, connate at the base, or united to each other there, where broadest, and gradually tapering to a sharp point, from three to eight inches long, narrow oblong, rough above, woolly beneath, margin serrulate, upper leaves often sessile, not united.

Inflorescence in a dense depressed terminal Corymb formed by smaller fastigate corymbs, peduncles hairy, as well as the perianthe or common calix, each inclosing from twelve to fifteen floscules or florets, Scales lanceolate acute, florets tubulose white, five black anthers united into a tube. Seeds black, prismatic, oblong, base acute, pappus with scabrous hairs.

HISTORY—A very striking plant, easily recognized among all others, even when not in bloom, by its connate leaves, perforated by the Stem, as in the Teazel or *Dipsacus fullonum*. It belongs to a genus containing nearly one hundred species, all very different from this except the *E. sessilifolium* which is nearly alike, but has smooth Stems, leaves rounded at the base, not united nor tomentose, flowers whiter, whereby they will be easily distinguished.

One half of the Species grow in America, and many have medical properties; but this appears the most

efficient, and being also best known, deserves a preference, although several are useful substitutes in some cases. It is by no means a handsome plant, while many congeneric are quite elegant plants, introduced into many gardens, such are the *E. celestinum* with beautiful azure blossoms, common all along the western streams, and the *E. purpureum* with large purple flowers, on a stem five to eight feet high, with whorled leaves.

The genus belongs to the great Natural Order of Corymbose plants, family *Flosculose*, or to *Syngenesia Equalis* of Linnæus. It takes its name from Mithridates Eupator, an ancient eastern king; it was first given to the *E. cannabinum*, the Asiatic and European species, whose medical powers were made known by him; it is an emetic, purgative and alterative like this.

They are all autumnal plants: this blossoms from August to October.

Locality—Common in swamps, marshes, and near streams, from Maine to Florida, and from Ohio to Louisiana: where it appears to have been stationed by the benevolence of nature, wherever men are liable to local fevers. It is found also in Nova Scotia, Canada, Missouri, Arkansas, &c.

Qualities—The whole plant, roots, stems, leaves, and flowers are intensely bitter, but not astringent; they have a peculiar flavor and faint smell. They have been analized by Anderson, Bigelow and Laurence, and found to contain Extractive, Amarine, a gum, a resin, an acid similar to the gallic, Acetate of

lime, some azote and tannin, and lastly a peculiar substance *Eupatorine*, brown, bitter, resiniform, soluble in water and alcohol, forming sulfates, nitrates, &c.

PROPERTIES—A valuable sudorific, tonic, alterative, antiseptic, cathartic, emetic, febrifuge, corroborant, diuretic, astringent, deobstruent and stimulant. It was one of the most powerful remedies of the native tribes for fevers, &c. It has been introduced extensively into practice all over the country from New England to Alabama, and inserted in all our medical works, although writers differ as to the extent of its effects. It appears to be superior to *Anthemis nobilis* or Camomile as a sudorific tonic, and preferable to Barks in the treatment of the local autumnal fevers of the country, near Streams, Lakes and Marshes. I have seen them cured efficiently by it when other tonics failed. It acts somewhat like Antimony, without the danger attending the use of this mineral. The cold preparations are powerful tonics and do not produce emesis as an over-dose of the warm decoction. It acts powerfully on the skin and removes obstinate cutaneous diseases. It has cured the following disorders in many instances, Intermittent and remittent fevers; petechial or spotted fever, called also malignant or typhoid pleurisy; diseases of general debility, Ascites, Anasarca, Anorexia, and debility arising from intemperance; acute and chronic rheumatism; violent catarrhs; bilious and typhus fever, particularly low typhus, incident to marshy places, and attended with a hot and dry skin;

also influenza, the Lake fever similar to the yellow fever, and the yellow fever itself; ring-worms, and Tinea Capites, Dropsy, Gout and Syphilitic pains: dyspepsia and complaints of the Stomach, and Bites of Snakes.

This plant may be so managed as to act as a tonic, a sudorific, a laxative or an emetic, as required. No other tonic of equal activity can be exhibited in fevers, with less danger of increasing excitement or producing congestion: the only objection to its general use is its nauseous and disagreeable taste. In substance or cold decoction, and combined with aromatics it becomes very efficient in intermittents and dyspeptic disorders: it strengthens the viscera and restores tone to the system. The doses of the powder are from ten to twenty grains, the decoction and infusion from one to three ounces. No unpleasant effects follow the cold preparations.

Ample accounts of the beneficial effects of this plant, are to be found in all our medical Works. Burson says that in Anorexia consequent to drunkenness, a cold infusion has speedily restored the tone of the stomach. Zollickoffer extols it as an alterative remedy in tinea capites, united to cremor tartar and sugar, two spoonfuls given three times a-day. Thatcher says that the cold infusion cures bilious cholic with obstinate constipation, a tea-cup full every half hour producing a cathartic effect. The warm infusion causes a copious perspiration, and often becomes a safe and certain emetic. Chapman relates that it cured the kind of Influenza called Breakbone fever,

acting as a diaphoretic, whence its popular name of Boneset. The name of Joepye is given to it, and to *E. purpureum*, in New England from an Indian of that name, who cured typhus with it, by a copious perspiration. Eberle says that catarrhal fevers may be removed by drinking a weak infusion of it in going to bed. It is particularly useful in the Indigestion of old people: and may be used as an auxiliary to other tonics and emetics in all cases. The extract and syrup preserve all the properties, and are less disagreeable to the palate.

Substitutes—*Anthemis nobilis and Cotula*—*Matricaria Camomila*—*Marrubium Vulgare* or Common Horehound—*Asclepias tuberosa*—*Leptandra*—*Botrophis*—Yarrow, Tansey and Sassafras, &c. Besides the following species of the same Genus.

1. *E. teucrifolium* or Rough Boneset (Wild horehound, &c.) has rough sessile ovate leaves, with some teeth at the base, the flowers white with five florets. Common from New England to Georgia.—Milder, less bitter and disagreeable than the former, a larger dose may be given, chiefly used in the South, in bilious remittent fevers, when Barks are inadmissible, dose two or four ounces of the infusion made by one ounce in a quart of water.

2. *E. purpureum* or Purple Boneset (Joepye, Gravel root, &c.) Stem hollow, rough, five to six feet high, leaves whorled, four to five, petiolate, lanceolate, serrate, rugose: flowers purple, many florets.—In meadows and near streams from New England to Kentucky. It has the same properties as *E. perfoliatum*, has been used in fevers and gravel, &c.

3. *E. verticillatum* or Tall Boneset (Joepye, &c.) Stem solid, smooth, five to eight feet high, leaves whorled three to five, sessile, ovate-lanceolate, base attenuate, unequally serrate, smooth: flowers purplish with many florets—With *E. purpureum*, same properties often blended together.

4. *E. maculatum* or Spotted Boneset. Stem solid sulcate, spotted; leaves petiolate, ovate-lanceolate, pubescent beneath, four to five in a whorls—With the last, Stem four to five feet high.

5. *E. trifoliatum* or Wood Boneset. Stem solid, leaves petiolate, ternate, ovate, acuminate, serrate, punctate, rough.—In woods from New England to Kentucky, Stem three to four feet high.

6. *E. sessilifolium* or Bastard Boneset. Described above, common in dry and hilly grounds, while the *E. perfoliatum* is always found in damp and low grounds.

7. *E. urticefolium* or Deerwort Boneset. Leaves opposite, petiolate, ovate, serrate, similar to nettle leaves, flowers white, many floscules.—In woods, exceedingly common in the Western States, eaten by Deer.

8. *E. violaceum*, Violet Boneset. Leaves opposite, petiolate, cordate, toothed, undulate, pubescent. —In Louisiana, Alabama, &c. a beautiful species with fine blossoms of a violet color, deserving to be cultivated.

These and many others are much weaker than the three first.

No. 37.
EUPHORBIA COROLLATA.

BLOOMING SPURGE.

No. 37.

EUPHORBIA COROLLATA.

English Name—BLOOMING SPURGE.

French Name—Tithymale fleuri.

German Name—Blum Wolfsmilch.

Officinal Names—Ipecacuana, Euphorbia radix.

Vulgar Names—Milkweed, Ipecacuana, Picac, Hippo, Ipecac, Persely, Milk-purslain, White-pursely, Indian Physic, Purge-root, Emetic-root, Bowman-root, Apple-root, Snake's milk, and Peheca in Louisiana.

Authorities—Lin. Clayton, Schoepf, Michaux, Pursh, Torrey, M'Keen, Zollickoffer, A. Ives, B. Barton, Coxe, W. Bart. Eberle, Bigelow, fig. 53, and Seq.

Genus Euphorbia—Monoical. Perianthe persistent caliciform, ventricose, alternate Segments petaloid. Staminate flowers eight to sixteen in the Involucre, naked, each has one bilobe anther with a filament articulated to a pedicel. Pistilate flowers solitary central, stipitate, one germ, three bifid styles. Capsul stipitate, three celled, cells formed by the involved valves, one or two seeded.

Species E. Corollata—Stem simple erect; leaves scattered sessile, oblong-cuneate, obtuse, entire; umbel with five rays and leaves, rays trifid with two oblong

bracts; flowers pedicellate, rotate, five lobed, corolliform ; capsuls smooth.

DESCRIPTION—Root perennial, large, one inch thick, two feet long, yellowish. Several Stems from two to five feet high, simple, round, erect, often smooth. Leaves sessile, entire scattered, often crowded, oblong, obovate, cuneate or linear, flat or revolute, smooth or hairy. A large terminal umbel with five rays, and as many leaves in a whorl, similar to the stem leaves. Rays trifid and next dichotomous, each fork has two oblong bracts. Perianthe (mistaken for the Calix by Linnæus, &c.) large, rotate, white, with five rounded flat segments, looking like a corol. Five small inner segments (nectaries of Lin.) like obtuse projections at the base of the segments. A dozen of Stamina, evolving gradually, each is a true flower on a pedicel, with an articulate filament and a bilobe anther. Many perianthes without pistil, when existing it is central, stipitate, nodding, rounded, with three bifid Styles. Capsul three cocca or formed by three valves rolled in and making three cells, each with a seed convex outside, angular inside, where it is inserted.

LOCALITY—From Canada to Florida and Louisiana, in dry soils, barren fields, among stones and rocks, also in glades, seldom in woods and never near waters, nor in rich alluvial soils.

HISTORY—As in the case of the *Erigeron* this article shall include three species, which have equivalent properties, the two others are

1. *E. Ipecacuana* Lin. Ipecacuana Spurge. Pe-

rennial, smooth, diffuse or procumbent, dichotome, articulated: leaves opposite, sessile, entire, variable, round, oboval, elliptic, oblong, lanceolate or linear: Flowers solitary at the forks, on long pedicels, perianthe small, campanulate five lobed: capsuls round and smooth.—Confined to the great Atlantic alluvial region extending from New Jersey to Florida and Mexico, along the Sea: very common there in sands and Pine woods. It blossoms from June to August, and affords a multitude of varieties, such as 1. *Cespitosa*, 2. *Prostrata*, 3. *Rotundifolia*, 4. *Lanceolata*, 5. *Uniflora*, &c. this last has only a single white flower, with procumbent stem, and obovate leaves. I described it in 1808, as a N. Sp. *E. uniflora*. 6. *Rubra*, the whole plant is red, 7. *Portulacoides* with erect stems and oval leaves, described by Linnæus as a peculiar species.—Root grey, white inside, very long. It is figured by Bigelow fig. 52 and by W. Barton, fig. 18.

2. *E. hypericifolio* Lin. (also *E. maculata* of Lin.) Black Spurge, (or Spotted Pursely, black Pursely, &c.) Annual, smooth, dichotome, erect or procumbent, divaricated: leaves opposite, petiolate, oblique, subfalcate, oblong, serrate, acute; flowers terminal fasciculate, perianthe four lobed and white, capsuls smooth.—Common all over the United States, in fields, &c. Several Varieties, 1. *Prostrata*, 2. *Multiflora*, 3. *Maculata* with a purple spot on each leaf. 4. *Simplex*, &c.

The varieties of *E. corollata* are 1. *Linearis* all the leaves linear obtuse. 2. *Pubescens*, Stems and

leaves pubescent. 3. *Rosea* flowers tinged with rose color. 4. *Pauciflora* only 5 or 6 flowers, &c. They all blossom in Summer, from June to September, and make a pretty appearance by their fine umbels of snowy blossoms: they are bad weeds in some fields, and all animals avoid them.

In these plants, we have quite efficient substitutes for the Brazilian Ipecacuana, *Calicocca*, which is often adulterated or old in our shops. We could even export them as true Equivalents of the officinal Ipecacuana. The *E. hypericifolia*, however, which is an annual plant is available as an herb, while the *E. Ipecacuana* has a large root from four to six feet long, which might be exported and afforded cheap. It is a singular coincidence that the name given to these roots by the Indians of Louisiana is *Peheca*, very similar to the Brazilian native name of *Ipeca*, both meaning Emetic-root. The *Psychotria emetica* and *Viola Ipecacuana* furnish also similar emetics.

The Genus *Euphorbia* has been named after Euphorbus, physician of Juba, king of Mauritania, who brought the Euphorbium or Juice of the *E. officinalis* into practice. It is a very extensive and anomalous genus, divided into many sections. *Esula*, *Tithymalus*, *Characias*, *Lathyras*, &c. It is the type of the Natural Order of TRICOCCA or Euphorbiaceous plants. Linnæus put it in *Dodecandria monogynia*, mistaking the perianthe for a Corolla, but it is now properly removed to *Monoecia monandria*. Most of the species are medical, more or less drastic and emetic, but difficult to manage, and in large

doses they bring on violent pains, heat and thirst, debility, cold sweats and even death. The *E. helioscopia* and a species akin to *E. peplus* grow also in the United States and have been used in Europe in small doses, as well as the *E. esula, dulcis, exigua, characias, palustris, cyparissias,* &c. Each has a peculiar mode of action, and the *E. officinalis* of Africa produces a blistering gum. They are all milky plants.

QUALITIES—These plants have been analysed by Barton, Bigelow and Zollickoffer; they contain mucilage, sugar, starch, Caoutchouc, Resin, an essential Oil, Tannin, and a peculiar principle similar to *Emeta,* which is soluble in Alcohol and colors it yellow, but insoluble in Water, forming oxalic Acid with Nitric Acid, it might be called *Oxalemis.* The analysis of the true Ipecacuana differs from this and gives Starch forty, Gum twenty, Wax six, Fibrine twenty, Oil two, Emetine or Acidified Emeta sixteen parts. The roots and leaves of these *Euphorbia* have a sweetish taste subastringent and not unpleasant, with a peculiar smell, when rubbed; but no nauseous taste nor smell: the milk is acrid.

PROPERTIES—Emetic, cathartic, diaphoretic, expectorant, astringent, rubefacient, blistering, and stimulant. These plants are highly recommended by some physicians as equivalent to the officinal Ipecac, which it is said they ought to supersede; but Bigelow contends that they are less mild and bland, and although equal or even stronger, are not so useful in all indications. They were formerly considered too

violent in their operation; but have since been found to be manageable and safe: the action is always proportionate to the quantity taken, which does not happen with common Ipecac. As a cathartic they have been found equal or better than Jalap or Scammony; requiring only half the dose, ten grains will commonly purge well, while twenty-five to thirty grains produce repeated evacuations from the stomach. Given in large doses they excite violent vomiting, attended with heat, vertigo, dizziness and debility. The *E. corollata* appears to be the most efficient since it purges at the dose of three to ten grains, and vomits at ten to twenty. But a diversity has been noticed in various constitutions, the same doses being sometimes inert, cathartic or emetic, or both in some instances; they often produce nausea even in small doses, and then act as diaphoretics like Ipecac, to which they are preferable by having no unpleasant taste, nor exciting pains and spasms.

The medical properties reside in the thick bark of the root, which forms two thirds of the whole root, and produces one twelfth of watery extract, and one tenth of alcoholic extract. They may be substituted to Ipecac in all the pharmaceutical preparations, wine, tincture, extract, &c.; the emetic dose of the wine is an ounce, of the extract three to five grains. When used as a diaphoretic and expectorant, the dose is three or four grains of the powder: it may be combined with opium or antimonials. The bruised root applied to the skin, produces vesication in about twelve hours, which lasts two or three days; this property

has not yet been applied to practical use; but might be equivalent to that of the officinal Euphorbium used by farriers. The milk of all the species of this genus destroy Warts and cure Herpes, they may afford a kind of black Varnish, or Gum Elastic. The other diseases in which these plants have been occasionally employed are Dropsy, asthma, also hooping cough and fevers, but we have no great evidence of their success, except in Asthma when they act as pectoral sudorifics.

The *E. hypericifolia* appears to differ in its effects from the two others, it is an annual, the herb being employed instead of the root: it has been brought into notice by Zollickoffer, who says that it is more astringent and slightly narcotic; but it is also purgative, &c. After evacuations, he prescribes it in tea-spoonfuls of the decoction, for Cholera infantum, diarrhea and dysentery. This plant is also one of those producing the salivation of horses, called Slabbering, when eaten by them through chance in meadows, and the remedy for which are Cabbage leaves. All our Spurges are more or less active plants, those with large perennial roots are all emetic, while the annual kinds are alterative or pernicious. One species *E. peploides* (*E. peplus* Americana) is said to cause the milk fever, or disease of Cows and cattle which render their milk or flesh pernicious. It grows from New-York to Tennessee, on rocks near streams. By a strange mistake the capsuls of the *E. lathyrus* (Capper plant of New England) are pickled instead of Cappers, being mistaken for the *Capparis Spinosa* or true Capper, and

are not found unpalatable, although they cannot be a healthy condiment.

SUBSTITUTES—*Gillenia Sp.*—*Sanguinaria Canadensis*—*Lobelia inflata*—*Asclepias Sp.*—*Erythronium Sp.*—*Eupatorium perfoliatum*—Officinal Ipecacuana and other active Emetics.

REMARKS—The figure of Henry, under the name of Bowman's root is fictitious; the true Bowman's root is the *Leptandra*.

The *helioscopia*, which grew in the Northern States, has nearly the properties of the *E. hypericifolia*, as was well as the *E. polygonifolia* a small annual plant, growing on the sea shores from New England to Florida, and spreading flat on the sand.

No. 38.

FRAGARIA VESCA.

COMMON STRAWBERRY.

No. 38.

FRAGARIA VESCA.

ENGLISH NAME—COMMON STRAWBERRY.

FRENCH NAME—FRAISIER SAUVAGE.

GERMAN NAME—GEMEINE ERDBEERE.

OFFICINAL NAME—Fragaria baccae.

VULGAR NAMES—American Strawberry, Wild Strawberry.

SYNONYMS—*F. virginiana and F. canadensis,* Wildenow, Persoon, Pursh, &c.

AUTHORITIES——Lin. Clayton, Colden, Cutler, Schoepf, Michaux, Pursh, Torrey, Eaton, many botanical works and some Materia Med. &c.

Genus FRAGARIA—Calix ten cleft, subequal, bearing the corolla and stamina. Petals, five on the base of the calix. Many stamina, unequal, filaments filiform, anthers round. Large central gynophore, pulpy, deciduous, bearing many Pistils immersed in it, and forming together a pulpy many seeded berry.—Leaves trifoliate, serrate, stipulate.

Species F. VESCA—Stoloniferous and hairy; radical leaves as long as the stems, stem leaves few, subsessile: folioles subsessile, oboval, lateral ones oblique.

DESCRIPTION—Root perennial, creeping, knotty, bunches of fibres at the knots. Stems of two kinds, some procumbent, stoloniferous, creeping,

rooting, slender, with few small leaves, and commonly sterile; true stems upright or reclined, short, with few leaves; both stems and leaves are more or less hairy. Leaves either radical or caulinal, the former on long petiols, the others nearly similar when at the base of the stem; but much smaller and with short petioles when higher up: stipules lanceolate or oblong, acute: three folioles sessile or nearly so, the middle one subpetiolate, nearly equal, but the lateral ones commonly oblique, and with fewer teeth inside; shape oboval or oval or nearly round, margin broadly serrate, surface with regular veins, lower surface pale and more hairy.

Flowers one or many on each stem, with pedicels erect or drooping. Calix spreading or reflexed, divided into ten acute segments, the alternate somewhat shorter. Five white petals, oboval or obcordate inserted on the calix. Many small stamina inserted there also, with short filiform filaments and small round anthers. Pistils many, very small, oval, with a small sessile stigma, forming a convex head, being inserted on a fleshy gynophore, which grows, becomes pulpy and colored, involving the pistils or the small seeds succeeding them, and forming together the fruit or Strawberry, which is either round or oval, and scrobiculate or punctate by little pitts, each corresponding to a seed inside: these fruits are either red or white.

HISTORY—Few plants are better known at first sight, and yet more difficult to describe, owing to the variable characters. Linnæus and many botanists

thought that all the Strawberries of the five parts of the world, formed only one species, the actual one. Others have thought otherwise and attempted to distinguish several species and varieties, among those found in America, Africa, Asia and Polynesia; but the difficulty has been to ascertain (as among the Roses) which are the specific or constant forms and which are variable deviations.

If every deviation of form, color, direction, pubescence and composition, was to be considered specific, we should have 100 kinds of Strawberries, and indeed some gardeners have described thirty or forty kinds, while more accurate botanists only acknowledge ten to fifteen species as yet. Meantime these species have all the same habit and flowers, differing only by some inconspicuous details.

Our wild Strawberry was long thought the *F. vesca*, until Wildenow and Pursh made two new species of it. In attending to the many varieties which I have seen in my travels, I thought that three or four more species could be made from them; but noticing that they are all connected by intermediate links, I came to the conclusion that they were only varieties of the *F. vesca*, and that the whole genus requires a revision. I could mention about twenty varieties of our wild Strawberries and seventeen from our gardens; but shall confine myself to seven of the most remarkable native kinds.

1. Var. *Uniflora*, stems simple, one flowered, one leaved, as long as the radical leaves, folioles sessile, suboval, incise-serrate; calix spreading or erect, pe-

tals rounded, fruits rounded or depressed—Common in glades. This is figured here.

2. Var. *Clandestina*. Nearly stemless, stems short leafless, two to five flowered, concealed by large radical leaves, folioles oboval, sessile; calix spreading or reflexed, fruit round or oval.—Rare in New York, Ohio, &c.

3. Var. *Pumila*. Stems short, one to two flowered, leaves shorter, very small oval and oboval, with adpressed silvery hairs, calix spreading and small.—In the mountains of Virginia &c. one or two inches high.

4. Var. *Glabra*. Stems two to three flowered, leaves ample, longer, nearly smooth, folioles oboval, subsessile, fruit oval. On the banks of the Ohio, Tennessee, Cumberland, &c.

5. Var. *Aprica*. Stems one to five flowered, leaves shorter, hairy, glaucous beneath, folioles subsessile oval and oboval, calix spreading, fruit suboval.—Very common in the western glades, and open fields from New Jersey to Virginia.

6. Var. *Sylvatica*. Stems 1-5 flowered as long as the leaves, folioles broad oval, subsessile, smooth above, calix spreading, fruit round or oval—This is probably the *F. virginiana* of many; common in woods and mountains.

7. Var. *Pendula*. Stems three to five flowered, leaves ample, folioles broad oval, smooth above, subsessile, calix spreading; fruits pendulous, globular, pubescent.—In the mountains of New England, Penn-

sylvania, &c. This must be the *Fr. Canadensis* of Pursh, &c.

All these varieties afford excellent fruits, rather small, but highly flavored, they are red, seldom white, and ripe from May to June, the blossoms appear in April and May. Strawberries are deservedly esteemed as pleasant and healthy fruits, and have long been tenants of gardens: the wild ones are always as good as those cultivated.

Fragaria belongs to the natural family of SENTICOSES next to *Rubus* and *Comarum*, and to *Icosandria polygynia* of Linnæus.

LOCALITY—Strawberries are scattered all over the globe, in cold climates, or on the high mountains of warm countries. They are found on the Himala mountains of the centre of Asia, and from Natolia to Siberia and Japan in that Continent; they grow all over Europe, on Mount Atlas of Africa, on the mountains of the Polynesia Islands, and in America all over the Andes from Oregon to Chili, also from Alaska to Canada. In the United States, they are found every where in woods, glades, &c.

QUALITIES—The whole plant has a subastringent taste, the flowers have a honey smell, the fruits have a peculiar fragrant smell, and ambrosial acid flavor. The plant contains tannin: and Strawberries contain the malic and tartaric acid, some sugar and much water, besides an essential oil giving the Aroma.

PROPERTIES—Although Strawberries have been commonly considered as an article of food, they highly

deserve a place among medicaments, which are not the worse I should think for being palatable. Linnæus introduced them in his Materia Medica, as well as Schoepf, &c. They are diluent, refrigerant, substringent, analeptic, diaphoretic, diuretic, pectoral, eccoprotic, &c. They are useful in fevers, Gravel, Gout, Scurvy, and Phthisis. They are cooling, promote perspiration, give relief in diseases of the bladder and kidneys, upon which they act powerfully, since they impart a violet smell and high color to urine. Hoffman and Linnæus have long ago extolled them in gout and phthisis; persons labouring under these chronic complaints ought to eat them frequently when in Season, and use at other times their Syrup. An excessive dose of either is however liable to produce emesis or a painful stricture in the bladder, with red urine, as I have experienced myself. But used moderately they are certainly a valuable medical diet in many cases. They possess also the property of curing chilblains, their water is used in France for that purpose as a wash. A fine wine can be made with them and some sugar. The Plant and leaves have nearly the same properties, although they are less cooling and more astringent. Both have been employed like Cinquefoil and Agrimony for sore throat, swelled gums, bowel complaints, jaundice and fevers in infusion and decoction. A Vinegar Infusion, Distilled Water, Syrup, Conserve, &c. of Strawberries are kept in shops in Europe.

Substitutes—Raspberries best substitute, Black-

berries, Mulberries, Red Currants, Cranberries and other acid berries, but none is so good, lacking either the diuretic or diaphoretic property.

Remarks—The *Arbutus Unedo* or Strawberry tree of Europe, is a fine evergreen and ornamental shrub, producing large berries similar to Strawberries, but belonging to different orders of plants, the Bicornes and *Decandria Monogynia* like the *Arbutus Uva ursi*. These berries are edible but less acid than Strawberries, and they are emetic even at a moderate dose, as I have myself experienced. This fine shrub does not grow in the United States, except in gardens.

The *Evonymus Americanus* is also called Strawberry shrub with us; but erroneously, since the berries hardly resemble Strawberries, being depressed, with four or five warty lobes, not eatable, and without any of their properties. The leaves of this shrub, however, as well as of *Evonymus atropurpureus* (the Wahoon or Arrow wood of the West and South) make a fine pectoral tea, much used for colds, coughs, catarrh, influenza, &c. The leaves of the *Crategus crus-galli*, or White-thorn are also used for the same purpose.

No. 39.

FRASERA VERTICILLATA.

English Name—AMERICAN COLOMBO.
French Name—Frasere Colombo.
German Name—Colombo Wurzel.
Officinal Name—Colombo. Frasera radix.
Vulgar Names—Colombo-root, Columbia, Indian Lettuce, Yellow Gentian, Golden Seal, Curcuma, Meadow Pride, Pyramid, &c.

Synonyms—*Swertia difformis* Lin. *Sw. frasera* Smith in Rees' Cyb. *Frasera carolinensis* Walter. *Fr. officinalis* B. Bart. *Fr. Walteri* Mich. &c.

Authorities—Walter, Bartram, Michaux, Pursh, Persoon, Nuttall, Torrey, Schoepf, Elliott, Drake, Bigelow Sequel, Thatcher, Coxe, A. Ives, Hildreth, Zollickoffer, many Dispens. B. Barton, W. Barton, fig. 35 bad.

Genus Frasera—Calix persistent, four parted. Corolla spreading, rotate, four parted, segments elliptic, each having in the middle a large bearded gland. Stamina four short, alterne with the segments. One pistil, germen oval compressed, one style, two stigmas. Capsul oval flat, one celled, two valved, several winged imbricate seeds inserted on the valves.

Species *Fr. verticillata*—Very smooth, leaves sessile, entire, radical leaves procumbent, elliptic, obtuse; stem leaves vesticillate by five to seven, oblong or

No. 39.

FRASERA VERTICILLATA.

AMERICAN COLOMBO.

lanceolate, acute: flowers in a pyramidal panicle, bracts opposite.

DESCRIPTION—Root triennial, large, yellow, rugose, suberose, hard, horizontal, spindle shaped, two feet long sometimes, with few fibres. The whole plant perfectly smooth, stem from five to ten feet high cylindrical, erect, solid, with few branches, except at the top, where they form a part of the pyramidal inflorescence. Leaves all verticillate, sessile and entire, with a single nerve: the radical leaves form a star spread upon the ground, they are elliptical and obtuse, from five to twelve in number, from ten to eighteen inches long and from three to five broad, constituting the whole plant in the first years, or before the stem grows. The stem leaves are in whorls of four to eight, seldom more or less, smaller and narrower than the radical leaves, the lowest are narrow oblong, the upper lanceolate, acute, and sometimes undulate.

Flowers yellowish white, numerous, large, forming an elegant pyramidal panicle, the branches of which are axillary to leaves or bracts, unequally verticillate or trichotome: this pyramid is from one to five feet long: the bracts are ternate or opposite, shorter than the leaves, broader at the base, acute: pedicels lax, longer than the flowers, cylindric. Calix deeply four parted, spreading, segments lanceolate, acute, persistent, nearly as long as the Corolla, which is one inch in diameter, open, flat, deeply four parted, with four elliptic cruciate segments, margin somewhat inflexed, end cucullate obtuse, a large gland in the middle of each, convex on both side, ciliate. The four

stamina opposite to the sinuses and inserted on them, filaments short, subulated, anthers oval oblong, base notched. Germen central oval, compressed, desinent into a style as long, and having two thick glandular stigmas. Capsul yellowish, borne on the persistent calix, oval, acuminate, very compressed, margin thin, sides subconvex, with a suture, opening in two flat valves, one celled. Seeds flat, elliptic, imbricated, winged around, inserted on the sutures of the valves. Sometimes a few flowers have five or six stamina, and as many segments to the Corolla.

LOCALITY—It grows West, South and North of the Alleghany mountains; but neither on them, nor East of them. It is spread from the western parts of New York to Missouri and thence to Alabama and Carolina. It is found in rich woody lands, open glades and meadows. Rare in some places, in others extremely abundant.

HISTORY—One of the handsomest native plants of America: I have seen it in the western glades of Kentucky ten feet high, with a pyramid of crowded blossoms 4 or 5 feet long. They are scentless and in full bloom from May to July. It is a true triennial, the root sending only on the third year a stem and flowers.

Linnæus did not know well this plant, and called it *Swertia difformis*: it is so large that botanical specimens of it are generally defective like the patched figure of Barton. Walter gave it the name of *Frasera*, thinking that it was new, and dedicating it to an English gardener, *Mesadenia* would have been a better

name, expressing its generic peculiarity, of having 4 central glands, while *Swertia* has 8 glands, 2 at the base of each segment. Four specific denominations have been given, among which I have selected the best. It bears also many vulgar names, but Colombo root is the most common, since it has been found medical, and very similar to Calumba, once called Colombo also, the *Cocculus palmatus*. It is become a kind of substitute for it, and an article of trade on that account, being largely collected in the western states.

It affords few varieties, and stands as yet alone in its genus, the varieties are, 1. *Oppositifolia*. 2. *Undulata*. 3. *Pauciflora*. 4. *Angustifolia*, &c. the names expressing their deviations. It belongs to the Natural order of GENTIANIDES next to *Swertia*, and to *Tetrandria monogynia* of Linnæus.

QUALITIES—The root is the officinal part, it has a sweetish bitter taste like Gentian, and resembles Calumba in appearance, having a thick yellow bark, and a yellowish spongy wood. But their chemical characters are very different, the *Frasera* contains Extractive, Amarine, and Resin; while the *Cocculus palmatus* contains Cinchonin, a bitter Resin, Oil, Starch, Sulfate of Lime, and *Calumbine*. I suspect, however, that the analysis of the Frasera has not been accurate, and that it contains Inuline or a peculiar substance, *Fraserine*, intermediate between Inuline and Calumbine. It yields its qualities to water and alcohol. The leaves are also bitter.

PROPERTIES—Emetic and Cathartic when fresh,

Tonic, antiseptic and febrifuge when dry. When first brought into notice it was supposed to be equal to the Calumba, and substituted thereto; but has been found to be inferior, A. Ives even contends that it is inferior to many other native tonics. It has however the advantage over them to afford a very large root, often weighing several pounds, and to sell cheap: it is about equal to Gentian and Rhubarb, in diseases of the stomach, and debility. It has cured a wide spread gangrene of the lower limbs by internal use and external application, when bark had failed. It avails in Intermittents like other pure bitters, and is extensively used in the Western States in Fevers, Cholics, Griping, Nausea, relaxed stomach and bowels, Indigestion, &c. As a purgative it is substituted to Rhubarb in many cases, particularly for Children and Pregnant Women, being found serviceable in the constipation of pregnancy, &c. It has the advantage of not heating the body. Cold water is said to add to its efficiency and prevent nausea or emesis. A teaspoonful of the powder in hot water and sugar will give immediate relief in case of heavy food, loading a weak stomach. It is a good corrector of the bile alone or united with other bitters. Clayton and Schoepf, calling it *Swertia difformis*, say that it is employed in jaundice, scurvy, gout, suppressed menstruation and is a specific in hydrophobia! these indications require confirmation. The root ought to be collected from the fall of the second year to the spring of the third year growth; when in blossom the root becomes softer and less bitter. The doses are two

drachms of the powder, one or two ounces of the infusion; an extract of it ought to be made which would probably be like that of Gentian; a Vinegar is made of it in the west, useful as a refrigerant tonic, &c.

SUBSTITUTES—*Coptis trifolia*—*Xanthorhiza apifolia*—*Triosteum perfoliatum*—*Menyanthes trifoliata*—*Sabbatia angularis*—*Gentiana Sp.*—Rhubarb, Common Gentian, Calumba or *Cocculus palmatus* and many other tonics, chiefly roots, rather than barks.

REMARKS—The *Frasera* deserves to be cultivated for its beauty and utility. It grows easily from seeds. It begins to disappear like the Ginseng, from large tracts of country, by being wastefully gathered. Perhaps the true Calumba might also be cultivated in Florida and Louisiana.

No. 40.

GAUTIERA REPENS.

English Name—MOUNTAIN-TEA.

French Name—Gautiere rampante.

German Name—Bergbeere.

Officinal Names—Gaultheria, Gualtheria.

Vulgar Names—Partridge-berry, Grouse-berry, Deerberry, Spiceberry, Teaberry, Redberry, Wintergreen, Redberry-tea, Mountain-tea, Groundberry, Ground Ivy, Ground holly, Hillberry, Box-berry, Chequer-berry, &c.

Synomyms—*Gualtheria* or *Gaultheria procumbens* of many Botanists, &c.

Authorities—Lin. Schoepf, Kalm, Duh. Colden, Mich. Pursh, Eaton, Torrey, B. Bart. fig. 15. Coxe, Zollickoffer, Big. fig. 22 bad and Seq.

Genus Gautiera—Calix campanulate five cleft persistent with two scales at the base. Corolla oval five toothed. Stamina ten equal, on the base of the Corolla, filaments hairy, anthers bifid above, ten scales alternate with the filaments. Germen free round, style filiform, stigma obtuse. Fruit a round berry formed by the persistent calix become globulous, fleshy, five toothed, inclosing a Capsul five celled, five valved, many seeded.

Species G. repens—Root creeping, Stems erect, leaves few, terminal, conferted, evergreen, petiolate,

No. 40.

GAUTIERA REPENS.

CREEPING POLLOM,

obovate, mucronate. Flowers few, terminal, with drooping peduncles.

DESCRIPTION—Root horizontal, creeping, slender, yellowish, with few fibres. Stems several, upright, few inches high, slender, base naked with a few scales. Leaves terminal, nearly fasciculate, unequal, few, three to five on short petiols, scattered, coriaceous oval or oboval, pale beneath, acute, with some short mucronate teeth.

Flowers few, terminal, subaxillary, on drooping downy peduncles. Calix double, external bifid, scaly, interior campanulate five cleft, changing afterwards into the fleshy covering of the fruit. Corolla ovate, white or flesh colored, with five teeth. Ten Stamina of a rose color, filaments plumose, bent on the base of the corolla, alterne with ten small scales, anthers oblong orange color, bilobe two-horned, dehiscent outside, pollen white. Germ round, depressed resting on a ring which bears the ten scales or teeth. Style erect, filiform. Stigma obtuse, moist. The fruit is a small five celled five valved and many seeded capsul, inclosed within the fleshy calix, which assumes the appearance of a round scarlet perforated berry, of the size of a pea.

LOCALITY—On hills and mountains, in shady woods, Pine woods, rocky and sandy soils, from Maine to Carolina and Indiana; unknown in rich alluvial or limestone plains.

HISTORY—Dedicated to Dr. Gautier of Canada by Kalm, wrongly mispelt *Gaultheria* and *Gualtheria* by many; but errors ought not to be copied for-

ever, thus the misname of *procumbens* given to it must at last be changed into *G. repens*, since it is creeping and not procumbent. It belongs to the Natural family of ERICINES or BICORNES, and to *Decandria monogynia* of Linnæus.

The whole plant has long been known and used as a pleasant common drink in the country by the name of mountain-tea. The berries have a peculiar grateful flavor, and are eaten by children, although rather dry. They are eaten greedily by Game and birds, Deer, Rabbits, Partridges, Grouse, &c. and impart a fine flavor to their flesh, in the fall and winter, when ripe. The plant blossoms from June to September. It is known by a multitude of local names.

QUALITIES—The whole plant has a peculiar taste and smell, aromatic and sweet. It contains sugar, tannin, mucilage and an essential Oil, in which reside the taste, smell and properties. This Oil is very singular and peculiar, it is very heavy, sinking in water, yet volatile, perfectly transparent of a greenish white, aromatic, sweet and highly pungent, containing a peculiar principle *Gautierine.*

PROPERTIES—Stimulant, anodyne, astringent, menagogue, antispasmodic, diaphoretic, lacteal, cordial, &c. A popular remedy in many parts of the Country. It is generally used as a tea, but the essence and Oil possess eminently all the properties, and are kept in shops. The tea is used as a palliative in asthma, to restore strength, promote menstruation, also in cases of debility, in the secondary stage of diarrhœa, and to promote the lacteal secretion of the

breast, &c.: it is a very agreeable and refreshing beverage, much preferable to imported China Teas. The Oil and Essence prepared by dissolving it in Alcohol, are employed whenever warm and cordial stimulants are required. The Oil cures the tooth-ache or allays the pain of carious teeth, like other strong essential Oils. The Indians made great use of this plant as a stimulant, restorative, cordial, &c. It is injurious in fevers.

SUBSTITUTES—*Monarda* Sp.—*Panax* or *Ginseng* —*Laurus benzoin*—*Aristolochia serpentaria*—*Asarum canadense*, &c. &c.

REMARKS—All the plants which have more or less the smell and taste of *Gautiera*, contain the same Oil and principle, and may probably be available equivalents. They are *Gautiera hispidula* and *Spirea ulmaria*, roots of *Polygala paucifolia* and *Spirea lobata*, bark of *Betula lenta* or Sweet Birch tree, &c. They are called Pollom by the Indians.

The Oil of *Gautiera* is now used in all the secret officinal Panaceas to disguise or cover the taste of the other ingredients, which are generally common articles such as Guayacum, *Solanum dulcamara*, Sarsaparilla, Mezereon, *Stillingia sylvatica*, Snake roots, Spikenards, &c

No. 41.

GENTIANA CATESBEI.

English Name—CATESBIAN GENTIAN.

French Name—Gentiane de Catesby.

German Name—Katesbys Enzian.

Officinal Name—Gentiana Catesbiana.

Vulgar Names—Blue Gentian, Southern Gentian, Blue-bells, Bitter-root.

Authorities—Catesby fig. ...., Walter, Elliott, Macbride, Bigelow, fig. 34, and Seq. Coxe Disp. Zollickoffer, &c.

Genus Gentiana—Calix campanulate four or five cleft, segments unequal. Corolla with a tubular base, and a variable limb, with four to fifteen lobes or teeth. Stamina five equal, inserted on the tube, not exserted. One stipitate Germen oblong, two stigmas sessile or with a style. Capsule 1 celled, 2 valved, many seeded.

Species G. Catesbei—Stem rough, leaves opposite, sessile, ovate lanceolate, subtrinerve, acute, flowers capitate; calicinal segments longer than the tube: Corolla tubular, ventricose, plaited, with ten teeth, five alterne larger acute, five smaller bifid.

DESCRIPTION—Root perennial, yellowish, branching, fleshy. Stem simple, erect, cylindric, rough, 1 or 2 feet high. Leaves remote, opposite, decustate, ovate or lanceolate, entire, slightly trinerve,

No. 41.

GENTIANA CATESBEI.

CATESBIAN GENTIAN.

acute, rough in the margin.—Flowers subsessile in a crowded terminal head, of six to twelve, surrounded by an involucrum of four leaves and some lanceolate bracts, often some axillary flowers below the head. Calix with segments longer than the base, linear-lanceolate, unequal, acute. Corolla large two inches long, of a fine azure blue, base short tubular, limb large, plaited, swelled, tubular, open at the top; border ten cleft; five smaller lobes alternating with the others, but opposite to the calicinal and stamina, bifid, acute, ciliate: the five larger lobes rounded, acute, entire. Five Stamina shorter than the corolla, with subulate filaments and sagittate anthers. Germen oblong-lanceolate, compressed, stipitate; style very short, two oblong reflexed stigmas. Capsule oblong, acute at both ends, one celled, two valved, many small seeds inserted on the valves or a longitudinal placenta on each valve.

Locality—It grows from Carolina to Alabama and West Kentucky, in glades and open plains.

HISTORY—This species was long considered as a variety of the *G. Saponaria* of the Northern States; but distinguished by Walter and Elliott, and named after Catesby, who gave an imperfect figure of it long before. It is one of our best native medical Gentians, but we have many others; in the Northern States the *G. quinqueflora* is the officinal kind.

All the Gentians are beautiful plants, more or less bitter in the roots or leaves. There are many species in the United States, some of which have only lately been noticed and many are as yet undescribed. The

Genus *Gentiana* took its name from Gentius, king of Illyria, it gives its name to a large Natural Family, and belongs to *Pentandria digynia* of Linnæus, although it has often more or less than five Stamina, and seldom if ever two styles. That genus is a very heterogeneous one, although striking by its habit; but the flowers have the peculiarity of being variable in shapes and numbers; wherefore many botanists have rationally divided it into subgenera, which might be rather deemed Genera. Almost all our species belong to the *S. G. Pneumonanthe* having oblong or tubular Corolla, and five Stamina, except the *G. crinita* which belongs to *S. G. Eublephis* having four Stamina and a hypocrateriform ciliated Corolla. While the officinal Gentian or *G. lutea* of Europe belongs to *S. G. Rotularia* having rotated Corolla, with five to nine Stamina.

All our Gentians are autumnal plants, blossoming very late from September to November: They are all ornamental and would adorn our gardens, where some are already introduced.

QUALITIES—The root has a mucilaginous and sweetish taste, followed by an intense bitterness like that of the officinal Gentian. It contains Amarine, Extractive, Mucilage, Resin, Sugar, Oil, and the principle *Gentia*, which is soluble in Water and Alcohol, as well as all the active parts: the solutions are more bitter than the root in substance: No astringency.

PROPERTIES—Tonic, Sudorific, Antiseptic, Corroborant, Cathartic, &c. It is very little inferior

to the officinal Gentian in strength and efficacy, it invigorates the stomach, and is very useful in debility of the stomach and the digestive organs: it increases the appetite, prevents the acidification of food, enables the Stomach to bear and digest solid food, and thus cures Indigestion or Dyspepsia. It is much used in the Southern States in hectic and nervous fevers, pneumonia, &c. acting as a sudorific tonic. It may be used like common Gentian in general debility, Marasm, Hysteria, and even Gout. Also united to astringents for intermittents and other fevers. The dose is in substance from 10 to 40 grains, in tincture one fourth of an ounce to one ounce, in extract 2 to 8 grains. In large doses the Gentians prove cathartic like *Frasera*. They enter in all digestive pills and preparations.

Substitutes—*Frasera Verticillata, Menyanthes, Triosteum, Coptis, Sabbatia, Xanthorhiza,* &c., besides nearly all the native Gentians that follow.

Remarks—Our native Gentians being little known as yet, and all medical, I deem it proper to annex here a complete account of them, with notices on the new kinds.

1. *G. Quinqueflora* Lin. or five flowered Gentian. Easily known by its branched winged Stem; small oval, clasping leaves; flowers five cleft, small, axillary by bunches of three, four or five and blue—Common from New England to Kentucky, and the best substitute, the whole plant may be used, being intensely bitter like *Sabbatia angularis*. Annual.

3. *G. Amarelloides* Michaux or Yellow bunch

Gentian. Differs from the former by oval lanceolate leaves, stem round with four small angles, flowers axillary and terminal, yellowish, calix longer foliaceous.—In Kentucky, Illinois, &c. Equal to the former. Annual.

3. *G. Crinita* Wild. Fringed Gentian. Easily known by its lanceolate leaves, large solitary flowers on long peduncles with a fringed four cleft corolla, &c.—An elegant species found from New York to Carolina. Perennial like all the following.

4. *G. Saponaria* Lin. Soap Gentian. Leaves oval lanceolate, acute, trinerve, flowers verticillate, sessile; calix with short oval segments: corolla oblong, with ten teeth, the interior unequally trifid.—Common from New England to Virginia, medical.

5. *G. Clausa* Raf. Closed Gentian. Stem round smooth, leaves ovate lanceolate, acuminate, subtrinerve: flowers verticillate, sessile; calix four to six cleft angular, segments foliaceous short: Corolla clavate, short, closed 8–10 teeth, internal teeth equally bilobe. On the Taconick and Green mountains, flowers blue, half the size of *G. Saponaria* and quite shut. Variety with ternate lanceolate leaves.

6. *G. Angustifolia* Michaux. Narrow leaved G. Stem simple, slender, one flowered, leaves narrow linear spreading: Corolla funnel shaped ten cleft, with five internal lacerate segments.—Rare, beautiful large flowers, in New Jersey, Carolina, &c.

7. *G. Linearis* Willd. Linear G. Stem rough, leaves linear lanceolate, undulate, ciliate; flowers capitate, sessile, Corolla campanulate five cleft, with

the internal folds denticulate.—In the Alleghany mountains.

8. *G. Ochroleuca* Wild. Pale G. Stem rough angular, leaves elliptic rough; flowers capitate, sessile: Corolla ventricose, closed, five cleft, inner folds simple, acute.—In New York, Pennsylvania, &c. flowers yellowish white.

9. *G. Heterophylla* Raf. Grey G. Stem simple, erect, round, smooth; leaves subtrinerve, lower oboval obtuse, medial elliptic, upper oblong acute: Flowers terminal, sessile two to four, calix campanulate, segments cuneate obtuse; Corolla ventricose, five cleft, segments acute, bidentate on one side.—On the mountains of Virginia, East Kentucky and Tennessee, flowers of a pale bluish grey. Sometimes called Flux-root and used for the Disentery.

10. *G. Serpentaria* Raf. Snake-root G. Stem smooth, flexuose, subangular; leaves obovate or oblong, subobtuse, subtrinerve, undulated: Flowers fascicled sessile, bracteoles petiolate, calix campanulate, angular, segments linear and carinate: Corolla tubular five cleft, segments obtuse notched, inner folds lacerated.—In Indiana, Illinois, &c. Root considered a specific for men and cattle bitten by Rattlesnakes and Copper-heads; it is also said to stupify snakes.

11. *G. Shortiana* Raf. Shortian Gentian. Several assurgent stems, rough, ancipital, one flowered; leaves oblong or cuneiform, as long as the intervals, glaucous beneath, edges rough, uninerve, the lower obtuse. Flower sessile bracteate, calicinal segments

short, oblong: Corolla nearly campanulate, five cleft, internal folds lacerated—Common in the glades of Kentucky, Tennessee, Illinois, &c. Stem sometimes only four inches, and flower above one inch, blue. Var. *biflora*, stem upright, two flowered. Dedicated to Dr. Short of Kentucky, who has communicated to me several of the fine following new species.

12. *G. Torreyana* or Torreyan. Stem erect, rough, quadrangular, leaves linear-lanceolate, obtuse, glaucous, short, twice as long as the intervals, uninerve, clasping, often revolute. Flowers three to five, terminal, sessile, calicinal segments linear, as long as the tube: Corolla nearly campanulate, five cleft, segments acute, inner folds entire—In the glades with the foregoing, flowers blue, one inch long. Dedicated to Dr. Torrey.

13. *G. Rigida* Raf. Stiff G. Stem stiff, round, rough; leaves lanceolate, acute, stiff, small, subtrinerve, clasping, longer than the intervals. Flowers one to five terminal, calicinal segments linear, as long as the tube: Corolla campanulate five cleft, segments acute, inner folds entire—In West Kentucky, Tennessee, &c. stem red, flower blue, one inch long, leaves glaucous beneath, small.

14. *G. Elliottea* Raf. or Elliottian G. Stem round, smooth, leaves oblong, narrow, subacute at both ends, as long as the intervals, subtrinerve, glaucous beneath: Flowers three to five terminal, sessile; calix elongated, segments oblong acute, as long as the tube: Corolla campanulate, segments acute, inner folds lace-

rated—In West Kentucky, leaves few, three inches long, flowers 1 1-2 inches, blue. Dedicated to Elliott.

15. *G. Gracilis* Raf. Slender G. Stem slender, rough, round ancipital; leaves twice as long as the intervals, not spreading, linear, uninerve, clasping, the lower obtuse, upper acute: Flowers two to five, sessile, long and slender, calicine segments linear, as long as the tube: Corolla slender, tubular sub-campanulate, five cleft, segments deep, acuminate, inner folds simple—In West Kentucky. It has neither the leaves ciliate and undulate as in *G. linearis* nor the glaucous short leaves of *G. torreyana*. A variety of this with broader leaves, more spreading, may be the *G. pneumonanthe* of Michaux, but not Linnæus. Leaves in both one inch long, and flowers two inches long.

16. *G. Axillaris* Raf. Axillary G. Stem round, rough; leaves oblong lanceolate, acute at both ends, trinerve, twice as long as the intervals: flowers axillary, pedicellate, shorter than the leaves; segments of the calix linear, as long as the tube: Corolla tubular, five cleft, segments acute, with a lateral tooth—Glades of West Kentucky. Leaves three inches long, flowers one inch, with two lanceolate bracts.

17. *G. Collinsiana* Raf. Collinsian G. Stem round, smooth; leaves lanceolate, acuminate, trinerve, longer than the intervals; flowers capitate, involucrate, segments of the calix lanceolate, acute, as long as the tube: Corolla campanulate, five cleft, segments mucronate, inner folds rounded, notched.—A fine species, leaves three inches long, flowers two inches, blue.—

In the glades of Indiana, Illinois, Missouri and West Kentucky. Dedicated to Z. Collins.

I have never seen the *G. pneumonanthe* nor *G. Villosa* of Linnæus. I suspect that the true *G. pneumonanthe* of Europe, does not grow in America, all our species being different from the European, and that either *G. gracilis* or *G. torreyana* was meant by Michaux. As for *G. villosa* it is a doubtful plant, seen by very few botanists, all our Gentians have smooth leaves, I suspect that it may be a hairy variety of my *G. heterophyllo.*

The above account may be considered as a concise monography of our Gentians; but there are some other species in the southern states. The perennial kinds, which are the most numerous, have their medicinal properties concentrated in the roots, which may safely be substituted to the officinal Gentian. The annual kinds have the whole plant intensely bitter and available as in *Sabbatia, Chelone glabra, Verbena hastata* &c. They all ought to be cultivated for their beautiful blue blossoms, and officinal utility.

No. 42.

GERANIUM MACULATUM.

SPOTTED CRANESBILL.

No. 42.

GERANIUM MACULATUM.

English Name—SPOTTED CRANE'S BILL.

French Name—Geranium Macule.

German Name—Geflecter Storchschnabel.

Officinal Names—Geranium radix, Kino Americanus.

Vulgar Names—Crowfoot, Alum-root, Tormentil, Storkbill. In Canada and Louisiana, *Racine a becquet.*

Authorities—Lin. Mich. Pursh, Schoepf, Colden, flowln, Thacher, B. Barton, Mease, Coxe, Eberle, with es, Zollickoffer. Big. fig. 8, and seq. W. Barton May 3.

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have

W Genus Geranium—Calix five parted, equal, persistent. Corol five equal petals. Stamina 10, hypogynous, filaments monadelphous or united at the base, five alternate shorter. Germ central with five glands at the base, a persistent style, five stigmas. Fruit five capsuls one seeded, attached by a beak to the persistent style.

Species G. Maculatum—Perennial, hairy, erect dichotome; leaves few, opposite, three to five parted, palmate, segments oblong acute, jagged: peduncles elongated, biflore, petals obovate.

DESCRIPTION—Root perennial, horizontal, oblong, thick, rough, knobby, brownish spotted with greenish, whitish inside, very brittle when dry, with

few short fibres. Stem erect, round, with few dichotome branches and leaves, covered as well as the petiols with retrorse hairs, and from one to three feet high. Several radical leaves on long petiols, the stem leaves opposite, at the distant forks, on shorter petiols; floral leaves nearly sessile: all are palmate, five parted, seldom three parted, segments oblong or cuneate, pubescent entire at the base, unequally jagged above, sometimes spotted: stipules linear or lanceolate, membranaceous ciliate.

Flowers geminate on biflore peduncles, arising from the forks, erect, round, swelled at the base, with linear bracts, similar to the stipules. Calix formed by fiv deep segments, oval lanceolate, cuspidate, five nerv hairy outside, margin membranaceous or cili Five equal petals, obovate, entire, red with p veins, twice as long as the calix. Stamina 10, filam erect, shorter than the petals, connected at the bas filiform above, five alterne shorter, anthers oblong violet—Germ ovate, with five glands at the base, style erect, grooved, persistent, five oblong obtuse stigmas. Fruit a capsul divided into five coccas or one seeded capsuls, attached inside to the style, and curling up at maturity.

Locality—All over the United States from Maine to Louisiana, Missouri and Florida; very common in woods, copices, hedges, glades, &c. no where more abundant than in the western glades of Kentucky, &c.

HISTORY—The genus Geranium of Linnæus forms a most beautiful group of plants, of which nearly 200 kinds are known, and many adorn our gardens.

They are now the type of a natural family GRUINALES or GERANIDES, divided into many genera: *Erodium* with five stamina, *Pelargonium* with seven, besides *Gruinalium*, *Monsonia*, *Oxalis*, &c. The name is now restricted to the species with ten stamina; it derives from a Greek name meaning Crane. The *G. maculatum* belongs to the true decandrous Geraniums: the specific name applies to the root and leaves which are often spotted or mottled; but a variety is spotless. The varieties are many, such as 1. *Humile*, 2. *Diphyllum*, 3. *Viride*, 4. *Albiflorum*, 5. *Macrophyllum*, &c.

It is a beautiful plant, deserving cultivation, the flowers are large, but scentless, red, purple or white, with darker veins. It blossoms in the spring, from May to July. It has an extensive native range, and I have seen it growing by millions in the glades of West Kentucky, where it could be collected cheaply for use and exportation. The best time for collection is the fall.

Geranium belongs to *Monadelphia decandria* of Linnæus, the *Pelargonium* or African Geraniums of the gardens, to *M. heptandria.*

QUALITIES—Root nearly scentless, taste astringent, but not unpleasant; it contains much tannin, more than kino, extractive, lignine and kinic acid? or a peculiar acid differing from gallic acid in not reddening vegetable blues, and not passing over in distillation. The active principles are soluble in water and alcohol: the alkalies neutralize them.

PROPERTIES—Powerful astringent, vulnerary,

subtonic and antiseptic. The root is the officinal part, and is a pure, pleasant and valuable astringent, equal to kino and catechu, and deserving not only the name of American Kino; but to be introduced in Materia Medica as a superior equivalent. It is a better tonic than kino, and therefore preferable to it in the treatment of morbid fluxes connected with relaxation and debility. Its internal use is indicated in the secondary stages of Dysentery and Cholera Infantum: it is extensively used in the country for all bowel complaints; but sometimes improperly or too early. A gargle of the decoction is useful in cynanche tonsilaris and in ulcerations or aphthous sores of the mouth and throat. The infusion is a valuable lotion in unhealthy ulcers and passive hemorrhagy, also one of the best injections in gleet and leucorhea. It was once deemed a styptic in bleeding hemorrhagy, but has failed in many instances. United to our native Gentians or to *Frasera*, it forms one of the most efficient cures for intermittents. A decoction in milk is very good in looseness of bowels and diarrhea. Our Indians value this plant highly, and use it for wounds, gonorrhœa, ulcers on the legs, diabetes, bloody urine, involuntary discharges of urine, immoderate menstruations, &c. The general effects on the system are to give tone to the bowels and stomach, stop all immoderate discharges, and prevent internal mortification. It has also been recommended in scurvy, nephritis and phthisical diarrhea, but does not avail much in those disorders. Not being at all stimulant, it may be useful when sedative astringents are required. It has cured a periodical

hemoptysis according to Dr. Harris. It is also used in Veterinary for the diseases of cattle or horses, and cures the bloody water of cattle. The doses are one to two ounces in infusion or decoction, two to four drachms of the tincture, fifteen to forty grains of the powder, and ten to fifteen grains of the extract, which is a most powerful and efficient astringent, equalled only by the extract of *Spirea tomentosa*.

SUBSTITUTES—*Orobanche Virginiana*—*Statice Caroliniana*—*Tormentilla erecta*—*Rubus villosus*—*Heuchera species*—*Geum Sp.*—*Spirea tomentosa* and *Sp. opulifolia*—Kino, Catechu, Galls and all powerful vegetable astringents.

REMARKS—The officinal kinos are four. 1. African Kino or *Pterocarpus erinacea*, 2. Botany Bay Kino or *Eucalyptus resinifera*, 3. Jamaica Kino or *Butea frondosa*, 4. American Kino or *Geranium maculatum*, this last is the most efficient and powerful, by far preferable to all the others, since it has no bitterish taste nor resinous matter, like the first and third, nor the disagreeable sweetish taste of the second. It ought to supersede them in our pharmacies at least, if not elsewhere. The Catechu or extract of *Minosa Catechu* is merely equal to it.

The *Geranium robertianum* of Europe, grows also in North America from New England to Ohio, on stony hills, and is a weak equivalent of the *G. maculatum;* but it is also diuretic, and therefore more available in nephritis, gravel, and diseases of the bladder. It will be easily known by its musky smell, annual root, small flowers, &c.

No. 43.

GEUM VIRGINIANUM.

English Name—WHITE AVENS.

French Name—Benoite de Virginie.

German Name—Bennet.

Officinal Name—Geum radix.

Vulgar Names—Evan root, Avens, Chocolate root, Bennet, Cure-all, Throatroot.

Authorities—Lin. Mich. Pursh, Kalm, Schoepf, Cutler, A. Ives, Buckhaven, Melandri, Zollickoffer, Bigelow seq. Coxe, &c.

Genus Geum—Calix ten cleft, spreading, the alternate segments smaller. Petals five on the calix. Many stamina inserted on the base of the calix. Many central pistils, each with a long persistent style and obtuse stigma, and becoming a seed. Seeds forming a cluster, awned by the styles.

Species G. Virginianum—Pubescent, stem erect, radical and lower leaves ternate, petiolate, upper sessile and simple, folioles ovate, lanceolate, acute, unequally serrate, stipules ovate, serrate or entire: flowers few, erect, petals oboval, shorter than the calix; awns uncinate, hairy, twisted.

DESCRIPTION—Roots perennial, small, brittle, brown, crooked, tuberculated, oblong, horizontal. Stem simple, erect, about two feet high, pubescent, few flowered. Radical leaves on long petioles, with-

No. 43.

GEUM VIRGINIANUM.

WHITE AVENS.

out stipules, lower leaves with large stipules and shorter petioles, upper leaves sessile, simple, similar to the folioles of the lower leaves, which are oval, or oval-lanceolate, or lanceolate, base acute, and acuminate, border deeply and unequally serrate: stipules large, broad, sessile, ovate or rounded, serrate or nearly entire.

Flowers terminal, white, few, on erect peduncles. Calix spreading, ten cleft, segments lanceolate, acute, five alternate smaller. Five yellowish white petals, opposite to the short segments, shorter than the longest, and inserted on the base of the calix, oboval, entire, flat. Stamina many, short, unequal, perigynous; filaments filiform, anthers roundish and yellow. Pistils many, conglomerate, oval, styles long, hairy, stigma hooked. Fruit a small burr or round cluster of achenes or single seeds, oval, brown, smooth, having a long tail or awn, formed by the persistent styles, filiform, hairy, twisted and uncinate at the top.

Locality—Common from Maine to Carolina and Kentucky, in woods, groves, thickets, hills, &c.

HISTORY—An estival plant blossoming in June and July, the flowers resemble those of Strawberries, but are smaller; a variety has them yellowish. The varieties are 1. *Uniflora*, 2. *Macrophylla*, 3. *Lanceolata*, 4. *Ochroleuca*, 5. *Ramosa*, &c.

The *Geum rivale* or water Avens, a boreal plant, spread from New England to Canada in damp places, is more commonly employed in the north, and this species in the south; they are both equivalents.

Geum belongs to the natural order of Senticoses

near *Dryas*, *Dalibarda* and *Stylypus*, and to *Icosandria polygynia* of Linnæus.

QUALITIES—The whole plant is available, but the root is principally used, it has a bitterish astringent taste, and a pleasant smell, somewhat like cloves, only perceptible in the spring, when it must be collected for use. It contains resin, gum, tannin, extractive, mucilage, fibrine, a volatile oil, &c. The *Geum urbanum*, a consimilar and equivalent species, has been found to contain out of two ounces, 496 grains of lignine, 118 of tannin, 181 extractive, 61 of saline and soapy matter, 92 of mucilage, 23 of resin, 76 of oil and water. It yields these principles to water and alcohol, and dies them red: the alcoholic preparations are scented, the watery scentless and merely astringent.

PROPERTIES—All the Avens have nearly the same properties, they are astringent, styptic, tonic, febrifuge, stomachic, &c. They are much used in the Northern States and Canada. In Connecticut they supersede the Chincona; but they are weaker, although less stimulant, in fevers. They do not increase excitement and are therefore useful in hemoptysis and Phthisis. They are decidedly excellent in dyspepsia and visceral affections; Ives states that its long use, restores to health the most shattered and enfeebled constitutions. They are often used in decoction with sugar and milk, like chocolate or coffee, to which they resemble: and also for dysentery, chronic diarrhea, colics, debility, asthma, sorethroat, leucorhea, uterine hemorrhagy. They are the base of

the Indian Chocolate of Empirics. The doses are a daily pint of the weak decoction, or about 60 grains of the powder daily, divided into three doses: this powder may be mixed with honey. A table-spoonful of the tincture is also given in some cases. These roots are sometimes put in Ale, as stomachics.

Substitutes—*Geranium maculatum* and all the plants mentioned as equivalent to it; the *Geum rivale* and *G. urbanum*, also the *Stylypus Vernus*.

Remarks—The *E. urbanum* does not grow in America, although indicated by some. The *G. rivale* of America is a peculiar variety. It will be known from this, by its locality in the north, near waters, the radical leaves pinnate, cauline three cleft, and large purplish nodding flowers. It is said to be more efficient than this kind.

My *Stylypus vernus* is a new annual plant, growing only in the Western States, from Ohio to Tennessee, in woods, and bears small yellow blossoms in March and April. It has the properties of this plant and Agrimony. The generic and specific character are as follows.

G. Stylypus. Calix persistent, campanulate, five cleft, segments reflexed. Five small petals and many Stamina inserted on the top of the calix. Many Pistils in a head borne by a cylindrical gynophore. Several Seeds or Achenes, with persistent smooth Styles.—*Stylypus vernus* Annual, many decumbent Stems, leaves interrupted pinnate, folioles laciniated, upper leaves simple jagged: flowers terminal, few, peduncled.

No. 44.

GILLENIA STIPULACEA.

English Name—WESTERN DROPWORT.

French Name—Gillenia occidentale.

German Name—Gillenwurzel.

Officinal Name—Gillenia radix.

Vulgar Names—Indian Physic, Indian hippo, Ipecac, Beaumont root, Bowman's root, Meadow sweet, &c.

Synonyms—*Spirea trifoliata* Var. Auct.

Authorities—Pursh, Wildenow, Schoepf, Thatcher, Coxe, Duncan, Nuttal, Mœnch, Eberle, A. Ives, Baum, W. Bart. fig. 6, &c.

Genus Gillenia—Calix campanulate 5 cleft. Five narrow unequal petals inserted on the calyx. Many short Stamina inserted there also. Five coherent pistils, five Styles. Capsules five connate at the base, opening inside, unilocular, two seeded.

Species G. Stipulacea—Lower leaves pinnatifid, upper leaves trifoliolate, folioles lanceolate [incise serrate; stipules foliaceous, ovate, oblique, jagged: flowers loosely corymbose.

DESCRIPTION—Root perennial, dark brown, amorphous, with large and long fleshy fibres. Several Stems from two to three feet high, slender, smooth, brittle, reddish, branched. Leaves large, alternate, sessile, with three folioles and two large stipules;

No. 44.

GILLENIA STIPULACEA.

WESTERN DROPWORT.

these last are oblique, ovate, irregularly jagged, acute. Folioles smooth, lanceolate, acute at both ends, with a large nerve, border unequally serrate or jagged, and in the lower leaves often pinnatif.—Flowers in loose thin terminal corymbs, peduncles clingated, calix campanulate with five teeth; petals white, three times as long, linear lanceolate, a little unequal, base cuneiform, and nearly obtuse. Stamina short, inclosed, anthers round yellow. Pistil central free, five parted, five filiform Styles, five obtuse stigmas, five connected Capsuls, &c. &c.

Locality—Found only West of the Alleghany mountains, from Ohio and West Virginia to Missouri and Louisiana; rare in the limestone and alluvial regions, very common in the hilly and sand-stone regions, growing always in poor or gravelly soils, both in woods and glades.

HISTORY—This genus contains two species, this and *G. trifoliata*, which has similar properties, and will be known by its locality, growing on the mountains Alleghany, or north, east and south of them from Canada to Florida, but never west of them. It is a larger plant, with broader folioles, small linear stipules and fewer flowers, but larger. It has been figured by Barton and Bigelow, but resembles this so much as not to need it.

Both blossom in June and July, and are pretty plants, worth cultivation. They had formerly been united to *Spirea*, *Filipendula*, and *Ulmaria*, Mœnch proposed long ago the genus *Gillenia*, but it was only lately adopted. It belongs to the Natural Order of

SENTICOSES, family *Spireadia*, and to *Icosandria pentagynia*. The *G. Stipulacea* was only lately described. It offers many varieties, 1. *Uniflora*, 2. *Pinnatifida*, 3. *Virgata*, 4. *Variegata*, &c. Cattle do not eat it.

QUALITIES—Roots scentless, taste bitter but not unpleasant. Containing a resin, extractive, lignine, fecula, amarine, and a coloring matter, which dies the solutions red.

PROPERTIES—Both species are emetic, cathartic, and tonic; but the *G. stipulacea* is by far the best and strongest. It has even happened that the *G. trifoliata* has proved inert, in some cases, when old, or taken from cultivated plants: while the *G. stipulacea* has never failed, and supersedes the Ipecac in common practice throughout the West. It is as mild and efficient, milder than the *Euphorbia corollata*. The roots are collected in the fall, and kept in many stores: the bark of the root is chiefly used, but the woody part is not inert as supposed. The dose is from 15 to 30 grains of the powder. It operates often also as a cathartic. In small doses it becomes a tonic, and is used in intermittents. The Indians employed it, and took larger doses or strong decoctions of it, which operated violently; this practice is yet followed and brings on debility: Eberle has successfully used the *G. trifoliata* in dyspepsia, also in dysentery with opium. It is given in decoction to horses and cattle as a tonic and digestive.

SUBSTITUTES—*Euphorbia Sp.*—*Sanguinaria*—Ipecacuana and all the mild Emetics.

No. 45.

HAMAMELIS VIRGINIANA.

WINTER WITCH-HAZEL.

No. 45.

HAMAMELIS VIRGINICA.

English Name—WINTER WITCH HAZEL.
French Name—Hamamelier d'hyver.
German Name—Hexehasel.
Officinal Name—Hamamelis Cortex.
Vulgar Names—Witch hazel, Snapping hazel-nut, Winter bloom, Pistachoe nut, &c.
Authorities—Lin. Mich. Pursh, Cutler, Schoepf, Mitchell, Colden, Catesby, fig. 2. Barton Flora, fig. 78, Elliott, &c.

Genus Hamamelis—Calix four cleft, persistent, with scales at the base. Petals four long and linear. Stamina four opposite to the petals. Filaments broad and short, anthers adnate, two celled, dehiscent by vertical valves, one pistil, two stigmas. Capsule coriaceous nut-like, two celled, two lobed, two valved above, valves cleft: one oblong seed in each cell.

Species St. Virginica—Leaves obovate, obtuse, smooth, base obliquely cordate, margin erose; flowers in small remote clusters, calix and fruit pubescent externally.

DESCRIPTION—A shrub from six to ten feet high, with irregular branches, flexuose and knotty: bark smooth grey, with brown dots. Leaves rather large, smooth, alternate, petiolate, obovate, base with a small sinus and unequal lobes, margin with unequal

faint teeth, commonly obtuse, end obtuse, nerves prominent.

Flowers on short pedicels, clustered three to five together, in several places along the branches. Calix small, but enlarging with the fruit, with three or four scales at the base, divided into four thick oval pubescent segments. Petals yellow, much longer, linear, obtuse, often undulate or revolute. Stamina four opposed to petals, shorter than the calix. Pistil oval central, a short style, two stigmas obtuse. Fruit a nut-like Capsule, similar to a hazel-nut; but bilobed and split above, pubescent, yellowish, with two celis containing each an oblong black seed, with a broad arilla at the base. This capsule is one year ripening, and opens with elasticity and instantaneously with a noise, by two half valves, throwing the seeds off.

Locality—From New England to Carolina and Ohio, commonly on hills and mountains, near stony banks of streams. Rare in plains and alluvions.

HISTORY—This is a very singular Genus, formed by Linnæus with the *Trilopus* of Mitchell, which name he ought not to have changed for the actual, which is the Greek name of the *Mespilus* or *Medlar tree.* He knew only one species, several are now known, which are sometimes polygamous, monoical and even dioical. They all blossom in winter, when no other tree is in bloom; the blossoms last from October to February. The fruits stand on the whole year, till next fall, and then explode successively with a noise, like *Hura crepitans*, scattering the seeds around. These seeds are eaten by the Indians,

and in the South where they are called erroneously Pistachoe nuts, although quite unlike the *Pistacia vera* or true Pistachoe of the Mediterranean. They are similar in shape to the esculent Pine seeds of *Pinus picea*, cylindrical, shining black outside, white and farinaceous inside, rather oily and palatable.

The shrub resembles very much in the appearance of the leaves and nuts, the common hazelnut, *Corylus Americana;* but the blossoms are totally different. It has become in the United States the Witch hazel, affording the divining rods, employed by the adepts of the occult arts, to find or pretend to find Water, Ores, Salt, &c. unuer ground. The *Alnus* and *Corylus* are often substituted, a forked branch is used, the two branches held in both hands; when and where the point drops, the springs or metals sought for, are said to be! A belief in this vain practice is as yet widely spread.

It belongs to the Natural Order of BERBERIDES, distinguished by opposite petals and stamina, and to the section or family with capsular fruit like *Jeffersonia.* Also to *Tetrandria monogynia* of Linnæus.

QUALITIES—The bark and leaves are somewhat bitter, very astringent, leaving a sweetish pungent taste: The smell is not unpleasant. It has not been analyzed as yet, but probably contains tannin, amarine, extractive, and an essential oil.

PROPERTIES—Sedative, astringent, tonic, discutient, &c. The Indians value this shrub highly, and it is much used in the North by herbalists. The bark affords an excellent topical application for pain-

ful tumors and piles, external inflammations, sore and inflamed eyes, &c. in cataplasm or poultice or wash. A tea is made with the leaves, and employed for many purposes, in amenorrhea, bowel complaints, pains in the sides, menstrual effusions, bleeding of the stomach, &c. In this last case, the chewed leaves, decoction of the bark or tea of the leaves, are all employed with great advantage. A strong infusion is given in injection for bowel complaints. It is said to be a mild yet efficient astringent in all cases, and a safe substitute of *Statice*, *Myrica* and *Rubus*.

Substitutes—*Conium maculatum*—*Viburnum acerifolium* and *V. dentatum*—*Nymphea odorata Myrica cerifera*—*Agrimonia Eupatorium*—*Geum Sp.*—*Rhus typhinum* and *R. glabrum*—*Statice Caroliniana* and many other mild astringents.

Remarks—All the species of this genus have probably the same properties. In the north the *H. parvifolia* is equally used. It is distinguished by smaller leaves, pubescent beneath, hardly cordate at the base, undulate and sinuate. The shrub is smaller, with blossoms of a brighter yellow, and grows in mountains.

The *H. macrophylla* or Bigleaf Witch hazel, is only found in the Southern mountains, and will be known by its large, rough and round leaves.

No. 46.

HEDEOMA PULEGIOIDES.

AMERICAN PENNYROYAL.

No. 46.

HEDEOMA PULEGIOIDES.

English Name—AMERICAN PENNYROYAL.
French Name—Hedeome Pouliot.
German Name—Poleyblattrige.
Officinal Name—Hedeoma herba.
Vulgar Names—Pennyroyal, Tickweed, Stinking Balm, Squaw-mint, &c.
Synonyms—*Melissa pulegioides* Lin. *Cunila pulegioides* Lin. and many botanists.
Authorities—Lin. Mich. Pursh, Persoon, Kalm, Schoepf, Thacher, Cullen, Big. seq., Duncan, Eberle, Zollickoffer, Chapman, Elliott, B. Barton, W. Barton, M. M. fig. 41.

Genus Hedeoma—Calix bilabiate, ten striated, base gibbose, upper lip trifid, lower with two subulate teeth and ciliated bristles, corolla bilabiate, upper lip nearly entire, lower trilobe, middle lobe obcordate. Two fertile stamina as long as the corolla, two sterile and short. One style, four seeds.

Species H. pulegioides—Annual, leaves subpetiolate, oblong, acute, subserrate, a little rough. Flowers axillary, verticillate by six, on short pedicels, with two small bracteoles.

DESCRIPTION—Root annual, small, yellowish, branched fibrose. Stem upright, about a foot high, with slender erect branches, terete, pubescent. Leaves

opposite, small, oblong lanceolate or suboval, on short petioles, base attenuated, end subacute, margin with small remote serratures, surface rough or pubescent, nerved and pale beneath.

Flowers all along the branches in axillary whorls of six, nodding, on short pedicels, very small. Calix as above, pubescent. Corolla very small, hardly longer, white, with the lips purple, base slender, then campanulate with two small lips, the upper rounded, seldom notched, the lower with two rounded lateral lobes, and an obcordate middle lobe. Stamina and style filiform, anthers oblong. Stigma lateral acute. Fruit four small oblong seeds in the persistent calix, mouth closed by the ciliated bristles of the lower lip.

LOCALITY—Very common and abundant all over the United States, and in Canada, in dry woods and hills chiefly, but also in plains, alluvions, roads, stony fields. Never in moist soils. No where more abundant than in lime soils or arid grounds.

HISTORY—It was the fate of this plant to be successively united by Linnæus and other botanists to *Melissa* and *Cunila*, until distinguished and named by Persoon, and it is as yet commonly blended, even by medical writers, with the European Pennyroyal or *Mentha pulegium*, which does not grow in America; the shape, smell, and properties being somewhat similar, whence the same vulgar name; but our plant appears to be more efficient.

It belongs to the natural order of LABIATE, and to *Diandria monogynia* of Linnæus. It blossoms in summer from July to September. The name of *He-*

deoma means sweet smelling in Greek; the whole plant is scented; but the smell far from agreeable, being strong and graveolent: many persons, however, like it and call it pungent, reviving and pleasant: females are sometimes fond of it as well as of Rue or *Ruta graveolens*, although both very graveolent.

QUALITIES—The smell and taste are very warm, pungent, strong, and hardly aromatic, but pleasant or disagreeable according to different personal affections. The medical principle resides in an essential oil, possessing eminently the same smell and taste.

PROPERTIES—Carminative, resolvent, pectoral, diaphoretic, antispasmodic, menagogue, pellent, stimulant, &c. It is a popular remedy throughout the country for female complaints, suppressed menstruations, hysterics, &c. It is chiefly beneficial in obstructed catamenia, and recent cases of suppressions, given as a sweetened tea, with the pediluvium. Eberle, however, deems its menagogue property problematical, and useful only as a vehicle for other remedies: that he is mistaken, is proved by daily experience. It promotes expectoration in the whooping cough, it alleviates spasms, pains in the hips, and the spasmodic or dyspeptic symptoms of menstruation. Schoepf mentions it for palpitations, fevers and gout; but it is too stimulant in fevers. A warm cataplasm of the herb is useful in severe pains, and thrilling palpitations. Zollickoffer says that it is a valuable medicine in some cases of diarrhea, but which? Some herbalists in the north, employ it extensively for colds, cholics of children, to remove obstruction, warm the stomach

and promote perspiration. Although it affords one of the most popular graveolent tea, there are many other labiate plants which are equivalent to it and more agreeable withal: the best are Mint, Dittany, Balms, Sage, Monarda, Isanthus, &c. The oil is now kept in pharmacies, and often used instead of the infusion, in mixtures, &c.

SUBSTITUTES—*Monarda Sp.—Mentha pulegium and M. piperita—Cunila mariana—Isanthus ceruleus—Ruta graveolens—Salvia officinalis—Melissa nepeta—Juniperus Sp.—Rosmarinus officinalis—Rubia tinctoria—Polygala senega*, &c.

REMARKS—This plant is also frequently used to kill the Ticks, (*Ixodes*) which attach themselves to men, dogs and cattle, in summer. These troublesome animals are found wherever the Hedysarums and Lespedezas or true Tickweeds grow, upon which they breed, but both are unknown in the limestone plains. By rubbing the legs or boots with this plant or its oil, these insects will avoid you, or if they have taken hold, the oil kills them. A strong decoction of the plant is equally convenient, and a strong decoction of Tobacco as good likewise.

No. 47.

HELENIUM AUTUMNALE.

COMMON SNEEZEWORT.

No. 47.

HELENIUM AUTUMNALE.

ENGLISH NAME—COMMON SNEEZEWORT.

FRENCH NAME—HELENIE D'AUTOMNE.

GERMAN NAME—NIESSENKRAUT.

OFFICINAL NAME—Helenium.

VULGAR NAMES—Sneezeweed, Sneezewort, Swamp Sunflower, False Sunflower, Yellow Star, Oxeye.

AUTHORITIES—Lin. Mich. Pursh. Torrey, Elliott, Cornut, Clayton, Schoepf, B. Barton, W. Bart. ft. fig. 26, Duncan, &c.

Genus HELENIUM—Perianthe many parted, segments linear. Flowers radiate, rays cuneate trilobe, styliferous, from 15 to 20. Phoranthe hemispherical, naked, chaffy on the margin. Florets complete, four or five cleft. Pappus with five chaffs. Seeds hairy.

Species H. AUTUMNALE—Pubescent, Stem corymbose above, winged: leaves lanceolate, serrate, decurrent: peduncles thicker above, rays flat, florets five cleft.

DESCRIPTION—Root perennial, fibrous. Several Stems from three to seven feet high, erect, angular, winged by the decurrent leaves, branched and corymbose above: covered as well as the leaves with a very short and dense pubescence. Leaves glaucous, alternate, sessile, decurrent, lanceolate, acuminate, unequally serrate, dotted by small pits, subtrinervate.

Flowers corymbose, golden yellow, large, one or two inches in diameter. Peduncles axillary, uniflore, with one oval lanceolate bract, clavate or thicker upwards. Perianthe with many unequal linear acute segments. Phoranthe semiglobose, with chaffs near the rays, lanceolate. Rays from five to twenty, spreading flat, or sometimes rather reflexed, shape cuneate, end broad trilobe, middle lobe often smaller. Disk greenish yellow convex, florets small crowded five cleft, with syngenesious stamina, a bifid style, oblong germ, pappus formed by three to five chaffs subulate and awned.

LOCALITY—It grows all over the United States, and from Canada to Texas and Florida, in wet meadows, and Savannas, damp fields, overflowed grounds, banks of streams, &c.

HISTORY—Linnæus has employed the specific name of the *Inula helenium* or Elecampane as a generic one in this instance, owing to a faint resemblance. The *Helenium* was said by the Greeks to have sprung from the tears of the fair Helen. This was once a unique species, but now several others are added, which grow in the Southern States. It belongs to the great Order of RADIATÆ, where it is the type of a small family the *Helenides*: Linnæus puts it in his *Syngenesia superflua.*

It is a fine plant, rather ornamental, and adorning in the fall the meadows with its golden blossoms, appearing from September to November. The Cattle do not touch it. The varieties are 1. *Villosa*, 2. *Pumila*, 3. *Prealta*, &c.

QUALITIES—The plant has hardly any smell: the taste is bitter, and a little pungent or even acrid. It has not been analyzed; but contains amarine, extractive and an oil.

PROPERTIES—Tonic, febrifuge, errhine. Clayton and Schoepf mention its use in intermittents; but it is not extensively employed as yet in fevers: while it is known and employed all over the country as a valuable Errhine. The whole plant reduced to powder act as such; but the flowers and particularly the central florets are powerful sternutatory. A very small pinch of their powder produces a lasting sneezing. The late B. Barton has eminently extolled it, as a substitute to more acrid Errhines, either alone or united to other ingredients. It may be used in diseases of the head, deafness, anavrosis, head-ache, hemicrania, rheumatism or congestions in the head and jaws, &c. The shocks of sneezing are often useful in those cases, when other remedies can hardly avail. This plant has probably many other properties, little known as yet, and deserving investigation.

SUBSTITUTES—As a tonic *Chelone glubra*, and other herbaceous tonics. As an errhine, *Asarum Canadense*, *Sanguinaria canadensis*, *Myrica cerifera*, Tobacco and Cephalic Snuffs. Besides the *Helenium quadridentatum* of Louisiana and Florida, which will be known by its lower leaves pinnatifid, upper entire, and the florets quadrifid or four cleft.

No. 48.

HEPATICA TRILOBA.

English Name—COMMON LIVERWORT.

French Name—Hepatique trilobe.

German Name—Leberekraut.

Officinal Name—Hepatica.

Vulgar Names—Liverweed, Trefoil, Noble Liverwort.

Synonym—*Anemone hepatica* Linn. &c.

Authorities—Linn. Schoepf, Pursh, Torrey, Eaton, Hereford, &c.

Genus Hepatica—Involucre caliciform, near the flower, persistent, three parted. Perigone corolliform, with six to nine oblong petals. Many short Stamina. Many pistils, Styles short. Seeds awnless achenes.

Species H. triloba—Leaves radical, cordate, three lobed, lobes entire, petioles and scapes equal in length and hairy, scapes uniflora, flowers drooping before the anthesis and pilose.

DESCRIPTION—Root perennial, fibrose, fibres long fasciculate, brown. Leaves all radical, on long hairy petioles, somewhat leathery and partly persistent in winter, base cordate, divided into three equal entire lobes, rounded, obtuse or acute, with obtuse or acute sinuses, nearly smooth, mottled of olivaceous and purplish above, glaucous and purplish beneath. Several scapes equal in length to the petiols, upright,

No. 48.

HEPATICA TRILOBA.

COMMON LIVERWORT.

four to eight inches long, invested at the base with several membranaceous sheaths, hairy, round, bearing a single flower.

Flowers terminal, drooping at first, spreading when unfolded. Involucre resembling a calix, very hairy, hairs grey and long, segments very deep, oval, entire, obtuse. Perigone like a Corolla bluish, purplish or white, sepals elliptic obtuse, equal, but in two or three series. Filaments subulate, anthers elliptic, pale yellow. Pistils and seeds oval, acute.

Locality—A boreal plant, native of the northern parts of Europe, Asia and America, spreading in this last continent from Labrador to Virginia and the Pacific Ocean, common in woods, hills and mountains of the United States from New England to Kentucky.

HISTORY—A pretty vernal plant, the leaves stand the winter, and early in the spring the flowers come out, even when snow is yet falling: they last from March to May, are rather pretty and deserving cultivation. The varieties are 1. *Albiflora*. 2. *Acutiloba*. 3. *Parviflora*, flowers half the usual size and blue. In Kentucky, perhaps a peculiar species.

Tournefort established this genus, Linnæus wrongly blended it with *Anemone*, it has again been separated lately. The name derives from its hepatic properties. It belongs to the Natural Order of Adnates or Ranunculaceous, and to *Polyandria polygynia*.

Qualities—Scentless and nearly insipid, not bitter; but a little astringent and mucilaginous. It contains tannin, mucilage, extractive, &c.

PROPERTIES—Subtonic, subastringent, hepatic, deobstruent, pectoral, demulcent. It was known to the ancients as a medical plant, and Linnæus has it in his Materia Medica; but it had fallen into disuse, its properties being very mild. It was formerly used in fevers, liver complaints, indigestion, cachexy, hypochondria and hernia. It has lately been brought to notice in America for hemoptysis and coughs, it has been used in Virginia with benefit in the form of a strong infusion, drunk cold. It may be serviceable in hepatisis and hepatic phthisis, as well as all complaints arising from dyspepsic and hypochondric affections; it may be used as a tea, warm or cold and ad-libitum; but it has no effect on the lungs beyond that of a mild demulcent astringent.

SUBSTITUTES—*Agrimonia*—*Geum Sp.*—*Lycopus Virginicus*—*Tussilago*—*Symphytum*—*Leontodon taraxacum* or Dandelion,—*Sisymbrium* or Water Cresses, &c.

No. 49.

HEUCHERA ACERIFOLIA.

MAPLELEAF ALUMROOT.

No. 49.

HEUCHERA ACERIFOLIA.

English Name—MAPLELEAF ALUMROOT.
French Name—Heuchere Erable.
German Name—Alaunwurzel.
Officinal Name—Heuchera radix.
Vulgar Names——Alumroot, Sanicle, Ground Maple, Cliffweed, Split-rock, &c.
Authorities for the Genus—Lin. Mich. Pursh. Nuttal, Eaton, Torrey, Elliott, Dispens. Murray, Stokes, B. Barton, W. Barton, Bigelow seq., Zollickoffer, Coxe, &c.

Genus Heuchera—Calix persistent, campanulate, five cleft. Five entire equal lanceolate petals inserted on the calix. Five stamina inserted on the calix. Pistil central, free, round, cleft, two styles. Capsule bifid, bilocular, many seeded. *Leaves radical, cordate and jagged, with radiating nerves, scape with a terminal panicle of flowers.*

Species H. Acerifolia—Petioles hirsute, leaves smooth, glaucous beneath, acutely five cleft, unequally toothed, teeth mucronate: scape smooth, panicle elongated, laxiflore, minutiflore, petals short, stamina exserted.

DESCRIPTION—Root perennial, yellowish, horizontal, crooked, with few fibres. Radical leaves on long petioles, slender and covered with short stiff

hairs: shaped like those of the maple trees, base deeply and acutely cordate, circumference acutely five cleft, sometimes seven cleft or even nine cleft; segments angular, acute, unequally toothed, teeth short, rounded, mucronate; only five branched nerves: both surfaces smooth, upper green, lower glaucous. Scapes round, smooth, fistulose, straight, one or two feet high.

Flowers very small, forming a long panicle, occupying the upper half of the scape, cylindrical, but loose, small pinnatifid or pectinated bracts at the base of the branches, which are scattered and irregularly divided with small subulate bracteoles at the lower divisions: pedicels longer than the flower. Calix with five acute teeth. Petals lanceolate, flesh colored, filaments subulate, erect, jutting out, anthers rounded. Pistil bifid with two long styles, stigma obtuse. Capsule with two beaks, opening inside of the beaks, with two cells formed by the involute valves. Many small blask seeds.

Locality—In the mountains, hills, cliffs and fissures of rocks in Kentucky, Tennessee, West Virginia, and Pennsylvania, Ohio, Maryland, &c.

HISTORY—All the species of this very natural genus have the same properties, and are used indiscriminately under the name of Alumroot: they shall therefore be united in this article. I have thought preferable to figure one of my new species, rather than to give another figure of the most common kind, wrongly called *H. americana*. Since the *H. dichotoma* has been removed from this genus, all the known

species are North American, and possess the same peculiar habit.

Linnæus only knew one species, Michaux two, Nuttal three, Pursh five, and I know seven, besides many varieties, without being sure of having seen all the species of Pursh and Elliott. As this genus is yet in a great confusion and uncertainty, I shall mention here only those which I have seen: they are besides the actual.

1. *H. Viscida* of Pursh, (or *H. cortusa* of Michaux, the *H. americana* of Linnæus, &c. and W. Bart. fig. 40.) Vicidly pubescent, scapes and leaves a little scabrous, leaves oblong cordate ciliate, with many rounded lobes, and unequal mucronate teeth, surface concolor: panicle short and laxiflore, calix short, obtuse, petals short lanceolate, stamina exserted.—The most common species east of the Alleghany mountains, rare to the west: petals rose. The varieties are 1. *Macrophyllo*, 2. *Maculata*, 3. *Scabra*, &c.

2. *H. Villosa* of Michaux, (or *H. hispida* of Pursh.) Entirely hairy, leaves cordate, with acute lobes, panicle laxiflore, minutiflore, pedicels filiform, calix acute, petals short, &c.—In the Alleghany mountains of Virginia, Carolina, &c. Flowers very small, petals white.

3. *H. Pulverulenta* (or *H. pubescens* of Pursh, &c.) Leaves pulverulent-pubescent, cordate, with acute lobes, toothed, smooth beneath; scape smooth below, rough above, panicle crowded, petals longer than calix, stamina hardly exserted.—In the mountains from New

England to Pennsylvania: petals red and yellow. Var. 1. *Rubra*, 2. *Grandiflora*, &c.

4. *H. Squamosa* Raf. Petioles pilose, leaves sub-hirsute, ciliate, cordate, acutely seven lobed, denticulate, glaucous beneath: scapes hairy, with oval distant scales; panicle short or oval, crowded, and scaly, pedicels short, calix obtuse, stamina exserted.—In the mountains of Maryland and Virginia, the Cumberland mountains of Kentucky, &c. Leaves rather small, flowers middle size. Var. 1. *Pumita*, 2. *Laxiflora*, 3. *Confertiflora*.

5. *H. Reniformis* Raf. Petioles smooth, leaves reniform rounded, faintly lobed and toothed, ciliolate, concolor, sub-hirsute above, smooth beneath: scapes rough, panicle elongated, grandiflore, laxiflore, pedicels filiform, calix urceolate obtuse, petals and stamina exserted.—In the Cumberland mountains and Knob hills of Kentucky: leaves and flowers large, petals white.

6. *H. Glauca* Raf. Smooth, glaucous, leaves cordate obtusely lobed, mucronate-denticulate; panicle laxiflore, elongated, minutiflore, petals and stamina short. In the Cumberland mountains.

They all grow among rocks and near streams, blossoming in June and July. The genus has been dedicated to Heucher, a German botanist. It belongs to the natural order of Dicires or Saxifragides, differing from *Saxifraga* merely by having five instead of ten stamina, and to *Pentandria Digynia* of L.

Qualities—The whole plants are astringent; but the roots strongly so, and biting on the tongue like

alum, but nearly scentless. They contain nearly the same elements as *Geranium maculatum*, but more tannin and acid.

PROPERTIES—The root of these plants is a powerful astringent styptic, antiseptic, vulnerary and detergent, probably equal to *Geranium maculatum* and *Spirea tomentosa*. It was used by the Indians, and is still used in Kentucky and the Alleghany mountains, in powder, as an external remedy in sores, wounds, ulcers, and even cancers: it is one of the bases of the cancer powders of Empirics; united to *Orobanche*, *Hydrastis*, &c. It is employed as a styptic in internal and external hemorrhagy, bleeding of the nose, foul or indolent ulcers, wounds and cuts. It is seldom taken internally the taste being so intensively astringent; but it promises to be useful even in very small doses, whenever astringents are indicated. Coxe says that the Alumroot has been sold for the *Colchicum*, to which it bears no resemblance in form nor properties.

SUBSTITUTES—*Geranium*, *Geum*, *Spirea*, *Statice Sp.* and other powerful astringents.

No. 50.

HUMULUS LUPULUS.

English Name—COMMON HOP.
French Name—Houblon commun.
German Name—Hopfen.
Officinal Names—Lupuli coni, humuli strobili.
Vulgar Names—Hops, Wild-hops, Hopvine.
Authorities——Lin. Pursh, Nuttal, A. Ives, Schoepf, Treaks, Bryorly, Bigsby, many Dispens. Alibert, Coxe, Eberle, Maton, Roches, Zollickoffer, Bigelow, fig. 60 and Seq.

Genus Humulus—Dioical, Staminate flowers with a five leaved perigone, Stamina five, anthers bipore. Pistilate flowers strobilate: bracts biflore, perigone one leaved, persistent entire, concave, involute. One pistil, two styles, one seed.

Species H. lupulus—Stem twining and rough, leaves opposite, petiolate, cordate, three or five lobed, acute, sharply serrate, rough: staminate flowers panicled, fertile strobiles axillary peduncled.

DESCRIPTION—Root perennial. Stem annual, forming a climbing vine, twining from right to left, angular, rough with minute reflexed prickles. Leaves opposite, petiols crooked, smaller and floral leaves cordate, acuminate, serrate: the main leaves nearly palmate, trilobe, sometimes five lobe; lobes large, oval acute, sharply serrate; sinusses obtuse, without

No. 50.

HUMULUS LUPULUS.

COMMON HOPS.

teeth; surface very rough with three main nerves and many veins.

Flowers numerous and greenish. The staminate on different individuals, forming axillary panicles, with two or four bracts, reflexed, opposite, petiolate, oval: each flower peduncled. Perigone caliciform, with five oblong obtuse concave and spreading sepals: five stamina, filaments short, anthers oblong, opening by two terminal pores. Pistilate flowers forming oval, opposite, axillary, drooping and peduncled strobiles or cones. Scales imbricate, oval, acute, tubular at the base, each covering two sessile flowers. Perigone (Corolla of Linnæus) shorter than the scales, lateral, oval obtuse, infolding the pistil by the edges. Germen rounded, compressed, two short styles, two long subulate and downy stigmas. Each flower produces a single round seed.

Locality—Native of Europe and America, and cultivated also in both continents. Schoepf found it wild in Virginia, Nuttal on the Missouri, and I have seen it spontaneous from New York to Kentucky in groves, thickets, coppices and banks of streams.

HISTORY—This vine is ornamental and useful. It is extensively cultivated wherever malt liquors are used, and forms a profitable branch of agriculture. The fertile plants alone are raised, since the medical and economical parts are the strobiles of the seeds. The young shoots, when emerging from the ground, are however eaten like Asparagus in Italy and Germany. The fibres of the vine are also made into coarse cloth in Sweden and England. The blossoms

appear in the summer, and although uncolored are not devoid of elegance.

Humulus belongs to the Natural Order SCABRIDES or URTICIDES, and to *Dioecia pentandria*. It has but this species, both names are ancient.

QUALITIES—The whole plant, but particularly the strobiles have a fragrant sub-narcotic smell, and a bitter, astringent, aromatic taste. A. Ives has shown that this taste and smell reside in a fine impalpable yellow powder, sprinkled over the fertile plants, and chiefly on the strobiles, which may be separated by threshing and sifting. This powder has been called *Lupulin*, although it is not a proximate principle, but a dry secretion from the plant, and a compound substance containing the active principles and properties. The *Lupulin* contains out of 120 parts, 46 of lignin, 36 resin, 12 wax, 11 amarina, 10 extractive, 5 tannin, besides two per cent. of a singular essential oil, very volatile, partly soluble in water, very acrid, and having the narcotic smell of the Hop. The *Lupulin* is very inflammable, it becomes soft and adhesive by handling: the strobiles contains one-sixth of their weight of it, and it may be available in brewing like the hops: one pound being equal to six pounds of hops.

PROPERTIES—The whole plant, but chiefly the Strobiles and the Lupulin are tonic, narcotic, phantastic, anodyne, sedative, alterative, astringent, antilithic, diuretic, corroborant, &c. The strobiles or hops have long been an ingredient of porter, ale and other malt liquors, to which they impart a bitter and

aromatic flavor, besides a small share of their properties; but by the habitual use of these liquors all the good effects are destroyed. The hop-beer made with molasses, hops and yeast, is a better liquor still, and an agreeable, refreshing, tonic beverage.

As a medicinal article hops have been praised by many physicians, and employed in Nephritis, Gravel, Gout, Phrenitis, Alopecia, Luxations, articular Rheumatism, Dyspepsia, Scrophula, Rachitis, Eresypelas, Debility, Strangury, Hysteric and Nervous complaints, Cancer, &c. As tonic, stomachic and corroborant, they are available in diseases depending on debility or a loss of tone in the stomach; but their powers are weak in this as well as all the other properties ascribed to them, which, however, may render them useful when mild remedies are required. As a narcotic and sedative they operate mildly, and are often preferable to opium: they induce sleep without producing the bad effects of opium. Even the external application of hops, produces the same effect, and a pillow of hops is a popular mode of promoting sleep. Poultices and fomentations of hops are common applications for painful swellings. Their antilithic and diuretic property is questionable, they can at utmost act as palliative, and are sometimes injurious; but available in the strangury produced by Cantharides. Besides allaying pain and producing sleep, hops have been found to reduce pulsations from 96 to 60, while rendering the pulse more firm. They are useful in the weakness and watchfulness of hysteric patients. An ointment of hops is a palliative in the

last stage of Cancer. They are said to act as antiseptic and corroborant in bowel complaints. Some physicians consider them as general alterative of the system. Schoepf mentions the seeds as used in Obstipation. Zollickoffer has used the flowers to relieve the pains after parturition.

Many preparations are made with them; the tincture and extract of hops were formerly most used. Now the pills, syrup, infusion, tincture, extract and ointment of Lupulin are employed. Boiling water and alcohol dissolve the Lupulin. The doses must be small and gradually increased, beginning with one grain of Lupulin, four of the extract, a tea spoonful of the tincture, or two ounces of the infusion. An over dose produces sore throat, nausea, purging, tremor, head ache, &c.

Substitutes—The mild aromatic tonics and narcotics; but none are similar, nor combine the same number of properties, the *Lycopus virginicus* alone comes nearest to it.

Remarks—The malt liquors brewed in the United States, instead of being a wholesome beverage, are often rendered deleterious by the substitution or addition of bitter and narcotic ingredients: the harmless substitutes to Hops are, Liquorice, Wormwood, Quassia, *Teucrium Virginicum*, &c. but *Datura Stramonium*, Cocculus, Aloe, &c. that have been added in Pittsburg and elsewhere, are dangerous, pernicious or useless ingredients.

No. 51.

HYDRASTIS CANADENSIS.

YELLOW EYEROOT.

No. 51.

HYDRASTIS CANADENSIS.

English Name—YELLOW PUCOON.

French Name—Hydraste du Canada.

German Name—Gelb Puckuhn.

Officinal Name—*Hydrastis radix.*

Vulgar Names—Yellowroot, Ground Raspberry, Yellowpaint, Golden Seal, Orange root, Indian paint, Eyebalm, &c.

Synonyms—*Warnera Canadensis* Miller—*Hydrophyllum verum* Linn. *Hydrastis* Ellis.

Authorities—Linn. Mich. Pursh, Miller, Elliot, Eaton, Torrey, Stokes, Coxe, B. Barton, W. Barton, fig. 26, bad.

Genus Hydrastis—Perigone simple, petaloid, three leaved, caducous. Stamina many, unequal, linear. *Pistils many forming an ovate head*, Styles very short, stigmas compressed. *Fruit a compound* berry, formed by acines or fleshy seeds.

Species *H. Canadensis*—Stem two leaved, uniflore: leaves unequal, alterne, lower petiolate, upper sessile, palmate, cordate, three to seven lobed, lobes acute, unequally serrate; *flower terminal on a short pedun*cle.

DESCRIPTION—Root perennial, of a bright yellow, tortuose, knobby, wrinkled, with many long fibres. Stem a foot high or less, simple, straight,

round, pubescent, base naked, top with two unequal alterne leaves. First leaf petiolate, cordate, palmate, five or seven lobed, sinuses oblong and obtuse, lobes oval, unequal, acute, with irregular sharp serratures, five branched nerves. The upper or second leaf similar, but sessile and commonly trilobe. These leaves are not quite expanded when the blossoms appears.

Flowers single terminal, on a peduncle shorter than the upper leaf. Three petals or petaloid leaves, flesh or rose colored, oval, obtuse, equal. Many unequal filaments, shorter than the petals, linear and compressed; anthers oblong, obtuse, compressed. Many Pistils oval, crowded forming an oval head, styles very short, stigma dilated, compressed. Berry red and oval, formed by many oblong grains or acines; fleshy, obtuse, muricated by the persistent styles, each one seeded, seeds oblong.

LOCALITY—From Canada and Maine to Carolina and Tennessee, in rich shady woods, on the banks of streams, sides of hills, deep valleys: very common in West Kentucky, Indiana, Ohio, &c., rare in limestone plains.

HISTORY—A pretty and singular plant, easily known by its habit. It blossoms very early in the spring in March and April, and the petals are so caducous and fugaceous that they fall off, as soon as the blossoms expands, leaving the Stamina and pistils bare. The fruit ripens in May, and is very much like a Raspberry of a bright red color; but scarcely edible.

Linnæus knew so little of this plant, that he united

it at first with *Hydrophyllum!* he afterwards adopted the name *Hydrastis* of Ellis, which is a very bad name meaning *imbibing water*, while this plant is not at all aquatic. The name of Miller *Warnera* would have been better, and I should have adopted this last and called it *Warnera diphylla* or *tinctoria* if established errors were not so difficult to correct. The vulgar names of this plant are also various, and common to many others, yellow root is a name given to ten or twelve plants, *Jeffersonia, Coptis, Xanthorhiza*, &c. Pucoon is an Indian name for all roots dying red, orange or yellow, such as *Sanguinaria, Batschia, Galium, Ceanothus*, &c.; but this is their best yellow Pucoon, affording a juice of a brilliant yellow color, which they use to stain skins and clothing; it may become a valuable dye.

Hydrastis belongs to the RACUNCULACEOUS Order where it forms a very distinct genus, by its berry like seeds. Also to *Polyandria polygynia.*

QUALITIES—The root is only used, it is juicy when fresh, and loses two thirds of its weight by drying. The taste is exceedingly bitter, rather pungent and nauseous. The smell is strong and virose. It contains Amarine, Extractive, several salts, and a peculiar principle *Hydrastin* of a yellow color.

PROPERTIES—Tonic, ophthalmic, detergent, &c. This plant is much used in Ohio, Kentucky, &c. for diseases of the eyes, the juice or an infusion are used as a wash, in sore or inflamed eyes. It is considered a specific by the Indians for that disorder; they also employ it for sore legs, and many external

complaints, as a topical tonic. Internally it is used as a bitter tonic, in infusion or tincture in disorders of the stomach, the liver, &c., and is equivalent to *Aletris* and *Coptis*. It is said to enter into compound remedies for the Cancer, acting as a mild detergent tonic, and the Cherokees are supposed to use it in that disease; but better detergents are known. The properties of this plant are not yet fully known, it appears to be slightly narcotic and available in many other disorders. Some Indians employ it as a diuretic, stimulant and escharotic, using the powder for blistering, and the infusion for the Dropsy.

SUBSTITUTES—*Jeffersonia binata*—*Coptis trifolia* *Xanthorhiza*, *Aletris*, *Sanguinaria*, *Sigillaria*, *Frasera*, *Menyanthes*, &c. But none of these is so efficacious for sore eyes, except perhaps the *Jeffersonia*. For Cancer *Viburnum dentatum*, *Rumex* and *Orobanche*.

No. 52.

HYOSCIAMUS NIGER.

BLACK HENBANE.

No. 52.

HYOSCIAMUS NIGER.

English Name—BLACK HENBANE.
French Name—Jusquiame noire.
German Name—Schwarz Bilsenkraut.
Officinal Name—Hyosciamus.
Vulgar Names—Henbane, Poison-Tobacco, Stinking Nightshade, &c.
Authorities—Lin. Pursh, Eaton, Torrey, Cullen, Murray, Fothergill, Kinglake, Withering, Schoepf, Thacher, Duncan, Coxe, and all Dispens. Eberle, A. Ives, Woodville fig. 52, Bigelow fig. 17 and seq.

Genus Hyosciamus—Calix persistent, urceolate, with five unequal teeth. Corolla funnel shaped, with five unequal lobes. Stamina five, unequal. Pistil oval, stile filiform declinate, stigma obtuse. Capsule two celled, many seeded, operculate.

Species *H. niger*—Viscid hairy, leaves clasping, lower oval oblong, acute, sinuate or undulate: flowers unilateral, sessile, calix with sharp teeth, corolla reticulate, with rounded lobes.

DESCRIPTION—Root biennial, fusiform, whitish. The whole plant glaucous, hairy, glutinous, lurid, and fetid. Stem one or two feet high, stiff, round, branched. Radical or first year leaves spread on the ground, oval or oblong, undulate, contorted, acute, sessile, sinuated by large acute unequal teeth, nerve thick and

branched. Lower leaves of the stem similar, crowded, alterne, clasping: upper leaves smaller, narrower, nearly entire.

Flowers forming unilateral rows on the branches, extra axillary and opposed to the leaves. Calix urceolate with five short acute and stiff segments. Corolla irregular, funnel shaped, with five unequal, spreading, rounded and entire lobes, with acute sinuses: this corolla is of a dingy yellow, with a pretty net work of purple veins. Stamina inserted in the tube of the corolla; filaments filiform unequal; anthers oblong, large, yellow. Style slender, longer than stamina, with an obtuse stigma. Capsule rounded, invested by the calix, two celled, opening by a circular lid. Seeds numerous, unequal, small, oblong, brownish.

Locality—In the Northern and Eastern States only, from Nova Scotia to Rhode Island, and extending West to New York and Canada: very rare in Ohio and Pennsylvania; unknown in the South. It is supposed to be a naturalized plant, being found merely near houses, roads, rubbish, in old fields and gardens. It is properly an European plant, scattered all over Europe and extending to Asia.

HISTORY—This genus belongs to the natural order of Lurides, and family *Verbascides*, having irregular corolla or stamina, and capsular fruits. Also to *Pentandria monogynia* of Linnæus.

It was known to the ancients as a violent narcotic poison; horses, cattle, deer and swine eat it with impunity, but it poisons rats. The appearance is lurid, the smell offensive and disgusting: there is therefore

little danger of using it inadvertantly. The whole plant, roots and leaves, produce the usual effects of narcotics. It blossoms in June and July. The seeds are said to have the property of keeping long under ground, and germinating whenever brought to light.

QUALITIES—The taste is insipid, slightly acrid and mucilaginous; but the smell is virose, rank, strong, fetid, pernicious and narcotic, which, however, is lost by exsiccation: when burnt it smells like Tobacco. It contains resin, mucilage, extractive, gallic acid, nitrates and other salts, besides *Hyosciam* an alkaline and crystalline active principle, which does not decompose by red heat. Yet decoction is said to destroy the narcotic power of this plant, water and diluted alcohol extract it.

PROPERTIES—Narcotic, phantastic, phrenetic, anodyne, antispasmodic, repellent, discutient, &c. The whole plant may be used; but the seeds contain more *Hyosciam*. Externally the bruised leaves are employed in cataplasm or an ointment made of them: while internally the extract and tincture are chiefly used. The extract ought to be made with the inspissated juice without boiling, the doses are from one to ten grains. This plant operates as a powerful narcotic, and if taken in large doses, it produces drowsiness, intense thirst, anxiety, head ache, irregular hard pulse, vertigo, intoxication, delirium, dilatation of the pupil, difficulty of breathing, aphonia, trismus, coma, a falling sensation, risus sardonicus, double vision or blindness, convulsions, apoplexy, loss of speech, cold extremities, blue face, typhomania, carphologia, gan-

grene, and death. A single dose of one grain has even produced delirium in nervous persons. The root having been mistaken and eaten for Parsnip, has caused many of these alarming symptoms: the remedies are vegetable acids, sulphate of iron, &c. which neutralize the poison, and emetics which discharge it.

The internal use of this poison has been recommended in epilepsy, hemoptysis, colica pictorum, rheumatism, hysteria, mania, melancholy, trismus, palpitations, spasms, arthritis, glandular swellings, obstinate ulcerations, asthma, spasmodic coughs, tic douleureux, &c. by many physicians, and deemed a good substitute to opium and stramonium in most cases; but it is not so safe nor certain, and far less uniform in its operation: the smallest doses are apt to produce nausea, head ache, laborious sleep, confusion of ideas and even delirium. The stomach is inflamed and evinces dark gangrenous spots when death follows overdoses, therefore it must be considered as one of the most dangerous narcotics. It ought to be handled by experienced physicians only, and always begun by minute doses gradually increased. It may be preferable to opium in some cases, as it is rather laxative than constipating, and does not stimulate the body. It has often failed in epilepsy and convulsions. It acts better in spasmodic coughs, the leaves are directed to be simmered in olive or almond oil, and the oil used in emulsions. It is highly praised in Tic united to Valerian and Oxide of Zinc. It has been found useful in some puerperal complaints, &c.

The external use of Henbane is more safe, and equal

to that of Stramonium. It may be safely employed in painful swellings, schirrous or scrofulous or cancerous ulcers, inflamed piles, indolent tumors or milk indurations of the breast, wandering rheumatic pains, inflamed eyes, spasms of the bowels; inflammation of the kidneys, urethra, bowels, testicles, &c.; in chordee, blind piles, and all painful external affections, as a very efficient topical anodyne. The fresh or powdered leaves are used as well as poultices with bread and milk, or liniments in wax and oil. Injections of it for bowel complaints ought to be given in decoction of milk. The extract has been used to prepare for ophthalmic operations, by dilating the pupil, contracting the iris and diminishing sensibility. The smoke of the leaves and seeds, directed by a funnel to a carious tooth, is said to cure odontalgy; but the practice may be deleterious and attended with danger.

SUBSTITUTES—*Datura Stramonium*—*Atropa belladonna*—*Solanum Sp.*—*Conium*—*Cicuta*—Tobacco, Opium and other powerful narcotics. The *Hyosciamus albus* of Europe is a milder equivalent, as well as *Humulus* or hops.

ADDITIONS, CORRECTIONS, AND TABLE OF ARTICLES.

For the sake of brevity, several details had been omitted; and during the process of the work, many additional facts have been evolved or procured: some of which are of sufficient importance to be added, and will be conveniently blended with casual corrections.

Some plants might be looked for in this first volume which will be found in the second, such for instance are *Chimaphila* and *Gyromia*, restored to *Pyrola* and *Medeola*.

Other Medical Ppoperties.

Abortive, producing abortion.
Anti-emetic, preventing nausea and emesis.
Antilacteal, draining the milk in the breast.
Bechic, serviceable against cough.
Cosmetic, softening the skin.
Eccoprotic, remedy for the gout.
Herpetic, against ring-worms, &c.
Lacteal, promoting the lacteal secretion.
Officinal, medical substances in general kept in pharmacies.

Other Works Consulted.

Alibert, Matiere Medicale. Paris.
Catesby, Animals and plants of Carolina, &c. fig.
Dancer, Medical assistant, and Med. plants of Jamaica. Kingston, 1801.
Duncan read Dyckman.
Eberle, Materia Medica. Phil. 1824, 2 Vol.
Fleming, Medicinal plants of Bengal and Hindostnn. Calcutta, 1810.

Medical Plants.

No. 1. Acorus Calamus—It contains also fecula and extractive; decoction destroys its activity: much employed in the East Indies in infusion for the bowel complaints of children.

2. Adianthum Pedatum—Also corroborant and diuretic, useful in obstructions. The *A. trapeziforme* is its substitute in the West Indies, a pectoral syrup is made from it.

3. Agrimonia Eupatoria—The roots and whole plant boiled in milk are used by herbalists for diabetes and incontinence of urine. One of their remedy for the tape-worm is Agrimony tea, with alum and honey. The roots are said to be more astringent than the leaves, the Indians use them in fevers, and some empirics for jaundice with honey. It is said also to be diuretic and vulnerary.

4. Aletris Farinosa—Another vulgar name is Black root, and Himili one of its Indian names implies the same. It is a powerful and dangerous substance, drastic even in small doses, larger ones produce vertigo and bloody stools: it is also considered abortive by the Indians.

5. Andromeda Arborea—This tree indicates a poor soil, the Indians make arrows with the wood and smoke the leaves as Shumac and Tobacco. They also use the leaves for dropsy in cold decoction mixt with *Prunus Virginiana*.

6. Anthemis Cotula—Other names, Wild Camomile, Pissweed, &c. The essential oil is bluish as that of Camomile. It contains also resin, extractive and amarine; boiling dissipates the active principles. The flowers and the disk florets particularly, are most active; they are impaired by keeping. A weak or cold infusion is anti-emetic, while a strong or warm one is emetic. They are sometimes used as an external discutient, and are beneficial in injections for dysentery, spasmodic cholics, &c.

7. Apocynum Androsemifolium—There are several varieties of this plant. 1. *Acutifolium*, 2. *Acuminatum*, 3. *Obtusifolium*, leaves nearly elliptic, 4. *Roseum*, &c. The milk of this plant is acrid; when dried, it forms a kind of gum elastic, very inflammable. It bears also the vulgar name of Snake's milk, and is called *Houatte* in Canada and Louisiana like *Asclepias*. The roots are creeping: the bark of these roots is the only active part,

being two thirds in weight of the whole. This bark is soluble in water and alcohol; as a tonic the dose is fifteen to twenty grains, as an emetic thirty to forty, it acts like Ipecac without inducing vertigo. It ls also employed as a cathartic, to purge the bile, and cure costiveness. Zollickoffer has used it in acute rheumatism, pneumonia, and phrenitis, after cathartics, as an efficient diaphoretic, in doses of ten grains. Some Empirics use it in hemoptysis without adequate care.

8. ARALIA NUDICAULIS—All the species of *Aralia* bear also in New England the names of Life-of-man, Pettymorel, Pigeon weed, &c. and the *A. spinosa* Shot bush. They act sometimes as a tonic in a relaxed state of the stomach, debility ond loss of appetite; a decoction is used for a kind of eresypelas called Shingles. The roots are also nutrient, carminative and vulnerary: the Indians eat them in their war expeditions: a kind of beer can be made with them. The berries give a fine flavor to beer, and a wine similar to Elder wine can be made with them. The fresh roots and leaves chewed and applied to wounds, heal them speedily; Dr. Sp. informed me that he was once cured by them alone of a desperate accidental wound by a broad ax. Zollickoffer has erroneously blended the *A. spinosa* with *Xanthoxylum*.

9. ARBUTUS UVA-URSI—Other vulgar names, Wortleberry, Foxberry, Checkerberry, &c. This plant often dies the urine black; the berries are sometimes eaten in milk like those of the *Vaccinium* genus, they are aromatic and diuretic.

10. ARISTOLOCHIA SERPENTARIA—Has been used also in all bilious disorders and fevers with advantage: it is anti-emetic in cold infusion. In dyspepsia it is only useful when the disease is not inflammatory. In the West Indies the *A. odorata* is employed as a substitute, and in the East Indies the *A. indica*, which are more bitter and also cathartic. The *Collinsonia* is stated to have been sold fraudulously for Snake root: much of this article kept in stores is worthless, being old or badly dried.

11. ARUM TRIPHYLLUM—The root is not inert when dry, and even the powder is used by Empirics with honey for coughs, &c. Dr. Mease recommends it for asthma, croup and whooping cough, grated in milk; it is said to promote the flow of mucus. It has been used in mania: it is said to kill snakes. The Indians nse it for coughs with Spikenard or *Aralia*, and for fevers with Snake-

roots and *Prunus*. Burson and Eberle prescribe it for chronic asthma and catarrh, aphthous sore throat, rheumatism, tinea capitis, tetters, &c. in consumption it is only a palliative, lessening the cough and dyspnea. The dose of the powder is from twelve to forty grains; an electuary or emulsion are convenient forms. An ointment is made for external use in rheumatism, tinea, &c. The seeds appear to have all the properties of the root with double the strength, and being less liable to lose their activity, ought to become the officinal substitute in half doses. The vulgar names of Wake robin and Devil's nip are also given to this plant. The *A. sequinum* or Dumb Cane of Brazil and the West Indies is used for the yaws, dropsy and gout, for which our Arums might be perhaps substituted.

12. Asarum Canadense—Varieties, 1. *Macrophyllum*, 2. *Pumilum*, 3. *Acutifolium*, I have lately seen this Var. with acute leaves in the Taconick mountains. The Western Indians use it as a styptic for wounds, and an abortive also. A large dose produces pyrosis and water brash, besides nausea. It may be combined with tonics to advantage.

13. Asclepias Tuberosa—Varieties, 1. *Prealta*, 2. *Decumbens*, 3. *Undulata*. 4. *Angustifolia*, &c, The Southern Indians employ it in dysentery, dropsy and asthma, also as an emetic in large doses, and they use the powder externally in venereal chancres as well as fungous ulcers. They make a kind of hemp with the stem, like that of *A. debilis* and *Apocynum cannabinum*, and use it for strings to bows. The silk makes better wicks for candles than cotton. The *A. asthmatica* of the East Indies, and *A. cusassavica* of the West Indies, are emetic also and used in clysters for dysentery and piles. Mease says that our *A. tuberosa* is a safe and powerful diuretic. Burson extols it in Marasmus or Atrophy, Cholera Infantum, and diseases attending the dentition of infants as a mild cathartic destitute of smell and taste, he prescribes to unite it with aromatics. A. Ives considers it equivalent to *Sanguinaria*, but milder and less certain. Eberle, Zollickoffer, Hopkins, &c. confirm the valuable properties of this plant; yet it is only a palliative in Phthisis. The *A. incarnata* has been noticed by Tully and Anderson in a thesis as a useful emetic and cathartic. The *A. syriaca* has lately been employed as an anodyne in asthma, and a powerful diuretic in dropsy, Ives states many

cures performed in New York, but it fails sometimes and relapses often happen. The *A. serpentaria* of Louisiana, is used by Indians against snakes.

14. BAPTISIA TINCTORIA—Useful against painful swellings in fomentations, and emploped against snake bites by the northern Indians.

15. BERBERIS CANADENSIS—Other names Pipperidge bush and Sourberry. In the north the berries are pickled. A tea of the bark is used for indigettion, and an infusion in wine as purgative. The root and bark with alum or lye produce a beautiful yellow dye for leather and cloth.

16. BOTROPHIS SERPENTARIA—It has been found to be narcotic, nervine and tonic. A full dose produces nausea, vertigo, anxiety, pains, restlessness, uneasiness, dilatation of pupil, quick small pulse, &c. These effects are immediate but transitory. It has been used as a substitute to *Digitalis* and *Lycopus* in alarming symptoms of pulmonary phthisis, and with some success; it imparts tone to the system and lessens arterial action: the tincture, infusion and powder have been used.

17. BRASENIA HYDROPELTIS—It extends to some parts of New Englend and New York. Substitute of *Hepatica*.

18. CASSIA MARILANDICA—It might be tried as a substitute of the *C. herpetica* or Ringworm bush of the West Indies, used in baths and fomentations against herpetic eruptions. The *C. occidentalis* of Florida and South America has a diuretic root, the juice is used against itch and yaws. The *C. chamecrista* is believed to be a counterpoison of the Nightshade in Jamaica. The seeds of the *C. ciliata* of Louisiana are used as a substitute for coffee.

19. CAULOPHYLLUM THALICTROIDES.

20. CEPHALANTHUS OCCIDENTALIS—Also called Button bush.

21. CHENOPODIUM ANTHELMINTHICUM—Not perennial as stated, but annual. It is said to extend to Mexico and South America. It is antispasmodic like *Ch. olidum*, useful in hysteria, and a tolerable substitute for Assafetida. Called sometimes Sowbank in New England.

22. CICUTA MACULATA—It probably contains the Coneine. Preferred to *Conium* in practice by some physicians as safer and

less liable to lose its activity. The powder of the leaves gathered when the seeds are ripe, and dried in the shade is the best exhibition. Large doses produce vertigo, cardialgy, coma and even death.

23. Collinsonia Canadensis—Sometimes called Horse-balm in the north. The *C. anisata* is called Anise-root in the West and used for flatulency.

24. Comptonia Asplenifolia—Other names Meadow fern and Astringent root. The root is styptic, and the Indians chew it for hemoptysis: they make a tea of the leaves for female complaints. The Herbalist, Whitlow, employs it for scrofula in his vapour baths. Other herbalists use the buds, blossoms or leaves simmered in cream or butter for the itch and sores. A syrup is also made with it.

25. Conium Maculatum—Beneficial in internal ulcerations, scrophulous, malignant and sanious ulcers, Lepra and Elephantiasis, Mania, &c. It ought to be taken in sufficient doses to produce vertigo.

26. Convolvulus Panduratus—It is said that hogs eat the roots, and that Indians will handle snakes after washing their hands with the juice. The *C. brasiliensis* of South America is employed in decoction for dropsy.

27. Coptis Trifolia—Ives and others appear to doubt the assertion of Bigelow that it is inert in sore mouth: it is yet used extensively and alone for it and sore throat. It is also good for sore eyes like *Hydrastis*, of which it appears equivalent.

28. Cornus Florida—Called sometimes Bitter Redberry. It ought never to be taken fresh, because it affects the bowels in that state: it is beneficial in debility of the stomach and loss of appetite. The Southern Indians use it in poultice for sores. The *C. paniculata* is also another equivalent, and perhaps all our Cornels are such.

29. Cunila Mariana—A good substitute to *Mentha piperita* in cholera morbus, useful in relaxed stomach and bowels: it is also carminative, employed in flatulency, and to allay nausea. The Southern Indians esteem it highly for colds, coughs, fevers, &c.: they smoke and chew the leaves as a fragrant substitute to Tobacco; it would be well to imitate them. Rabbits are said to feed on it.

30. CYPRIPEDIUM LUTEUM—The flowers of this fine genus are favorites with the Indian women to deck their hair. I have been informed that in Onondaga and other western counties of New York, several physicians rely upon a decoction of the roots of *C. spectubile* as a valuable antispasmodic, which proves an effectual remedy in many cases when the common medicines have failed : doses a table spoonful of the decoction made by two ounces of the root in a pint of water.

31. DATURA STRAMONIUM—Found also in the West Indies. The leaves applied to the head cure the head ache, and applied to the joints they relieve the gout. A tincture of the seeds is said to be preferable to Laudanum for convulsions, &c. and the extract by far superior to that of *Conium*.

32. DIOSPYROS VIRGINIANA—One of the remedies used by herbalists for the dysentery, is a syrup made with this, united to *Prunus*, *Rumex* and Rhubarb.

33. DIRCA PALUSTRIS—Also called Poisonberry.

34. ERIGERON PHILADELPHICUM.

35. ERITHRONIUM FLAVUM.

36. EUPATORIUM PERFOLIATUM.

37. EUPHORBIA COROLLATA—Used by the Southern Indians in fevers and bowel complaints.

38. FRAGARIA VESCA.

39. FRASERA VETICILLATO—Found also West of the Mississippi in the great plain of Arkansas, Missouri, &c. It is a favourite remedy of the Southern Indians with *Prunus* and Snake roots for fevers, debility, &c. also in female complaints, and for children to strengthen them while using anthelmintics.

40. GAUTIERA RFPENS—The Southern Indians are said to esteem this plant highly, and to use it even in fevers and breast complaints, although too stimulant; but it is useful in cough and catarrh. The oil of this plant has a powerful smell, very fragrant, and yet approximating to Noyau : does it contain an atom of prussic acid ?

41. GENTIANA CATESBEI—Pursh considers the *G. villosa* as identic with *G. ochroleuca*.

42. GERANIUM MACULATUM.

43. GEUM VIRGINICUM.

44. GILLENIA STIPULACEA—Found also west of the Missis-

sippi, and used by the Indians as a valuable emetic and sudorific in fevers, bowel complaints, &c.

45. HAMAMELIS VIRGINICA—Called Shemba by the Osage Indians, and used for ulcers, tumors, sores, &c. in poultice.

46. HEDEOMA PULEGIOIDES.

47. HELENIUM AUTUMNALE.

48. HEPATICA TRILOBA.

49. HEUCHERA ACERIFOLIA.

50. HUMULUS LUPULUS.

51. HYDRASTIS CANADENSIS.

52. HYOSCIAMUS NIGER.

NOTICE.

The second volume shall follow this in a few months, and contain from fifty to sixty plates and articles, many of which, upon medical Genera either new or omitted by Bigelow and Barton; such as

Leontodon,	*Oxycoccus*,	*Sambucus*,	*Symphytum*,
Leptandra,	*Pinckneya*,	*Scrophularia*,	*Trillium*,
Lycopus,	*Polanisia*,	*Scutellaria*,	*Ulmus*,
Monarda,	*Polypodium*,	*Sigillaria*,	*Verbena*,
Nelumbium,	*Pterospora*,	*Smilax*,	*Viburnum*,
Oxalis,	*Ruta*,	*Spirea*,	*Vitis*, &c.

The last article including a monography of the North American Grape Vines, and the work concluding by a general table of all the Equivalents, with additional details.

END OF THE FIRST VOLUME.

MEDICAL FLORA;

OR

MANUAL

OF THE

MEDICAL BOTANY

OF THE

UNITED STATES

OF

NORTH AMERICA.

CONTAINING

A SELECTION OF ABOVE 100 FIGURES AND DESCRIPTIONS OF MEDICAL PLANTS, WITH THEIR NAMES, QUALITIES, PROPERTIES, HISTORY, &c. AND NOTES OR REMARKS ON NEARLY 500 EQUIVALENT SUBSTITUTES.

IN TWO VOLUMES.

VOLUME THE SECOND,

WITH 48 PLATES.

Medical Plants are compound Medicines, prepared by the hands of Nature, &c.—Med. Princ. 31.

BY C. S. RAFINESQUE, A. M.—PH. D.

Ex-Prof. of Botany, Natural History, &c. in Transylv. University of Lexington, the Franklin Institute of Philadelphia, &c.

Member of the Medical Societies of Cincinnati and Lexington—the Philos. Soc. and Lyceum of New York—the Acad. of Nat. Sc. of Philadelphia—the Amer. Antiq. Society—the Kentucky Institute—the Linnean Soc. of Paris—the Imp. Nat. Cur. Soc. of Bonn.—the Imp. Economical Soc. of Vienna—the R. Italian Inst.—the R. Inst. of Nat. Sc. of Naples, &c. &c.

PHILADELPHIA:

PUBLISHED BY SAMUEL C. ATKINSON,

No. 112, Chesnut Street.

1830.

Eastern District of Pennsylvania, to wit:

BE IT REMEMBERED, That on the eleventh day of January, in the fifty-second year of the Independence of the United States of America, A. D. 1828, Atkinson and Alexander of the said district hath deposited in this office the Title of a Book, the right whereof they claim as Proprietors, in the words following, to wit :

Medical Flora; or Manual of the Medical Botany of the United States of N. America. Containing a selection of above one hundred figures and descriptions of medical plants, with their names, qualities, properties, history, &c.: and notes or remarks on nearly five hundred equivalent substitutes.—In two volumes.

Volume the first, A——H. with fifty-two Plates.

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In conformity to the act of the Congress of the United States, entitled, "An Act for the Encouragement of Learning, by securing the copies of Maps, Charts, and Books, to the authors and proprietors of such copies, during the times therein mentioned." And also to the act, entitled, An Act supplementary to an Act, entitled "An Act for the Encouragement of Learning, by securing the copies of Maps, Charts, and Books, to the authors and proprietors of such copies during the times therein mentioned," and extending the benefits thereof to the arts of designing, engraving, and etching historical and other prints."

D. CALDWELL.
Clerk of the Eastern District of Pennsylvania.

Russell & Martien,
Printers.

INTRODUCTION

TO THE SECOND VOLUME.

1. After some delay arising from various causes, I have the pleasure to present to the public the second and last Volume of my Medical Flora of the United States.

2. It will be seen that although this second Volume has assumed somewhat a different shape, it has lost nothing by the change, but rather improved in matter and value.

3. The plan closely pursued in the first Volume was that of Bigelow and Barton, with the improvements of alphabetical order, separation and condensation of facts. This plan was by no means the best, and limited very much the number of medical selections.

4. If I had pursued the same plan throughout, it was my intention to have added afterwards a third Volume or Supplement, including all the Medical plants omitted by this mode, with tables of Equivalents and other needful elucidations.

5. By a trifling change effected in this Volume, I have been enabled to comprise these additional Plants and remarks without further extension of the work.

6. If I had followed my own inclinations at the outset, I might have included all our Medical plants in a single thick Volume, and all the Figures in another Volume by itself, so as to answer still better the purpose of Manuals.

7. To render this Volume adequate to answer the desirable purpose, it has been divided in two parts, the first of which contains the selected Articles and Plants that belong to the plan of the first Volume.

8. While the second part shall include several other selected plants and figures, united to a general account of all our Medical plants and Equivalents, forming a second

alphabetical series. Whereby this Volume may become a work by itself, or a kind of Lexicon of our Medical Plants.

9. This Lexicon will include the whole of our actual acquired knowledge on such useful plants, by blending the officinal details of Schoepf and the early writers, with those of the latter observers, besides many new and unpublished facts collected by myself during many years of botanical and medical researches.

10. I hope thereby to satisfy the wishes of those, who have so well received the first volume, notwithstanding its limited character, and have repeatedly urged me to complete this work.

11. A list of our Medical equivalents was only promised by me and expected by them ; but I have done more, and united together all our Medical plants, thus to be kept all in view, that by future experiments, their respective medical value may be further ascertained.

12. It is a sad mistake of some Physicians to consider the increase of officinal tools as an evil. The lazy propensity that would reduce our stock of remedies to a few well known plants, is to be deplored as rendering the science stationary and lessening our resources.

13. A very different course is pursued by active and zealous investigators of medical properties; they enlarge our circle of usefulness, increase our medical means, indicate all the available substitutes, and ascertain the best equivalents in specific cases.

14. In Europe they extend their researches to all the parts of the globe. The Society of Pharmacy of Paris has published a monthly journal since 1812, in which are found numberless discoveries and Analyses of medical plants from all the parts of the world.

15. In London a Medico-Botanical Society has been established, whose object is chiefly to ascertain the medical Properties of all the plants, and to send to the most remote regions in search of medical substances and equivalents.

16. It is therefore our duty at least to study our own, and to increase rather than diminish our actual knowledge. Many of our medical substances are hardly known as yet, and require careful investigation; others will be discovered perhaps when inquiries and researches shall not be discouraged by lazy teachers.

17. Thus we shall furnish our share towards a great work not yet undertaken, although greatly needed, a *General and Comparative Account of all the Medical Plants of the whole globe*, for which the Medical Floras of Europe, Hindostan, Brazil, West Indies, and the United States, begin to offer the materials.

18. All our numberless officinal works on Materia Medica, are as yet mere rude or partial attempts of this kind. Not one has ever mentioned one tenth of the plants in actual use; the authors confining themselves to the narrow circle of their own experience or knowledge.

19. During the period that has elapsed since the publication of the first volume, I have been able to consult many additional works and authors, and thus availed myself of their help. A list of them will follow this introduction.

20. I have received considerable assistance in that way from some public Libraries, such as those of the Philosophical Society of Philadelphia, and the Lyceum of Nat. History of New York for instance, and also from the Medical Library of my friend Dr. S. Betton of Germantown.

21. In Bartram's Botanical Garden near Philadelphia, now owned by Colonel Carr, which is the oldest and best of the kind in the United States, and particularly rich in native plants, I have met with the most liberal assistance, from the worthy owner.

22. By these various means the practical value of this work has been increased; the first volume was well received, notwithstanding its limited range, and adopted as a text book in some Medical Institutions. I trust that this volume will be found still more practical and useful.

23. The number of plates will amount to 100 as promised, but including 106 figures. A few of the figures of Bigelow and Barton belonging to well known plants may be omitted, but the number of those not figured by them will be increased, amounting to 32 in this volume, while only 14 were in the first.

24. It might have been well if I had omitted the figures of the Dogwood, Persimon, and Hops in the first volume, being so well known to almost every body, and I will accordingly omit in this the Poke, Tobacco, Tulip-

tree, Sassafras, Blackberry, &c. so well known without this help.

25. The other deviations from the previous plan will be easily perceived. None of them are very material. The chief aim has been to reduce the extent of the leading articles and to increase the indications.

26. If the proposed extent of this volume allows of sufficient space, several useful tables will be added to it, with some Botanical Supplements. One of the additions will be an account of such doubtful medical plants as are only known as yet by their Indian or vulgar names.

27. The labour required to complete this work, in such enlarged and improved style has been great; but I trust to have fulfilled by it one of the aims in view, the production of a complete and correct practical work.

Philadelphia, May, 1830. C. S. R.

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AINSLIE, Materia Medica of the Hindoos.
ANNALS of New York Lyceum, 1820 to 28.
CASTIGLIONE, Travels in the U. States, Milan, 1789.
DOUGLASS, Plants of the North West.
EATON, Manual of Botany, 5th edition, 1829, is become almost a general Flora of the United States, but many omissions yet.
GAMBOLD, Medical Plants of the Cherokis.
HILAIRE, Medical Plants of Brazil, Paris.
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JOURNAL DE PHARMACIE, Paris, 1812 to 1830.
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TOURTELLE, Principles of Health.
TANNER, Narrative and Indian plants.
WARE and WILLIAMS, Plants of Florida.

CONTINUATION

OF THE

ONE HUNDRED SELECTED ARTICLES.

I TO X.

No. 53. ILEX OPACA.

English Name, American Holly. *French Name*, Houx.
Classification, Nat. Order of Rhamnides. Tetrandria tetragynia of Linnæus.

Genus ILEX. Calix minute, 4 or 5 toothed, corolla rotate 4 or 5 parted. One ovary, 4 sestile stigmas, 4 or 5 stamina, opposed to the corolla. Berry one celled, four seeded. *Shrubs or trees, leaves alternate.*

Sp. *Ilex opaca.* Leaves oval lanceolate, acute at both ends, evergreen, shining, spinose-dentate; fascicles of flowers loose on the young branches, peduncles compound.

DESCRIPTION. A tree from 10 to 40 feet high, small in the North, larger in the South: with handsome evergreen leaves, forming a compact foliage with spinose teeth, on short petioles, oval or oval-lanceolate, both ends sharp, texture firm. The flowers are small yellowish white, in small fascides on the small branches. The berries are scarlet, round and handsome.

HISTORY. The Genus *Ilex* of Linnæus contains many heterogeneous species, some are polygamous or dioical, have 1, 2 or 4 stigmas, a cell or 4 cells in the berry, a corolla or none, &c. It requires to be remodelled. As early as 1817 I separated the *Ilex Canadensis*, calling it *Nemopanthus*, which has dioical flowers, calix 5 leaved, 5 stamina, alternate, no corolla, one stigma capitate, 4 lobed, berry 4 celled 4 seeded, &c. The *Ilex obcordata* has a single entire stigma. The

Genera *Palloria and Macucua* united to it, are also distinct. The *Ilex Cassine* or *Vomitoria* must form a particuliar genus, if it has the corolla 4 lobed, the stamina alternate to it, and a 4 celled berry, as Elliot says: I propose to call it *Hierophyllus Cassine.*

Our *Ilex opaca* was formerly blended with the *I. aquifolium* of Europe, Aiton separated it, although hardly different. It is however a larger tree in the Southern States, with leaves less undulate, with fewer and smaller teeth, and the berries not on the old branches. I have however seen varieties connecting both, and Persoon says that the I. *aquifolium* grows also in Virginia. The *I. opaca* is found from Long Island to Florida, chiefly on the Alluvial Region. The berries remain on the tree throughout the winter, and form a fine contrast with the deep green leaves. It blossoms in May. It is introduced in gardens as ornamental, and forms fine hedges. The bark of the branches is very viscid, and produces the best bird lime by boiling: it contains gum, wax, a yellow resin, many salts, &c.

The figure 53 represents the variety 1. *Macrodon*, with remote large teeth, very near to *I. aquifolium*, if not the same. Other varieties noticed by me were 2. *Latifolia* with broad ovate leaves with rounded base, and small teeth. 3. *Acuminata*, with narrow and very sharp leaves &c. 4. *Globosa*, small, with a globose foliage, &c.

PROPERTIES. Those of *I. aquifolium* and *I. opaca* appear to be the same. The root, bark, leaves, and berries are used. They are mucilaginous and a little bitter, particularly the berries, which are reckoned resolvent, pectoral, demulcent, and laxative. The decoction and wine has been used for coughs, pleurisy, colics, constipation, fever, gout, rheumatism, &c. and externally as a cataplasm in tumours. Their juice also in jaundice. The leaves have the same but weaker effects. The bark gives a fine bitter mucilage, useful in fever, diabetes, and an external application in gout. Kalm says the leaves boiled in small beer cure pleurisy.

The *Nemopanthus farcicularis* or *Ilex canadensis*, found in the Alleghany Mountains and Canada, has perhaps some of the same properties, since the bark is also employed for bird lime, and the wood by turners, &c.

Among the Southern species, two, spread from North Carolina to Louisiana near the sea shore, are chiefly used 1. *Ilex Cassine* of Michaux (my *Hierophyllus*) wrongly called *I. vomitoria* by Lin. who gave the name of *I. cassena* to the 2d species, or *I. dahoon* of Michaux, Walter, Elliot, &c. Both are evergreen shrubs, called *Cassena*, *Yapoon*, and *Dahoon* by the Indians. The true Cassena is reckoned a holy plant by many southern tribes, being used in their religious rites and solemn councils to clear the stomach and the head by emesis and diuresis. Women are forbid to use it. It is collected with care, and forms an article of trade among tribes. They often torrify slightly the leaves before using them. They are inodorous, taste subaromatic and fervid, useful in foul stomach, fevers, diabetes, smallpox, &c. as a mild emetic; but the Indians' *Black Drink* is a strong decoction of it, and a violent, although harmless vomitive. In North Carolina, the inhabitants of the sea side swamps, having no good water to drink, purify it by boiling it with a little Cassena (perhaps *Viburnum Cassinvides*,) and use it constantly warm, as the Chinese do their daily tea drink.

The Dahoon is used as a substitute to the Cassena, and many other shrubs appear to be used indiscriminately for making the Black Drink, the *Cassine ramulosa* of the Flora of Louisiana for instance; which is a true *Cassine* of Lin. Genus distinguished from Ilex by five petals, three styles, and a three seeded berry. They are all powerful diuretics.

No. 54. ILLICIUM FLORIDANUM.

Names. Florida Anisetree. *Fr.* Badiane de la Floride. *Vulgar.* Staranise, Sweet Laurel.

Classification. Nat. Order of Magnolides. Polyandria polygynia L.

Genus Illicium. Calix 6leaved. Corolla 7 to 27 petals. Many stamina and pistils. Capsules ranged like a star around a central receptacle, bivalve, one seeded.

Sp. *Illicium floridanum.* Leaves subverticillate, subsessile, broad lanceolate, acuminate, entire, evergreen. Flowers geminate, nodding. Petals many, oblong, obtuse.

DESCRIPTION. A handsome large evergreen, 10 to 20 feet high, with fine purple flowers, similar to those of Calycanthus. The leaves grow in tufts or whorls three or four together, are similar to those of Kalmia, but sharper. The calyx is deciduous, shorter than the corolla, which has many (20 to 27) petals, oblong, linear or cuneate; distorted, obtuse. The pistils form a kind of yellow star in the centre.

HISTORY. This Genus is nearly related to *Magnolia* and *Liriodendron.* Two species, are both found in Florida, equally fragrant in all their parts, like the *I. anisatum* of China. Their fragrance is however different; the Asiatic species smell like Aniseed, the *I. floridanum* somewhat between Coriander and Magnolia, and the *I. parviflorum* exactly like Sassafras. This last is distinguished by small yellow flowers with few (7 to 9) round petals, and the leaves alternate. Both grow in East and West Florida, Louisiana, and Texas. They are worthy of cultivation for beauty and use, but demand the shelter of a green house in winter north of Virginia. Their bark and seeds ought to be collected for an article of trade.

PROPERTIES. The Bark of *I. floridanum* is bitter, pungent, and aromatic, with a spicy taste and smell. It is tonic, stimulant, and diaphoretic chiefly, like the barks of the Magnolias and of Cascarilla, to which it is equivalent. Bigelow has found in it mucilage, extractive, and an aroma soluble in the distilled water. The leaves and seeds have the same qualities. It may be substituted for Cascarilla in some peculiar fevers, and for the Starry Anise of commerce, which the Chinese chew after dinner as a stomachic and sweetener of the breath. They mix it also as condiment in some dishes, in tea and sherbet, besides burning it as a perfume and considering it as an antidote to various poisons.

The *I. parviflorum* has the same properties, but partakes also of the qualities of Sassafras, to which it may safely be substituted as a sudorific and alterative.

No. 55. JEFFERSONIA BARTONI.

Names. Common Twinleaf. Fr. Jeffersone. *Vulgar,* Yellow Root, Helmetpod, Ground Squirrel Pea

Classif. Nat. Order of Berberides. Octandria monogynia L.

Genus JEFFERSONIA. Calyx 4 leaved, caducous, 8 petals, 8 stamina opposed to the petals, one pistil. Stigma sessile. Capsule obovate, substipitate, one celled, opening near the top by a transversal cut, top operculated. Seeds many, arillated, inserted on one side, opposite the fissure. *Leaves all radical binate on long petioles. Scapes uniflore.*

Only one species was known, but in 1820 I discovered the *J. adorata* in Kentucky, and in 1830 observed the *J. lobata* in Carr's garden, near Philadelphia. Their habit and properties being identic, I include them all in this article, and give their specific differences.

1. *J. Bartoni,* Mx. Folioles pendulous, entire, oblique, acute. Scape subclavate, stigma four lobed, capsule angular behind.

2. *J. adorata,* Raf. Folioles pendulous, entire, oblique, acute. Scape filiform, stigma capitate, sessile, capsule oblong, obovate. Varieties—1. *Undulata.* 2. *Parvifolia.* 3. *Cespitosa.*

3. *J. Lobata,* Raf. Folioles erect, oblique, lobed on the outside, lobes acute, sinusses obtuse, petioles fistulose, capsules compressed and short. From Georgia, the flowers are large and inodorous.

DESCRIPTION *of the S. bartoni.* Root large, perennial, yellow, multiform. Radical leaves on long erect petioles, binate or twin, with two oblique folicles inserted on one side, each oval, acute, smooth. Scapes erect naked, thicker above, bearing one single flower, very much like that of Sanguinaria, white, inodorous. Petals oblong, lanceolate, obtuse, longer than the calyx. Anthers yellow. Pod coriaceus, covered with a lid like a helmet.

HISTORY. A very singular plant, mistaken by Linnæus for a *Popdophyllum* and called *P. diphyllum,* distinguished by Dr. B. Barton, who dedicated it to the

philosopher, naturalist, and Statesman, Jefferson. He called it binata, a name applying to all the species. Michaux gave it the actual name. It has since been wrongly united to the Nat. Order of *Podophylacea*; but I ascertained in 1820 that it belongs to Berberides, having the stamina equal, and opposed to the petals. It has a few varieties such as 1. *Cespitosa*, 2. *Grandiflora*, 3. *Undulata*, 4. *Rosea*, &c. It is found from Virginia and Maryland to Ohio and Missouri, chiefly near streams and rivers; it appears to be unknown in Carolina, since Elliot has omitted it. By the singular leaves and seed-vessels, and the fragrant flowers of *J. odorata*, smelling like *Narcissus jonquilla*, these plants deserve cultivation in gardens: they blossom early in April, and the flowers are very fugacious, lasting only a few days. The squirrels eat the seeds. The *J. odorata* is chiefly confined to the western states, Ohio, Kentucky, &c., and the *J. lobata* to Carolina and Georgia. Their properties are alike.

PROPERTIES. Similar to those of *Hydrastis* rather than *Podophyllum*, of which Barton ascribes to the root the taste, smell, and properties. It is yellow like the Eye-root, but much larger, it tsains of a yellow colour, and might be used as a tinctorial root. It is bitterish, somewhat pungent and nauseous, like Hydrastis and many other roots. It is not cathartic so far as I know. The Indians used this plant in Dropsy, and as a diuretic. The root alone is available. I have seen some weighing a pound: the shape is very variable, but frequently knobby. It is very efficacious as a topical tonic in sore eyes and sore legs. Other properties little known as yet, but deserving investigation.

No. 56. JUNIPERUS COMMUNIS L.

Names. Common Juniper. *Fr.* Genievre commun.
Classif. Nat. Order of Coniferes. Dieocia monadelphia L.

Genus JUNIPERUS. Dioecious. Ament ovate, scales verticillate peltate, anthers three to eight, on a single

filament. Fertile filament, globose, three scales, coadunate, stigma gaping. Berry formed by the united fleshy scales, inclosing one to three nuts.

Sp. *Juniperus communis*. L. Shrubby erect, leaves alternate, spreading, linear, mucronate, shining above, glabrous beneath. Instead of giving the full description of this well known shrub, which the above, and the figure is amply sufficient to distinguish, I shall add the characters of some other species, which possess similar qualities, and which I mean to include in this article.

2. Sp. *Juniperus depressa*, Raf. 1817. (*J. communis* Big. fig. 44.) Stems cespitose, depressed, spreading, decumbent. Leaves ternate, spreading, subulate, mucronate, with a white stripe above, convex beneath, as long as the berries: staminate, amentsternate, sessile, obovate. Berries smooth, elliptic. Considered as a variety of the former by many botanists, but very distinct, berries larger, branches trigone, forming circular bushes, twelve to fifteen feet round. In New York, New England, Canada, &c. The Dwarf Cedar, found by Lewis and Clarke on the Yellow Stone river, with branches spreading like vines, and rooted beneath, is perhaps the same, or a peculiar kind *J. radicatus:* or the following:

3. Sp. *Juniperus prostrata*. N. Stems prostrate, creeping. Leaves imbricate in four rows, ovate, submucronate, glandular. Berries oblong, tubercular. On sea shores, lakes, &c. of the Northern States, called Dwarf Cedar.

5. Sp. *Juniperus virginiana*. L. (or common Red Cedar.) Arborescent. Leaves imbricate, in three or four scaly rows, ovate, lanceolate, young ones acerose, expanding. Berries globose, tubercular. This tree is spread all over North America; in the South it reaches fifty feet.

5. Sp. *Juniperus bermudiana*. L. (Sea side Red Cedar.) Arborescent, inferior, leaves ternate, upper leaves opposite in four rows, decurrent, subulate, spreading, pungent: berries purple. In the Bermuda Islands and the sea shore of Carolina, Florida, &c. The three last species called Cedars in America, (the true Cedar is the *Larix Cedrus* of Syria) have often been

blended by writers and described for each other. They all have small rough berries, with only one or two seeds, three stamina, or rather anthers, three internal scales, (called corolla,) in the female ament, and three styles. They ought to form a peculiar sub-genus, which I propose to call *Euxylon*, meaning good wood.

6. Sp. *Juniperus Sabina* (Savin.) Shrubby, leaves opposite, in four rows, glandular, lanceotate, commonly obtuse. On rocks in Canada and New England. Several species are blended here; the American, Asiatic, and European kinds are perhaps different; a low variety of specie 3d, has often been mistaken for it.

HISTORY. A fine and useful genus of Evergreens, Trees, and Shrubs, highly valued as ornamental in gardens for hedges, the medical berries, and the fine wood of the large kinds. They are chiefly found in the cold climates of the two hemispheres. A great confusion exists among our Botanical writers respecting our American species. The *J. depressa* has repeatedly been considered as *J. communis*, and figured even as such by Bigelow, who also can hardly distinguish the Savin from the Cedar. The characters must be sought for in the berries and flowers. The Cedar varies much with age and soil, and some even deem the fifth specie one of its varieties; but its purple berries are peculiar. I have no materials before me to notice the flowers of all the species; but the berries are as follows:

1. *J. communis.* Berries globose, pediculated, small, much shorter than the leaves, smooth, three seeded, bluish.

2. *J. depressa.* B. elliptic, subsessile, nearly as long as the leaves, smooth, three seeded, glaucous.

3. *J. prostrata.* B. oval, oblong, warty, two seeded, bluish.

4. *J. virginiana.* B. oval, globose, small, warty, one or two seeded, glaucous, bluish.

5. *J. bermudiana.* B. globose, warty, purplish.

6. *J. sabina.* Four kinds or sp. at least. 1. *Excelsa* or arboreous; berries blackish, one seeded, globular. Found in Asia and Oregon, in the U. S. 2. *Rupestris*, or Rocky Savin of Canada; berries blue, ovoid, two seeded, (dark blue.) 3. *Cupressiforme* of Europe, with

berries globular, three seeded. 4. True Savin with spreading leaves, berries compressed, bluish.

The *J. montana* of Europe, was once reckoned as one of the *J. communis*. It has crowded leaves, a cespitose stem, berries ovoid, not globular; while the *J. communis* has slender, remote leaves, stem erect, berries globular, dark blue. Our American kind appears intermediate by having the stem erect, shrubby; but the leaves crowded and broader, with larger berries. It is found in Pennsylvania, Maryland, &c. on hills and mountains.

PROPERTIES. Alike in all the species, stronger in the Savins, less violent in *J. virginiana* and the Cedars, weaker in the true Junipers. They are stimulant, diaphoretic, diuretic, carminative, eccoprotic, anthelmintic, emmenagogue, &c. The berries, leaves, and wood may be used; the berries have a strong, pungent, aromatic smell and taste, somewhat sweet and bitter, containing an essential oil, tannin, and a sweet mucilage. The leaves and wood contain some of the oil also, in which resides the active properties. The leaves are more acrid and bitter than the berries. The wood has a weaker taste and a better smell, owing to a kind of resin called Sandarac, which it exudes in warm countries, and resembling Copal, by a part being only soluble in Ether. This renders the wood very durable and obnoxious to insects. Boxes made of it preserve woollens from moths. The Cedar wood is light, close grained, reddish, much used for posts, tubs, pencils, &c. by carpenters, ship-builders, coopers, turners: it is one of our best timber, and preserves a long while its peculiar odour.

The Oil of Juniper is chiefly distilled from the berries; the Italian berries are the best; the American yield much less oil. They impart their flavour to alcoholic liquors, and form the well known gin, which acquires some diuretic properties. The oil is useful in dropsy, in debility of the stomach and intestines, palsy of the bladder, and uterine obstructions. The doses must be minute; or a decoction of the berries and leaves may be substituted. A kind of beer is made with the berries in Lapland; they improve also the spruce beer.

The leaves of Savin are the officinal parts. Those of our Cedars are used as equivalents with us, under the name of Savin; but they are weaker than the European Savin, and often fail as emmenagogue, because the doses are regulated upon the European prescriptions. They have all the properties of the Junipers in a higher and even violent degree; they increase all the secretions, but may produce hemorrhagy and abortion, acting chiefly on the uterus. Pregnant women ought never to use them; but they are very useful in dropsical complaints, menstrual suppressions, also in rheumatism, gout, worms, &c. in powder, conserve, or tincture. None but experienced physicians ought to prescribe them. Farriers use them frequently in diseases of horses. Externally. the powdered leaves may be applied to warts, venereal excrescences, ulcers, carious bones, psora, tinea, and gangrenous sores, to heal them. The fresh leaves mixed with lard and wax, form a good perpetual epipastic, applied to a vesicated surface, keeping it open, and changing the discharge from a serous to a puriform appearance.

No. 57. KALMIA LATIFOLIA.

Names. Broadleaf Kalmia. *Fr.* Grande Kalmie. *Vulgar.* Laurel, Mountain Laurel, Rose Laurel, Calicobush, Big Ivy, Spoonwood, Lambkill, Sheep-poison, Wicke, &c.

Classif. Nat. Ord. of Rhodoracea. Decandria monogynia L.

Genus KALMIA. Cal. five parted, corolla hypocrateriform, five lobed, with ten cavities, ten stamina, anthers lodged in the cavities, one pistil, style, and stigma, capsule five celled, many seeded.

Sp. *Kalmia latifolia.* L. Leaves clustered, petiolate, oval lanceolate, acute, entire: corymbs terminal, viscid, and pubescent.

DESCRIPTION. A shrub, four to ten feet high. Leaves evergreen, thick, coriacious, very smooth, lucid

above, pale beneath, entire, acute at both ends, on short petioles, and growing at the end of the branches in clusters. Flowers very handsome, in terminal compound corymbs, trichotome, pubescent viscid, with small subulate tracteas. Flowers large, corolla of a rose colour, tube short, limbus like a cup, with five short acute lobes, ten long staminas, lodging their antlers in the ten cavities of the corolla.

HISTORY. A beautiful genus of evergreen shrubs, peculiar to North America, dedicated to Kalm, a Swedish traveller and botanist; several species belong to it, all highly valued in gardens as ornamental: this is the largest and most splendid. Their vernal blossoms are beautiful, but scentless. The *K. latifolia* grows all over the mountains and hills of the United States. It produces many varieties, such as 1. *Alba*, all the flowers white. 2. *Maeulata*, with purple spots. 3. *Ternata*, with ternate leaves. 4. *Acuminata*. 5. *Ovatifolia*, 6. *Arborea*, &c.

It has been by many deemed poisonous to men and cattle. It is certainly deleterious to horses, calves, and sheep feeding on it in winter, because indigestible to them. Sheep, if not soon relieved by oil, will swell and die. Yet deer and goats feed on the leaves, and can digest them. The American partridge, feeding on the buds in the winter, is said by some to become deleterious as food. Bees collect honey on the flowers. The wood is soft when fresh, but becomes hard and dense, nearly similar to box, much used for tools, instruments, and spoons. The Kalmia grows very slow, and lives a century or more.

All the species of this genus having equal properties, ought to be slightly mentioned.

2. *K. angustifolia*, or Sheep Laurel. Leaves ternate, oblong, obtuse, rusty beneath.

3. *K. glauca*, or Swamp Laurel. Leaves opposite, oblong, glaucous beneath.

4. *K. rosmarinifolia.* Leaves opposite, linear, revolute, green beneath.

5. *K. cuneata.* Leaves scattered, sessile, cuneate, oblong, pubescent beneath. In Carolina, &c.

6. *K. hirsuta.* Hairy, leaves opposite and alternate, lanceolate, flowers axillary, solitary. Southern States.

PROPERTIES. Narcotic, errhine, antisiphylitic, antiherpetic, &c. Rather dangerous internally, if it be true that the Indians killed themselves by a strong decoction of it. More useful externally; powdered leaves employed in tinea capitis, and in some fevers: with lard, they form a good ointment for herpes. Bigelow found in them tannin, resin, and mucilage only, yet Thomas asserts its narcotic qualities, and that the decoction even in small doses, produced vertigo, which Bigelow is inclined to disbelieve. Elliot states that the negroes of Carolina use the *K. angustifolia* and *K. hirsuta* in a strong wash to cure the itch of men and dogs; it smarts, but cures effectually. It has also been used in psora and other cutaneous affections. It is stated to have been used in syphilis, but how is not told, probably in sores and ulcers. The brown powder of the leaves and seeds are errhine. Their tincture is powerful and dangerous: a few drops killed a rattle snake.

No. 58. LEONTODON TARAXACUM.

Names. Common Dandelion. *Fr.* Pissenlit commun. *Vulgar.* Pissabed, Puff-ball, &c.

Classif. Nat. Order of Cichoracca. Syngenesia Equalis L.

Genus LEONTODON. Perianthe, or common calyx double, both polyphylle, many ligular florets, phoranthe naked, pappus stipitate and plumose.

Sp. *Leontodon taraxacum.* L. Outer calyx reflexed, scapes fistulose and one-flowered, leaves runcinate, with toothed divisions.

DESCRIPTION. It is a perennial plant, with the leaves all radical, smooth, oblong, and acute, cut up on the sides in a runcinate form, sometimes almost pinnatifid, the divisions acute, toothed, unequal, like teeth of a large saw, sinusses acute, only one large mid rib; scapes or radical naked stems erect, from six to eighteen inches high, cylindric, fistulose, smooth, milky when

broken, bearing only one blossom, and growing in length while the blossom unfolds and decays. The two perianthes have lanceolate acute sepals, the outer ones shorter, lax, and spreading or reflexed, the inner one closely erect. Florets yellow, numerous, unequal, tigular, with five teeth; succeeded by black seeds, bearing a white stipitate plumose pappus, forming a spherical ball.

HISTORY. This well known plant is common to Europe, Asia, and America, in pastures and meadows; it is spread all over the United States, and is really a native, not introduced. It blossoms during the whole year in succession from April to October. Although deemed a weed, it is not injurious. It spreads very fast by its seeds borne to a great distance by winds. Children use the seed-balls for playthings, as they may be blown off at a single blast. The name of Dandelion derives from *dent de lion*, an old French name, meaning lion's tooth. The leaves were compared to lion's teeth by the Greeks and Romans. It affords many varieties: 1. *Laciniata*. 2. *Sinuata*. 3. *Lanceolata*. 4. *Polyphylla*. 5. *Uniflora*. 6. *Longifolia*, &c.

PROPERTIES. Deobstruent, diuretic, hepatic, subtonic, corroborant, aperient, &c. The taste is slightly bitter, but not unpleasant; the leaves and root may be used. They contain a green resin, fecula, sugar, nitrate of potash and of lime, acetate of lime, &c. An excellent popular remedy for liver complaints, obstructions, jaundice, dropsy, hypochondria, &c. The most usual way is to eat the leaves in salad in the spring; they may be bleached like Endive, and in the same way. The juice of the leaves is also used, and their extract is very efficient. It promotes all the secretions, and removes obstructions of the viscera and glands. It is an excellent diet for scrofulous, dropsical, and hypochondrical patients. It has been used in induration of the liver, gravel, itch, impetegines, dyspepsia, and consumption. In this last, it acts only as a mild deobstruent. It is very good for the spleen. The milky juice of the stems removes freckles of the skin.

No. 59. LEPTANDRA PURPUREA.

Names. Purple Leptandra. *Fr.* Leptandre rouge. *Vulgar.* Quitel, Hini, Physic-root, Black-root, Whorly-wort, Culvert-root, Brinton-root, Bowman-root.

Classif. Nat. Ord. Pederotia. Diandria monogynia L.

Genus LEPTANDRA. Calix 5 parted, corolla tubular, nearly equal, 4 fid, 2 stamina, and 1 style, both long and slender. Capsule oval, bilocula, semi-bivalve. Seeds many and central. *Leaves verticillate, flowers spiked.*

Sp. *Leptandra purpurea.* Raf. Smooth, stem round, leaves ternate, sessile, elliptic, both ends acute, unequally serrate, spike angular, verticillate, base interrupted.

DESCRIPTION. Root perennial, large, black, with many long fibres. Stem 15 to 20 inches high, simple, erect, smooth, round. Leaves whorled by three, sessile, smooth, longer than the intermodes below, shorter above: of a broad oblong form, breadth 2-5ths of the length, somewhat cuneate and entire at the base, end acute, margin with unequal serrate teeth, sometimes double serrate in the middle; nerved and pale beneath. Flowers in a handsome single terminal, spike 3 to 4 inches long, purplish, rachis angular, bearing crowded whorls of flowers, separated towards the base; each flower has a small bract, oval, acuminate. Calix with 5 equal divisions, oval acuminate, somewhat ciliate, corolla tubular, cylindric, limbus with 4 oval acute divisions, nearly equal. Two filaments twice as long as the corolla, anthers fulvous, oblong, obtuse, sulcate. Style as long as filaments, stigma simple acute.

HISTORY. The *Veronica Virginica* of Linnæus was widely different from the genus in habit and characters, and 3 or 4 species were blended under that name. I formed with it the Genus *Callistachya* in 1803, but finding that Brown had established an Australian genus of that name, I changed it to *Eustachya*: both meaning fine spike. But in 1818 Nuttall called it *Leptandra;* that name meaning slender stamina, being equally good, and now more generally adopted. I have used it here, although I had published, in 1820, a Monography of the Eustachya and its 4 species, wherein I first des-

cribed the purple kind. The others were the *Veronica Sibirica* of L. or Leptandra *Cerulea*, and the *V. virginica* of Thunberg, very different from ours, which must be called *L. japonica*, besides the true *V. virginica* of L. which I designate as follows, and call

2. *Leptandra alba*; stem angular and smooth, leaves verticillated, commonly by five, semi-petiolate, lanceolate, acuminate, unequally and mucronately serrate, spikes dense, cylindrical, flowers white.

This is therefore very different from my *purpurea*. It is, however, the most common species, being found all over the United States, while the *L. purpurea* is confined to the savanas of the South and the West. They have both the same properties, and are used promiscuously.

The *L. alba* has many varieties, such as—1. *Quadrifolia*. 2. *Multicaulis*. 3. *Polystachya*. 4. *Macrostadrya*. 5. *Angustifolia*, &c. The *L. purpurea* has fewer—1, *Heterophylla*, upper leaves opposite, ovate. 2. *Prolifera*, spike subramose. 3. *Pallida*, with pale or whitish flowers.

A third species of this genus appears to grow in the United States, very different from the *L. alba* and *purpurea*. It is the *Veronica virginica* described by Vahl and Poiset, but not L. Mr. Schriveinitz has found it in North Carolina; it may be called and designated as follow:

3. *Leptandra villosa*. Stem round, branched, hairy, and brown; leaves oval lanceolate, subpetiolate, subserrate, acuminate, hairy, and brownish beneath, lower whorls by five, upper by three or four, and sessile; spike cylindrical, pubescent, base lax, bracts subulate, calix lanceolate, unequal, flowers white.

These plants blossom in summer, and are very ornamental, but scentless. They have many local names; the Delaware Indians call them *Quitel*; the Missouri and Osages *Hini*; black root is a name common to many plants and liable to deceive; the *Pterocaulon* is thus called in the South, and the *Botrophis* in many parts. The local names of Bowman, Brinton, Culvert, were given from men who used the roots in practice.

PROPERTIES. The root alone is medical; it is bitter and nauseous, has never been analyzed, and is commonly used in warm decoction as purgative and

emetic, acting somewhat like the *Eupatorium* and *Verbena hastata*; some boil it in milk for a milder cathartic, or as a sudorific in pleurisy. A strong decoction of the fresh roots is a violent and disagreeable, but effectual and popular remedy in the Western States for the summer bilious fevers; some physicians depend upon it altogether. The roots loose much of their virulence by drying, and a drachm of the powder becomes an uncertain purgative: while, when fresh, they are drastic and dangerous in substance, and said to produce bloody stools, dizziness, vertigo, and abortion. The safest way is to use it in weak and cold infusion. Employed also for rheumatism, spasms, and bilious complaints.

No. 60. LOBELIA INFLATA.

Names. Common Lobelia. *Fr.* Lobelie enflee. *Vulgar.* Indian Tobacco, Wild Tobacco, Emetic Weed, Puke Weed, Asthma Weed.

Classif. Nat. Order of Lobelides. Syngenesia monogamia L.

Genus Lobelia. Calyx superior, five cleft. Corolla monopetalous, irregular, five cleft, tube cleft on one side, five stamina, epigyuous, monadelphous, and syngenesious, one style and stigma, capsule two or three celled, cells opening by pores, many minute seeds.

Sp. *Lobelia inflata.* L. Branching and hairy, leaves sessile, ovate, denticulate, flowers in slender racemes, axillary to oblong bracts, capsules swelled.

DESCRIPTION. Biennial plant, one or two feet high, stem milky, erect, ramose, flexuose, subangular, hirsute; leaves alternate, oval or oblong, acute, sessile, or semi-amplexicaule, unequally serrate or toothed, pubescent, racemes of flowers terminal, erect, foliose; flowers remote, each nearly sessile and axillary to a bract, somewhat similar to the leaves, but smaller, the upper ones smallest; lower flowers pedunculated; ovary swelled, oval, globose; calyx with five unequal subulate divisions; corolla small blue. Capsule crowned by the calix, swelled, striated, two-celled, full of very minute seeds.

HISTORY. The genus Lobelia is dedicated to Lobel, an old botanist. It contains a great variety of species, fifteen of which grow in the United States; many are handsome ornamental plants. This species is not such, but has very important qualities. It grows all over the United States in fields and woods, blossoming from July to November; the flowers are very small, but singular; when broken, a milky acrid juice is emitted; the root is fibrous, yellowish white, acrid and nauseous: it is biennial, throwing out the first year only a few radical roundish leaves. When horses and cattle eat it, they are salivated, producing what is commonly called the *Slavers*, which debilitates them, and for which cabbage leaves are said to be a remedy. I was informed that some horses eat it on purpose to medicate themselves; several *Euphorbias* produce the same effect. It produces many varieties, such as—1. *Simplex.* 2. *Elatior.* 3. *Albiflora.* 4. *Angustifolia,* &c.

PROPERTIES. One of the most powerful and efficient emetic, narcotic, expectorant, anti-spasmodic, suvorific, diuretic, anti-asthmaic, and sialagogue. It contains an acrid principle, caoutchoue, and extractive, according to Dr. Bigelow. In its effects it acts very much like tobacco, but the action is more speedy, diffusible, and short; besides, affecting even those who are accustomed to tobacco. The herbalist, Samuel Thompson, claims in his guide of health to have discovered the properties of this plant towards 1790; but the Indians knew some of them; it was one of their puke weeds, used by them to clear the stomach and head in their great councils. Its medical properties have since been confirmed and elucidated by Doctors Cutler, Dorsey, Thatcher, Bigelow, Barton, Bradstreet, Randall, Eberle, &c. It is now extensively used, although many physicians consider it as a deleterious narcotic, uncertain and dangerous in practice: while Thompson denies it, and considers it as harmless, depending almost altogether upon it in his new and singular practice of medicine, borrowed chiefly from the steaming and puking practice of the Indian tribes. The whole plant is used, but the most powerful part are the seeds, as in *Hyosciamus.* The medical effects are speedy and very powerful, but va-

rious, according to the preparations, doses, and temperaments. In large doses, it is a deadly narcotic, like tobacco and henbane, producing alarming symptoms, continual vomiting, trembling, cold sweat, and even death. It appears to act upon the brain rather than the stomach, as usual with narcotics, and is therefore dangerous in practice, unless prescribed with great care and caution. In strong doses it produces great relaxation, giddiness, head-ache, debility, and perspiration; in moderate doses it causes sickness in the stomach and vomiting, a prickly sensation through the whole system, acting therefore on the nervous system, and being a very diffusible stimulant of it.

It has been recommended in some shape or other for almost every disease; but those for which it is most efficient are spasmodic asthma, bronchial cough, tetanus or lockjaw, and strangulated hernia. In asthma particularly, it appears to be almost a specific, although it has failed in some cases when the disease was not spasmodic; it has lately been introduced in Europe as a remedy for this complaint, and with decided advantage. It must be used in that case until it produces nausea and vomiting, while for the other diseases, it is better to give small doses, frequently repeated; it avails thus for pneumonia and cough caused by accumulated mucus in the bronchias. For hernia, it is given in injection, like tobacco, which produces a complete relaxation, when the hernia can easily be reduced. Its effects in croup, rheumatism, dyspepsia, hooping-cough, catarrh, leucorhea, &c. are more doubtful: although in catarrh it appears to act like squill and antimony. Schoepf mentions it only as astringent and useful in opthalmia, but probably by mistake. It has no cathartic effect, as once asserted. Thatcher has given a case of hydrophobia cured by it in the last stage; this deserves attention, as the plant, by its effects on the mouth and system, appears calculated to avail in this fatal disease; but the subject has not yet been properly pursued. The practice of Thompson to use it in every thing, fevers, consumption, measles, jaundice, &c. is preposterous. It is not even a proper emetic for common use, as we have so many much milder. In consumption it is baneful,

because it prostrates the patient without relieving the symptoms. It is, however, the base of many quack medicines for consumption, which are violent and dangerous; they are erroneously called Indian specifics, the Indians having no specific for the disease, but only palliatives.

This plant loses its active properties by boiling or even scalding. It must be used in substance or tincture; the seeds and young leaves are strongest; the whole plant is commonly collected in the fall when in seed, and pulverised. One single grain is sometimes sufficient to produce emesis, while a moderate dose is said to be about ten grains of the powder. A tea spoon full of the tincture is the usual dose; when made with the seeds it is more efficient, and Mr. Cannon has told me that a single dose has cured the lockjaw, by relaxing instantly the jaws and the whole system; it must be poured by the sides of the mouth. One pound of the plant is directed to be infused in a gallon of diluted alcohol. The aqueous cold infusion is equally good. I consider the best and most available use of this plant to be in all nervous diseases, fits, convulsions, spasms, asthma, tetanus, St. Vitus' dance, and perhaps hydrophobia. I venture to recommend its trial in all these disorders, but not to depend upon it in any other.

The other species of this genus ought to be investigated; some, by their taste, appear to have properties somewhat similar, but milder, and thus perhaps are preferable; such are the *Lobelia siphilitica*, *L. cardinalis*, *L. claytoniana*, &c. The two first named have already attracted some attention; they are called blue and red Cardinal Flowers, and are handsome ornamental plants. They are figured by W. Barton fig. 47 and 53.

L. siphilitico has large blue flowers in a foliose spike, calyx with reflexed sinusses and oblong leaves; common in woods and roads. It has been analyzed in France, and found to contain a new substance similar to butter, sugar, mucilage, and malates, besides traces of amarine, silex, iron, muriate and phosphate of lime, lignin, &c. It is a lactecent, acrid, and nauseous plant also, which has been deemed long ago to be diuretic, repellent, cathartic, emetic, and anti-siphilitic; but its

properties are rather similar to *L. inflata*, although less active; it is chiefly sudorific and diuretic, and its properties are not so easily destroyed by heat, since it is used in decoction and extract. The root has been chiefly used instead of the plant; dose, five to twenty grains of the extract in dropsy. The Northern Indians used it for the cure of syphilis, in conjunction with *Prunus* and *Podophyllum*, and in strong decoction, washing also the ulcers with it, and sprinkling them with the powder of *Ceanothus*; but it has failed in the hands of physicians, and only availed in some cases of gonorrhea, acting then as a diuretic. Henry recommends to unite to it *Geranium maculatum* and willow bark as astringents. It disagrees with the stomach, and often causes griping, purging, and vomiting.

L. cardinalis has large scarlet flowers in a long naked raceme, leaves oval lanceolate, acuminate at both ends. Found near streams and marshes. The taste is similar to *L. inflata*. The root has chiefly been employed in decoction by the Cherokee Indians in syphilis, and against worms. It is said to be equivalent to *Spigelia* or pinkroot. These properties deserve further inquiry, as the whole genus *Lobelia* appears to be more or less medical with us; the other species have not yet been tried: one species (perhaps *L. claytoniana*) is said to be used as a mild diuretic in Carolina.

No. 61. LYCOPUS VIRGINICUS.

Names. Bugleweed. *Fr.* Lycope de Virginie. *Vulgar.* Water Bugle, Buglewort, Water Horehound, Gypsie Weed, Paul's Betony.

Classif. Nat. Order of Labiate. Diandria monogynia L.

Genus Lycopus. Calix four or five cleft, corolla tubula, four cleft, nearly equal, upper segment broader and emarginate, two distant stamina, four retuse seeds; *flowers verticillate.*

Sp. *Lycopus virginicus.* Stem simple, angles obtuse, leaves broad lanceolate, serrate, base attenuated, entire,

end acuminate, surface rough, dotted beneath, calix quadrifid, acute, shorter than the seeds.

DESCRIPTION. Root perennial, creeping, and fibrous, stem erect, commonly simple, somewhat rough, with four furrows and four obtuse angles, leaves opposite, sessile, acuminate, or attenuated and entire at both ends, remote serrate in the middle, broad lanceolate, as long as the internodes, somewhat rough, covered with glandular dots beneath; flowers sessile, in small axillary whorls, very small, two small subulate bracteas under each flower, calix with four ovate-lanceolate and acute segments, corolla white, tubular, with four small round lobes, upper larger and notched, two stamina, hardly exert, filiform, style exert, four seeds longer than the calix, obovate, compressed, crenate at the top.

HISTORY. The genus *Lycopus* merely differs from *Mentha*, or mint, by having only two stamina instead of four. The name means Wolf-foot. This species must form a peculiar sub-genus, which I call *Euhemus*, meaning good for the blood, distinguished from all the other species by the *four cleft, short calyx, and crenulate long seeds.* It affords many varieties, some of which might even be deemed species, they are:

1. Var. *Gracilis.* Stem simple, one or two feet high, slender, leaves remote.

2. Var. *Microphylus.* Rough, glaucous, leaves small, oval lanceolate, crowded, stem branched, six to ten inches high.

3. Var. *Ruber.* Rough, leaves oval lanceolate, rugose, tinged with red, crowded, whorls multiflore.

4. Var. *Latifolius.* Rough, glaucous, a foot high, leaves ovate, with large teeth, very crowded, whorls multiflore, seeds large, almost cristated above.

5. Var. *Sylvaticus.* Stem smooth, two feet high, often branched, flexuose, leaves subpetiolate, twice as long as the internodes, oval or obovate, acuminate, with large teeth. In the woods of Kentucky and Ohio.

All these agree in the calix and seeds, as well as the medical properties, and must be distinguished from the other species of the genus, which have somewhat different properties, and may be easily known, although their habit is similar, by noticing the *calix with five long and*

spinose segments, seeds shorter and obtuse, not crenulated. As they are also medical, I shall give their characters.

1. *Lycopus vulgaris*, Pers. or *L. sinuatus E.* (*Europeus L.*) Smooth, stem branched, with four sharp angles, leaves crowded, sinuate, lanceolate, with long acute teeth, both ends attenuated. Several varieties: 1. *Trachigonus* with rough angles, teeth lanceolate. 2. *Repens* (*Lyc. sinuatus* of Elliot.) Creeping, leaves rugose, deeply sinuated. 3. *Angustifolius.* Leaves narrow lanceolate, upper ones less sinuated. 4. *Latifolius.* Leaves broad, lanceolate, sinuate, serrate. Common to Europe and America.

2. *Lycopus heterophyllus*, Raf. (*Exaltatus*, Elliot, not L.) Stem tall and branched, angles acute, leaves petiolate, pinnatifid, segments narrow, subserrate, upper leaves sessile, linear lanceolate, subserrate. Varieties 1. *Bipinnatifidus.* 2. *Dissectus.* 3. *Angustatus.*

3. *Lycopus longifolius*, Raf. (*angustifolius*, Elliot.) Stem simple, hispid, angles striated and acute; all the leaves sessile, linear, lanceolate, elongated, remote serrate, attenuated at both ends. Var. 1. *Gracilis.* 2. *Linearifolius.* In the South and West.

4. *Lycopus pauciflorus*, Raf. (*Pennsylvanicus*, Mg.) Stem nearly simple and smooth, angles striated and acute, leaves all similar, lanceolate, remote, serrate, subpetiolate, acuminate, whorls pauciflore. Var. 1. *Hirsutus.* 2. *Flexuosus.*

5. *Lycopus uniflorus*, Mx. Leaves lanceolate, subserrate, smooth, suckers pecumbent, flowers nearly solitary.

6. *Lycopus obtusifolius*, Vahl. Leaves lanceolate, obtuse, with remote obtuse teeth. These two last are boreal plants.

All the species are estival plants, blossoming in summer, and growing near water, ditches, creeks, swamps, &c. Although so similar to mint, their properties are totally different, not being at all stimulant nor heating. All the species have minute glandular dots under the leaves, affording the smell and a peculiar essential oil. To this oil, probably, the plants owe their active properties: it is easily soluble in hot or boiling water. They

contain also a little tannin, although they are scarcely astringent, yet Schoepf says they dye black with vitriol.

PROPERTIES. The *L. virginicus* is an excellent sedative, subtonic, subnarcotic, and subastringent. It has only lately been taken notice of, when the *L. vulgaris* was extolled in Europe for fevers. Schoepf only mentions its qualities, and it is omitted in all the books of Materia Medica, except Ives and Zollickoffer. The first inquirers on its properties were Drs. Pendleton and Rogers, of New York, who have published several cases of Hemoptysis and incipient phthisis cured by it. This has been confirmed by Drs. J. M. Smith, Ives, Lawrence, and myself. It is now much used in New York and New Jersey. The whole plant is employed; it has a balsamic terebinthaceous smell, peculiar to itself, when bruised, which is stronger in the seeds. The taste is pleasant, balsamic, and slightly bitter, but to some it appears mawkish and nauseating. It is described as partaking of the properties of *Digitalis*, *Sanguinaria*, *Botrophis*, and *Spigelia*; but it is neither emetic nor anthelmintic, and is rather one of the mildest and best narcotics in existence. It acts somewhat like Digitalis, and lowers the pulse, without producing any of its bad effects, nor accumulating in the system. It is, therefore, altogether preferable to it, and not only an equivalent, but even a valuable substitute, as I have ascertained upon myself and many others. Volumes have been written on the Digitalis, a rank poison, and this excellent substitute is hardly noticed yet. It has, however, been used in the New York Hospital, and found very beneficial; it lessens the frequency of the pulse, allays irritation and cough, by equalizing the blood. It is said to be most useful when febrile excitement has been subdued; but I have seen it to subdue it by itself, or with other tonics. I have made many experiments on this plant, and the results are, that although it does not cure the consumption, nor heal the lungs, it is very useful in hemoptysis, a plethoric habit, and internal inflammation. I consider it as a very good substitute to all narcotics, Prussic acid, and even to bleeding, since it produces the same state of the pulse and arterial system,

without inducing any debility, nor acting on the heart or brain in any injurious manner.

It may be used in many diseases, and whenever it is required to quell inordinate actions of the blood, or even other fluids. I have been informed that it is commonly used in New Jersey for diarrhœa and dysentery, which it helps to cure. It is a good adjunct to tonics in fevers. It is also peculiarly useful in the inflammatory diseases of the drunkards, in diseases of the heart, &c. I deem it the best sedative in almost all cases; it does not appear to act on the nervous system, but chiefly over the blood vessels. The usual way to take it has been in the form of a warm infusion, allowed to cool, taken as a diet drink, and without much nicety about the quantity. In hemoptysis, I prefer a lemonade made with a weak tea of it, or a syrup made with it. A very strong infusion may also be used, by putting one or two spoonsful of it in tonic or refrigerant drinks.

The *Lycopus vulgaris* has lately been extolled in Europe in fevers, and is said to have cured intermittents alone. As its qualities are very near alike those of *L. virginicus*, being only a little more tonic and astringent, and a little less narcotic and sedative: they may, perhaps, be tried as mutual equivalents in fevers and inflammatory disorders. All the species appear to have somewhat similar qualities and properties; but it is best to trust to the *L. virginicus* alone as a sedative. The dried plants preserve their properties for many years. I have prepared a compound syrup of it with *Eupatorium* and other tonics, which I have found very useful in catarrhs, pneumonia, hemoptysis, &c. It induces diaphoresis without debility, and acts as a tonic sedative, an article till now almost unknown in materia medica. Cutler says that the *L. virginicus* is used in New England to dye wool, linen, and silk of a black colour. I cannot tell why this plant has received the name of Bugle, which properly belongs to the *Ajuga reptans* of Europe.

No. 62. MAGNOLIA MACROPHYLLA.

Names. Bigleaf Magnolia. *Fr.* Magnolia grande feuille. *Vulgar.* Laurel, Elk Wood, Itomico, Silverleaf, Bigleaf, Whitebay, Beaver Tree, Elkbark, Bigbloom.

Classif. Nat. Ord. Magnolidia. Polyandria polygynia L.

Genus MAGNOLIA. Calix three leaved, six or nine petals, many stamina, pistils many, imbricate on a receptacle oval or oblong, capsules many, united in large cones, bivalve, one or two seeded, seeds fleshy berry like pendulous.

Sp. *Magnolia macrophylla*, Mx. Branches brittle, medullar: leaves very ample, obovate or oblong, base subcordate, glaucous beneath, six petals oblong obtuse, cone oval.

DESCRIPTION. A small tree from ten to fifty feet high, with few branches and leaves, bark smooth and white, leaves at the end of the branches very large, from a foot to a yard long, very smooth, white beneath, and bright green above, base narrow and cordate, end broader, but acute, margin entire, flowers solitary at the end of the branches, very large, sometimes one foot broad when expanded, petals six, white, with a red spot near the base, cuneate at the base, obovate oblong, obtuse or blunt, stamina and pistils yellow, pistils in a long cone, fruit a cone of a rose colour, ovate, about six inches long.

HISTORY. The most wonderful species of the most beautiful genus of American trees. Although excelled in size by the *Magnolia grandiflora*, it excels in the size of its leaves and flowers, and has the largest leaf among all our trees except the palms. The flowers are also fragrant; they blossom in May and June. It was supposed that this tree was confined to a few districts of North Carolina, but it extends over the Allegheny and Cumberland mountains of Virginia, Kentucky, Tennessee, and Alabama. I found it very common on the Rockcastle and Cumberland rivers, and at the Falls, where it forms a prominent feature in the scenery. It

is rare in gardens, and highly valued; it requires a rocky and moist soil, grows quick, and begins to blossom when only five feet high.

The genus *Magnolia* is dedicated to a French botanist. It includes about ten American species, and as many Asiatic: all are handsome, ornamental, and medical. Ours are chiefly found in the Southern States, but the *M. glauca* extends to New England. They are promiscuously called Laurels, Beaver-wood, Elk-wood, Sweet Bay, Cucumber Tree, Umbrella Tree, &c. and by the Southern Indians Itomico, which means royal tree; they consider it the emblem of peace, as we do the olive. Some are evergreen; all have blossoms and leaves more or less fragrant, an aromatic bark, and a white soft wood of little use, except the *M. grandiflora*, which has a hard compact wood of a straw colour, useful for plank and timber. All have vernal white flowers, except *M. cordata*, which has yellow flowers. All our following species are equally medical.

2. *M. grandiflora.* Large evergreen tree, leaves oval lanceolate, thick, rusty beneath, six petals obovate, cones conical.

3. *M. fragrans.* Raf. in fl. Lud. 1817. Evergreen tree, leaves oblong, acute at both ends, pale beneath, six to nine petals, obovate, cones oblong, flowers four inches in diameter.

4. *M. glauca.* Shrubby, not evergreen, leaves elliptic, obtuse, glaucous beneath, nine petals, obovate, cones ovate.

5. *M. acuminata.* Large tree, not evergreen, leaves oval, acuminate, pubescent beneath, nine obovate petals, cones cylindrical.

6. *M. tripetala.* Small tree, not evergreen, leaves ample, cuneate, nine oblong petals, three reflexed, cones oblong.

7. *M. cordata.* Small tree, not evergreen, leaves small, oval, acute, base cordate, submentose beneath, petals nine, lanceolate, acute, yellow, cones cylindric.

8. *M. auriculata.* Small tree, not evergreen, leaves cuneate, base auriculate, green beneath, nine petals, lanceolate, cones oblong, cylindric.

9. *M. pyramidata.* Large tree, not evergreen, leaves obovate, base sagittate, green beneath, petals and cones oblong.

PROPERTIES. The medical parts in the order of their strength, are the bark of the root, bark of the trees, the cones, buds, and leaves. They contain a bitter extract, resin, and camphor. The taste is bitter aromatic, without hardly any astringency. The smell is pleasant, somewhat similar to *Laurus*, *Acorus*, and *Benzoin*, fugacious, and soon lost in the dried bark: chiefly tonic, stimulant, diaphoretic, and stomachic. All the kinds may be used, and are equal to Liriodendron, Cascarilla, Cornus, &c. Extensively employed in the South and by the Indians in fevers and rheumatism. The tincture of the fresh bark and cones is one of the best preparations: it avails in intermittents of an atonic nature, equally to cinchona: also in typhoid fevers, but above all in chronic rheumatism. The cones infused in spirituous liquors are a popular stomachic, and prophylactic against fevers. The powdered bark may be given in doses of a drachm four or five times a day, or in decoctions and infusions; it may be united to the snake roots with advantage. Their use is improper in all inflammatory fevers, and the abuse of their tinctures is hurtful. The bark and cones ought to be collected and become an article of trade. The Liriodendron bark is often substituted as less stimulant. They are equivalent; the Magnolia is preferable in great debility, nervous and rheumatismal atony.

No. 63. MENYANTHES VERNA.

Names. American Buckbean. *Fr.* Menyanthe trefle d'eau. *Vulgar.* Marsh Trefoil, Water Shamrock, Bitter Root.

Classif. Nat. Order of Gantianides. Pentandria monogynia L.

Genus MENYANTHES. Calix five parted, persistent, corolla five cleft, with a short tube, segments fringed above, five stamens, shorter than the corolla, one style,

stigma bifid, capsule ovate, one celled, bivalve, seeds numerous, inserted on the valves.

Sp. *Menyanthes verna*, Raf. Radical leaves triparted, segments oblong obovate, obtuse, erose, scapes racemose, longer than the leaves, raceme conical, bracts ovate, concave, shorter than the peduncles, corolla fringed at the base, not ciliated.

DESCRIPTION. Root perennial, creeping, jointed, leaves and scapes proceeding from the joints, sheathed at the base by broad, oblong, obtuse stipules, leaves on long terete petioles, cut up into three deep segments or folioles, sessile, oblong, oboval, obtuse, somewhat repand or erose on the margin, thick and glabrous, scape ascending, terete smooth, about a foot high, bearing a conical raceme of flowers. Peduncles scattered, streight axillary to shorter bracts, ovate, obtuse, concave, calix subcampansitate, five parted, acute; corolla white, with a red tinge, a short tube, five oval acute segments, spreading or revolute, fringed at the base above, by obtuse fibres, five short erect stamens, anthers sagittate, germ ovate, style terete, persistent, stigma compressed and bifid, capsule with two valves, bearing numerous minute seeds in lateral receptacles.

HISTORY. This plant is common to the north of the two continents. The American plant, figured here, is confined to the North, in Canada, New England, New York, Pennsylvania, and Ohio, but it spreads in the mountains as far South as Virginia. It forms a peculiar species called variety *Minor*, by Michaux and Bigelow, which is well distinguished from the *M. trifoliata* of Europe, of which the characters are:

M. trifoliata. L. Leaves triparted, segments oval, obtuse, repand, scapes racemose, shorter than the leaves, raceme slender, bracts lanceolate acute, corolla ciliated and fringed all over above; flowers rose colour, blossoming in summer. It is a beautiful plant, growing in or near marshes, bogs, ponds, and brooks, blossoming in April and May. The generic name means Moonflower; it is one of the shamrocks, vegetable emblems of Ireland.

PROPERTIES. Tonic, stomachic, febrifuge, purgative, asthritic, antipsoric, diaphoretic, anthelmintic,

&c. as in *M. trifoliata.* The whole plant is bitter, like Gentian, but the root is more intensely so. It contains a resin and an extractive matter, soluble in water and alcohol, much esteemed in Europe, and even esteemed a kind of panacea in Germany. In small doses of about ten grains, it imparts vigour to the stomach and the whole frame, cures intermittent and remittent fevers, &c. In large doses of a drachm, or a strong decoction, it acts like *Eupatorium perfoliatum,* producing purging, vomiting, and profuse perspiration. Its unpleasant bitter taste renders it inconvenient for that purpose. It has been used with success in many other disorders, gout, rheumatism, herpes, dropsy, scurvy, and worms. It keeps off the paroxysm of gout, and Boerhaave cured himself by drinking its juice with whey. Its tea was found good in cutaneous and scorbutic affections. It acts as a powerful bitter tonic, and may be used whenever indicated; the powder, tincture, and infusion are equally efficient. In Lapland and Germany, it is substituted for hops in beer; one ounce is equal to one pound of hops. Sheep will sometimes eat it, notwithstanding its bitterness.

No. 64. MONARDA COCCINEA.

Names. Scarlet Rosebalm. *Fr.* Monarde ecarlatte. *Vulgar.* Mountain Mint, Oswego Tea, Mountain Balm, Horse Mint, Squarestalk, Red Balm.

Classif. Nat. Order of Labiate. Didynamia gymnospermia. L.

Genus MONARDA. Calix tubular, five toothed, corolla ringent, with a long tube, upper lip linear, involving the filaments, lower lip reflexed trilobe, two long exert stamina, one style, one lateral stigma, four seeds in the persistent calix.

Sp. *Monarda coccinea.* Raf. Stem with four acute angles, leaves petiolate, oval or lanceolate, or subcordate, pubescent, subserrate; flowers capitate, involucrate, bracts large, coloured, lanceolate; corolla large and scarlet. Many varieties which have sometimes been

deemed species, but all the Monardas with scarlet flowers, appear to me to form only one species, and as the Linnæan name of *M. didyma* applies to only one variety, I have changed it for a better one.

1. Var. *Cordata.* Leaves subcordate, oval lanceolate, acuminate.

2. Var. *Didyma.* Leaves ovate, acuminate, heads double.

3. Var. *Prolifera.* Leaves oval or lanceolate, heads proliferous.

4. Var. *Grandiflora.* Leaves oval lanceolate, acute, heads simple, very large. This is figured here.

5. Var. *Angustifolia.* Leaves ovate lanceolate, acuminate, base attenuated, stem slender.

DESCRIPTION. Root perennial, large fibrose stem, erect, three to four feet high, branched, tetragone, angles acute, somewhat pubescent; leaves opposite, petiolate, commonly oval lanceolate, but sometimes almost ovate, base round or subcordate, end acute or acuminate, margin with remote serratures, surface pubescent and nerved. Flowers in terminal multiflore heads, of a bright scarlet colour, the heads sometimes proliferous, involucrate by large lanceolate bracts, coloured red, acuminate, membranaceous; flowers sessile, crowded, with smaller bracts interjected; calix tubular, cylindrical, striated, with five subulate equal teeth; corolla very large, tube compressed, the two lips elongated narrow, upper curved, channelled, notched, lower with three small lobes; stamina and style long and filiform.

HISTORY. One of the handsomest plants of North America, with sweet leaves and many heads of flowers of a bright scarlet. It is cultivated in the gardens of America and Europe for its beauty, and its medical properties give it additional value. The whole genus *Monarda* is beautiful, and peculiar to North America; it is dedicated to Monard, a French botanist. There are eighteen or twenty species known already, all more or less medical, but the *M. coccinea* and *M. punctata* have been best investigated. They are commonly estival plants, blossoming in summer. The *M. coccinea* is found from Canada to Pennsylvania, and even further South in the Allegheny mountains; it delights near pure streams and in rich soil.

This genus offers several anomalies, and must therefore be divided into three subgenera, as follows :

1. True *Monarda.* Calyx with five equal teeth, flowers capitate, involucrate, such as 1. *M. coccinea.* 2. *M. fistulosa.* 3. *M. oblongata.* 4. *M. clinopodia.* 5. *M. purpurea.* 6. *M. bradburiana.* 7. *M. scabra.* 8. *M. rugosa.* 9. *M. mollis,* &c.

2. *Cheilyctis.* Raf. Calyx with five unequal teeth, flowers verticillate, involucrate. *M. punctata.*

3. *Blephilia.* Raf. Calyx bilabiate, upper lip shorter, bidentate, lower tridentate, flowers verticillate, bracteated. 1. *M. hirsuta.* 2. *M. ciliata,* 3. *M. becki,* &c.

I have seen in the Western States many new species or varieties of this genus; but I am not yet prepared to give a complete monography of them. I shall merely indicate here three presumed new species of mine.

1. *M. rigida.* R. Stem simple, stiff, rough, leaves sessile, amplexicaule, rough, oval, subcordate, nearly entire, acute, head terminal; involucre lanceolate, acuminate, stiff, flowers pale purple. In west Kentucky, among rocky hills. A true Monarda.

2. *M. virgata.* R. Stems simple, smooth, fistulose, angles acute, leaves very far remote, petiolate, lanceolate, acute, base subcordate, glaucous beneath, nearly entire; head terminal, small; involucre oblong, acute, ciliate; flowers of a pale flesh colour. Prairies of Illinois and Arkansas. ? *M. Russeliana* ?

3. *M. pratensis.* R. (Blephilia.) Stem simple, smooth, angles acute, leaves subsessile, linear lanceolate, entire, smooth, whorls terminal, aphyllous, bracts ovate cordate, acuminate, reticulated, nearly smooth, coloured. In east Kentucky, in meadows and pastures. Flowers purple as well as the bracts. ?

PROPERTIES. The whole plant has a grateful smell, somewhat similar to Dittany and Balm; much stronger when bruised. The taste is pungent, warm, bitterish, &c. It is resolvent, tonic, febrifuge, nervine, sudorific, diuretic, antiseptic, carminative, anti-emetic, &c. It yields a strong aromatic and volatile oil, of an amber colour, in which resides the properties; it contains in solution a camphor of a citron colour. Schoepf has long ago recommended this plant in intermittent

fevers; it appears to be equal to camomile, and makes a more palatable tea. It has been called Oswego tea, because first used by the Indians near Oswego lake. It unites the properties of sage, *Melissa*, and *Anthemis*, to which it is equivalent; but it is more effectual than either, particularly in fevers, pleurisies, &c. besides being used successfully in many other diseases, such as ardour of urine, piles, rheumatism, hemiplegia, paralysis, coldness of limbs, cholic, &c. The properties have been investigated by Schoepf, Atlee, Eberle, and myself. The oil is become an officinal article, kept in shops, as an excellent rubefacient. The Monarda oil is chiefly made from the *M. punctata*, as strongest and most pungent, but all the other species yield it.

The *M. punctata* is easily known by its lanceolate leaves and many whorls of yellow flowers, with red dots. It is plentiful in dry soils from New Jersey to Missouri, and Louisiana. Dr. Atlee, in 1829, published a memoir of it in the Medical Recorder, with a good figure; he recommends the oil chiefly, and states that it is very active, producing heat, redness, pain, and vesication when applied to the skin; he had used it with much advantage as a rubefacient liniment in chronic rheumatism, paralytic affections, cholera infantum, difficulty of hearing, periodical headache, and typhus. It must be dissolved in alcohol, and rubbed. A liniment made with camphor and opium, cured the periodical headache. The simple liniment rubbed on the head, cured a hard hearing similar to deafness; it produces in a few minutes a comfortable glow when the arms, legs, and breast are bathed with it in the sinking state of typhus, with cold limbs. It relieves the gastric irritability in cholera infantum, by bathing the abdomen and limbs. Atlee states that it has cured a maniac. Internally, two drops of the oil in sugar and water, act as a powerful carminative, and stop emesis or profuse vomiting. The plant is used in New Jersey in cholic, and in gravel as a diuretic, being often united to onion juice in gravel and dropsy. The root of *M. coccinea* is said to be a stronger diuretic yet, and also emenagogue; the Indians use it as such; in strong doses, it acts sometimes as a cathartic on the bowels.

Upon the whole, all the Monardas appear to deserve peculiar attention, having so many powerful combined properties. The *M. punctata* is the strongest, but the taste is less agreeable. The *M. coccinea*, *M. fistulosa*, *M. mollis*, &c. are somewhat weaker, but more fragrant. The species of the subgenus *Blephilia*, are the weakest. The Indians, and the empirics Henry and Smith, extol the *M. coccinea* above all, and I have found it quite efficient in catarrhs, cholic, rheumatism, &c. The *M. citrodora* of Louisiana, distinguished by its sessile cordate leaves, smelling like citron, and six leaved involucres to the heads, is frequently used as a pleasant stomachic tea, and the dried flowers are strongly errhine; perhaps all the species are such, as their properties appear identical, differing only by more or less intensity.

No. 65. NASTURTIUM PALUSTRE.

Names. Yellow Water cress. *Fr.* Cresson jaune.
Classif. Nat. Order of Cruciferous. Tetradynamia siliquosa L.

Genus Nasturtium. Calix with four equal spreading folioles, corolla with four equal petals, stamina six tetradidynamous, silique subterete and short, with convex valves, not carinate nor nervose.

Sp. *Nasturtium palustre.* Root fusiform, stem branched, leaves lyrate pinnatifid, smooth, with unequal teeth, petals as long as the calyx and yellow, siliques short and turgid.

DESCRIPTION. Root perennial, fusiform. Stem one or two feet high, branched, nearly dichotome, leaves alternate, nearly sessile, smooth, spreading, lyrate or pinnatifid at the base, with confluent oval lobes, last segment large, oval, oblong, sinuate, subacute, with many unequal teeth and gashes, racemes of terminal flowers, pedicels short, calyx and corolla obtuse and equal, siliques divaricate, oblong, acuminate, turgid, or swelled.

HISTORY. The genus *Nasturtium* or Water cress, is one of those established by Tournefort, &c. which

Linnæus thought proper to rejcct; this was united to *Sisymbrium*, and thus this plant is the *Sisymbrium palustre* of the Linnæan botanists; but Jussieu, Decandolle, &c. have found needful to restore the *G. nasturtium*. The common Water cress is the *N. officinale* or *Sisymbrium nasturtium* of L.; it differs from this by white flowers and pinnate cordate leaves. They both grow near, or in water brooks, swamps, ponds, in North America and Europe. The *N. amphibium* is also common to both continents, and a few peculiar species or varieties are spread through the United States, not yet well distinguished. My *N. diffusum* and *N. arcuatum* grow in the Western States. The *N. tuberosum* of my Flora Ludov. belongs to a peculiar subgenus, with a rounded notched silique; I call it *Brachobium*. All these plants blossom generally in June and July, but the *N. tuberosem* in February. They are alike in taste and properties. They can all be eaten in sallad, and form a good spring diet. Their taste is warm, pungent, and somewhat acrid, like that of Lepidium and Radishes, but by no means unpalatable, and mixed with a sweet juicy flavour.

PROPERTIES. A mild stimulant, diuretic, antiscorbutic, deobstruent, abstergent, hepatic, and stomachic. The whole plants must be used fresh, in sallad or their fresh juice, since these properties are lost by drying and boiling. The leaves may be found all the year round, but are best in the spring; they are then a very useful diet for those who have scorbutic affections and spots, spungy gums, liver complaints, scorbutic rheumatism, pituitous asthma, &c. Water cresses are excellent and milder substitutes to horse radish or cochlearia, mustard, and scurvy grass, in almost all cases, except in palsy. Their active properties reside, as in all the Cruciferous, in an acrid volatile oil, containing sulphur and an ammoniacal salt.

Water cresses were formerly used for many other diseases, in gravel, histerical affections, diarrhœa, and obstipation, polypus, and even worms; but these are not sufficient proofs of their service in these complaints. They are better in cold and sour stomachs, which they warm and revive. All the cruciferous plants which

have the same taste, are good equivalents; such are many species of *Lepidium*, *Cardamine*, *Arabiz*, *Sisymbrium*, *Cochlearia*, &c. Those which have edible tuberous roots, like *N. palentre*, *N. tuberosum*, *Arabis tuberosa*, &c. ought to be cultivated, these roots being a good condiment, somewhat like radishes, but milder; the root of *N. palustre* has a stronger taste, and has been wrongly deemed injurious by some.

No. 66. NELUMBIUM LUTEUM.

Names. Yellow Nelumbo. *Fr.* Nelumbo jaune. *Vulgar.* Yellow Water Lily, Pond Lily, Water Shield, Water Nuts, Water Chincapin, Rattle Nut, Sacred Bean, Lotus, &c.

Classif. Nat. Order of Nymphacea. Polyandria Polygynia L.

Genus Nelumbium. Calix petaloid, four to six leaved. Many unequal petals and stamina. Torus or receptacle, turbinate, spongy, truncate, bearing above many pistils immersed in cells, each pistil becoming a large nut. *Roots creeping, bearing many radical peltated leaves and uniflore scapes.*

Sp. *Nelumbium luteum.* W. Petioles and scapes terete and rough, leaves peltate, orbicular, entire, smooth, and flat, calix five leaved, unequal, many rows of elliptic petals, exterior shorter, anthers appendiculated.

DESCRIPTION. Roots perennial, creeping, cylindrical, brownish, white inside, fleshy and knobby. Leaves radical, on long cylindrical rough and spongy petioles, orbicular, entire, peltate, centre like a knavel, a little excentric, from which radiate many branched nerves beneath; above of a fine green, perfectly smooth. Petioles from three to five feet long, limbus floating on the water from six to twenty inches in diameter. Scapes uniflore, similar to the petioles, flower pale yellow, from six to eight inches in diameter, and erect above water. Calix small, with ovate obtuse folioles, corolla with many imbricate petals on several rows, the inner ones largest, elliptic, obtuse; stamina numerous, yellow, surrounding

the torus, and shorter, filaments linear, anthers adnate below the end, so as to leave a linear appendage at the end; central torus spongy, becoming the fruit, and then large, three to four inches diameter, obconical sulcated, summit truncate, flat, with a waved margin, and having many perforated cells, containing nuts of an elliptic shape, with the persistent short style and obtuse stigma, as big as filberts, of a black colour, but white inside.

HISTORY. This beautiful genus is known from the most remote antiquity, as a holy emblem of the fecundity of nature, has only lately been properly designated. Linnæus hardly knew it, since he united it to *Nymphea*. Jussieu distinguished and named it properly, from one of its Hindu names. Several English and American botanists have since attempted to change the name into *Cyamus*, (meaning a bean) already the name of a crustaceous animal. If good local names are to be changed, we ought to change also *Coffea*, *Yucca*, &c. There are several species in Asia, blended under the name of *N. indicum*, with rose, blue, and white blossoms. Ours is not a variety of it, but a peculiar species. We have three or four species in North America; the others are

2. *N. codophyllum*. Raf. in Flor. Louis. Petioles rough, furrowed inside, thicker above; leaves peltate campanulate, tomentose beneath, calyx four leaved. First described by Robin, who gave a long account of it under the name of Napoleon plant; admitted by Decandolle. Flowers yellow.

3. *N. pentapetalum*. Walter. Leaves peltate, orbicular, entire, calix five leaved, five to eight petals; Considered a doubtful species by many, but I have found it again in west Kentucky; it has yellow leaves also, calix equal, from five to eight petals nearly so, concave, smaller than in *N. luteum*.

4. *N. reniforme*. Walter. Leaves reniform, corolla polypetalous. Doubtful, seen only by Walter, probably a *Nuphar*.

Our *N. luteum* offers several varieties: 1. *Pallidum*, flowers of a straw colour. 2. *Albiflorum*, flowers white. 3. *Maculatum*, yellow flowers, with rusty spots. 4. *Un-*

dulatum, with waved leaves. 5. *Levigatum* with petioles and scapes nearly smooth.

The Asiatic species are called *Lianhua* by the Chinese, *Padma* in the Sanscrit language, *Nelumbo* in Malabar: formerly the sacred Lotus or Bean of Egypt. The Hindus gods are represented sitting on them: in their mythology they were the first plants that sprung on the waters covering once the whole earth, and gave birth to many gods. They were the mystical bean of Pythagoras. The Chinese also venerate them as sacred plants. Cultivated in China and India for food and beauty. They all grow in lakes and ponds only.

Our American species are also deemed holy plants by some tribes of Indians, who feed on them likewise. They are called *Terowa* and *Taluwa* by the Otos and Quapaws. The *N. codophyllum* is peculiar to Louisiana, while the *N. luteum* is spread from New Jersey and Carolina to the Mississippi river and beyond it, in lakes, ponds, deep swamps, bayous, and ditches. As it is scarce in the Atlantic States, it is said to have been planted in some ponds by the Indians. It ought to be cultivated for beauty and use in all our ponds, which it would embellish and utilize. It is difficult to transplant unless the roots are taken in large portions, or the capsules and seeds buried in the mud when quite fresh. But when once rooted, it lasts forever, the roots creep deeply in the mud, and extend twenty or thirty feet. It thrives in Bartram's garden. The seeds germinate in the capsule, which was used as a Rattle by the Florida Indians in the *Maraca* or Rattle worship. The blossoms have a sweet smell, somewhat like *Nymphea odorata*, they open only in the middle of the day, shutting at night and in cloudy weather in the shape of an egg. They blossom in summer.

PROPERTIES. Alike in all the Asiatic and American species. The roots, leaves, and nuts are edible, cooling, laxative, diuretic, emollient, &c. The Chinese and Hindoos make many dishes with them. The roots have some acrimony when raw, which they lose by roasting or boiling: they taste like Artichoke and Colocasia or Edoes. A kind of bread and cakes are made with them; the Otos like them very much. The petioles and young leaves may be eaten as greens; but the nuts are chiefly

valued, even in our country; children, negroes and Indians collect them for use under the name of water chincapins. They are as good as filberts and chesnuts even raw, cooling, and rather laxative; but still better when roasted. The Chinese make preserves with them. They are said to check emesis and diarrhœa, to produce diuresis and be anti-crotic. The leaves are very cooling and emollient applied to the head and skin; the upper surface can never be wetted, water runs out of it like quicksilver: those of the *N. codophyllum* are used as a kind of cool hat by hunters and negroes: they hold rain water pure for a while in their hollow.

No. 67. NYMPHEA ODORATA.

Names. Sweet Water Lily. *Fr.* Nenuphar odorant. *Vulgar.* White Pond Lily, Toad Lily, Cow Cabbage, Water Cabbage.

Classif. Nat. Order Nymphacea. Polyandria monogynia, L.

Genus NYMPHEA. Calyx four or five leaved, many petals in several rows inserted on the torus as well as the many stamina. Torus rounded, radiated above, with a central hollow and tubercle, becoming a many-celled spongy berry, containing many polypermous cells like membranaceous follicles. *Leaves radical, scapes uniflore.*

Sp. *Nymphea odorata.* Smooth, leaves orbicular, base split, lobes acuminate, calyx four leaved, equal to the petals, which are unequal white, elliptic, obtuse.

DESCRIPTION. Roots perennial, creeping, rough and blackish, thick and knotty. Petioles semiterete, one to six feet long, spongy or filled with oblong tubes; leaves floating on the surface of water, nearly round and entire, with a cleft at the base, subpeltate, lobes ending in short acuminate points: upper surface glossy without veins, lower redish, with radiating nerves. Petioles terete smooth, bearing one large white floating flower. Calyx with four equal oblong obtuse folioles, green outside, white within. Petals numerous in many rows, unequal,

the inner ones shorter, oblong, obtuse, flat, or concave; stamina numerous, in several rows, with oblong petaloid filaments, and yellow adnate twisted anthers, bilocular, opening inside; pistil formed by a torus or radiated receptacle, with twelve to twenty-four rays, which appear to be as many stigmas: fruit singular, berry like, inclosing as many polyspermous utricles as rays and stigmas.

HISTORY. A beautiful genus of aquatic plants, and this species is one of the handsomest, the flowers being very large, three to four inches in diameter, and of a delicious fragrance. It grows all over the United States, from New England to Louisiana, in ponds, ditches, rivers, &c. It blossoms in summer; the flowers shut at night; the seeds ripen under water. It is very ornamental, both in its native and cultivated state. The perfume is similar to Magnolia, and very fugacious; it is destroyed by heat. The varieties are, 1. *Parviflora*, flowers much smaller. 2. *Rubella*, tinged with rose. 3. *Chlorhiza*, with yellow roots. The roots are fleshy and as thick as the arm, but in drying they become spongy and friable.

There are three other new species of *Nymphea* in North America, which have similar properties. They are:

1. *Nymphea rosea.* Raf. Leaves orbicular, split at the base, lobes divaricate, acute, lower surface red, petals rose coloured. In New York, Ohio, &c. with smaller flowers, less odorous.

2. *Nymphea maculata.* Raf. Leaves orbiculate, subundulate, dentate, base cordate, lobes obtuse, a brown central spot on the leaves, petals white. In Canada and New York, near Lake Ontario. Flowers nearly inodorous, smaller, with many narrow oblong obtuse petals.

3. *Nymphea spiralis.* Raf. (*N. alba*, Mx. and *N. odorata*, Elliot.) Leaves orbicular, emarginate, base split, colorate, lobes divaricate obtuse, petioles and scapes spiral, calix four leaved, equal to the corolla. In the Southern States. Flowers white, smell strong.

PROPERTIES. Similar to those of *N. alba* of Europe, but much more efficient and decided. The roots are chiefly used, and are kept in shops in New England.

They are astringent, refrigerant, demulcent, anodyne, hypnotic, emollient, antiscrofulous, &c. Taste styptic and bitter when fresh; they dye of a dark brown and black colour with iron, and contain a large quantity of tannin and gallic acid; also starch, mucilage, sugar, resin, ammonia, ulmine, tartaric acid, &c. The variety with yellow roots is mildest and best. It is said to be preferable to *Statice* and *Geranium maculatum*, in almost all cases, being milder and quite as efficient. Externally, the roots and leaves are used for poultices in biles, tumors, scrofulous sores, lockjaw, and inflamed skin. Internally, the roots are useful in diarrhœa, dissentery, gonorrhea, leucorrhea, scrofula, and many fevers. It may be taken in decoction alone or with tonics. The fresh roots act sometimes as a rubefacient externally; the dry ones are best for use. The fresh leaves are excellent for cooling and emollient cataplasms; they are eaten by cows and cattle, and in Canada they are eaten in the spring, boiled for greens. The fresh root is used sometimes like soap. A conserve of the flowers is said to be very cooling and even anti-crotic. The syrup made with them is nearly useless, but the syrup of the roots is very good. The fresh juice of the roots, mixed with lemon juice, is said to be a good cosmetic, and to remove pimples and freckles of the skin. It may be united to *Ulmus fulva* and other discutients, for white swellings. Upon the whole, this plant has important properties, and deserves the attention of the medical practitioners, although many writers have totally omitted it.

The yellow Water Lilies belonging to the genus *Nuphar*, have the same properties, although less efficient.

No. 68. OXALIS ACETOSELLA.

Names. Common Woodsorrel. *Fr.* Oxalide alleluia. *Vulgar.* Sour Trefoil, Cuckoo Bread, White Sorrel, Mountain Sorrel.

Classif. Nat. Order of Geranides. Decandria pentagynia. L.

Genus Oxalis. Calix five parted, persistent. Corolla of five petals, slightly connected at the base. Ten stamina, monadelphous at the base, five alternate shorter. Five styles and stigmas, capsule pentagone, dehiscent at the angles, five locular cells, two or many seeded; seeds with an elastic axilla.

Sp. *Oxalis acetosella.* Stemless, creeping, petioles and scapes long, filiform and pilose, leaves with three folioles, broad obcordate pilose, ciliate, scapes uniflore, erect.

DESCRIPTION. Roots perennial, creeping, white, juicy, with some little fleshy knobs, leaves nearly radical, on long slender filiform hairy petioles, three folioles, subsessile, more or less pilose, ciliated, obcordate, broad, glaucous beneath: scapes similar and equal to the petioles, with two small adpressed bracts on the middle, one terminal flower, white, with purple veins. The five longest stamina equal to the styles.

HISTORY. This plant is scattered in both continents, in woods, groves, and hedges; but in America seems confined to the boreal and mountain regions. It blossoms in summer. It has many varieties—1. *Minor*, (figured here) with small leaves, not very broad nor pilose, small erect flowers, with obtuse petals. In Canada, New York, New England. 2. *Montana*, with large, very broad, and short leaves, nearly glabrous and reticulated, but ciliated, flowers large, erect, with retuse petals, and a yellow spot at the base of each. On the Catskill and Alleghany mountains. These appear almost different species, but they are connected by the European varieties, such as, 3. *Cespitosa.* Leaves cespitose, flowers bluish-white. 4. *Nutans.* Leaves broad, pilose, flowers nodding, smaller, &c. Many other species are found in North America, which have mostly yellow flowers on a stem, except the *O. violacea*, which is stemless, and has purple blossoms. The *O. sanguinolaria* of Louisiana, has yellow blossoms, with bloody spots inside. They are all called Wood-sorrel; are small scentless plants, with a sharp acid tastes, and have all similar properties.

PROPERTIES. Acid, refrigerant, attenuant, antiputrid and diuretic. Useful in decoction as a cooling drink in inflammatory disorders, fevers, piles, putrid diseases, &c. Boiled in milk they form a good acid whey, very cooling. They may also be eaten in sallad; they are peculiarly useful in diseases of the kidneys, bladder, and urethra, when they are inflamed and painful, acting as cooling diuretics. They are often substituted to common sorrel and sheep sorrel; but they must not be eaten to excess, because they contain a violent poison, the oxalic acid; in small quantity, however, since 100 pounds of leaves give only 30 pounds of juice, and this only 10 ounces of the super oxalate of potash, which is sold and used by the wrong name of Salt of Lemons, for making a bad and dangerous imitation of lemonade, and for taking off ink stains from linen, cloth and paper. A good conserve and syrup of oxalis leaves were made, which are pleasant medical preparations; they are now, however, superseded by currant jelly and other preparations of acid fruits.

No. 69. OXYCOCA MACROCARPA.

Names. Large Cranberry. *Fr.* Canneberge d'Amerique. *Vulgar.* Common Cranberry, Mossberry, Swamp Redberry. Atoca in Canada. Sourberry.

Classif. Natural Order of Vaccinides. Octandria monogynia. L.

Genus Oxycoca. Calyx superior four toothed. Corolla four parted, segments revolute. Eight stamina; filaments connivent; anthers bicorne, tubular. One style, stigma obtuse. Berry one celled many seeded. *Small Evergreens.*

Sp. *Oxycoca macrocarpa.* Creeping, branches ascending. Leaves oblong, obtuse, spreading, petiolate, nearly flat, glaucous beneath: pedicels elongated geminate, corolla with linear lanceolate segments, style straight: Berry large, spherical or ovate, more or less red. *Vaccinium macracarpon*, Ait. *V. oxycocus*, Var. *Oblongifolius*, Michaux.

Instead of a long description of this well known fruit, I add the definitions of two other species, one of which lately discovered is new.

2. Sp. *Oxycoca vulgaris.* Stem filiform, creeping, naked, leaves ovate revolute, obtuse, entire; segments of the corolla oval; berry purple, oval, and small. In the North of Europe and Boreal America, in bogs.

3. Sp. *Oxycoca Berberidea.* Raf. Stem filiform branched, suberect; leaves oblong, obtuse, revolute, entire, hardly glaucous beneath; peduncles solitary, elongated, style incurved; berries red, oblong, oblique at the base. Discovered by Mr. John Carr, in Raccoon Swamp, in New Jersey, cultivated in Bartram's garden.

4. Sp. *Ozycoca erythrocarpa.* Pers. Stem erect, leaves oval, acuminate, serrulate, ciliated: berries scarlet. In the mountains of North Carolina.

Sub-genus. *Glyciphylla*, Raf. 1817. (*Pollomia*, Raf. 1820. *Lasierpa*, Torrey, 1825.) Corolla campanulate quadrifid. Flowers and berries caliculated, calicule bivalve.

5. Sp. *Oxycoca hispidula.* Pers. 1805. (White Cranberry, White Pollom, Sweetberry.) Stem procumbent, hispid; leaves oval, rounded, acuminate, hispid, entire, sessile: corolla campanulate, quadrifid: berries subsessile, caliculate, white, globular and hispid. In Boreal America, Canada, Catskill and Alleghany mountains. A multitude of names was given to it, having been united to the genera *Vaccinium, Arbutus, Gautiera*, &c. It is probably a peculiar genus, and the name of *Oxycoca* (Sourberry) does not apply to it, since it has sweet berries and leaves like *Gautiera.*

HISTORY. Another old genus wrongly abolished by Linnæus, and united to *Vaccinium*, but restored by Persoon, &c. The name must be modified into *Oxycoca*, since there is a genus of insects called *Coccus.* The *Vacciniums* or Whortleberries, are larger shrubs, with urceolate quinquefid corolla, ten stamina, berries blue or black, less acid and more pleasant. All the Cranberries, (except the white kind) are very acid and somewhat acerb, yet become very palatable with sugar in the form of tarts, preserves, &c. They are cooling, slightly laxative, and form an excellent diet both in health and dis-

ease. The large Cranberries peculiar to America, are the most usually gathered for our markets, and are even exported to Europe and the West Indies: keeping pretty well in barrels, and still better in bottles. They grow from Labrador to New Jersey, Michigan, and the mountains of Carolina in swamps, called Cranberry Swamps, when bearing them in abundance. They are usually as large as cherries, and somewhat similar in shape and color, although there appears to be some varieties of them. 1. *Coccinea*, almost scarlet. 2. *Maculata*, spotted of yellow and red. 3. *Ovata*, fruits oval. 4. *Globosa*, fruits globular. The second or European species is not larger than a pea. The third is similar in size and shape to Barberries. But the white or sweet Cranberry has very different qualities, the berries are snowy white, and similar to those of the Snowberry or *Symphoria alba;* they are quite sweet and taste somewhat like those of the Red Pollom or *Gautiera.* The Indians used to dry these fruits for use, they were called *Atoca* and *Atopa* in Canada, *Ampimecan* by the Chippeways; *Pollom* was the name of the sweet kind.

PROPERTIES. Refrigerant, laxative, anti-bilious, anti-putrid, diuretic, sub-astringent, &c. Useful in fevers, diarrhœa, scurvy, dropsy, and many other diseases. Their acid is said to be the oxalic and malic acid. Cranberry tarts are one of the American table luxuries. Their juice mixed with sugar or alcohol keeps a long while, and forms a fine acidulous drink with water, allaying thirst, and lessening the heat of the body. The berries last throughout the winter on the bushes, and are found in our markets from September to April; when gathered early and unripe, they are less red and acid, with more astringency. A rob and syrup is made also with them.

The Huckleberries, Bilberries or Whortleberries produced by nearly thirty species of the genus *Vaccinium*, are commonly round and black; their taste is sweet, sub-acid, sub-astringent and vinous. The *V. corymbosum*, *V. duonsum*, *V. resinosum*, &c. furnish most of those brought to our markets, and extensively eaten alone, or with milk, or in tarts, pies, and puddings; the Indians made a kind of wine with them, and dried them in cakes. The *V. frondosum* and *V. pennsylvanicum*, have

blue berries. They are all equivalents. Schoepf relates that a woman with the dropsy, was cured by eating a large quantity of berries of *V. fiondosum*. The *O. hispidula* appears equivalent of Gautiera, but has not yet been tried as such.

No. 70. OXYRIA RENIFORMIS.

Names. Boreal Sourdock. *Fr.* Oxyrie reniforme. *Vulgar.* Mountain Sorrel, Welsh Sorrel.

Classif. Nat. Ord. Polygonia. Diandria digynia L.

Genus Oxyria. Calix simple four leaved, two inner folioles larger; no corolla; 2 to 6 stamens; two styles, stigmas plumose; nut compressed, with a broad winged margin.

Sp. *Oxyria reniformis.* Stem branched erect; radical and lower leaves on long petioles, reniform, undulate, upper rounded lobed; flowers in slender racemes.

DESCRIPTION. Root perennial; stem a foot high or less, erect, slender, with alternate branches; radical leaves on very long petioles, kidney shaped, obtuse, thick, smooth, with waved margin; stem leaves alternate petiolate, subcordate, rounded, emarginate, sinuate or lobed; flowers in slender terminal and naked racemes, often geminate, opposite, reddish; calyx with two outer oblong folioles, and the two inner ones double the size, and obovate; fruit one seeded, nut-like, winged around, lenticular, wing membranaceous; stamina from two to six.

HISTORY. This plant was the *Rumex digynus* of Linnæus, lately made a peculiar genus by R. Brown, and very properly. It grows in the North of Europe, and the Boreal part of America, in Greenland, Labrador, and Canada. It blossoms in the spring. The whole plant has a sour austere taste, like Sheep-sorrel or *Rumex acetosella*, so common in the United States, and the same medical properties. I shall include them in this article.

PROPERTIES. Refrigerant, antiseptic, antiscorbutic, subastringent, discutient, diuretic, &c. They contain oxalate of lime, and owe their properties to it; also

to a little sulphur. They are useful in scurvy, sores, and ulcers, cutaneous eruptions, diarrhœa, putrid and inflammatory disorders, &c. They have also been used in itch, wens, ring-worms, and even cancer. The juice or decoction is used externally and internally. Chiefly good in scorbutic affections, and equivalent of *Oxalis* in other respects.

No. 71. PANAX QUINQUEFOLIUM.

Names. American Ginseng. *Fr.* Ginseng d'Amerique. *Vulgar.* Ginseng-root, Ninsin, Garantogen, Redberry, Five-fingers, Gensang.

Classif. Nat Ord. Araliacea. Pentandria digynia L.

Genus PANAX. Calyx superior five toothed. Corolla of five petals. Stamens five. Styles two; berry two seeded; some flowers only staminate, or with one or three styles and seeds.

Sp. *Panax quinquefolium.* Root fusiform, wrinkled; stem with three verticillate leaves, digitate with five unequal petiolate folioles, umbel central pedunculate. Many varieties.

1. Var. *Americanum.* Raf. or *Cuneatum*, (figured here.) Three large folioles, cuneiform or oblong obovate, acuminate, equally serrate, two at the base much smaller, ovate, acuminate, sometimes missing; flowers white. In North America, in the Western States.

2. Var. *Obovatum.* Raf. (figured by Barton fig. 45.) Three large folioles, obovate, acuminate, unequally and duplicate serrate, two smaller folioles, ovate or missing; flowers white. In North America, in the Atlantic States.

3. Var. *Asiaticum.* Raf. or *Ovatum.* (figured by Duhalde, &c.) Folioles nearly equal, all oval lanceolate, acute, serrulate; flowers purplish. In Central and Eastern Asia, in Manchuria, Corea, &c.

DESCRIPTION of the variety *Americanum.* Root perennial, fleshy, yellowish white, fusiform, wrinkled transversely, often forked, sometimes fasciculated in two or three spindles, ending in thick fibres, from two to six inches long. Stem one or two feet high, simple, erect, round, smooth, divided into three petioles, and a

central peduncle at the end, petioles swelled at the base, bearing five folioles, each also petiolated, (sometimes only three, very seldom seven,) unequal, smooth, with some scattered bristles on the veins above; the two lower ones very small oval acuminate, the three middle ones larger, cuneiform or oblong, broader above, acuminate; all with sharp equal serratures, except at the base; flowers in a globose umbel, supported by a central erect peduncle, and a short involucrum, subulate; these flowers are small, with white petals; ovary oval, adherent, with a five toothed calyx, and two styles clavate recurved; petals five, oval, oblong, obtuse; five erect stamens, with round anthers; fruit, red berries, commonly bilobed, with two semi-globose seeds; sometimes only one style, and a dimidiate berry, or three styles with a trilobe and three seeded berry; some flowers are abortive, or simply staminate, and some plants produce only such with larger petals; calyx nearly entire, &c.

HISTORY. This plant is the famous Ginseng of the Chinese, whose name, meaning *man's health*, has been adopted in English and French. The Manchus call it *Orhota*, meaning *queen of plants*. The Jesuits, who had known this plant in Tartary, found it afterwards in Canada, towards 1718, and a profitable trade was begun with China, which has since undergone many fluctuations. In 1748, the root sold over one dollar the lb. in Canada, and nearly five dollars in China; it has since been reduced as low as twenty-five cents, and some shipments to China have not paid the cost and duties. The Chinese, who have many kinds of Ginseng, admitted the American, but soon found out that it was an inferior kind. The large yellow forked roots, and those dried in their peculiar manner so as to be semi-transparent, were, and are yet, the most saleable. Almost all the botanists have admitted to this day, that the American and Chinese roots were produced by the same species. Lourein was the first to doubt the fact, and I have ascertained by a more close inspection of the Chinese accounts and our plants, that they are at least distinct varieties, if not peculiar species. Whoever will compare the published figures may become convinced of

this. Nay, it appears that there are even several varieties or species in North America, of which the figures of Bigelow (or mine) and of Barton, form two at least. The same happens probably in Asia ; we have only the figure of one Asiatic kind to ascertain well this fact ; but the medical writers of China distinguish at least ten kinds of Ginseng, some of which must be produced by very different plants : they are,

1. The true Ginseng of Manchuria, my variety *Asiaticum*, with large juicy forked roots, yellow and strong.

2. Ginseng of Corea, with large soft roots, commonly four leaves.

3. Of Petsi and Taighan, white firm small roots, taste mild, leaves purple.

4. Of Sinlo, roots one foot long, with branches similar to the arms and legs of a man.

5. Of Chantang, long and thin roots, with many branches, very valuable.

6. Of Leaotong, roots smooth and yellow outside, white inside.

7. Of Hiang, with sweet roots.

8. Of Chaochu, small short roots, of little value.

9. Of Chaseng, roots dry, insipid, with little strength.

10. Of Kikeng, firm, but bitter root.

There is, besides, a great difference in these roots, according to the soils where growing, the time and mode of gathering, &c. This explains, at least, the variety of opinions among medical men, on the value and properties of this plant. It has always appeared strange to me, that our medical sceptics should doubt the Chinese accounts ; they may be a little exaggerated, but the experience of many ages ought not to be ridiculed, because we are ignorant in Botany, have never properly analyzed this root, and have even none but an inferior kind to try. It is preposterous in Bigelow to call the Ginseng a mere demulcent, while it contains a kind of camphor, which he could not detect. The best Chinese kinds may contain other active substances, and although their high price precludes our using them, we ought, instead of laughing at the Chinese for paying once $100 the lb. for them (as we did for Quinine and other drugs) to try how far our own kinds may be equivalents.

The American Ginseng has the same form, taste, and

smell; it must, therefore, possess nearly the same properties, although in an inferior degree perhaps; our Indian tribes did employ them: we may thus avail ourselves of them, and their cheapness ought not to make them the less available, as probably larger doses will answer all the indications. The Huron tribes call this root *Garantogen*, meaning root like a man. They are scattered all over the Northern and Western States, from Canada to Missouri and Alabama, also in the Alleghany mountains as far as Carolina; the first variety is the most common, the second is found in Pennsylvania, and the South, seldom mixed with the other. They are rare plants in some parts, while in some districts they were very abundant, delighting chiefly in deep and rich woods; but they have been nearly extirpated from several places by the collectors, and the annual supply is now much lessened, coming chiefly from the remote western regions. It may soon be needful to cultivate them, which can easily be done, by transplantation, and the Shakers have begun the attempt, under the shade of trees. These plants are, however, of very slow growth, the shoots of the three first years has only one leaf, from four to seven years only two, and at eight years of age the root sends forth the three leaves, and begins to blossom; it is stated that when twenty years old, it often acquires four leaves, and even seven folioles in each leaf. All the roots that have not blossomed are small, and of little value; the best for use must be from ten to fifteen years old. The stem and leaves are also useful; but the berries are of no use, and not even edible. The blossoms appear in the spring, and the berries are ripe in the summer; they require two years to germinate.

PROPERTIES. The roots have a pleasant camphorated smell; the taste is sweet and pungent, with a slight degree of aromatic bitterness. They are a fine gentle and agreeable stimulant, both fresh and dry; also nervine, cordial, restorative, analeptic, demulcent, edulcorant, expectorant, stomachic, attenuant, deobstruent, &c. They owe their active properties to a peculiar substance, very similar to camphor, which I call *Panacine*, white, pungent, soluble in alcohol and water, and more fixed than camphor; they contain also a volatile oil, sugar, mucilage, resin, &c.

This is one of the plants upon which I have made many experiments, and ascertained that some of the properties ascribed to the roots by the Chinese are not exaggerated, although I cannot vouch for the whole. I shall, therefore, begin by giving the Chinese account of them. The Chinese medical writers, who have written volumes on these roots, say that the test of the best kinds consist in not feeling tired by walking while you chew them, or even keep them in your mouth. Our American Ginseng cannot stand this test, I believe. The best Ginseng warms the cold stomach and bowels; it cures the belly-ache, disorders and obstructions in the breast. It attenuates the blood and humours, revives the body, repairs emaciation and debility, sustains excessive labours of the body and mind, preventing weariness and dejection. It quenches thirst, and assuages hunger. It prevents dropsies and obstructions of the vessels and bowels. It fortifies a weak stomach and weak lungs. It gives appetite, and assists digestion, preventing troublesome dreams, fainting fits, palpitations and sudden frights. It renovates the vital spirits, dilates the heart, clears the sight, strengthens the judgment, making the body light and active, and the mind stronger and vigorous. It invigorates old people, and prolongs their life. It is useful for feeble breathing, short breath, and asthma. It removes all the disorders of weakness and debility, nay, is also aphrodisiac, and cures hypochondriacal, nervous, and hysterical affections. It removes also vertigo, dimness, head-ache, tenesmus, fainting, sweating, fevers, windy bowels, dyspepsia, and vomiting, &c. Such are the wonderful properties ascribed to this plant by the Chinese authors, after the experience of 2000 years or more. The physicians often unite it to orange peel, ginger, liquorice, cinnamon, peach-kernals, honey, &c. to aid the effects, and they prescribe it in powders, electuary, extract, pills, and decoction. The only detrimental property ascribed to it, is that the excessive use may bring on hæmorrhage. The roots are carefully dried over a decoction of millet, and afterwards in the sun to give them a yellow and horny appearance, which, with a large size, are the three requisite qualities of the roots. Dose about a drachm.

These properties must more or less belong also to our American kinds; nay, the Chinese consider the Comfrey root as often equivalent to Ginseng. The Ginseng appears to partake of the properties of camphor, valerian, zedoary, rosemary, and comfrey, of which it may be the substitute. The European and American physicians who have tried ours, differ in opinion on the subject, which may be ascribed to some using only young or bad roots. Many consider it as a mere aromatic demulcent; others as a gentle stimulant, or recommend it in nervous disorders, debility, marasm, and the senile cough. The Indians of Canada and our empirics use it for asthma, weak stomach, debility, pains in the bones, excessive venery, gravelly complaints, &c. It is often used as a masticatory and answers the purpose of *Angelica*, as a restorative stomachic. A tincture is used by drunkards. The watery decoction preserves all the properties as well as the extract, which is a very good preparation. In my experiments, I have chiefly used the powder, mixed with equal quantity of honey or sugar candy in powder. I have found it a good stomachic, restorative, and nervine remedy. It acts upon the nervous system in a mild manner, and revives it. Our American Ginseng is so mild that it may be used in pretty large doses, nay, as far as an ounce. Dr. Cutler and Dr. Greenway have long ago stated to have found it useful, even in small doses of ten to twenty grains, in convulsions, vertigoes, nervous affections, palsy, and even dysentery. The leaves form a very grateful medical tea, which is reserved for the noble and wealthy in China; ours make equally good tea, and are sometimes used in Canada, Kentucky, and Virginia. Dr. Hales, of Troy, has used the roots and leaves as a good analeptic and restorative in fevers. Some Indians have a notion that it makes women fruitful. This article appears, therefore, to deserve further attention, instead of total neglect.

No. 72. PINCKNEYA PUBENS.

Names. Pinckney Bark. *Fr.* Quinquina Pinckney. *Vulgar.* Bitter Bark, Georgia Bark, Florida Bark, Fever-tree.

Classif. Nat. Order of Rubiacea. Pentandria monog. L.

Genus PINCKNEYA. Calyx superior five parted unequal colored, one or two segments, larger bracteiform. Corolla tubular, border five cleft recurved. Stamens five exserted, inserted at the base of the tube. One style; capsule rounded bivalve bilocular, dissepiment double; seeds winged.

Sp. *Pinckneya pubens.* Leaves opposite petiolate, oval, acute at both ends, subtomentose beneath; flowers terminal cymose.

DESCRIPTION. Large shrub, with many stems, from fifteen to twenty-five feet high, branches opposite tomentose. Leaves opposite, with stipules and petioles, oval, four or five inches long, acute at both ends, petioles and lower surface very pubescent, or nearly tomentose, margin entire; flowers terminal, cymose, rather large, one or two inches long; calyx pubescent, coloured of yellow and red, four segments, smaller, angular, acute, one or two larger, obovate, obtuse, reticulate with red; corolla white, spotted with red; five long stamens, filaments filiform, erect, white, anthers brown; pistil yellow; capsule round, compressed, thin, cartilaginous; seeds round, flat, and winged.

HISTORY. Discovered by Bartram, in Georgia and Florida, called by him *Mussenda bracteata.* Michaux established the genus, dedicated to General Pinckney, a botanist, philosopher and statesman; it is intermediate between Cinchona and Mussenda. Only one species is known, found from Carolina to Louisiana, along the sea coast, in cool, shady groves and swamps, on the banks of rivers, &c. It blossoms in June and July, and is very ornamental. The genus *Cinchona,* producing the Peruvian bark, extends no further north than the West Indies; this shrub appears to be the representative and substitute of it on the north continent, by its near organization and qualities.

PROPERTIES. Nearly similar to those of the Peruvian barks; the inner bark is bitter, and contains Cinchona; this is the officinal part. It has long been used in Georgia and Florida, in intermittent fevers with success, and found nearly equal to the officinal bark. This property has been confirmed by Barton and Law.

Six cases out of seven are said to have been cured. The powder, infusion, and decoction are equally available. Doses from twenty to sixty grains of the powder; the best vehicle must be mild wine, as for common bark. We have no account of any other use being attempted; but there is little doubt that it will be found a general tonic, antiseptic, and stimulant, like the Pale Bark or *Cinchona lancifolia*, to which it is nearest alike, and it may be safely tried in fevers, rheumatism, gangrene, and all the diseases where Pale Bark is employed or indicated.

No. 73. PODOPHYLLUM MONTANUM R.

Names. Mountain May Apple. *Fr.* Podophylle de Montagne. *Vulgar.* Mandrake, Wild Lemon, Ducksfoot, Raccoon Berry, Yellow Berry, Peca, Ground Lemons, &c.

Classif. Nat. Order of Acteacea. Polyandria monogynia L.

Genus Podophyllum. Calyx three leaved deciduous. Six to nine petals. Eight to fifteen stamina, anthers adnate. One pistil, no style, stigma sessile multilobe. Berry with one cell and many seeds, all inserted on one side. *Creeping root, stem two leaved, uniflore, single flower between the leaves.* 3 species.

1. *P. peltatum.* L. and auct. Stem cylindric, not furrowed, thick, longer than petioles; leaves peltate palmate, sinus obtuse, segments cuneate, bilobe, and toothed at the end; petals obovate, concave, seven to nine; stamina twelve to fifteen; berry ovate, yellow. The most common kind found all over the United States, many varieties: 1. *Pumilum.* 2. *Elatior.* 3. *Grandiflorum.* 4. *Odoratum.* 5. *Hetorophyllum.* 6. *Oligodon.* 7. *Triphyllum.* 8. *Extraxillare.*

2. *S. montanum.* Raf. (See the figure.) Stem elongated, deeply furrowed; leaves palmate, not peltate, sinusses acute, segments unequal, ends acutely bifid, with many unequal teeth; petals oblong, obtuse, six to seven, stamina seven to nine, berry oblong, yellowish. In the

Alleghany mountains, from New York to Virginia. Variety 1. *Acuminatum.* 2. *Parviflorum.*

3. *P. callicarpum.* Raf. in Flor. Lud. sp. 20. Stem short, equal to the petioles; leaves peltate palmate, six segments, obovate, bifid, with unequal teeth; petals six round, concave; stamina ten; berry oblong, white and rose coloured. In Louisiana and Texas. Flowers large, smelling like orange flowers; berry small.

All these species have cylindrical, creeping, and perennial roots, of a yellowish brown. Stem erect, two unequal smooth leaves, glaucous beneath, with five to nine segments, a nodding peduncle, the petals white, veined, reticulated, and a berry good to eat.

HISTORY. A fine natural genus, considered as having a single species (since the *P. diphyllum* was called *Jeffersonia,*) to which I have added two others of the same habit, but well distinguished; the *P. montanum,* by the slender furrowed stem, sharp bifid leaves, not peltate, and narrow petals; the *P. callicarpum,* by the short stem and leaves, small white fruit, &c. They are all equally medical, and I have figured the second as most novel and interesting.

They are all found in rich soils, are perennial and vernal plants, blossoming in May and June; the fruit is only ripe late in the summer, and is edible, tasting somewhat like the Papaw or *Asimina.* The blossoms have commonly a sweet smell; the generic name means *leaf like a foot.*

PROPERTIES. One of the best native cathartics; it is equal to jalap, although a little more drastic, but quite safe and unfailing. The root is used; when dry, it is brittle, and easily powdered; the taste is unpleasant, nauseous, and bitter; the bitterness is extracted by water and alcohol; it contains resin, fecula, bitter extractive gallic acid, and a gummy substance. The medical properties of this article have been well ascertained, and are admitted by all physicians: many use it frequently in the country: the extract is very good, even better than the powder. Those who employ mercurial preparations, use it united to calomel, twenty grains of the powder with ten of calomel being a strong dose: but from five to twenty grains of the extract alone

is equally good. In smaller doses, it proves a gradual and easy laxative. Ten grains alone of the powder, taken at night, purges the next morning. It is chiefly useful in bilious complaints, and by its decided operation supersedes the use of a previous emetic; nay, sometimes emesis is produced by it, when the dose is large. It may be united to Cremor Tartar in all fevers where active purging is required. It has been found very useful in dropsical complaints, ascites, anasarca, rheumatism, chorea, epilepsy, &c. by Dr. Burson and others. The Cherokees use it against worms, which are expelled by its drastic effects. Dr. Zollickoffer denies this property. The leaves are said to be narcotic. No cattle ever eat them. A drench of the whole fresh plant in decoction, will purge a horse completely. Two ounces of the leaves in decoction killed a dog. The Cherokees employ the fresh juice of the root for the cure of deafness, by putting a few drops in the ear. The Osage Indians consider it as a cure for poisons, by driving them through the bowels. They are very fond of the fruit, like all the Indian tribes. A fine preserve is made of them in Louisiana. To me, this fruit is hardly palatable, and the root is so nauseous that I employ a syrup of it like the Cherokees, which becomes then a mild and not unpleasant purgative, two spoonsful being a dose. Small doses of it, or of the extract, lower the pulse from 77 to 64, and are useful in cough and pleurisy.

No. 74. POLANISIA GRAVEOLENS.

Names. Common Clammy-weed. *Fr.* Polanise graveole. *Vulgar.* Stink-weed, Worm-weed, Clammy Mustard, False Mustard.

Classif. Nat. Order of Capparides. Dodecandria monogynia L.

Genus Polanisia. Calyx with four unequal folioles. Four unequal petals. Stamina eight to fifteen, unequal. Ovary oblong, sessile, one style and stigma. Oblong silique or pool, with many seeds.

Sp. *Polanisia graveolens*, Raf. Pubescent viscid, erect. Leaves petiolate, trifoliate, folioles sessile, oblong, acute: raceme foliose, siliques oblong, acute, glandular, reticulated.

DESCRIPTION. Root perennial, white, branched. Stem erect, simple or branched, one to three feet high, pubescent viscose, terete. Leaves alternate petiolate, with three sessile oblong acute, unequal and entire folioles, viscid like the stems. Flowers in terminal racemes, lengthening by degrees, rather crowded by leaves, becoming very small above, each flower axillary and solitary on a long peduncle. Calyx coloured of white and rose, with four unequal folioles, two narrow acute, two broader unequal. Petals white, erect, a little longer, unequal, cuneate, emarginate; stamina eight to fifteen, some longer and some shorter than the petals, fastigiate, filiform, red, anthers round. Pistils and siliques as above. The whole plant has a strong graveolent smell.

HISTORY. A new genus of mine, indicated in 1807, established in 1817, and confirmed by Decandolle; it contains many species blended by Linnæus under the name of *Cleome dodecandra*, native of Asia, the tropics, &c.; while this is peculiar to North America, and is found all over it, from Canada to Louisiana, on the sandy and gravelly banks of rivers and lakes. It is one of the most common plants on the banks of the Ohio. It blossoms in summer, from June to August. The generic name means *many unequalities;* the specific applies to its strong smell, similar to *Erigeron graveolens* of Europe. This plant is properly perennial; but as it blossoms on the first year of its growth, it resembles then an annual, and has been mistaken for such by Schoepf and Barton. It has some varieties: 1. *Elatior*, three or four feet high, and much branched. 2. *Simplex.* 3. *Cespitosa.* 4. *Glabriuscula*, &c.

PROPERTIES. Very few authors have noticed this plant, except Schoepf, who first stated the root to be anthelmintic. The fact is, that the whole plant is such, even the seeds, and its effects are similar to those of *Chenopodium anthelminthicum.* The decoction, powder, or confection, may be used in the same doses. An ac-

tive oil may be distilled from it; but it is not yet in use. It is a popular remedy in some parts of Ohio and Canada; but I am not prepared to state whether it may be equally sure as the worm seed. We want experiments on it; I do not believe that it is narcotic, except in a very harmless degree, although W. Barton states that it is a deleterious active plant: his observations have never been published. By its smell, it appears to have similar properties with the *Erigeron graveolens* of Europe, and thus it may be diuretic and antispasmodic.

No. 75. POLYGALA PAUCIFOLIA.

Names. Dwarf Milkwort. *Fr.* Polygale naine. *Vulgar.* Little Pollom, Evergreen Snakeroot.

Classif. Nat. Order Polygalides. Diadelphia, L.

Genus POLYGALA. Calyx persistent, five parted, unequal. Corolla monopetalous, unequal, six to twelve stamens on the corolla, divided in two equal fascides. One pistil. Capsule two celled, two valved.

Subgenus TRICLISPERMA. Raf. 1814. Corolla three parted, two segments like wings, one semi-tubular cariniform, base nectariform, top fimbriate. Six stamina. Style clavate, stigma bilabiate truncate. Seeds covered with a trivalve arilla, not pubescent.

Sp. *Polygala paucifolia.* Mx. or *Triclisperma grandiflora.* Raf. 1814. Creeping, stems surculose, assurgent, leaves few, terminal, sessile, ovate acute, glaucous ciliate: flowers one to four terminal.

DESCRIPTION. Root perennial, creeping, yellow, terete. Stems procumbent at the base, naked, with one or two surculi, with abortive small leaves, and sometimes flowers; top of the stem assurgent, erect, three to six inches high, simple, smooth, terete, with three to five leaves at the end, fasciculated alternate, ovate acute at both ends, entire and smooth, uninerve, glaucous, minutely ciliate on the margin. Flowers terminal, one to four, mixed with the leaves, large, red, handsome, but scentless, pedunculated; wings large oval acute, keel

shorter ; only six stamina in two fascicles of three. Pistils and seeds as described in Triclisperma.

HISTORY. A pretty little plant, found commonly in granitic hills, from New England to Carolina, chiefly in the Blue mountains ; rare in the Alleghany or Secandary mountains. It blossoms in the spring. Many varieties : 1. *Apogonia*, nearly beardless, probably the *P. uniflora* of Mx. 2. *Procumbens*. 3. *Heterantha*. Surculi with apterous flowers. 4. *Quadriflora*. 5. *Albiflora*, &c.

The genus *Polygala* is a cahos, rather a family than a genus ; the *Heisteria*, abolished by L. must be restored. The stamina are far from being always eight, as stated by L. I ascertained as early as 1803, that this plant was hardly a Polygala, except in habit, the arilla and stamina being the chief differences, and I established the genus *Triclisperma* in 1814, which must be a subgenus at least.

PROPERTIES. The whole plant, but chiefly the root, has a sweet pungent taste, and somewhat the smell of *Gautiera*. Its properties are similar to it, and to *Polygala senega*. It is stimulant, sudorific, restorative, &c. It may be used in tea or decoction : being milder than either; it may be very useful when the Senega would be too stimulant, and it may perhaps answer all its effects in asthma, rheumatism, dropsy, &c. It must contain the Gautiera oil, but it has not been distilled from it as yet.

Several North American species of *Polygala* are medical ; such as *P. senega*, *P. rubella*, *P. sanguinea*, &c. The first is the common officinal *Senega Snake-root*, well known in materia medica, and kept in all the shops. It is stimulant, diuretic, sialagogue, expectorant, sudorific, menagogue, resolvent, deobstruent, purgative, and emetic. It was first brought to notice in 1785, as a cure for rattle snake bites, among the Senekas. Many physicians have since investigated its properties, and used it in dropsies, ascites, croup, typhus, with pneumonic symptoms, peripneumonia, rheumatism, lethargy, pleuritis, gout, marasm, asthma, &c. The Indians use it besides snake bites, for syphilis and malignant sorethroat. The powder, decoction, tincture, wine, and syrup are em-

ployed. The taste and smell is very pungent and nauseating. A resin and the Senegine, a peculiar substance, are the most active constituents. Ten grains of the powder is a dose; a larger one will often prove emetic. It produces sometimes a plentiful evacuation by stool, urine, and perspiration. It is injurious in consumption and inflammatory disorders. Some compare its action to calomel, and consider it a general alterative. In croup, it often disengages the morbid membrane. It is very beneficial in chronic rheumatism, the asthma of old people, and inveterate dropsy; small and moderate doses prove good sudorifics. The *P. sanguinea* has the same taste and properties, being a milder equivalent; but the *P. rubella* or *polygama*, figured by Bigelow fig. 54, has different properties, being bitter and tonic, although likewise stimulant and expectorant; it appears to resemble much more the *P. vulgaris* of Europe.

No. 76. POLYGONUM AVICULARE.

Names. Common Knotweed. *Fr.* Renouee vulgaire. *Vulgar.* Knotgrass, Birdweed.

Classif. Nat. Order of Pylygonea. Octandria trigynia L.

Genus Polygonum. Perigone simple, unequal, colored and five parted. Stamens six to eight. One pistil, two or three styles and stigmas. One seed.

Sp. *Polygonum aviculare.* L. Annual, stem procumbent, branched, leaves lanceolate, scabrous on the margin; flowers axillary, eight stamens, three styles, seed triangular striated.

DESCRIPTION. A well known annual plant, very variable, procumbent or erect, diffuse, with many slender branches, leaves narrow lanceolate, sessile, acute at both ends, with nervose and membraneceous stipules. One to three axillary flowers on short peduncles, white or redish. Perigone persistent, with five unequal obtuse segments, &c. The varieties are: 1. *Prostratum.* 2. *Erectum.* 3. *Diffusum.* 4. *Rubrum.* 5. *Parvifolium.* 6. *Linearifolium.* 7. *Gracile.*

HISTORY. This genus includes the genera *Fagopyrum* or Buckwheat, *Persicaria* and *Helxine*, united by Linnæus with little propriety, The *Persicaria* with two styles and a lenticular seed, form a very distinct subgenus at least. The *Fagopyrum* has an equal perigone, with a glandular nectarium. *Polygonum* means with many knots. This species is found every where in Europe and America, in fields, blossoming all the year round.

PROPERTIES. The whole plant is astringent, vulnerary, diuretic, subtonic, &c. although it has little smell and taste. It is useful in wounds, faintness, dropsies, prolapsus, hemorrhagy, and whenever mild astringents are required. In China, it is used as well as the *P. chinense* and *P. barbatum*, to die of a black and brown color. The *P. convoloulus*, distinguished by climbing stems and sagitate leaves, is called *Chizahaw*, by the Osages, and is used in dropsies, producing a profuse diuresis; large doses of a tea are taken; the leaves are smoked as a luxury and a fine tobacco. The *P. bistorta*, found in Long Island, according to Schoepf, is an officinal plant of Europe; the root is a strong astringent and styptic, equal to *Geranium* and *Statice*, useful in dysentery, leucorrhea, hemorrhagy of the stomach and uterus, &c.

The *Polygonum persicaria*, (or *Persicaria maculata*) is figured here No. 76, fig, 2. It has, as well as the other species of Persicaria (called Asmart, Smartweed, and Water-pepper) very strong properties, is an acrid diuretic, burning the tongue and even the skin, rubefacient, vermifuge, stimulant, incisive, &c. They have been much used in gravel, commonly infused in wine; are said to have cured odontalgy, sores of the ear, and aphthous sore mouth. Cutler relates, that the ashes make a soap which has been used as a nostrum to dissolve the stone in the bladder. Their tea is good in gravel, coughs, colds, and a good vermifuge. All cattle avoid them; they kill fish in ponds, and even snakes fear them. They die wool of a fine yellow, with alum; called *Curage* in Louisiana, and much esteemed. Schoepf says they cure the ulcers and sores of horses. The *P. persicaria* grows near waters all over the United States, and is

easily known by its lanceolate leaves, with a black spot above, and oblong spikes of red flowers. The *P. hydropiperoides*, *P. amphibium*, *P. pennsylvanicum*, &c. are equally medical and equivalent to *P. persicaria*.

No. 77. POLYPODIUM VULGARE.

Names. Common Polypody. *Fr.* Polypode common. *Vulgar.* Fern Root, Rock Brake, Brake Root, Female Fern.

Classif. Nat. Order of Ferns. Cryptogamia Filices. L.

Genus POLYPODIUM. Fern with round scattered sores or clusters of capsules under the frond, without involucrum.

Sp. *Polypodium vulgare.* L. Caudex chaffy, stipe smooth, frond deeply pinnatifid, segments linear lanceolate, obtuse, crenulate, approximate, the upper ones smaller.

DESCRIPTION. Root perennial, creeping, irregular, brown, with chaffy scales extending to the caudex or base of the stipe. Frond six to twelve inches high, distiched as usual in ferns, deeply cut in approximated segments; oblong or lanceolate, obtuse, smooth, crenulate, upper ones gradually coherent and smaller. Lower surface with two rows of sores on each segment, round, naked, brown, formed by a crowd of small capsules.

HISTORY. This genus was formerly very extensive, but now contains, since the reform of the ferns, the species without involucrum; the others forming the genera, *Aspidium*, *Nephrodium*, *Hypopeltis*, &c. Linnæus had called our American plant *P. virginicum*, but it is a mere variety of the European. It grows on rocks from Canada to Carolina; the varieties are, 1. *Levigatum.* 2. *Multicaule.* 3. *Latifolium*, &c.

PROPERTIES. The root is the officinal part; it has a sweet mucilaginous taste; it is pectoral, demulcent, purgative and vermifuge. The syrup of it is very

good in violent coughs, the rickets of children, and the lumbago. A poultice of it with *Thuya* has been found useful in violent rheumatic pains. A strong decoction will act as a mild cathartic, and expel also the worms of children. The *Aspidium filixmas*, or Male Fern, once a *Polypodium*, is not a native of America: the root has been used with success, united to cathartics, to expel the tenia or tapeworm; perhaps this species is equivalent to it.

No. 78. PTEROSPORA ANDROMEDEA.

Names. Scaly Dragonclaw. *Fr.* Pterospore paradoxe. *Vulgar.* Dragon Root, Fever Root, Albany Beechdrop.

Classif. Nat. Order of Monotropes. Decandria monogynia L.

Genus PTEROSPORA. Calyx five parted. Corolla ovate, five toothed. Ten stamina, inserted on the receptacle, anthers peltate, two celled, adnate, bisetose. One pistil, one style, stigma five lobed. Capsule five celled, seeds minute winged.

Sp. *Pterospora andromedea.* Nuttal. Stem simple, viscid, and scaly; flowers irregularly racemose, nodding.

DESCRIPTION. Root perennial, large, white, amorphous, full of irregular curved fleshy tubercles, resembling the claws of animals. Stem erect, one or two feet high, simple, straight, covered with short brown viscid hairs, cylindrical, without leaves, but some small scattered and subulate scales. Flowers in a long terminal raceme, flowers scattered, some fasciculated, axillary to linear bracts, color reddish white, peduncle curved, nodding. Calyx with five ovate ciliate segments. Corolla resembling *Andromeda*, marcescent, ovate, with five reflexed oval obtuse teeth. Ten stamina inclosed, filaments subulate, flat, arising from below the pistils; anthers singular, semi-adnate, semi-peltate, two cells opening transversely inside. Pistil free, style columnar, stigma capitate, nearly five

lobed. Capsule globose, five celled, semi five valved, valves septiferous, receptacle central, five lobed. Seeds minute, obovate, with a terminal wing, membranaceous and reticulated.

HISTORY. A very singular plant, similar in habit to *Hypopythis*, but with flowers like *Andromeda*. It had long been known to herbalists, yet was unknown to botanists, when discovered by Dr. James, in 1816, near Albany, and called *Monotropa procera*. In 1818, Nuttal established the genus, but mistook it for annual. It has as yet been found only in some sterile hilly sides, in the State of New York, in Genessee, near Albany, &c. It blossoms in July. It affords some varieties. 1. *Flavicaulis*. 2. *Leucorhiza*. 3. *Elatior*. 4. *Pauciflora*.

PROPERTIES. The root is the officinal part, resembling that of *Monotropa*; it has a vapid smell, and a mucilaginous astringent taste. It is employed by the Indians, the herbalists, and the Shakers of New Lebanon, as a valuable vermifuge, sudorific, anodyne, deobstruent and menagogue. They distinguish two kinds with purple and yellow stems, (called male and female) pretending that the first is best, but obviously wrongly. It is said to avail in all remittents, typhus, and nervous fevers; it produces a profuse perspiration, and often stops the fever in a few hours. It also relieves the night hectic fever, without debilitating the patients. It avails in pleurisies and erysipelatose fever. It is chiefly good in all low stages of fevers. Employed also in coughs, pains in the breast, and other diseases of the breast, made into a syrup. It is the base of some pectoral balsams. Also taken in decoction and in powder. My experiments on this root in diseases of the lungs, have not yet satisfied me of its utility; it appears useless in scrofulous consumption, but is beneficial in hectic fever and pains in the breast, much more so than *Hepatica*. This plant being rare, is sold high by the Shakers and herbalists. The *Eupatorium*, much more common, is probably also a preferable equivalent.

No. 79. PYROLA MACULATA.

Names. Spotted Pipsiseway. *Fr.* Pyrole blanche. *Vulgar.* Wintergreen, Whiteleaf, White Pipsiseway, Psiseva, Kingcure, Ground Holly, Rheumatism Weed, &c.

Classif. Natural Order of Bicornes. Decandria monogynia. L.

Genus PYROLA. Calyx five cleft. Five petals, slightly united at the base. Ten stamina, anthers opening by two pores. One pistil. Stigma capitate. Capsule five celled, five valved. Many arillate seeds.

Sp. *Pyrola maculata.* L. Leaves ovate lanceolate acute, base rounded, remotely serrate, variegated with white: flowers two or three, style very short.

DESCRIPTION. Root perennial, creeping, contorted, yellow. One to three perennial stems, three to six inches high, simple, erect. Leaves evergreen, but few, subverticillate, on short petioles, the lower subovate, the upper ovate lanceolate, sharply serrate, very acute, variegated above by a broad longitudinal glaucous stripe, with lateral branches. Flowers white, two or three subumbellate, pedicellated, drooping, at the end of a long terminal naked peduncle. Calyx five toothed. Five ovate concave petals, often red at the base. Ten stamens, with villose filaments. Pistil globular, umbilicated. Style short and thick, almost concealed. Stigma large, depressed, urceolate, viscose, green.

HISTORY. This species belongs to the genus *Chimaphila* of Pursh, which Bigelow has shown to be based on mistaken characters. The genus, however, must be divided into several subgenera; such as,

1. *Streptylia.* Raf. Calyx five parted, style crooked, declinate, stigma annulate. *P. rotundifolia, P. asarifolia, P. elliptica,* has calyx five toothed.

2. *Orthylia.* Raf. Calyx five parted, style straight, stigma peltate. *P. minor. P. secunda. P. uniflore.*

3. *Psiseva.* Raf. 1808. Calyx five leaved, style thick and short, stigma annular. *P. umbellata.*

4. *Chimaphila.* Calyx five toothed, style immersed, stigma urceolate. *P. maculata.*

All these species are common to both continents, except the *P. maculata*, which is spread in woods from Canada to Florida and Missouri. It blossoms in July, and has very fragrant blossoms, which, with the painted leaves, renders it the prettiest species of the genus. The *P. umbellata* has also sweet scented flowers; it is easily known by its green cuneate leaves. Both species have the same properties, and will be included here.

PROPERTIES. The whole plants, but chiefly the leaves, have a pungent bitter-sweet taste. Chemical components, bitter extractive, resin, tannin, gum, fibrine, &c.; the resin is brown, adhesive, and odoriferous. Water and alcohol dissolve the active properties; the last still better. They are diuretic, sudorific, stimulant, and tonic. Dr. Wolf, in Germany, has drawn the attention to the *P. umbellata*, as an equivalent to *Asbutus uva ursi*, in Ischuria and Dysuria, a table spoonful of a strong infusion, given hourly with some syrup, gave immediate relief. Many physicians in Europe and America have investigated and confirmed the valuable properties of these plants, and the *P. maculata* has been found almost equal to *P. umbellata*. They have been used in dropsy, nephritis, hepatitis, hydrothorax, ascites, anasarca, strangury, hysteria, rheumatism, and low fevers. They have availed more or less in all these disorders, and have the decided advantage of beinggrateful to the stomach, while almost all other diuretics disagree with it; they invigorate the appetite, and strengthen the body, increase the flow of urine and all secretions. Schoepf states that the *P. maculata* is used in intermittents in Pennsylvania, and that the *P. umbellata* is styptic, astringent, corroborant; useful in ischias. It was also used in typhus, and as a popular remedy for rheumatism in the United States. The decoction is generally used, and often in large doses; but the extract is equally good; doses about fifteen grains. They have even been deemed antilithic; but this property has not been confirmed, although they alleviate the symptoms of gravel. Also very useful in hematuria. Externally de-

cidedly useful in tumors, malignant ulcers, and chronic indurated swellings, acting as a topical stimulant, and sometimes they vesicate ; but utterly useless in cancer and scrofula, for which some empirics have employed them. Both a cataplasm and the decoction must be used for these external diseases. An obstinate cure of tinea capitis was cured by an ointment of an unguent made with the leaves. The Indian tribes of Canada and Missouri esteem highly these plants ; they are called *Paigne* and *herbe a pisser* in Canada. They are used chiefly for gravel and retention of urine, rheumatism and fevers. They die urine of a greenish black color. The external application commonly produces redness, vesication, and desquamation of the skin. A drench of the leaves is used in veterinary, for the disease of horses unable to stale.

The *P. rotundifolia*, *P. elliptica*, and *P. uniflora*, are called vulgarly *Wild Lettuce, Roundleaf, and Consumption Weed.* They possess some of the above properties, but in a much less degree. The Indians and empirics employ them as sudorific, astringent, anodyne, and nervine, in diseases of the breast, colds, wounds, ophthalmia, bad humours, weak nerves, and externally as blisters.

No. 80. RANUNCULUS ACRIS.

Names. Acrid Crowfoot. *Fr.* Renoncule açre. *Vulgar.* Buttercups, Yellow Weed, Blister Weed, Pilewort, Burwort, Meadowbloom, Yellows, &c.

Classif. Nat. Order of Ranunculaceous. Polyandria polygynia L.

Genus Ranunculus. Calyx five leaved. Five petals, with a scale or pit at the base. Many stamina. Many pistils and seeds, united in a head.

Sp. *Ranunculus acris.* L. Pubescent, stem multiflore, erect, branched ; leaves triparted, segments laciniate acute, upper ones linear ; peduncles not sulcated, calyx spreading, hairy.

DESCRIPTION. Root fibrose, fasciculate, perennial. Stem two feet high, with many branches and flowers, terete, pubescent, erect. Leaves alternate, petiolate, broadly triparted, pubescent, segments broad lanceolate, with many unequal gashes, all acute; the upper leaves almost sessile, with three linear entire segments. Flowers corymbose, large and yellow, peduncles unequal, not furrowed. Calyx with five spreading folioles, hairy, oval, obtuse. Petals rounded, entire. Seeds in a globose head.

HISTORY. An extensive genus; nearly all the species have similar active properties, except *R. auricomus*, *R. lanuginosus*, *R. flammula*, *R. aquatilis*, and a few others which are mild and not acrid. The *R. sceleratus*, *R. bulbosus*, *R. repens*, *R. fascicularis*, *R. pennsylvanicus*, &c. are chiefly used with us; the two first, as well as *R. acris*, are supposed to have been imported from Europe with grass seeds, but now grow abundantly in our meadows and pastures, which they adorn with yellow blossoms in the spring. Although very acrid when fresh, they become mild by drying, and do not spoil the hay, becoming harmless to cattle, who avoid them carefully when growing. Sheep and goats, however, eat the *R. acris*, and hogs like the roots of *R. bulbosus*. The mild kinds are liked by cattle, and cows fed on them give good milk. The *R. sceleratus* is very similar to *R. acris*, but with smooth leaves and grooved peduncles. The *R. bulbosus* is easily known by its bulbous root, and the *R. fascicularis* by a bundle of fleshy roots. They are common all over the United States.

PROPERTIES. The whole plant, but chiefly the roots, of all those species, are of a burning, acrid, and corrosive taste when fresh. They act on the skin as rubefacient and escharotics. These properties were known very anciently, and they were used for common blisters before Spanish flies became in general use. The acrid principle, like that of *Arum*, is volatile, and disappears by the application of heat or even desication, but may be preserved by distillation: the distilled water being very acrid, and holding in solution a peculiar substance, *Acroide*, which crystallizes, is inflammable, and hardly soluble in any menstruum. The acrimony of

these plants is so powerful that it inflames and corrodes the lips and tongue of men and cattle, acts as a violent steruntatory, and if swallowed, they bring on great pain, heat, inflammation of the stomach, and even death. Applied to the skin, they produce redness, erosion, and ulceration, but little pain : the beggars in Europe employ them to produce ugly sores and ulcers, which are neither painful nor dangerous, in order to excite compassion. When used for blisters, they operate in half an hour, and never cause strangury like cantharides. They however act very differently on different individuals, sometimes mildly and beneficially, sometimes violently, producing deep and bad ulcers, difficult to heal. To prevent the effect from spreading, the blister must be applied through a perforation in an adhesive plaster. Like the poison of the *Rhus*, it has hardly any effect on some individuals, while in others it spreads fast, inflames the parts, and even causes gangrene. They have, however, often been used as external stimulants, in rheumatism, hip disease, sciatica, piles, hemicrania, fixed pains, &c.; when applied to the scalp for hemicrania, it tumifies the hair without breaking the skin. A singular practice once existed in Europe, to cure intermittent fevers by applying them to the wrists or hands. They are useful to destroy warts, corns, and wens. In veterinary, they are employed to cure the fistulous ulcers, and biles on the back of horses. Although very dangerous internally, the distilled water has been used as an instantaneous emetic, equivalent to sulphate of zinc, mustard, and pepper. Also as a powerful but uncertain vermifuge. Henry mentions that the decoction thrown on the ground, makes the ground worms used in angling, come out of it.

Schoepf says, that *R. abortivus* is diaphoretic, and used in syphilis along with *Lobelia*. The *R. auricomus* and other mild species are eaten in Europe as sallad, and all the worst species, even *R. sceleratus*, as greens, losing all the acrid property by coction. Children are fond of gathering and playing with the blossoms ; but this practice may be attended with some danger.

No. 81. RUTA GRAVEOLENS.

Names. Common Rue. *Fr.* Rue vulgaire.
Classif. Nat. Order of Rutaceous. Decandria monogynia L.

Genus RUTA. Calyx four or five parted. Corolla four or five concave petals. Stamens eight or ten. Pistil surrounded by eight or ten melliferous nectaries. One style and stigma. Capsule four or five lobed, four or five celled.

Sp. *Ruta graveolens*, L. Sufruticose, leaves decompound, folioles oblong obtuse, the terminal obovate: flowers dichotomous, octandrous, the central one decandrous, petals entire.

DESCRIPTION. Root perennial. Stem shrubby at the base, three to four feet high, branched, terete. Leaves alternate, smooth, glaucous, decompound or bipinnated and tripinnated, folioles sessile, unequal, oblong, obtuse, and entire, the last foliole larger obovate. Flowers yellow, in a terminal cynose and dichotome panide. Petals large, rounded, entire, concave. Stamens equal. Only one central flower, the first unfolded has five petals and ten stamens; all the others have four petals and eight stamens.

HISTORY. This shrubby plant is a native of the south of Europe and north Africa; it is cultivated in our gardens, is become naturalized and even spontaneous with us. It blossoms in summer. The whole plant has a strong peculiar smell, almost fœtid when bruised, yet there are some persons, chiefly females, who like it.

PROPERTIES. A fœtid oil, strongly impregnated with the rutaceous smell, which congeals easily, and is almost corrosive, forms the active element of this plant; it is distilled from the whole plant when in blossom or seeds. The leaves and their extract are also used; their taste is acrid, bitterish, very penetrating and ungrateful: yet some persons can eat the leaves as a relish, while others are blistered by mere handling. They are anti-spasmodic, deobstruent, stimulant, heating, rubefacient, and blistering, useful in spasmodic affections,

hysteria, hypocondria, obstructions, obstructed secretions: also in rheumatism of the joints, feet, and loins, applied externally. Their effects in gout and hepatitis are more doubtful.

No. 82. SABBATIA ANGULARIS.

Names. Angular Centaury. *Fr.* Centaurée anguleuse. *Vulgar.* Rosepink, Wild Succory, Bitterbloom.

Classif. Nat. Order of Gentianides. Pentandria monogynia L.

Genus SABBATIA. Calyx persistent, four to twelve parted. Corolla rotate, four to twelve parted. Stamens four to twelve, anthers revolute. One pistil and style, two spiral stigmas. Capsule one celled, bivalve.

Sp. *Sabbatia angularis.* P. Stem erect corymbose, square and winged: leaves clasping, ovate, acute: segments of the calyx lanceolate, half as long as the corolla; stamens five.

DESCRIPTION. Root annual, fibrous, and yellow. Stem one or two feet high, with opposite branches, forming a corymb, smooth, square, with small wings on the angles. Leaves opposite, quite sessile, subcordate, and clasping, very smooth, nerved, ovate acute, very entire. Flowers terminal, handsome, inodorous, forming a large corymb. Calyx base pentagone, five lanceolate segments. Corolla with obovate spreading segments, twice as long as the calyx, of a fine rose colour. Stamens five, erect, filaments short filiform, anthers oblong, revolute after the anthesis. Pistil ovate, style terete, two linear styles, twisted together. Capsule with many seeds, inserted on the two valves.

HISTORY. This genus, dedicated to a Roman botanist, was united to *Chironia* by Linnæus; it hardly differs from it, and the species which have seven to twelve stamens, a seven to twelve parted corolla and calyx, such as *S. calycosa, S. chloroides, S. coriacea, S. flexuosa, S. gentianoides*, approximate to the genus *Chlora*, and ought to form a peculiar subgenus at least, which I call *Plurimaria.* This species is very common in the

meadows of the United States, and blossoms in summer. It has some varieties : 1. *Albiflora.* 2. *Latifolia.* 3. *Pauciflora.* 4. *Elatior.* It resembles exceedingly the *S. centaurium* of Europe, which differs only by the round stem, and the *S. corymbosa* of our swamps, which has a square stem without wings, and a subulate calyx. All the species of this genus are handsome ornamented plants ; my *S. maritima,* as well as *S. stellaris* of Pursh, have a beautiful central star of two colors in the flower. All the species are medical, and nearly equivalents, although the *S. angularis* is the most bitter and strongest; next to it are *S. corymbosa, S. gracilis,* and my two following new species :

1. *S. maritima.* Raf. 1802. Stem dichotome terete ; leaves lanceolate acute ; calyx campanulate, segments linear, subequal to the corolla, which is white, with lobes ovate oblong, and a central yellow and rose star. On the sea shore of New Jersey, New York, &c. This plant has been erroneously blended with the *S. stellaris,* which has a corymbose stem, leaves narrower, calyx turbinate, corolla three times as long, lobes rose obovate obtuse, the central star yellow and red. In the Southern States.

2. *S. nivea.* Raf. Stem slender, with four angles ; leaves distant, cuneate, oblong ; flowers trichotome, calyx turbinate, segments equal subulate, corolla double in length, snowy white, segments narrow, cuneate obtuse. Discovered in 1824, in east Kentucky, near the river Cumberland.

PROPERTIES. The whole plant is used ; it is decidedly better than the European *S. centaurium,* long used for fevers before the Peruvian Bark was known. Every part of the plant afford a pure strong bitter, soluble in water and alcohol. It has no astringency, and hardly any aroma. The property resides in the extractive principle. It is a popular remedy throughout the country as a stomachic febrifuge, and a cure for intermittent fevers. It is useful in all kinds of fevers, remittent, nervous, typhus, and even yellow fever, and may be given in every stage. It promotes appetite and digestion. It is said also to be a menagogue and vermifuge in a warm decoction. The most usual way to take

it is in cold infusion. A good stomachic and febrifuge tincture is made with it, calamus, and orange peel. In powder, the dose is from ten to twenty grains. Wine is a good vehicle for it, a wine glass being a dose. Quite equivalent of Gentian.

No. 83. SANGUINARIA CANADENSIS.

Names. Common Bloodroot. *Fr.* Sanguinaire du Canada. *Vulgar.* Red Puccoon, Bloodwort, Redroot, Pauson, Turmeric.

Classif. Nat. Order of Papaveracea. Polyandria monogynia L.

Genus SANGUINARIA. Calyx two leaves deciduous. Corolla with seven to fourteen petals. Many stamina. Pistil oblong, stigma sessile bilobed. Capsule one celled, bivalve, seeds arillate.

Sp. *Sanguinaria canadensis.* L. Radical leaves cordate, sinuate, multilobe, obtuse, scapes uniflore, petals oblong, obtuse.

DESCRIPTION. Root perennial, horizontal, fleshy and thick, knobby, with some fibres, brownish red outside, pale within, emitting a bright orange juice; end truncate or obtuse, many buds sending off leaves and scapes. Leaves erect, on long channelled petioles, cordate or subreniform, very smooth, sinuated into many rounded repand lobes, obtuse as well as the sinusses: color glaucous, almost white beneath, and reticulated by veins. Scapes erect, terete unfolded by the young leaves, one terminal flower. Calyx with two ovate, obtuse, and concave folioles, falling as soon as the corolla expands. Corolla spreading, commonly with eight white petals, oblong obtuse, four alternate internal ones, a little shorter. Stamens many and short, anthers oblong, yellow. Pistil oblong, compressed. No style, stigma thick sessile, nearly bilobe. Capsule oblong, both ends acute, two valves. Seeds many, round, red, base with a white vermicular arilla.

HISTORY. This genus named from its bloody root, has only one species known, with several varieties:

1. *Parviflora.* 2. *Cespitosa.* 3. *Reniformis.* 4. *Repens.* 5. *Multipetala,* with double petals. 6. *Stenopetala,* with a narrow linear acute petals. Is it a new species? It is a vernal plant, blossoming in April and May, found in woods from Canada to Louisiana, Florida, and Missouri. It is handsome, but inodorous. When the plant is in blossom, the leaves are small; they continue to grow larger afterwards.

PROPERTIES. The root is the officinal part: it is one of the most valuable medical articles of our country, and already begins to be introduced into general practice. It is an acrid narcotic, emetic, deobstruent, diaphoretic, expectorant, vermifuge, escharotic, and at the same time stimulant, tonic. The chemical analysis has detected in it chinconin, a resin, an acrid gum resin, gallic acid, fecula, extractive and a peculiar bitter alkali called *Sanguinarine,* by Dana, which is of an orange color, and forms colored salts with acids. Alcohol dissolves the color of the root better than water; paper and cloth dipt in these solutions are dyed of a salmon color. The Indians used the red juice to paint themselves, and dye or stain skins, baskets, &c. It has not yet been much used in dyeing, although it stains wool of a fine orange color; the mordants are alumine and muriosulphate of tin, for silk, cotton, &c. The taste of this root is acrid and bitter, burning the mouth and throat: in powdering the dried root, the nose and throat are effected. A large dose, from eight to twenty grains, is dangerous, causing heartburns, nausea, faintness, vertigo, dimness, and emesis. In small doses of two to four grains, it produces nausea without vomiting, and accelerates the circulation, while in minute doses of less than a grain, it acts like a tonic, and lessens the frequency of the pulse like *Digitalis.* The best way to use it is in tincture, diluted in wine or other vehicles. Ten drops of it acts as stimulant, diaphoretic, and deobstruent. When used as an emetic, it expels the worms from the stomach. It is, however, a violent and dangerous emetic; milder ones are to be preferred. Schoepf mentions that a decoction of the root was used in gonorrhœa, bites of serpents, jaundice, and in bilious diseases; these properties are doubtful. The juice being acrid and cor-

rosive, was used for warts. Thatcher says it is the base of *Rawson's bitters*, a remedy for jaundice. From thirty to eighty drops of the tincture in wine, twice a day, is a good prophylacted for intermittents, marshy fevers, and inward fevers. It is very bitter, increases the appetite and tone of the stomach. But it is beneficial in many other diseases of the liver and lungs, typhoid pneumonia, hooping cough, torpor of the liver, hydrothorax, croup, amenorrhea, asthma, peripneumonia trachealis, incipient consumption, ulcerous sorethroat, cynanche trachealis, dysentery, inflammatory rheumatism, and externally in ulcers, polypus of the nose, fleshy excresenses, and fungous tumors.

Few medical plants unite so many useful properties; but it requires to be administered with skilful hands, and may become dangerous in empirical hands. Dr. Tully has investigated them very carefully: he says that it unites all the beneficial effects of Squills, Seneka root, Digitalis, Guayacum, and Ammoniacum, without their bad effects. In moderate doses, it excites the sanguiferous and lymphatic systems. Snuffed in the nose it excites sneezing. Applied externally to ulcers or diseased skin, it promotes absorption and changes action. In severe and protracted cynanche, pneumonia, pertusis, phthisis, &c. when the inflammatory symptoms are partly subdued, it acts as a tonic, expectorant, diaphoretic, and sedative, lessening the pulse from 112 to 80. Tully considers it as inestimable in these diseases, because it invigorates and strengthens the powers of the system, instead of weakening them.

Externally, it is certainly a valuable escharotic; either in powder or as a wash, it has cured ill conditioned ulcers, with callous edges and ischorous discharges. It removes fungous tumors and excresences, nay, even soft polypus, by being used like snuff, and producing detumescence. A host of physicians have recommended this root, and none appears so well deserving of peculiar attention. Many rely entirely upon it to cure the croup, and give from ten to twelve grains of the powder so as to produce emesis. It has cured acute rheumatism, combined with gout: although it must become dangerous in active inflammation, because it is always somewhat

stimulant. In confirmed phthisis, it is only a palliative. It must not be given to pregnant women, since it is known to act on the uterus powerfully, and even cause abortion; whence its use in amenorrhea. It may be used in powder, electuary, pills, syrup, extract, decoction, wine tincture, and common tincture; but the doses must be regulated by the cases: it loses much of its strength by keeping, after powdering or preparing in any way; but the dry roots keep very well.

Although the roots alone are commonly used, the leaves have some of the same properties, and are powerful, nay, deleterious stimulants. The farriers use them in diseases of horses, to make them sweat, shed their coat, &c. The seeds are violent narcotics, similar to those of *Stramonium*, producing fever, delirium, diluted pupil, &c. They have been used as incitants, diaphoretics, and diuretics, but are dangerous and deleterious. They are seldom collected, although the roots are commonly collected in summer, when they are ripe.

No. 84. SCUTELLARIA LATERIFLORA.

Names. Officinal Scullcap. *Fr.* Toque lateriflore. *Vulgar.* Madweed, Hoodwort, Blue Pimpornel.

Classif. Nat. Order of Labiate. Didynamia gymnospermia L.

Genus SCUTELLARIA. Calyx bilabiate, persistent, upper lip with a lid covering the seeds like an operculum. Corolla bilabiate, upper lip concave entire, lower trilobe. Stamens cliclynamom. Four seeds in the closed calyx.

Sp. *Scutellaria lateriflora.* L. Branched and smooth; leaves petiolate and thin, ovate dentate, the lower ones subcordate: racemes axillary, leafy.

DESCRIPTION. Root perennial, fibrous, yellow. Stem erect, one to three feet high, much branched, diffuse, smooth, quadrangular: branches opposite divaricate. Leaves on long petioles, thin or nearly membranaceous, opposite distichal, subcordate on the stem, ovate on the branches, dentate, acute, somewhat rugose.

Flowers pale blue, on long lateral axillary racemes, bracteated by bracts ovate acute, entire, subsessile, each flower axillary to one bract and pedunculated, bracts distichal, flowers unilateral. Calyx scutellate. Seeds oval verrucose.

HISTORY. A remarkable natural genus, with many species, easily known by the calyx. This species is found all over the United States, in woods, meadows, near waters, &c.; it blossoms in summer. The juice of the plant is a little colored of red. It has hardly any smell, and the taste is vapid bitterish. The varieties are: 1. *Membranacea.* 2. *Pumila.* 3. *Ramosissima.* 4. *Rubescens*, &c.

PROPERTIES. Schoepf states the *S. lateriflora*, *S. galericulata*, *S. integrifolia*, and *S. hyssopifolia*, to have similar properties, being abstergent and tonic; useful in intermittent fevers. The *S. lateriflora* is laterly become famous as a cure and prophylactic against hydrophobia. This property was discovered by Dr. Vandesveer, towards 1772, who has used it with the utmost success, and is said to have till 1815, period of his death, prevented 400 persons and 1000 cattle from becoming hydrophobous, after being bitten by mad dogs. His son is stated to have thus relieved or cured 40 persons in three years, in New York and New Jersey. Many empirics, and some enlightened physicians have employed it also successfully. But several sceptical physicians have since denied altogether these facts, and pronounced the plant totally inert, because it has no strong action on the system, and has failed in their hands. Dr. W. Barton and Dr. Tully have strenuously asserted this, but without analyzing the plant, and denying, instead of proving. This plant has since been carefully analyzed by Cadet, in Paris, and found to contain many powerful chemical principles, which evince active properties.

The dried plant gave one fourth of soluble matter, and a very active extract. The substances found in it by Cadet were: 1. A yellow-green oil, fixed and soluble in ether. 2. A bitter principle, soluble in water, alcohol, and ether. 3. Chlorophylle. 4. A peculiar volatile matter, smelling and tasting like the principle of antiscorbutic plants. 5. An essential oil. 6. Albumine. 7. A sweet

mucous substance. 8. A peculiar astringent principle. 9. Lignine. When burnt, the ashes afford the chlorure of soda, and seven other salts. It is, therefore, preposterous to deem such a plant inert. The facts already known prove that it is tonic, astringent, anti-spasmodic, and anti-hydrophobic at least. It has been used chiefly of late, in all nervous diseases, convulsions, tetanus, St. Vitus' dance, tremors, &c. and has availed in many instances. In hydrophobia, it appears to be a good prophylactic, if not a certain cure: a physician, (Dr. White, of Fishkill) bitten by a mad dog, has assured me that himself alone avoided the disease by using it, while others bitten by the same dog died. Many instances of the same kind are on record: nay, many who believe in this property, say that it never fails. We lack, however, a series of scientific and conclusive experiments, made by well informed men; they have been discouraged by the ridiculous denial of sceptics; but let us hope may yet be performed. The plant was used fresh or dry, in infusion or tea, a gill four times a day, and the plant applied to the wound. A purgative of flour of sulpher is often given at the same time. This plant is now almost neglected like the *Anagallis phenicea* and *Alisma plantago*, which enjoyed once a reputation for hydrophobia; but we have so few presumed remedies for this dreadful disease, and it is so desirable to confirm the properties of those supposed available, that it is needful to encourage rather than discourage every attempt to throw light on the subject.

No. 85. SIGILLARIA MULTIFLORA.

Names. Multiflore Sealwort. *Fr.* Sigillaire multiflore. *Vulgar.* Solomon Seal, Sealroot, Dropberry.

Classif. Nat. Order of Asparagoides. Hexandria monogynia L.

Genus SIGILLARIA. Perigone tubular, six cleft. Stamens six, inserted in the upper part of the tube. One pistil, one style, one stigma. Berry three celled, cells two seeded. *Flowers axillary to stem leaves.*

Sp. *Sigillaria multiflora.* Raf. Stem terete, leaves clasping oblong oval, acute, smooth, peduncles nodding multiflore.

DESCRIPTION. Root perennial, horizontal, thick, wrinkled, premorse. Stem simple, erect, two or three feet high, smooth and round. Leaves alternate, longer than the internodos, oblong acute, broad or suboval, base clasping, entire, multinerve, very smooth. Flowers white, pretty large, nearly one inch long, several on axillary reflexed peduncles, three to five sessile. Berry round, red, dotted.

HISTORY. Linnæus and the Linnæn botanists have united half a dozen genera under the name of *Convallaria*, which thus has no characters of its own ; they are

1. *Convallaria.* L. Perigone corolliform campanulate, six cleft. Six stamens. Berry three celled. *Scapes racemose.* Lillies of the valley. *C. majalis* and *C. japonica.*

2. *Globeria.* Raf. Perigone corolliform globular, six toothed. Six stamens. *Scape spicated. C. spicata* of Thunberg.

3. *Sigillaria.* Raf. 1817. See above: the *Polygonatum* of Tournefort, bad name, same as *Polygonum.* All the species vulgarly called Solomon Seal. A genus of antidiluvian plant has been called *Sigillaria* by Brongniart, which ought to be called *Sigillites.* If any name must be changed, I offer another substitute as good, *Axillaria.*

4. *Mayanthemum.* Pers. (*Similacina,* Desf. a bad name, formed from *Smilax.*) Perigone corolliform, six parted, spreading, six stamina, divergent, inserted at the base of the segments. Berry three celled. *A stem, flower sterminal racemose. M. stellatum, M. racemosum, M. trifolium,* &c.

5. *Styrandra.* Raf. 1817. Perigone corolliform, four parted, spreading, four stamens divergent. Berry two celled. Habit as the last. *St. bifolia.*

6. *Clintonia.* Raf. 1817. Perigone corolliform, six parted, campanulate, six stamens, inserted at the base. Style compressed, stigma bilobe, compressed. Berry two celled, cells polysperm. *Scape with umbellate floiwers.* Several species called *Dracena borealis* and

Convallaria umbellata by authors, distinguished by myself, 1. *Cl. nutans.* 2. *Cl. odorata.* 3. *Cl. podanisia,* 4. *Cl. parviflora.* 5. *Cl. multiflora.*

It is absurd to consider all these genera as one genus, without any collective characters; they are not even subgenera, since their habit and flowers are widely different.

The *S. multiflora* is found all over the United States, on hills; it blossoms in June and July. The other American species of *Sigillaria,* such as *S. biflora, S. latifolia, S. pubescens,* &c. are all called Solomon Seal, and having similar properties, will be included here.

PROPERTIES. The roots of those plants are chiefly used. They are demulcent, restringent, corroborant, depurative, vulnerary, cosmetic, cephalic, nervine, &c. Their smell is vapid, the taste rather mucilaginous and sweetish: they contain gum, sugar, mucilage, and fecula. Their properties are so mild that they can be eaten, particularly when dry or cooked. In Sweden, a flour and good bread is made with them. Our Indians collected them as an article of food. The Indians of Oregon or Columbia river eat the berries, calling them *Solma,* which name is surprisingly similar to ours. The young shoots may be eaten like Asparagus and Poke, according to Cutler. Schoepf says that the bruised root is employed in ophthalmy or sore eyes. They are also useful in poultice, for piles, wounds, and inflammations of the skin. A vinous infusion of them with Comfrey roots is useful as a restringent in fluor albus, leucorrhea, and immoderate flow of the menses. The powdered roots purify the blood; their extract has been used by Dr. Arnold for coughs and pains in the breast. They appear to be equivalent to *Ulmus fulva,* and may perhaps be used in bowel complaints. Schoepf says that one species (more probably *Uvularia grandiflora*) is employed in Pennsylvania against the bites of rattle snakes. The berries are cephalic and cardiacal, like those of *Mayanthemum racemosum,* mentioned by Clayton.

No. 86. SOLANUM DULCAMARA.

Names. Bitter-sweet Nightshade. *Fr.* Solane douceamere. *Vulgar.* Bitter-sweet Vine, Nightshade Vine, Violet bloom, Scarlet Berry.

Classif. Nat. Order of Lurides. Pentandria monogynia L.

Genus SOLANUM. Calyx five cleft, persistent. Corolla rotate, five cleft. Stamens five, anthers coherent, with two pores above. One pistil, style and stigma. Berry two celled, many seeded.

Sp. *Solanum dulcamara.* L. Stem shrubby, twining, inerme, flexuose: leaves ovate, subcordate, commonly with two auricles at the base: panicles cymose.

DESCRIPTION. Woody vine, creeping or climbing to the extent of five or six feet, base woody, end or last shoots herbaceous, flexuose, without thorns, smooth, terete. Leaves alternate, petiolate, ovate acute, entire, base subcordate, and often with one or two small lobes like auricles at the base, with obtuse sinusses. Flowers on peduncles opposed to the leaves, bearing a loose cluster or cymose panicle of many flowers, of a pretty violet color, with yellow anthers. Calyx small, acute. Corolla nearly five parted, segments acute, ovate, lanceolate, each with two whitish dots or glands at the base, often reflexed. Filaments very short, anthers erect, forming a yellow conical tube. Pistil oval, style filiform, exert, stigma obtuse, simple. Berries oval, of a bright scarlet.

HISTORY. The genus *Solanum* includes a multitude of species of opposite characters and properties, very wrongly blended by Linnæus, who abolished the genera *Lycopersicon*, *Melongena*, &c. of Tournefort. They must be re-established, and the whole genus revised; the following genera must be separated at least:

1. *Lycopersicon.* Calyx and corolla, 6 to 12 parted, and stamens from six to twelve. Berry multilocular. The tomato belongs here and *S. fugax*, &c.

2. *Melongena.* Calyx unequal, three to six cleft. Corolla campanulate, four to six cleft. Stamens four to six, equal. Berry spongy. *S. melongeno*, *S. steliatum*, &c.

3. *Otilix.* Raf. Calyx appendiculated. Stamens five, not connivent. Seeds osseous. *S. licioides*, &c.

4. *Androcera.* N. Calyx swelled, caducous. Corolla subringent. Stamens unequal, anthers free, hornlike. Style declinated. Berry dry. *A. lobata* or *S. heteranthum* of Pursh.

The *S. dulcamara* is a true *Solanum.* It is a native of Europe, Asia, and North America, where it grows in the Eastern and Northern States, from New England to Ohio, &c. in shady fertile grounds, blossoming from June to August. The berries stand on the vine till very late. There are many varieties of this plant, such as, 1. *Heterophylla*, common kind. 2. *Isophylla*, leaves consimilar not auriculated. 3. *Maritima*, with pubescent leaves. 4. *Repens*, stem procumbent and creeping. 5. *Pandurata*, leaves lyrate, pandurate. These two last most frequent in the wild state in America. It is a handsome vine, often cultivated in gardens.

PROPERTIES. The whole plant is used as a depurative, deobstruent, antiherpetic, narcotic, diuretic, anodyne, repellent, &c. The taste is sweetish and bitter, whence the name; the smell is somewhat nauseous, but much less so than in *S. nigrum* and other species. Its active principles are the solanic acid, a peculiar substance, called *Solania*, a mucous extractive, &c.: they are more soluble in water than in alcohol. A very beneficial article in many diseases, now neglected by the chemical school, but adequate to produce nearly all the good effects of sulphur, antimony, and mercury, in chronic rheumatism, gout, secondary syphilis, incipient phthisis, asthma, jaundice, herpes, lepra, and all cutaneous affections. It has also been used in pleurisy, peripneumonia, dyslochia, amenorrhea, and scrofula. While externally, it is very useful in contusion, the itch, herpetic sores, sore nipples, schirrous swellings, nay, even the cancer, and the worst kinds of ulcers. The common way to use it is in decoction; but the American varieties are very powerful; Bigelow states that a few grains of the fresh leaves, or a small cup of the decoction have been known to vomit. A great difference in strength is observed in the various parcels kept in the shops; the plants growing in a dry soil and warm climates are

strongest; by drying, much of their strength is lost. A slight nausea, vertigo, and palpitation, are evidences of its operation. A palatable syrup may be made with it and some aromatic substances. In general, it increases all the secretions and excretions, excite the heart and arteries, and in large doses, produces emesis, spasms, delirium, giddiness, palpitations, convulsions, and insensibitity.

The first doses ought to be always moderate and gradually increased, beginning with one ounce of the decoction, or five grains of the extract, three times daily. Dr. Haller and others have cured the cancer, by topical application of the juice and green leaves. It is perhaps the best cure for the loathsome lepra, by using it internally, and externally as a wash, also for all kinds of herpetic eruptions, ulcerous sores, &c. in the same way. It is deemed a valuable auxillary to mercury in syphilitic eruptions. Thus it avails in all cutaneous diseases of the skin; twenty-one cases of lepra were cured out of twenty-three, by Dr. Chricton. It increases the power of sarsaparilla in all cases, and is an ingredient in all depurative medicines and panaceas. It is a palliative in pituitous and tubercular phthisis. It always acts as a diuretic and aperient. It has been found useful in chronic venereal pains, osteocopic pains, inflammatory fevers, violent asthma, chronic rheumatism, and stiffness in the muscles and joints.

The *Solanum virginianum*, which some deem a variety of *S. nigrum*, and grows all over the United States in fields, road sides, &c. is easily known by its herbaceous winged erect stem, small white flowers, berries black, and ovate repand leaves. It possesses nearly all the properties of *S. dulcamara*, nay, is more narcotic and virulent, also hypnotic, sedative, &c. One to three grains of the leaves infused in water, produce a copious perspiration, profuse diuresis, and often purge next day; a larger dose affects the nervous system. Therefore, this plant is very active, and if substituted, must be given carefully and gradually. The berries are poisonous, causing coma, torpor, burning in the stomach, fever, nausea, stupor, insensibility. The extract is less violent, but highly sedative. The leaves poison hogs and

fowls. They have been used internally for inflammation of the stomach and bowels, ardor of urine, dropsical complaints, internal and syphilitic pains, obstinate herpetic and scorbutic eruptions, ulcers of a cancerous nature, &c. The dose, one or two grains. Externally, they are still more useful in poultice, for headache, phlegmon, schirrous, erysipelas, painful inflamed sores, even scrofulous and cancerous, foul chronic ulcers, and every other disease of the skin.

No. 87. SPIGELIA MARILANDICA.

Names. Common Pinkroot. *Fr.* Spigelie officinale. *Vulgar.* Carolina Pink, Starbloom, Indian Pink, Worm Root, Unstitla.

Classif. Nat. Order of Gentianea. Pentandria monogynia L.

Genus Spigelia. Calyx five parted persistent. Corolla funnel shape, five cleft. Stamens five, inserted near the opening. One style, exert, stigma fusiform. Capsule bilobed bilocular, many seeded.

Sp. *Spigelia marilandica.* L. Perennial, stem simple, quadrangular, leaves opposite sessile, ovate lanceolate; terminal raceme of unilateral fusiform flowers.

DESCRIPTION. Root perennial, yellow, with many branched fibres in a bunch. Several stems, with four sides, erect, simple, smooth. Leaves all opposite and sessile, oval elongate, very sharp or acuminate, entire and smooth. A raceme, seldom two, with few flowers, five to twelve, one sided, on short pedunales, without calyx, with five subulate serrulate segments. Corolla very handsome, one inch long, of a bright scarlet outside, but yellow above or inside, tube fusiform or swelled, and angular above, border with five acute spreading segments, like a golden star. Stamens five, short, inserted near the mouth, but decurrent, anthers cordate, oblong. Pistil ovate, small, style long filiform, jointed below, with a fusiform pubescent acute stigma. Capsule on the reflexed calyx, with two globular lobes and cells, and many seeds.

HISTORY. A beautiful plant, very ornamental by its bright blossoms, although scentless. Found in the Southern and Western States, from Maryland to Kentucky and Florida; very abundant in some peculiar places, such as the glades of Carolina and west Kentucky, where it is collected as an article of trade. It blossoms in June and July. It has the following varieties: 1. *Distachya.* 2. *Pubera*, stem, nerves, and margin of leaves pubescent. 3. *Pallida*, with pale red flowers. 4. *Albiflora*, very rare. 5. *Angustifolia*, leaves nearly lanceolate. 6. *Pariflora.* The genus is dedicated to Spigeli, an Italian botanist. The Cherokees call it Unstitla, the Osages Mekaa or Starflower. It has been extirpated in many places by collectors, and is now very rare in Maryland and Virginia.

PROPERTIES. The root is the officinal part, and is an article of trade. It is narcotic, vermifuge, sedative, cathartic, and febrifuge; but the stem and leaves have the same properties. When fresh, they are always narcotic, like *Digitalis* and *Datura;* but when dry they lose their strength, the roots even quicker than the leaves, and when the article has long been exposed to the air, it becomes nearly inert, whence the various opinions on its effects. As a narcotic, it is preferable to *Digitalis*, and milder, never causing sudden prostration, yet it lessens and soothes the morbid irritability of the heart, arteries, and nerves. In large doses, it causes vertigo, dilatation of the pupil, headache, stupor, flushed face, intoxication, and delirium. The chemical analysis gives as constituent, mucus, extractive, gallic acid, and a peculiar volatile substance called *Spigeline.* Water is the best menstruum. The smell is not nauseous, the taste is mucilaginous and sweetish, and thus it is not disliked by children like many vermifuges. The Cherokees made known the properties of this plant, and they have been confirmed by many physicians. It has chiefly attracted notice as a vermifuge and for diseases of children, convulsions, worm fever, &c. It is generally united to a cathartic, to insure or aid its effects, as its own purgative effect is very mild, and by no means certain; senna and rhubarb are the best adjuncts; the warm infusion is most efficient; dose about a gill, but frequently repeat-

ed ; dose of the powder 10 to 20 grains, in honey ; a good worm syrup is made also with it, united to mild purgatives. Much used in Louisiana, where it is called *Serpentine.* The Osages use it as a sudorific and sedative in acute diseases. Ives recommends it in the fever of children, called worm fever, (although not always attended with worms) seated in the bowels, and known by flushed cheeks and lips ; he also deems it useful in dysentery. A vinous infusion has been found useful in intermittents, the protracted remittent fever of infants, convulsions of children, &c. It appears peculiarly suitable for their diseases. The *S. anthelmica* of the West Indies, is also vermifuge, as the name implies.

No. 88. SPIREA TOMENTOSA.

Names. Red Meadow-sweet. *Fr.* Ulmaire discolore. *Vulgar.* Hardhack, Steeple Bush, Rosy Bush, Whiteleaf.

Classif. Nat. Order of Spiracea. Icosandria pentagynia L.

Genus SPIREA. Calyx 5 cleft. Five petals, equal rounded. Many stamens on the calyx, exserted. Pistils 3 to 12. Capsules 3 to 12, one celled, bivalve, each 1 or two seeded.

Sp. *Spirea tomentosa.* L. Stem simple, shrubby, erect; leaves ovate lanceolate, unequally serrate, tomentose beneath : spikes terminal compound, flowers crowded, pentagynous.

DESCRIPTION. Small shrub, with many stems, 2 or 4 feet high, simple, upright, purplish, downy, terete. Leaves alternate, crowded, on very short petioles, oblong or oval lanceolate, subacute at both ends, with unequal acute serratures, dark green or brownish above, and rugose, white and tomentose beneath. Flowers terminal, in a kind of terminal panide, of a handsome red color, formed by compound spikes of small subsessile flowers. Calyx campanulate, with 5 acute segments. Five round petals. Five pistils and capsules.

HISTORY. A fine genus, containing several pretty shrubs; this is one of the prettiest, and is very ornamental, by its leaves of two colors, and large panicles of red blossoms. It blossoms in July and August, and is common from New England to Carolina and Kentucky, in moist grounds, meadows, &c. The varieties are, 1. *Pumila.* 2. *Paniculata.* 3. *Albiflora.* 4. *Ferruginea.* 5. *Virgata.*

PROPERTIES. The whole plant is inodorous, but the taste is pleasantly bitter and powerfully astringent. It contains tannin, gallic acid, bitter extractive, &c. all soluble in water. Formerly used by the Mohegan tribe of Indians and the herbalists; brought to notice only towards 1810, by Dr. Cogswell, of Hartford. Schoepf and Cutler have omitted it. Drs. Mead, Ives, and Tully have since recommended it as a very good astringent and tonic. The whole plant may be used, but the root is the least valuable part. The extract of it, prepared by the Shakers and others, is the best form; dose 4 to 6 grains, every two or three hours, in dysentery and chronic diarrhœa, cholera infantum, debility of the bowels and the system, hemorrhage of the bowels, and other diseases where astringents are required. It appears to be equal if not superior to Kino and Catechu, because it never disagrees with the stomach, all its virtues are soluble in water, is a bitter tonic, and can be had pure and genuine. It is peculiarly useful in the secondary stages of bowel complaints, when the inflammation has been partly subdued, either alone or combined with ipecac, opium, &c. It has been used abroad by seamen, with great benefit, in the cholera morbus and chronic diarrhœa of the tropical climates, even in the first stage. United to milk and sugar, it forms a very pleasant drink for the protracted stage of cholera. It is said to be equivalent to *Geranium maculatum* and *Cornus circinata* in most cases, but the first is less tonic, and the last a better tonic. The *Honskokaogacha* of the Osage Indians is probably this shrub; they use the dry root and stems as powerful styptic and astringents, to stop blood and hemoptisis, by chewing them, or drinking the cold infusion; the women use it in tea and as a wash for female complaints, as a restringent, &c.

The *Spirea opulifolia*, a larger shrub, growing on the banks of streams, with trifid leaves and white corymbose trigynous blossoms, and commonly called *Ninebark*, has nearly the same properties, and is an equivalent. I have used the extract with equal success. It is chiefly used by the herbalists in external applications for fomentations, poultices, burns, mortification, swellings. If it is the *Sindesneni* of the Osages (or is it *Prinos?* or *Hydrangea?*) it is also cathartic, febrifuge, sudorific, and anthelmintic; the roots, bark, and twigs are used in asthma, colds, fevers, bowel complaints, &c. chiefly in warm infusions. But many shrubs bear the name of Nineback in the United States.

No. 89. STATICE CAROLINIANA.

Names. American Thrift. *Fr.* Statice d'Amerique. *Vulgar.* Marsh Rosemary, Marsh Root, Seaside Thrift, Inkroot, Sea Lavender.

Classif. Nat Order of Staticea. Pentandria monogynia L.

Genus STATICE. Calyx monophyllous, scarious, and plaited. Petals 5. Stamens 5, inserted on their claws. One pistil, 5 styles. One seed, invested by the calyx.

Sp. *Statice caroliniana.* Walter. Radical leaves petiolate cuneate obtuse, acutely mucronate, smooth and flat: stem round panicled, flowers geminate, in unilateral spikes.

DESCRIPTION. Root perennial, large, fleshy, fusiform or branched, premose or obtuse, purplish brown. Radical leaves, erect on long petioles, cuneiform, very smooth, with only one nerve, end broader obtuse, but with an acute point, quite entire and flat on the margin. Scapes round, smooth, one or two feet high, loosely panicled above, branches alternate, ramules unilateral, pointing upwards, flowers the same at the ends of the ramules, small, subsessile, each axillary to an ovate mucronate scaly bract, commonly geminate, upon a short scaly and forked peduncle. Calyx funnel shaped, 5 angled, 5 teethed, angles ciliate. Petals blue, spatulate

obtuse. Pistil small obovate, 5 styles shorter than the stamens. Seed oblong.

HISTORY. This plant is deemed by many a variety of *St. linunium* of Europe, which, however, differs by the leaves oblong undulate and larger flowers, while the *St. gmeiini* or Asiatic, akin species, has obovate leaves and angular scapes. It was first distinguished by Walter, and grows on our sea shores, near salt marshes, from New England to Florida. It blossoms in summer. The varieties are : 1. *Albiflora.* 3. *Cespitosa.* 3. *Pumila.* 4. *Ramosissima.* 3. *Longifolia.* It is strange that the name of Rosemary, belonging to a very different shrub, the *Rosmarinus officinalis*, should be given to this plant in America: the true English name is Thrift. Neither the root nor plant has any smell.

PROPERTIES. The root is the officinal part; it is one of the most powerful vegetable astringent and styptic, even stronger than *St. limonium*, *Geranium maculatum*, and Kino, and equal to Galls, since an equal quantity of both makes ink equally black. It contains tannin, gallic acid, extractive, muriate of soda, &c. Water and alcohol are both solvents of it, but the last is even stronger, and the cold infusion more powerful than the hot. The roots are kept in shops: they are chiefly used in aphtha, ulcers of the mouth and throat, debility, hemorrhage, cynanche maligna, relaxed bowels, cholera infantum, chronic dysentery, &c. in which they are eminently beneficial, being also antiseptic. It often avails when other astringents and tonics have failed. It is a kind of specific, as a gargle, in ulcerous sorethroat or scarlatina anginosa. In dysentery, it must be given after purgatives. It has been employed also in a wash or injections, in gonorrhea, gleets, and immoderate flow of menses. For internal use, the decoction or infusion sweetened (or a syrup) may be employed in small repeated doses. The taste is very styptic and somewhat bitter ; it may be made more palatable by some aromatics. These useful properties are well attested and admitted by all physicians. Zollickoffer alone states that it is also sudorific and emetic, but probably by mistake.

No. 90. SYMPHYTUM OFFICINALE.

Names. Common Comfrey. *Fr.* Consoude usuelle.
Classif. Nat. Order of Borragines or Asperifolia. Pentandria monogynia L.

Genus SYMPHYTUM. Calyx five parted, persistent. Corolla funnel shaped, limbus tubulate ventricose, orifice closed by 5 subulate appendages. Five stamina in the tube. Pistil 4 lobed, one style and stigma. Four seeds.

Sp. *Symphytum officinale.* L. Stem erect and winged: leaves oval lanceolate, all sessile, decurrent, acute, rugose: racemes nodding, glomerated, and secund.

DESCRIPTION. Root perennial, whitish, thick, cylindrical, tapering or branched. Stem 3 or 4 feet high, upright, branched, angular and winged, rough; branches erect. Leaves alternate, sessile decurrent, oblong, attenuated, and rugose. Flowers in terminal racemes, glonerated, nodding, recurved. Corolla yellowish white, base tubular, end ventricose, 5 toothed.

HISTORY. This plant is a native of Europe, but has been naturalized from New England to Ohio and Virginia, growing spontaneously in thickets, meadows, &c. It blossoms in June and July. The varieties are, 1. *Purpureum*, with purple flowers and spreading calyx. 2. *Nigrum*, root black. 3. *Elatior.* 4. *Pumilum.* 5. *Albiflorum.*

We have a native American species of this genus, found west of the Mississippi, in the prairies and glades, and cultivated at Bartram's garden. I call it and distinguish as follows:

Symphytum hirsutum. Whole plant hirsute. Stem erect, somewhat winged, lower leaves petiolate, oblong lanceolate, upper leaves sessile decurrent, oval acuminate; racemes germinate, erect, convolute at the end. Size 4 feet, lower leaves a foot long, flowers white.

PROPERTIES. The whole plant, but chiefly the roots are in use; the *S. hirsutum* is probably equivalent. They have no smell; the taste is mucilaginous, glutinous, a little sweetish, and austere, but grateful. The principles are mucilage, fecula, gallic acid, &c. They are inspissant, demulcent, vulnerary, astringent, and beneficial in dysentery, nephritis, hacmatuna, hemoptysis,

strangury, and many other diseases internally, while externally they are useful bruised and applied to ruptures and sprains. The mucilage of these roots is equal to that of *Althea* or Marshmallows, but much more useful, being united to astringency. The Comfrey may be used with great advantage in hemorrhage of the bowels, stomach, and lungs, erosions of the intestines, salt rheum, gonorrhea, and fluor albus, ardor of urine, &c. It is much valued in Europe and China, also by our herbalists, but wrongly omitted by all our medical writers, except Schoepf and Cutler. In China it is called *Tihoang*, and considered equal to Ginseng in many cases, particularly in preserving health ; pills, lozenges, and bolus are made of it, and taken daily in the morning, by people of weak and debilitated habits. In Europe, a conserve and syrup is used. The infusion, decoction, &c. are equally good; the doses need not be very nice, as the effects are mild. Our herbalists unite it to Burdock and Yarrow, to cure the clap, using at the same time injections of *Statice* or Tormentil. Boiled in milk, it becomes the best preparation for diseases of the bowels and urinary organs. It may be safely employed in all diseases of debility, relaxation, and overflowing. It is said to act as a palliative at least in nephitic pains and gravel, to prevent the recurrence of bleeding from the lungs and stomach, and to strengthen while it lubricates all the solids.

No. 91. TRILLIUM LATIFOLIUM.

Names. Broadleaf Bethroot. *Fr.* Triole dilatee. *Vulgar.* Bethroot, Rattlesnake Root, Wakerobin, Coughroot, Indian Balm, Ground Lily, Jews Harp, Indian Shamrock, Pariswort, Truelove.

Classif. Nat. Ord. of Asparagoides. Hexandria trigyma L.

Genus TRILLIUM. Perigone double marcescent, each 3 parted, exterior caliciform, interior corolliform. Six stamina inserted at the base of the segments, nearly equal, anthers linear. Pistil oval, 3 linear stigmas, (seldom a style.) Berry 3 celled polysperm. Constant habit

of the whole genus. *Root perennial. Stem terete, smooth, erect, with 3 verticillate leaves and one terminal flower.*

Sp. *Trillium latifolium.* See sp. 25.

HISTORY. This beautiful natural genus is peculiar to North America; the nearest genera are the European *Paris*, differing merely by perigone 8 parted, 8 stamens, 4 stigmas, and 4 leaves. 2. The American *Medeola*, which has a simple caducous 6 parted perigone, whorl of several leaves, flowers umbellate. Linnæus had only 3 species of *Trillium*. *Tr. sessile*, *Tr. erectum*, and *Tr. cernuum*. Michaux, Pursh, Nuttal, Elliot, Beck, &c. have increased them to about 15; but having paid particular attention to this interesting genus, I have ascertained as many as 33 species, with a multitude of varieties; all bear the above vulgar names, and are ornamental, but scentless. Many are scarce species, chiefly found in the Alleghany, Cumberland, Cherokee or Apalachian mountains, the western glades, &c. They are all vernal, blooming in the spring. I propose to give here the Prodromus of their monography. I divide the genus into 3 subgenera.

1. *Sessilium.* Petals erect, anthers adnate, filaments flat, stigmas sessile. *Flowers sessile, erect.* (the Tr. sessile of L.

2. *Anthopium.* Petals spreading, anthers terminal, filaments not flat, stigmas sessile. *Flowers pedunculate, erect or drooping.*

3. *Delostylium.* A style, 3 stigmas. *Flower pedunculate.*

1. *S. G. Sessilium.*

1. Sp. *Trilium longiflorum.* Raf. Leaves sessile, spreading, ovate acute, 5 nerved: petals lanceolate, twice as long as the calyx, sessile, acute and purple. The *Tr. sessile* of modern authors, which name is wrong and illusive. Found from Lake Ontario to Carolina. Root thick premose, and berry purple, as in most all the species; many varieties: 1. *Maculatum.* 2. *Atropurpureum.* 3. *Parvifolium.* 4. *Pumilum.* 5. *Rubricaule.* 6. *Undulatum.* 7. *Latifolium.*

2. *Tr. rotundifolium.* Raf. Leaves spreading, sessile, rounded ovate, obtusely acuminate, 5 nerved: calyx

erect lanceolate, petals rather longer lanceolate, obtuse, undulate, dark purple, sessile; stamens short. From Lake Erie to Tennessee. Var. 1. *Flexicaule*. 2. *Rubricaule*. 3. *Maculatum*. 4. *Orbiculatum*. 5. *Pallidum*. 6. *Undulatum*.

3. *Tr. isanthum*, Raf. Leaves drooping sessile, oval elliptic, with an obtuse point, 5 nerved. Calyx and petals equal, erect, oblong acute; stamens nearly as long. In Ohio, Kentucky, Arkansas. Petals pale purple. Var. 1. *Albiflorum*. 2. *Pariflorum*.

4. *Tr. tinctorium*. Raf. Root concatenate, red inside: leaves drooping sessile, oval lanceolate, acute trinerve: calyx and petals equal erect, oval lanceolate acute. In the islands of the Missouri river. Is it a variety of *Tr. isanthum*?

5. *Tr. viride*. Beck. Leaves ovate acute, maculate; Calyx ovate lanceolate erect obtuse, petals green, rather longer, spatulate and thick: stamens short. In Missouri.

6. *Tr. recurvatum*. Beck. Leaves subpetiolate, ovate lanceolate acute trinerve. Calyx recurved lanceolate acute, petals equal to it, ovate lanceolate, purple: stamens short. From Kentucky to Missouri. Variety 1. *Sessilifolium*. 2. *Obovatum*. 3. *Maculatum*. 4. *Undulatum*.

7. *Tr. angustifolium*. Raf. Stem slender, leaves lanceolate acuminate, trinerve, undulate, often erect: calyx erect linear lanceolate acute, petals equal, white, lanceolate obtuse; stamens short. In Kentucky, &c. Variety 1. *Gracile*. 2. *Stenopetalum*. 3. *Maculatum*. 4. *Roseum*.

8. *Tr. membranaceum*. Raf. Stem slender, leaves sessile, thin, and membranaceous, ovate elliptic, obtuse trinerve: calyx erect, ovate lanceolate, obtuse, petals pale, subequal, cuneate acuminate. Glades of Kentucky, Illinois, and Missouri. Flower small, petals of a dirty pale purple. Var. 1. *Ellipticum*. 2. *Obovatum*. 3. *Parvifolium*.

9. *Tr. unguiculatum*. Raf. Leaves petiolate, oval, both ends acute, trinerve: calyx reflexed, lanceolate obtuse: petals subequal to it, unguiculate, oval, oblong, obtuse, and purple. In the glades of Indiana, west

Kentucky, &c. Var. 1. *Crassicaule.* 2. *Undulatum.* 3. *Maculatum.*

10. *Tr. petiolatum.* Pursh. Leaves long petiolate, oval lanceolate acute trinerve: calyx erect, petals lanceolate linear acute, longer than the calyx. In the mountains Taconick, Alleghany, &c.

2. *S. G. Anthopium.*

11. *Tr. acuminatum.* Raf. 1807. Leaves sessile, ovate acuminate, undulate, trinerve; peduncle erect, equal to the leaves, calyx and petals subequal lanceolate acuminate. In the mountains Alleghany. Petals red, not reflexed.

12. *Tr. pictum.* Pursh. (*Tr. erythrocarpum.* Michaux.) Leaves oval acuminate, base rounded, subpetiolate, five nerved, peduncle nearly erect, shorter than the leaves, calyx lanceolate acute, petals recurved, oval lanceolate acute, twice as long as the calyx. From Canada to Carolina, petals white, with purple veins, berries bright red, Var. 1. *Undulatum.* 2. *Roseum.*

13. *Tr. amblopsis.* Raf. Leaves petiolate, ovate, with a long obtuse acumen, trinerve: peduncle erect, shorter than the leaves: calyx and petals subequal, narrow lanceolate, obtuse. In the mountains Alleghany, &c. Petals white. Var. 1. *Longifolium.* 2. *Incarnatum.* 3. *Undulatum.* 4. *Stenopetalum.* 5. *Angustifolium.* 6. *Pumilum.* 7. *Cuneatum.* Petals cuneiform.

14. *Tr. Pusillum.* Michaux. Leaves sessile, oval oblong, obtuse, trinerve: peduncle erect and short, calyx oval lanceolate obtuse, petals subequal, undulate, cuneate obtuse. From Pennsylvania to Arkansas, in glades, stem flexuose, purple, 3 or 4 inches high, leaves small, petals of a pale flesh colour.

15. *Tr. nutans.* Raf. (*Tr. erectum* of many botanists.) Leaves subsessile, subrhomboidal, very wide, base acute, end acuminate, trinerve: peduncle nearly as long, inclined, flower nodding, calyx and petals subequal, oval lanceolate acute. From Canada to Carolina, large plant, leaves and flowers. Petals red or white. Var. 1. *Atropurpureum.* 2. *Bicolor*, flower smaller, white, pistil red. 3. *Obovatum.* 4. *Undulatum.* 5. *Rhomboideum.* 6. *Flexuosum.* 7. *Album.*

16. *Tr. flavum.* Raf. Leaves sessile, rhomboidal acuminate, trinerve : peduncle as long, erect, flower nodding : calyx narrow lanceolate, petals longer lanceolate, yellow, acute. In the mountains from New York to Virginia, rare.

17. *Tr. pendulum.* Wildenow. Leaves sessile, rhomboidal acuminate, base acute, trinerve : peduncle inclined, flower drooping; calyx and petals subequal, oval acuminate, petals white, with red veins. In the mountains Catskill, Alleghany, &c.

18. *Tr. undulatum.* Raf. 1807. W. and Elliot. Leaves sessile, ovate acuminate, undulate, trinerve : peduncle erect, calyx lanceolate, petals much longer, undulate, oblong, obtuse, dark purple. Mountains Alleghany in Pennsylvania, &c.

19. *Tr. brevipetalum.* Raf. Leaves sessile, ovate rhomboidal acuminate, base acute, trinerve : peduncle erect, elongated, calyx lanceolate acute ; petals shorter, ovate, undulate, acute, white. Near the lakes Ontario and Erie. Var. 1. *Latifolium.* 2. *Roseum.*

20. *Tr. ovatum.* Pursh. Leaves sessile, ovate, gradually acute, trinerve : peduncle erect, calyx linear, petals longer and larger, oblong lanceolate acute, and purple. Southern States.

21. *Tr. obovatum.* Pursh. Leaves sessile, ovate rhomboidal, acuminate : peduncle erect, calyx oval lanceolate, petals equal obovate obtuse flat, flesh colored. From Canada to Ohio.

22. *Tr. grandiflorum.* Salisbury. (*Tr. rhomboidum Mx.*) Leaves sessile, ovate rhomboidal, acuminate, base acute, 5 nerved, reticulate: peduncle inclined, elongated, calyx ovate, lanceolate acute, petals longer, obovate acute, white. From lake Ontario to Virginia and Kentucky. Petals thin, reticulate, forming a campanulate flower, base connivent. Var. 1. *Roseum.* 2. *Elatior.* 3. *Rhomboideum.* 4. *Pumilum.* 5. *Parviflorum.* 6. *Macropium.* 7. *Obovatum.* 8. *Longifolium.* Often called Ground Lily, as well as the following species.

23. *Tr. lirioides.* Raf. Leaves shortly petiolate, ovate acuminate, base rounded, trinerve and reticulate : peduncle short and erect, calyx oval lanceolate obtuse ; petals larger, oblong cuneate obtuse, white. Near lake

Eric, in the glades of Ohio, Illinois, &c. Commonly smaller than the last, flower also nearly campanulate. Var. 1. *Parviflorum*. 2. *Pumitum*. 3. *Roseum*. 4. *Crassicaule*. 5. *Longifolium*. 6. *Maculatum*. 7. *Undulatum*.

24. *Tr. obcordatum*. Raf. Stem short and thick, leaves sessile obcordate, trinerve reticulate; peduncle as long, inclined, calyx lanceolate obtuse, petals equal in length, obovate obtuse, white. In the mountains Alleghany; is it a variety of *Tr. grandiflorum?* only 4 inches high.

25. *Tr. latifollum*. Raf. (figured here.) Leaves subsessile, very broad, dilatate, wider than long, subrhomboidal, undulate, both ends shortly acuminate, many nerved and reticulate; peduncle reflexed and short, calyx and petals subequal, oval acuminate reflexed and revolute; stamens shorter than the pistil. In Kentucky; stem thick, 18 inches high, petals dark purple. This and all the next species, belong to the *Tr. cernuum* of Linnæus, while the foregoing 14 species answer to his *Tr. erectum*.

26. *Tr. spatulatum*. Raf. (*Tr. purpureum*. Kin. and Elliot.) Leaves sessile, spatulate ovate acuminate, trinerve reticulate: peduncle drooping, petals dark purple, longer than the calyx, ovate lanceolate. In the mountains Alleghany.

27. *Tr. nervosum*. Elliot. Leaves sessile, ovate lanceolate, both ends acute, membranaceous, reticulated: peduncle recurved, petals oblong lanceolate, larger than the calyx, rose colored. In Carolina and Georgia.

28. *Tr. Catesbei*. Elliot. Leaves sessile, oval and obovate, both ends acuminate; peduncle recurved, petals lanceolate, larger than the calyx, rose colored. In Carolina, figured by Catesby 1. fig. 45, perhaps the type of *Tr. cernuum* of Linnæus. Var. 1. *Obovatum*. 2. *Incarnatum*.

29. *Tr. hamosum*. Raf. Leaves sessile, rhomboidal rounded, base acute, end sharply acuminate, membranaceous, trinerve; peduncle very short, reflexed, crooked like a hook, calyx and petals oblong lanceolate obtuse, petals larger and white. In the Pocono mountains of Pennsylvania; root fasciculate, fibrose, stem 6 inches only, leaves and flowers small, discovered by Mr. Steinhauer.

30. *Tr. medium.* Raf. (*Tr. cernuum* of our modern botanists.) Leaves shortly petiolate, broadly rhomboidal, both ends abruptly acuminate, 5 nerved, reticulate; peduncle recurved short, calyx and petals equal, ovate lanceolate acuminate, flat white. From New England to Virginia. Var. 1. *Gracile.* 2. *Pudicum.* 3. *Undulatum.* 4. *Grandiflorum.*

31. *Tr. glaucum.* Raf. Leaves sessile, broad deltoid, both ends acute, glaucous beneath, 5 nerved and reticulate: peduncle reflexed, calyx and petals subequal, oval obtuse, calyx erect, petals reflexed back, and white. In Pennsylvania, near Philadelphia, Maryland, Virginia, &c. This is the *Tr. cernuum* of W. Barton, Fl. Am. fig. 40.

32. *Tr. divaricatum.* Raf. Leaves sessile, obovate acuminate: peduncle divergent, horizontal, petals lanceolate acute, longer than the calyx, flat and purple. In the Alleghany and Cumberland mountains, six inches high.

3. *S. G. Delostylium.*

33. *Tr. stylosum.* Nuttal. Leaves with short petioles, oval lanceolate, acute at both ends; peduncle recurved, very short, petals oblong obtuse, undulate, larger than the calyx, a style as long as the stigmas. In the Southern States. Stem a foot high or less, slender, petals rose colored. This is probably the *Tr. cernuum* of Michaux.

PROPERTIES. I have the pleasure to introduce this fine genus into Materia Medica. It has been neglected by all our writers, although well known to our herbalists. Schoepf merely says that the Indians consider the *Tr. cernuum* as poisonous, which is not true; and that the acid berries of *Tr. sessile* stain of a red color, or dye blue with alum. A popular remedy in the Northern States, and used also by the Shakers. The roots are the officinal parts; almost all the species may be used indifferently, although the Indians have a notion that those with red blossoms (which they call *male*) are the best, and those with white blossoms (called *female*) are best for women's complaints. The species most commonly used, because most common, are the *Tr. nutans, Tr. pictum, Tr. grandiflorum, Tr. medium, Tr.*

longiflorum, Tr. rotundifolium, &c. They are all astringent, restringent, pectoral, tonic, antiseptic, alterative, &c. Their roots are commonly oblong or terete, tuberose, brown outside, white inside, from 1 to 5 inches long, with a few branches or fibres; they have a faint smell, somewhat like cedar, and a peculiar aromatic taste, somewhat like copaivi. Being chewed, they produce salivation and tears, with heat in the throat, and next a sensation of coolness over the whole system. These are indications of active properties. They have not yet been analyzed. They are employed internally in hematuria or bloody urine, uterine hemorrhage, immoderate menstrual discharge, blood spitting, hectic fever, asthma, catarrhal cough, profluvia, &c. either in powder, dose a tea spoonful, or in infusion. Externally, they are very beneficial in tumors, indolent and putrid ulcers, carbuncles, and mortification, in a poultice by itself, or still better united with *Sanguinaria.* As an astringent and restringent, they are milder or weaker than *Geranium* and *Erigeron,* but not so heating. As a tonic, they appear very beneficial, nay, a certain cure, with bloodroot, for inflamed carbuncles and ulcers, after a purge; it is said that they obviate or prevent gangrene and the need of cutting off mortified limbs. Even the leaves are useful applied to tumors. In female complaints, such as leucorrhea, menorrhea, and after parturition, they act as good restringents; the Indians value them much as such, both in Canada and Missouri. They say in Canada that the roots chewed, will cure instantly the bite of rattle-snakes, both in men and cattle. Mr. Hawkins saw an Indian make the experiment for a gill of rum: how it acts was not stated. The Indians of Missouri call them *Mochar Newachar,* meaning heat and cold: it is their palliative for consumption. The sessile species are called *Jewsharp* in Kentucky, and used for sores and ulcers. The *Tr. tinctorium* is one of the red paints of the Western Indians; the roots stain the hands, and dye red with alum.

N. B. Sp. omitted among the *Sessilium.*

34. *Tr. maculatum.* Raf. (*Tr. sessile,* Elliot.) Stem spotted, leaves sessile ovate acute, trinerve, spotted: calyx erect oblong, petals spatulate, twice as long, dark purple. In Carolina, &c.

No. 92. TUSSILAGO FRIGIDA.

Names. Boreal Coltsfoot. *Fr.* Tussilage glaciale.

Classif. Nat. Order of Corymbiferous. Syngenesia superflua L.

Genus TUSSILAGO. Perianthe simple, equal, multipartite, membranaceous, swelled below. Phoranthe naked. Pappus simple sessile. Many narrow female rays.

Sp. *Tussilago frigida.* L. Radical leaves on long petioles, cordate, unequally toothed, woolly beneath. Scapes multiflore, thyrsus oblong fastigiate bracteate, flowers radiate.

DESCRIPTION. Root perennial. Leaves all radical, petioles long, thick, canaliculate; leaves cordate rounded or subdeltoid, nearly obtuse, many unequal teeth, green and rugose above, woolly and white beneath. Scape longer than the leaves, terete and thick, 9 to 12 inches high, with some remote lanceolate acute scales; many flowers, forming a thyrsus or oblong raceme, peduncles shorter than the flowers, axillary to subulate bracts, rays white, disk purple.

HISTORY. A genus with many anomalies, often polygamous or dioical, with evident or obsolete rays, whence the subgenera 1. *Farfara*, flowers radiate. 2. *Petasites*, flowers discoidal. 3. *Anandria*, dioical. This species is a native of the boreal regions of the three continents, Europe, Asia, and America, in the mountains of Lapland, Norway, Siberia, Canada, Maine, Labrador, Greenland, &c. It blossoms in June. We have also in America the common Coltsfoot or *T. farfara* of Europe, found in New England, New York, Ohio, &c. It blossoms in April, before the leaves spring up; easily known by its yellow radiate flowers, scapes uniflore and scaly, leaves cordate, angular. Both species will be included here, having similar medical qualities. *Tussilago*, derives from *Tussis* or Cough, as useful for it.

PROPERTIES. The whole plants are used, but chiefly the roots and leaves; their smell and taste are somewhat pleasant, aromatic, bitterish, austere, and mucilaginous. They contain mucilage, extractive, tannin,

&c. They are reckoned demulcent, restringent, cephalic, errhine, pectoral, diaphoretic, deobstruent, &c. Often used in Europe and America for coughs, complaints of the breast and lungs, asthmatic affections, hooping cough, and also in scrofula: either in tea or decoction, conserve or powder. A small pinch of the powdered leaves is a very mild errhine, and a good cephalic, removing diseases of the head, giddiness, obstructions in the nose, headache, &c. It is the base of the "herb-tobacco," used for that purpose in New England. Our medical writers have neglected the Coltsfoot, or spoken of it as nearly inert, but it is a mistake; Cutler and Henry alone mention it as useful; the Shakers and herbalists use it beneficially. Their powers in diseases of the breast are not strong, but available for consumptive coughs and hooping cough, in warm infusion, sweetened with honey, or boiled in milk. A strong decoction has cured scrofula (along with *Nymphea*, as a poultice, over the swellings of the neck) half a pint of the decoction was taken three times a day.

No. 93. UNISEMA DELTIFOLIA.

Names. Shovel Pickerelweed. *Fr.* Uniseme deltine. *Vulgar.* Pond Shovel, Shovel Leaf, Water Plantain.

Classif. Nat. Order of Unisemous. Hexandria monogynia L.

Genus Unisema. Perigone simple corolliform, 6 cleft, bilabiate, marcescent, each lip unequally trifid, upper longest. Stamens 6, unequal, inserted on the tube. Pistil oblong, one filiform style and stigma. Fruit a single oblong seed, coated by the marcescent perigone. *Roots creeping, perennial. Stem one leaved, with a terminal vaginate spike.*

Sp. *Unisema deltifolia.* Raf. See sp. 1.

HISTORY. This striking genus is formed with the *Pontedoria cordata* of L. I observed as early as 1802, the singular one seeded fruit, and established the genus in 1807 and 1817. Nuttal, in 1818, confirmed my observation; but choose to retain the Linnæan name, and

consider this as the type of the genus *Pontedoria*, although L. positively says that the fruit of it is 3 *locular and many seeded.* All the servile American botanists, and even Torrey, who has verified the fruit, have followed this absurdity. The Linnæan genus *Pontederia*, was, and is yet, a cahos ; many genera have been taken from it, *Phrynium*, *Heterandra*, *Leptanthus*, *Schollera*, &c.; the first, which is monandrous, belong to the Drymirhezous, the others form the natural order of Pontederides, along with the true *G. Pontederia*, of which the type is *P. azurea*, *P. natans*, *P. dilatata*, *P. vaginalis*, &c. of the tropical climates, with a trilocular polysperm capsule. The whole genus, however, must be carefully examined again, as some species may have a different fruit or flower. I have already ascertained two other new genera blended with it.

1. *Lunania.* Raf. Corolla tubular, 6 cleft, unequal, 3 filaments and anthers in the tube, one style, 6 stigmas, capsule 3 locular, 3 valve polysperm. My *L. uniflore* is the *P. limosa* of L. native of Jamaica, Mexico, and Texas, different from the *Leptanthus ovalis* of North America ; mistaken for it by some. It has leaves cordate ovate, scapes lateral uniflore. Dedicated to Lunan, author of the hortus Jamaicensis.

2. *Calcarunia.* Raf. The *P. hastata* L. of Asia, which has one of the 6 filaments with a spur, and three stigmas.

My genus *Unisema* is quite peculiar to North America, and perfectly natural in habit. It must be the type of a new natural order indicated in 1815 by me, and distinguished from all the monocotyle plants by *perigone and stamens unequal, a single seed*, which has several affinities with the orders of Alismaceous, Dracontides, Orontides, Piperides, Comelines, and Pontederides, but differs from them all. It has many species, ascertained by myself, which our Linnæan botanists, and even Torrey, persist to consider as more varieties, because they have a general natural habit. They all grow in water, ponds, streams, &c. and are perfectly smooth ; their perennial roots creep like those of *Nymphea*, and throw out tufts of radical leaves on long petioles, with a terete articulated stem, bearing one leaf,

with a variegated petiole and a terminal dense spike, with a membranaceous oblong obtuse vagina below the base, thus almost resembing a spatha and spadix. These flowers are blue, with a yellowish white spot on the lower lip, and blossom in summer from June to August. They are fine ornamental plants, but scentless; the seeds, which resemble those of some grasses, are white, oblong obtuse, farinaceous, with a central cylindrical embryo; they germinate only under water, and when fresh. I have already noticed as many as 9 species.

1. Sp. *Unisema deltifolia.* Raf. Radical leaves, perfectly oblong deltoid or shovelform, base acute, end obtuse; stem leaf oblong deltoid, undulate, base subreniform, lobes rounded: spike elongated, segments of the flower oval obtuse. In west Kentucky, Tennessee, Alabama, &c. Stem about three feet high, leaves 5 to 8 inches long, spike 3 inches.

2. Sp. *U. purshiana.* Raf. (*P. angustifolia* of Pursh.) Leaves elongated triangular, base truncate subcordate. end acute. Segments of the flower linear lanceolate. In the Southern States.

3. Sp. *U. media.* Raf. Leaves oblong cordate, base cordate, end obtuse; stem leaf consimilar, spike cylindrical, segments of the flower oblong obtuse. From New York to Carolina. Var. 1. *Albiflora.* 2. *Angustifolia.*

4. Sp. *U. obliquata.* Raf. Leaves more or less oblique, with unequal sides; radical oblong deltoid, base subhastate, end obtuse; stem leaf cordate oblong: spike short oblong, segments of the flowers linear obtuse. In New Jersey and Virginia. About 2 feet high.

5. Sp. *U. latifolia.* Raf. Leaves broad cordate, very obtuse, spike cylindrical, elongated, segments of the flower oval. Very common, chiefly in the Southern States. Stem 3 to 5 feet high. Var. 1. *Elatior.* 2. *Undulata.* 3. *Albiflora.* 4. *Pallida.*

6. Sp. *U. acutifolia.* Raf. (figured in Lamark Illustr. as *P cordata.*) Leaves cordate acute, spike cylindrical, segments of the flowers oval oblong. Found by Bose in Carolina; I have never seen it.

7. Sp. *U. mucronata.* Raf. 1807. Leaves narrow oblong, base broader cordate, end with a long obtuse point:

spike cylindrical, segments oblong. In Virginia, found by Mr. Hingston in 1800, seen in his herbarium in 1804.

8. Sp. *U. heterophylla.* Raf. Leaves narrow, oblong or lanceolate, base subcordate or nearly rounded, end obtuse, spike oblong, segments linear oblong. From New York to Louisiana. Stem only 12 to 18 inches high. Var. 1. *Lanceolata.* 2. *Stenocardia.* Leaves small, often variable on the same plant.

9. Sp. *U. rotundifolia.* Raf. Leaves rounded obtuse, base hardly cordate; spike oblong, segments oval, perhaps a variety of the last. In the Western States, rare, stem weak and short. This is not the *Pontederia rotundifolia* of L. which has orbicular cordate leaves, and grows in South America, but it may be a tenth specie of this genus: if so, it may be called *U. orbiculata.*

PROPERTIES. I have the pleasure to introduce this singular genus to medical notice. All the species have similar properties; they reside chiefly in the roots, which are emollient, restringent, and anti-scrofulous. The leaves form an excellent cooling topical application for inflammations on the surface of the body; they can be eaten boiled as greens, although rather austere when raw; the Indians use them along with *Tradescantia, Commelina, Orontium, Nymphea,* &c. The seeds are edible farinaceous, and were used by them for cakes and other dishes, like the seeds of *Orontium.* The roots are nearly equivalent to *Nymphea,* but much milder and mucilaginous. They may be employed in the same diseases, gleets, leucorrhea, fluxes, and externally for scrofulous tumors and sores. No medical writer has noticed these plants; they are only known to a few herbalists, and have not yet been analyzed.

No. 94. VERONICA BECABUNGA.

Names. Water Speedwell. *Fr.* Veronique aquatique. *Vulgar.* Neckweed, Water Purslain.

Classif. Nat. Order of Veronicides. Diandria monogynia L.

Genus VERONICA. Calyx 4 parted, unequal persistent. Corolla rotate, 4 lobed, unequal. Stamens 2, equal exert. One pistil, style and stigma. Capsule bilocular polysperm.

Sp. *Veronica becabunga.* L. Stem erect, creeping; leaves subsessile, ovate oblong, smooth; racemes axillary, opposite, multiflore, capsules obcordate, compressed.

Var. *Americana.* Raf. (or *Procumbens.*) Stem procumbent, rooted at the base; leaves elliptical, acute petiolate, subserrate, capsules swelled, obcordate.

DESCRIPTION of the American variety. Root perennial, fibrose, white. Stem creeping at the base, assurgent afterwards, about a foot high, with few branches, round and smooth. Leaves opposite, on short petioles, very smooth, oblong base rounded, end acute, subserrate. Racemes on long axillary opposite peduncles, lax, elongate, and multiflore; flowers on long pedicels, axillary to linear bracts, corolla blue. Capsules bilobed, swelled, although subcompressed.

HISTORY. The genus *Veronica* is pery prolific in species, and was fruitful in anomalies. The genera *Hebe* and *Leptandra*, have been divided from it. I have long ago reformed it still further, by establishing some other genera and subgenera with it. The genera are:

1. *Panoxis.* Raf. Calyx equal, 4 parted. Corolla tubular, quadrifid equal. Capsule oblong acute, type *V. salicifolia, V. cataracta*, and *V. macrocarpa.*

2. *Ponaria.* Raf. Calyx 5 parted, equal. Corolla 4 lobed, equal. Type *V. pona, V. latifolia, V. laciniata*, &c.

3. *Allopleia.* Raf. Calyx campanulate, 4-5 cleft. Corolla subrotate, unequal, 4-5 parted. Stamens 3 or 4, incurved. Stigma truncate. Capsule obcordate. *V. rotundifolia.* R. & P.

After these needful subtractions, this genus contains yet 100 species or more, which may be divided into two subgenera.

1. *S. G. Becabunga.* Corolla rotate, 4 lobed. Capsule obcordate or notched bivalve. Mostly all the species.

2. *S. G. Endasia.* Raf. Corolla 4 parted, undulate cuneate, tube hairy. Capsule oval, 4 valved. *V. crenulata, V. mautima, V. spuria, V. spicata, V. complicata.* Is it also a N. G.?

The actual species is native of the two continents, but in America it is at least a striking variety, if not species. It grows from Canada to Virginia and Kentucky, near waters, brooks, &c. blossoming in June.

Many other European species, equally medical, are found all over the United States, such as the *V. serpyllifolia, V. peregrina, V. scutellata, V. arvensis, V. agrestis, V. officinalis*, &c.; they all appear to differ a little from the European types. The *V. officinalis* or common Speedwell, the most valuable, is distinguished by stem creeping, hairy, with ovate rounded crenate leaves, and flowers spicate lateral. I have discovered a new species in west Kentucky, near to *V. scutellata*, which I call *V. connata*, Raf. it has divaricate branches, leaves connate, linear lanceolate and sharp.

PROPERTIES. The *V. becabunga, V. peregrina*, and *V. serpyllifolia*, are chiefly used with us as weak stimulants, discutient, anti-scrofulous, hepatic, antiscorbutic, and diuretic: while the *V. officinalis*, which is highly valued in Europe, and the base of the Faltrank or Swiss herb tea, is deemed tonic, vulnerary, astringent, aperient, pectoral, diuretic, &c. All the species appear to me to possess nearly similar properties; the *V. officinalis* being, however, a little astringent, as the austere taste shows, while the others are nearly insipid, and may even be eaten in sallad, or boiled as greens. All are scentless. In New Jersey they are called Neckweed, because usefully applied to the scrofulous tumors of the neck. Eaten in sallad, they are beneficial in scorbutic complaints, obstructions, and jaundice. Their decoction and tea, which are green, are equally available. The *V. officinalis* is employed chiefly as a tea or in powder, and in many more complaints, such as disorders of the breast, both catarrhal and ulcerous, cachexy, gravelly complaints, bloody urine, cholics, hypocondria, hoarseness, &c. But the *V. becabunga* is often substituted with us, and in Europe the *V. chamedrys, V. teucrium*, &c. They all purify the blood and humors, act

as mild stimulants, strengthen the stomach, promote diuresis, and are said to correct the secretions of the liver, so as to remove melancholy or hypochondrical affections.

No. 95. VICIA FABA.

Names. Horse Bean. *Fr.* Feve commune. *Vulgar.* Windsor Bean, Big Bean, Sweet Bean.

Classif. Nat. Order of Leguminose. Diadelphia decandria L.

Genus VICIA. Calyx tubular, bilabiate, upper lip notched, lower trifid. Corolla papilionaceous, vexillum notched, adpressed. Stamina 9, monadelphous, 1 free. Stigma bearded transversely below. Pod oblong polysperm, seeds round or compressed.

Sp. *Vicia faba.* L. Leaves without tendrils, with few folioles, ovate, entire, stipules sagittate, base toothed: flowers ternate sessile: pods erect, turgid, seeds compressed.

DESCRIPTION. Root annual. Stem erect, 2 to 5 feet high, flexuose terete, seldom branched. Leaves alternate, with sigittate acute stipules, toothed at the base, from 4 to 6 folioles, alternate sessile, ovate acute. entire, no tendrils. Flowers axillary, sessile, commonly ternate, or from 2 to 10 racemose, large, erect, oblong, white, with two fine black spots on the wings. Pods large, 3 to 8 inches long, oblong turgid, thicker above, membranaceous tomentose, end mucronate, from 3 to 8 large seeds, shaped like a bean, reniform compressed, thicker at both ends, of a bright brown color.

HISTORY. The genus *Vicia* requires revision; the species are more connected by habit than characters. This species hardly belongs to it; Brotero calls it *Orobus faba*; some botanists *Faba sativa*, restoring the genus *Faba* of the elder botanists. It must, at any rate, form a subgenus thus:

1. *S. G. Faba.* Pod oblong, swelled and turgid, seeds compressed reniform.

1. *S. G. Vicia.* Pod elongate compressed, seeds globular.

The *Faba* is the true Bean of the ancients, and not the *Phaseolus*. It is a native of Persia, but has been cultivated in Europe, from the most remote antiquity. It is cultivated also in the United States, the gardens of the North, or fields in the South, and I have seen it become spontaneous there. It is, however, not yet valued as it ought, and not given to horses, maize being used instead. It has many varieties, like all long cultivated plants; the best are hardly known with us. It blossoms in the spring; the flowers are very pretty and sweet scented. The varieties are: 1. *Megasperma*, tall plant, with long pods and seeds an inch long. 2. *Equina*, folioles ovate oblong, seeds elliptical. 3. *Turgida*. 4. *Obtusifolia*. 5. *Rubra*, with red seeds. 6. *Media*. 7. *Nigra*. 8. *Racemosa*. 9. *Odoratissima*. It is a valuable plant for farmers; it grows any where, never fails to give a good crop, an acre may produce 100 bushels of seeds and 10 tons of fodder. It is food for men and cattle, a delicacy when green, ornamental, medical, and improves the land as a manure.

PROPERTIES. The whole plant is useful, leaves, flowers, and seeds. As a fodder, it is equal to clover; horses and cattle eat it agreeably, fresh or dry. Buried by the plough, or burned on the ground, it improves it like manure. The flowers are a good cosmetic; their distilled water is fragrant and smoothens the skin. The green unripe seeds are a delicacy, similar to green peas, and as highly valued in Europe; in Italy they are eaten raw, with salt, or boiled and cooked in fifty ways. They are scarce in our markets, although as easily cultivated as peas. When ripe and dry, they become a little flatulent, but not more so than other beans; they form then the chief food of the Italian, Spanish and Greek peasantry, in soups, mush, olios, cakes, and other dishes; they are also roasted and eaten like chesnuts. The Greeks mix the flour with their black bread. By depriving the seeds of their thick skin, the inside is a tender farinaceous food. Barley and beans are the chief food of horses all over Asia, Africa and South Europe; oats and maize the substitutes with us, are by no means

equally nourishing. The flour of beans is one of the four resolvent flours of the Galenic school, employed medically for poultices over tumors, swelled glands, imposthumes, and even cancer, to promote suppuration. The internal use is said to be useful in gravelly and nephitic complaints.

The *Vicia sativa* or Common Vetch, a native with us, is cultivated in Europe for fodder, and the small round seeds similar to Peas; it is also neglected as yet with us, and being inferior to *Vicia faba*, is not so commendable: it can, however, be cultivated broad cast, while the Bean requires to be drilled, unless it is wanted for mere fodder. We have several other species of native *Vicia*, *V. craccoides*, *V. americana*, *V. caroliniana*, all much liked by cattle, and whose cultivation might be attempted. My *V. craccoides* is the *V. cracca* of our botanists, but is very different from the European species.

No. 96. XANTHOXYLON FRAXINEUM.

Names. Shrubby Prickly Ash. *Fr.* Xanthoxyle frene. *Vulgar.* Toothache Bush, Pellitory, Yellow Wood, Suterberry.

Classif. Nat. Order of Cnestides. Pentandria trigynia L.

Genus XANTHOXYLON. Calyx 5 parted. No corolla. A central disk bearing 3 or 5 stamens and 2 to 5 pistils, becoming 2 to 5 capsules, bivalve one seeded. Commonly polygamous. *Trees or shrubs with pinnate or ternate leaves.*

Sp. Xanthoxylon fraxineum. Prickly. Leaves pinnate with 9 or 11 folioles opposite, ovate acute, subentire: umbels lateral, 3 or 4 stipitate pistils and capsules.

DESCRIPTION. Shrub 5 to 10 feet high, branches alternate, with scattered prickles, sharp, strong and straight. Leaves alternate, oddly pinnate, petiole round, often inerme, folioles 9 or 11 opposite, nearly sessile, ovate very sharp, with slight glandular serratures, somewhat downy beneath. Flowers in small sessile umbels, near the origin of young shoots, small and greenish.

Diclinous polygamous, some shrubs bearing pistillate flowers, and others two kinds, both staminate and complete or perfect. These last have a 5 parted calyx with segments erect, oblong obtuse. Five stamens on the base of the gynoplure, filaments subulate, anthers sagittate, 4 celled. Central gynophore divided into the stipes of the pistils, which are 3 or 4, oval, with a converging terete style and obtuse stigma. Staminate flowers with an oval trifid abortive gynoplure. Pistillate flowers with a smaller calyx. Capsules stipitate, elliptical punctate, reddish green, two valved, with one seed, oval and blackish.

HISTORY. This genus, whose name means yellow wood, and which many botanists write *Zanthoxylum* by mistake, has many anomalies, because accuracy appears of very little moment to the Linnæan botanists. It must be divided in at least 4 subgenera or genera, thus :

1. *Dimeium*. Raf. 1815. No corolla, 3 stamens, 3 pistils and capsules, type *X. spinosum*, *X. emarginatum*, *X. acuminatum*.

2. *Herculium*. Raf. No corolla, 5 stamens, 5 pistils and capsules, type *X. clava*, *X. punctatum*, &c.

3. *Thylax*. Raf. 1815. No corolla, 5 stamens, anthers 4 locular, 3 to 4 stipitate pistils and capsules, styles connivent, twisted. Dioical polygamous. Type *X. fraxineum*.

4. *Pseudopetalon*. Raf. Fl. lud. 1817. Five parapetals opposed to the segments of the calyx, 5 stamens alternate with them, anthers bilocular, 2 or 3 pistils and capsules sessile divical, type *P. glandulosum*, Fl. lud. and *X. tricarpum* of Michaux.

They all appear to form a natural family along with the genera *Cnestis*, *Triphaca*, *Tetradium*, *Tenorea*, Raf. as stated by me in 1815. The *X.* or *Thylax fraxineum* is found from New England to Florida and Missouri, in groves. The flowers are vernal, anterior to the leaves, green and inconspicuous. Four species are found in the United States all equally medical, this, the 2 species of *Pseudopetalon*, and the *X. clava*; but this last, found in Carolina and Florida, appears to me different from the *X. clava* of the West Indies ; it may be called *X. catesbianum*.

PROPERTIES. The whole shrub is possessed of active properties; the leaves and fruit smell and taste like the rind of lemons, and afford a similar volatile oil. The smell of the leaves is more like orange leaves. The bark is the officinal part, the smell and taste are acrid, pungent, aromatic. It is sialagogue, stimulant, pellent, astringent, sudorific, antisiphylitic, odontalgie, &c.

The chemical analysis by Dr. Staples, has given two oils, one volatile, another fixed and green, resin, gum, fibrine, a colored matter, and a peculiar substance *Xanthoxyline*, which crystallizes, resembles Piperine, and is soluble in warm alcohol. The leaves contain chiefly mucilage, gallic acid and a volatile oil. This article appears to be equivalent to Mezereon and Guayacum in properties. The acrimony is not felt at first, when the bark or liquid is taken in the mouth, but unfolds itself gradually by a burning sensation on the tongue and palate. It is deemed like them very useful in chronic rheumatism, producing a sense of heat in the stomach, a tendency to perspiration and speedy relief, when given in full doses of 10 to 20 grains, 3 times daily, or the decoction of one ounce in 4 or 5 doses. It seldom produces nausea or effects on the bowels. It however has failed in some obstinate cases. In small doses it becomes diaphoretic, and removes rheumatic pains. This is a great article in the Materia Medica of our Indians; it is called *Hantola* by the western tribes; they prefer the bark of the root, and use it in decoction for cholics, gonorrhea, syphilis, rheumatism, inward pains, chewed for tooth-ache, and applied externally in poultice, with bear's grease, for ulcers and sores. It is a great topical stimulant, changing the nature of malignant ulcers. In tooth-ache, it is only a palliative, as I have ascertained on myself, the burning sensation which it produces on the mouth, merely mitigating the other pain, which returns afterwards. Some herbalists employ the bark and seeds in powder, to cure intermittent fevers. A tincture of the berries has been used for violent cholics in Virginia. It is very good in diseases connected with a syphilitic taint. The long use of it often brings on salivation like mercury.

The *X. clava* of the South has all the same properties, and even to a higher degree. The chewed bark is said to cure tooth-ache in a few minutes, to be beneficial in sore throat and mouth, also in palsy of the tongue or any muscle of the throat. In the West Indies, where it is called Prickly Yellow Wood, the wood, bark and roots are deemed excellent internally and externally in syphilitic complaints and ulcers; wonderful cures have been performed there and with us by the herbalists, of venereal buboes, venereal sorethroat, crab yaws, malignant and phagedenic ulcers, &c. It appears also a valuable remedy in epilepsy and dry belly-ache, nay, is said to have cured fevers like Peruvian Bark. The juice of the roots or their decoction was chiefly used. The *X. fraxineum* has probably all the same effects.

The *X. glandulosum* (*Pseudopetalon*) of Louisiana, a tree 40 feet high, has a white bark, of a strong smell and burning taste: it is used for aromatic baths, to cure rheumatism; delicate persons are apt to feel indisposed by its use. The roots are employed successfully as a vermifuge for horses. This tree will be known by its terminal digynous flowers. Many ignorant herbalists, and even Zollickoffer, call likewise Prickly Ash, the *Aralia Spinosa*, whose true name is Prickly Elder or Angelica tree, and use them indifferently. But the *Aralia*, although a valuable stimulant, diaphoretic and even emetic, has by no means all the properties of this shrub.

N. B. This concludes the first part of this work, or the selected articles; but two articles omitted in the alphabetical series of the first volume, will be added in a supplement, after which shall follow the monography of the *Vitis* or American Grape Vines, with 8 figures.

SUPPLEMENT

TO THE SELECTED ARTICLES.

No. 97. CHELONE GLABRA.

Names. Common Snakehead. *Fr.* Chelonide glabre. *Vulgar.* Turtle head, Turtle bloom, Shell flower, &c.

Classif. Nat Order of Personate. Didynamia angiospermia L.

Genus CHELONE. Calyx five parted, caliculate by 3 bracts. Corolla ringent, ventricose, convex above, mouth gaping with 2 small lips and 5 lobes. Stamina didynamous, anthers woolly, a sterile filament besides. Capsule two celled bivalve. Seeds many, with a membranaceous margin.

Sp. *Chelone glabra.* L. Smooth ; leaves opposite subsessile, lanceolate oblong acuminate serrate, base acute, flowers in dense terminal spikes.

DESCRIPTION. This plant has so many striking varieties, that no description can apply to all ; they, however, agree in having a perennial root, stem erect, 2 to 5 feet high, with 4 obtuse angles : flowers terminal in a dense sessile short spike, each flower sessile and axillary to 3 bracts, commonly ovate acute entire, calyx with 5 unequal embricate segments, oblong obtuse, corolla similar to the head of a snake or turtle. The following are the varieties, which might, perhaps, be deemed as many species.

1. *Ch. alba.* Stem simple, 2 to 3 feet high ; leaves subsessile, the lower alternate : spike oblong, flowers white.

2. *Ch. maculata.* Stem branched, 2 or 3 feet high, leaves petiolate lanceolate, crowded above ; flowers white, with green mouth spotted of red, calyx margined of red.

3. *Ch. lanceolate.* Stem simple, 3 to 4 feet high, leaves sessile lanceolate, pubescent beneath, flowers white or rose.

4. *Ch. purpurea.* Stem simple, leaves petiolate oblong, flowers purplish.

5. *Ch. obliquea.* Stem simple, leaves subpetiolate oblique at the base.

6. *Ch. elatior.* Stem simple, 4 or 5 feet high, leaves petiolate broad lanceolate, spike oblong, flowers purplish white.

7. *Ch. capitata.* Stem branched, 2 feet high, square; leaves petiolate lanceolate, floral leaves ovate lanceolate: spike short capitate, flowers purplish white.

HISTORY. All these plants are handsome, with singular ornamental and large blossoms, but scentless. They grow from New England to Louisiana, near brooks and waters, and blossoms from July to November. The variety *Capitata* is peculiar to the Western States. The Linnæan genus *Chelone* is now very natural, since the *G. Pentoslemon* was divided from it. It is peculiar to North America. The name means *turtle* and is not good, *Chelonanthus* or *Ophianthes*, would have been better. Some other species equally medical are found in the Southern States; *Ch. lyoni* will be known by its cordate leaves, and *Ch. latifolia* by ovate leaves, besides ciliated bracts and calyx.

PROPERTIES. I have the pleasure to introduce these active plants into Materia Medica. They have been omitted by all our writers, even Schoepf. I am indebted to Dr. Lawrence, of New Lebanon, for the first knowledge of their properties, and he to the Indians and Shakers. They are powerful tonic, cathartic, hepatic, and anti-herpetic. The whole plant is used, but strictly the leaves; they are extensively bitter, one of the strongest of our bitters, without any aromatic smell and very little astringency. I have analyzed and made many experiments with them. Their tincture becomes black, and the use of it dyes the urine of the same color. It contains gallic acid, a peculiar resinous substance soluble in water and alcohol, similar to picrine and aloes, of a black color and very bitter taste, lignine, &c. The properties are equally soluble in water, wine and alcohol: wine is the best menstruum, but becomes intolerably bitter. It is useful in many diseases, fevers, jaundice, hepatitis, eruptions of the skin, &c. In small doses it

is laxative, but in full doses it purges the bile and cleans the system of the morbid or superfluous bile, removing the yellowness of the skin in jaundice and liver diseases. The dose is a drachm of the powdered leaves 3 times daily. The wine of it in small repeated doses, has nearly the same effect, although neither so speedily nor violently. The Indians use a strong decoction of the whole plant in eruptive diseases, biles, hemorrhoids, sores, &c. Few plants promise to become more useful in skilful hands; it ought to be tried in yellow fever and bilious fevers, the tropical liver complant, &c. It may be added to many wine bitters, and antibilious medicines.

No. 98. GALIUM VERUM.

Names. Common Cleavers. *Fr.* Caillelait commun. *Vulgar.* Bedstraw, Cleavewort, Goose grass, Savoyan, Clabbergrass, Milk sweet, Poor Robin, Gravel Grass.

Classif. Nat. Order of Rubiacea. Tetrandria monogynia L.

Genus GALIUM. Calyx superior 4 toothed. Corolla rotate 4 cleft. Stamens 4. Stigmas 2. Seeds 2 globose, smooth or hispid, *leaves in whorls.*

Sp. *Galium Verum.* L. Stem erect; whorls commonly of 8 leaves, linear, grooved, scabrous; flowers in dense terminal panicle and yellow: seeds smooth.

DESCRIPTION. Root perennial. Stem upright, slender and weak, 1 or 2 feet high, somewhat branched, angular. Leaves small sessile in whorls of 8, seldom 7 or 9, linear acute, grooved above, rough, often reflexed. Flowers small in large terminal, dense and yellow panicles, with small leaves interposed: each flower pedunculate, small calyx with 4 acute crowning the adherent pistil. Corolla quite flat and rotate, with 4 spreading acute segments. Stamens 4 short. Two short styles, stigmas capitate. Fruit bipartible into two globular smooth seeds.

HISTORY. Tournefort called this genus *Aparine*, a very good name, improperly changed to *Galium* by L. too similar to *Allium!* The species with rough seeds

form now the subgenus *Aparine*. We have many species of this genus in North America, 20 or more; several are yet undescribed. I am not yet prepared to give their monography. This species being common to Europe and America, is one of the best known. It grows from Canada to New York and Ohio, in pastures, meadows and river banks, blossoming in June and July. Many other species are probably medical, but we only use the *G. verum* and *G. aparine*, common in woods, trailing, rough, with white lateral flowers and rough seeds. The *circezans* has sweet leaves, tasting like liquorice. The *G. tinctorium* and *G. boreale*, called *Savoyan* in Canada, are useful plants, the creeping red roots dye of a beautiful red like madder with acids; the Indians use them for their beautiful red dye. Schoepf says that *G. tinctorium* coagulates milk like *G. verum*, and is useful for diseases of the skin.

PROPERTIES. The *G. verum* and also *G. aparine* are ancient medical plants; the whole plants are used; as subastringent, discutient, antiscorbutic, aperient, diuretic, nervine, &c. Although neglected lately by medical writers, because apparently inert; they are by no means so. The taste is bitterish and acid. The flowers have an acid, their property of coagulating milk, to which the name alludes, is now ascertained to be false; and it is no longer used for that purpose. In the South of Europe, Artichokes are now used instead of Rennet, which spoils the taste of milk, and sweet congealed milk is thus procured, very palatable and healthy. Externally applied in poultice, it is a good discutient for indolent tumors, strumous swellings and tumors of the breast. Internally it is used in decoction sweetened with honey, for suppression of urine and gravelly complaints, in scurvy, dropsy, hysterics, epilepsy, gout, &c. There are instances on record of having cured these diseases. Useful also in bleeding of the nose and stomach. Lately found peculiarly beneficial in scorbutic, scrofulous, and dropsical complaints, acting mildly, but effectually. The flowers are of a fine yellow or golden color, and have a peculiar smell, somewhat like *Melilotus*; they are used in some parts of Europe, to give a rich sweet taste and a fine yellow color to milk, butter, and cheese, by being

put in the pails when the cows are milked. The peculiar color and taste of green cheese is produced by the *Melilotus* or Sweet Luzerne, used in the same way. Cows and cattle are very fond of the *G. verum* and *Melilotus.*

No. 99 & 100. VITIS.

Names. Grape Vine. *Fr.* Vigne.

Classif. Nat. Order of Sarmentacea. Polygamia trioecia L.

Genus VITIS. Perfectly trioical. Calyx cuplike, 5 lobed before the flowers expand, entire afterwards. Corolla of five petals oblong obtuse hooded, adhering at the summit. Five long stamina opposed to the petals. Pistil on a glandular disk, a stigma subsessile, capitate entire. Berry one celled, 2 to 5 seeds obcordate. *Woody vines with alternate petiolate and stipulate leaves; tendrils and thyrsoidal racemes of flowers and fruits, opposite to the leaves.*

HISTORY. I propose to give here a monography of the North American Grape Vines. The subject is new and obscure. The botanical species are scarcely indicated, and their numberless varieties have been overlooked by our best writers. I have ascertained about 40 species and 100 varieties, but I must confess that it is not always easy to say whether one or the other. I was once inclined to consider all our Grapes (like our Strawberries) as varieties of a single species, the *Vitis vinifera* of the old Continent, and it must be so, unless that kind is also divided into others, such as *V. labrusea, V. laciniosa, V. aurea, V. furinosa, V. atra, V. corinthiaca,* &c. to distinguish the wild, cut-leaved, mealy, black, and Currant Vines of Europe. While all these have been united to *V. vinifera.* Our native Grapes had been made into 8 or 10 species, which differ less than those, and can hardly be distinguished from them, in an exclusive point of view, except by their more permanent polygamy. My attempt to classify our Vines is therefore arduous, many species being described by authors under the same name; but I hope will be

useful in making them known, and may lead to a better one when all may be examined on my plan. Many varieties have no doubt escaped my researches, they abound in the woods, since the seeds do not always re-produce the identic kind, and Major Adlum has stated to me to have seen 200 varieties at least: some, however, differ but slightly; my enumeration is ample enough to include all the principal kinds. My distinguishing characters will be taken from all the parts, branches, petioles, leaves, flowers, and fruits. I will thus offer what has hardly been done yet for the Grapes of Europe, Asia, and Africa; it will be the result of my observations during many years and many thousand miles of travels. Our vines being all wild (except a few transplanted in gardens) exhibit the spontaneous operation of nature and hybridity in this fine and valuable genus.

The following are the genera akin to *Vitis*, and belonging to the same natural order of Sarmentacea, distinguished by *Stamens equal in number to the petals; opposed to them and inserted on a hypogynous disk: one pistil and stigma, fruit a berry.*

1. G. *Cissus.* L. Calyx entire. Petals 4, not coherent. Stamens 4, disk cup-like. Berry one seeded. *Many tropical species.*

2. G. *Ampelopsis.* Mx. Calyx 5 toothed. Petals 5, not coherent nor hooded. Stamens 5. Disk cup-like lobed. Short style. Berry 2 locular, 2 or 4 seeded. *A. bipinnata,* (*V. arbona,* L.) and *A. cordifolia* of North America.

3. G. *Quinaria.* Raf. Calyx 4 or 5 lobed. Petals 4 or 5 hooded, not coherent. Stamens 4 or 5. Disk as in Vitis. A style. Berry 4 locular, 4 seeded. *Q. hederacea,* (or *Ampelopsis quinquefolia*) and *Q. hirsuta* of North America.

4. G. *Causonis.* Raf. Calyx 4 toothed. Petals 4, hooded, not coherent. Disk 4 lobed, with 4 sterile filaments alternate with the lobes. Stamens 4. Style filiform. Berry one seeded. The *V. trifolia* and *V. japonica* belong here.

The *V. heterophylla* of Thunberg does not even belong to this order, but to the same as *Hedera* or Ivy. I call it G. *Allosampela.* Calyx superior persistent, with 5 ob-

tuse teeth. Petals 5, oval concave hooded. Disk 5 furrowed. Stamens 5, inserted in the furrows. Pistil inferior adherent, style filiform. Berry pisiform crowned, 2 locular, 2 or 4 seeds obcordate.

Several species of *Vitis* are of doubtful genus, the flowers not having been noticed, such as *V. pinnata*, Vahl. *V. pentaphylla*, Th. (perhaps a *Quinaria*) *V. capensis* and *V. cirrhosa* of Thunberg, *V. lucida* of Australasia, &c.

Of the true species of *Vitis*, the greatest number are native of North America. The *V. indica* (under whose name many species or varieties are also blended) and *V. heptaphylla* are from tropical climates; while the *V. vinifera* or common Wine Grape, with its numerous varieties, are found in temperate climates, from China to Spain and Barbary. Several other species hardly known are found in Africa and Asia. After enumerating our American vines, I shall briefly notice these other Grapes, since all are interesting as useful, viniferous and economical.

For the sake of perspicuity, this subject shall be divided into 5 parts or sections. 1. Account of our vines. 2. Account of foreign vines. 3. Properties and use of vines and grapes. 4. Cultivation of vines in America. 5. Principles of the art to make good wine.

Section 1.. *North American Grape Vines.*

The number is so great that some arrangement is needful; I have long sought for the most constant distinguishing marks, and have at last decided to use those afforded by the shape of the fruit and under surface of the leaves as most striking and least variable; but I am by no means confident that they are the best. I have thus 3 series of vines with globular berries. 1. With leaves tomentose arachnoidal and colored beneath. 2. Leaves pubescent beneath. 3. Leaves perfectly smooth beneath, and a 4th series with fruit not globular. All our American vines agree in being humble trailing vines in their youth, but susceptible to live from 100 to 300 years, and to become very large, as tall as the tallest trees that support them: the bark is fibrous, the wood hard, branches knotty, leaves very variable, but always more

or less cordate or reniform at the base, and toothed on the margin, with five branched nerves and deciduous stipules. Flowers in bunches, thyrsoidal or paniculate, small, more or less fragrant, greenish yellow, complete or pistiliferous or staminiferous, on 3 different individuals, blossoming in May and June. Fruit from the size of a pea to that of a plumb.

I. Series. *Frondarania.* Raf. Berries globular or depressed. Leaves tomentose beneath, tomentum arachnoidal colored, yellow, fulvous, rufous, rusty, white, cinerous or glaucous.

1. Sp. *Vitis fulva,* Raf. (*V. estivalis* of many botanists, not of Mx. nor Elliot.) Yellow Grape. Branches tomentose. Petioles shorter. Leaves broad cordate, 3 or 5 lobed, unequally dentate, sinusses rounded, yellow or fulvous beneath. Racemes oblong. Berries round and small. It grows from Canada to Virginia, on rocky river banks. The leaves become smoother when old; the fruits are commonly of a deep bluish purple, and are ripe in August. The varieties are: 1. *Sinuata,* leaves sinuate palmate, coarsely toothed. 2. *Quinqueloba,* all the leaves with 5 lobes. 3. *Corallina,* leaves yellow beneath, fruit larger, of a fine red color and delicious taste. In Virginia, perhaps a peculiar species, called Red Grape and Coral Grape.

2. *V. ursina,* Raf. Raccoon Grape. Branches striated, fulvous tomentose. Petioles shorter fulvous tomentose. Leaves reniform 5 lobed, base reniform, sinusses rounded, lobes oval acuminate, with a few large teeth, pubescent above, rusty gray beneath, nerves fulvous. From Ohio to Louisiana and Texas, near streams, called Bear and Raccoon Grape, because greedily eaten by these animals. Grapes of middle size, commonly purplish, ripe in September and October. Young leaves rusty beneath. Var. 1. *Cerulea,* berries dark blue. 2. *Prolifera.* 3. *Repens.* 4. *Alba.* 5. *Heterophylla.* 6. *Triloba.*

3. *V. saxatilis,* Raf. Stony Grape. See tab. 99, fig. A. for variety *longipes.* Branches flexuose nearly smooth. Petioles villose variable. Leaves variable cordate, often trilobed, lobes divaricate ovate acuminate, with distant acute teeth, sinusses rounded, rugose and pilose above, gray beneath. Among stones in Arkansas and Texas.

Many varieties : 1. *Longipes*, branches fulvous hairy. Petioles very long, rusty. Leaves trilobe, base reniform. 2. *Media*. Petioles shorter. Leaves ovate 3-5 lobed, base acute cordate. 3. *Blandina*. Petioles long. Leaves cordate trifid, base acute cordate, lobes near or even overlaping, as in *V. blanda*. Perhaps several species, but leaves often variable on same vine. Grapes good.

4. *V. multiloba*. Raf. Dissected vine. See tab. 100, fig. G. Branches tomentose rusty. Petioles very short, round, tomentose rusty. Leaves palmate multilobe, base oval acute, sinusses oboval rounded, segments bilobe, the middle ones trilobe, lobes oval lanceolate acute, with but few acute teeth, pubescent above, rusty glaucous beneath, nerves rusty. Found on the Washita and Red River, cultivated at Bartram's garden. Grape large, good and sweet. Var. 1. *Rubripes*. Petioles red. Leaves smaller, 5 lobed, lobes oval entire acuminate, without lobes, rusty gray beneath, nerves concolor. Is it a peculiar species?

5. *V. digitata*. Raf. Hand-chick Grape. Petioles equal rufous. Leaves palmate 5 lobed, base reniform, sinusses very broad, lobes lanceolate unequal toothed, white beneath, nerves rufous stellate hairy. Berries black and small. In Virginia, Carolina, &c. Grapes similar to the Chicken Grapes.

6. *V. bracteata*, Raf. (*V. labrusca*, Walter, *V. estivalis*, Elliot.) Sour Grape. Branches and petioles tomentose. Leaves broad cordate, rounded, entire or lobed, toothed, white beneath. Panicles of several bracteated fascicles, 3-6 flore. Berries black and pisiform. In the Southern States, from Carolina to Florida. A very tall vine, with small fruit like a pea, black, very acid and austere.

7. *V. callosa*. Raf. Canada vine. Branches and petioles striated pubescent. Petioles subequal. Leaves reniform subtrilobe acute, with minute callous denticles, lucid above, white beneath, nerves rufous. Raceme compound. From Canada to Pennsylvania, in hills. Young leaves pubescent above, smooth when grown. Blossoms in June. Fruit unknown.

8. *V. hyemalis*. Raf. Winter Grape. Branches grooved smooth. Petioles smooth, very short. Leaves cordate

subtrifid acute, with unequal obtuse teeth, smooth above, pale gray beneath. Racemes small. Berries globular, purplish black and small. From Canada to Ohio and Virginia, large vine, blossoms in July, fruits only ripe after frost, in small bunches, rather dense, of an acid bad taste.

9. *V. serotina.* Raf. Late Grape. Branches procumbent pilose, sometimes rooting. Petioles subequal pubescent. Leaves cordate palmate, 5 lobed, hardly crenate, sinusses rounded, lobes rounded acuminate, hairy above, gray beneath. Berries small and black. From Ohio to Missouri and Kentucky, in glades, near streams. Grape austere, ripe in October. Var. 1. *Repens.* 2. *Micracina.* 3. *Sanguinaria.* Bloody grape of Missouri. Berries sweet, black outside, red inside.

10. *V. glareosa.* Raf. Trailing Grape. Branches procumbent, trailing, elongated and smooth. Petioles subequal smooth. Leaves remote, cordate sagittate, broad, subtrifid, serrate, smooth above, white beneath. Berries bluish black, large and sweet. This is the summer grape of the western glades or barrens, found from Illinois to Florida. Never climbing, fruit very sweet and fine, as large as cherries, ripe in August.

11. *V. latifolia,* Raf. (*V. taurina,* Walt. *V. tabrusca* of many botanists, but very different from *V. labrusca* of Europe.) Fox Grape. Branches slender striated pubescent. Petioles short hairy. Leaves ample coriaceous, cordate oval, lobes approximated at the base, trifid angular, denticulate, wrinkled and smooth above, white beneath, nerves yellow. Racemes small. Berries large, depressed and hard. From Canada to Florida and Louisiana, called by many names, Fox Grape, Bullet Grape, Bull Grape, Frost Grape, Tough Grape. In woods and hedges, blossoms in June and July. Leaves ample, rusty beneath when young. Flowers green, peduncles hairy, a short style. Fruit commonly purple, with a hard skin and a tough pulp, taste foxy. Many varieties: 1. *Alba,* berries whitish. 2. *Nigra,* berries black, austere and harsh. 3. *Pruniformis,* as large as a plumb, of a deep purple, fleshy when ripe, called Elkton or Plumb Grape. 4. *Rubra,* smaller red grapes, called Red Fox Grape.

12. *V. labruscoides.* Mg. and Raf. Sweet Fox Grape. Branches round and smooth. Petioles subequal, hardly pubescent. Leaves reniform at the base, trifid or quinquefid, acute, with unequal acute callous teeth, sinusses acute, smooth above, glaucous beneath. Racemes small. Berries large, depressed, juicy and sweet. From New York to Virginia, in woods, &c. Large vine, fruit different from the last, musky rather than foxy, skin thick and austere, but inside when ripe with a sweet rich juice. Var. 1. *Serotina*, Frost Grape, purplish black. 2. *Rubra*, Worthington Grape, smaller berries, juice dark red, sweet and rough. 3. *Pulposa*, Luffborough Grape, berries very large, of a deep purple, pulp dissolving in a sweet musky juice. 4. *Precox*, Early Grape, middle size berries, black, with a white bloom, sweet musky taste, ripe in July in Virginia. 5. *Major*, Big Grape of the Catskill mountains. Berries purplish blue, exceedingly large (one measured by Mr. Eaton was 3 inches around) fine sweet pulpy juice. All highly deserving cultivation.

13. *V. rugosa.* Raf. Roughleaf Grape. Branches round and smooth. Petioles similar, subequal, compressed. Leaves cordate 5 lobed, coriaceous with rounded acute teeth, lobes acute, very wrinkled above, beneath glaucous. Racemes elongate compound. From New York to Ohio, blossoms in June. Fruit unknown.

14. *V. canina.* Raf. Dogs Grape. Branches round and smooth. Petiole striated pilose short. Leaves oval cordate, base subreniform acute, end subtrifid, middle lobe much longer deltoid very sharp, teeth small broad acute, smooth above, with hairy nerves, glaucous beneath, with rusty nerves. From Pennsylvania to Virginia, &c. Fruit large, purple, tough, with a bad foxy taste, hardly edible. Leaves quite ovate, much longer than broad, some large 8 inches long, 6 broad, petiole 4 inches.

15. *V. luteola.* Raf. Variable Grape. Branches slender flexuose, fulvous tomentose. Petioles short similar. Leaves cordate oval acute, base acute, sides hardly angular, nearly entire, denticulate by the mere jutting of nerves, smooth deep green above, yellow tomentose beneath. Grapes large, depressed, hard. In Pennsylvania, &c. Leaves small 4 inches long, 3 broad, petioles 2.

Fruit foxy, tough. Var. 1. Yellow. 2. White. 3. Purple. 4. Red Grapes.

16. *V. ferruginea.* Rusty Grape. Branches rusty tomentose, angular, angles obtuse. Petioles short, rusty tomentose. Leaves cordate trifid coriaceous, base sinus acute, lobes remote, teeth unequal mucronate, smooth above, rusty tomentose beneath. Fruit large, depressed, hard, foxy. In Pennsylvania. Leaves as broad as long, petioles half length, called Fox Grape as well as the last. Grapes commonly pale red, or white tinged of purple.

17. *V. bifida*, Raf. Bifid Grape. Branches smooth purple. Petioles subequal pubescent. Leaves ample coriaceous, cordate ovate trilobe acute, end mucronate, sinus of the base acute, lobes remote, lateral sinusses obtuse, teeth unequal large acute, smooth above, rusty gray beneath. Racemes bifid, grapes small bluish black, acid. From Pennsylvania to Kentucky, one of the Chicken Grapes. Leaves 6 inches long and broad.

18. *V. obliqua*, Raf. Sandhill Grape. Branches slender, hairy, angular, angles obtuse. Petioles very short, hairy. Leaves obliqual ovate cordate trifid acuminate, base cordate acute, lobes near, commonly unequal, teeth unequal, very small, rugose hairy above, glaucous tomentose beneath. Berries white, sweet and juicy. In the sandhills of Arkansas river and Oregon mountains. Leaves small, 3 inches long, 2 broad, petiole only one. Grapes said to be very good. Cultivated at Bartram's garden. Very different from Sand Grape, variety of *V. blanda*, and more like *V. longifolia*.

19. *V. blanda.* Raf. See tab. 100, fig. H. Bland Grape. Branches round and smooth. Petioles striated pilose subequal. Leaves nearly square, cordate or rather split at the base, sinus narrow acute, with lobes overleaping; trifid, sinusses small acute, segments acute, the terminal larger; teeth unequal obtusely mucronate; smooth above, glaucous and sparingly arachmoidal beneath, with rusty nerves. Racemes compound. Berries large and sweet. From Pennsylvania to Louisiana. One of the most commonly cultivated as best for eating and wine: the bunches are large, the berries as large as the common wine grape of Europe, commonly pale purple, with a

thin skin and white sweet musky juice. Many names given to it, Madeira Grape, although a true native, Mazzei Grape, Powell Grape, Clifton Grape, &c. The *raisins de Cote*, or Sand Grape of Louisiana, appear only a variety. The leaves are arachnoidal at first, but often become nearly smooth when old. Many var. 1. *Flava*, grapes of a yellow white. 2. *Viridis*. Green Bland. Fruit smaller, green when ripe, yet sweet and juicy, ripens early in July near Catskill mountains. 3. *Caroliniana*. Smaller grapes. 4. *Arenaria*. Sand Grape of Louisiana and Arkansas. Leaves nearly smooth, except nerves beneath, but similar in shape, grapes dark blue, very sweet, skin thicker. 5. *Heteroloba*. Oddleaf Grape. Leaves with unequal lobes at the base and top, base lobes approximated or overleaping, upper lobes larger unequal sharp, with large teeth. In Ohio. Perhaps some are peculiar species.

20. *V. ciliata*. Raf. See tab. 100, fig. E. Elsinburg Grape. Petioles striated hairy subequal. Leaves ovate cordate 5 lobed, base with remote lobes, sinusses and lobes narrow acute, teeth large remote ciliolate, hairy above, dirty gray beneath, nerves fulvous gray. Berries blue, large, very sweet and juicy. Found in New Jersey. Begins to be cultivated, fruit as sweet as sugar, somewhat like the Bland Grape, but blue, and leaves totally different.

II. Series. *Lasipia*. Berries globular or depressed. Leaves more or less hairy beneath, or at least on the nerves, but neither arachnoidal nor tomentose.

21. *V. longifolia*. Raf. See tab. 99, fig. B. Petioles short and hairy. Leaves oblong cordate, sinus of the base rounded, hardly trifid, or with two longer teeth near the middle, end acuminate falcate, unequal sharp teeth, pubescent above, hairy and gray beneath. Berries blue and sweet. In Arkansas and Texas, bearing fine blue grapes, very sweet. Cultivated by Mr. Hulin, in Philadelphia. Leaves small, about 4 inches long, less than 3 broad, petiole 2 inches: branches slender, round and smooth: old leaves nearly smooth.

22. *V. dimidiata*. Raf. Orwisburg Grape. Branches slender striated smooth. Petioles subequal slender, striated and nearly smooth. Leaves thin, oval reniform tri-

fid, elongate acuminate, teeth large unequal acuminate, smooth above, glaucous beneath, sparingly pilose, chiefly on the nerves. Berries depressed and sweet. Found near Orwisburg, on the Schuylkill, in Pennsylvania, and cultivated in gardens. Leaves very thin, pretty large, about 5 inches long and 5 broad. Grapes very good. 3 Varieties, white, purple, and black. This species appears to answer completely to the description of the *V. riparia* of Poiret, (not of the author's) which was the *Vigne des Battures* of Louisiana, and thus this fine grape is from Pennsylvania to Louisiana.

23. *V. acerifolia*. Raf. See tab. 99, fig. C. Mapleleaf Grape. Trailing. Petiole very short, striated, pilose, redish. Leaves reniform trifid, base dilatate, nerve not marginal : sinusses acute, segments acuminate falcate, teeth very large, unequal and sharp, smooth and pale or glaucescent on both sides, nerves pubescent above and beneath, margin also pubescent. Brought from the Oregon mountains by the expedition of Long, cultivated in Bartram's garden. It has not given fruits as yet, but they are said to be very good and juicy. Leaves very much like those of many Maples, 4 to 6 inches long and broad, a little variable, more or less gashed, sometimes sinusses very narrow, that of the base sometimes round.

24. *V. montana*, Raf. Mountain Grape. Branches decumbent, round and smooth. Petioles round and smooth, longer than the leaves. Leaves cordate trifid acute, membranaceous, unequally serrate, smooth and lucid above, pubescent and pale beneath. Berries small and black. In the Alleghany mountains from New York to Carolina. A small trailing vine, near to *V. Odoratisima*, but leaves larger, petioles longer, flowers hardly odorous, fruit hardly good.

25. *V. concolor*, Raf. Dwarf Grape. Branches procumbent green, round and smooth. Petioles round, smooth, exceedingly short, one fourth only. Leaves very thin, ovate acute subangular, base reniform, margin subangular, with unequal mucronate teeth, both sides green, lucid sparingly pilose. Small vine trailing on the ground, from New York to Missouri. Petioles only one fourth of the length of the leaves. Grapes small, blackish, called Ground Grape and Chicken Grape : this last name is

given to all the small black Grapes, as Fox Grape to all the large and tough indifferently.

26. *V. columbina*, Raf. Pidgeon Grape. Branches round, smooth. Petioles round, subequal nearly smooth. Leaves palmate 5 lobed, base subreniform, lobes bilobe, terminal tailobe, lobules unequally ovate angular acute, sinusses rounded notched, teeth remote callose: upper surface smooth, beneath nerves pubescent and rusty. Racemes slender. Large vine, growing from New York to Louisiana, in woods, somewhat similar to *V. multiloba* in the shape of the leaves, but berries small, blackish, sweetish, eaten by the wild pidgeons like many others.

27. *V. populifolia*, Raf. Poplar Grape. Branches slender, green, smooth and striated. Petioles short, half in length, slender striated, pilose above. Leaves ovate deltoid, acuminate, base truncate or reniform, end hardly trifid, acutely serrate, smooth on both sides, nerves pilose above and beneath, pale beneath. Fruit small and black. Pennsylvania and Alleghany mountains. Leaves 4 inches long, 3 broad, petioles 2. Fruit very small, bitterish, bad tasted.

28. *V. cordifolia*, Mx. P. N. (*V. vulpina*, Torrey and Eaton.) Frost Grape. Branches round and smooth. Petioles slender subequal pilose. Leaves cordate acuminate, sometimes angular, unequally serrate, smooth on both sides, nerves pilose. Racemes loose multiflore. Berries small, pale, acid. In woods and near streams from New York to Carolina. Leaves three to four inches broad. This is one of the Fox Grapes of the Northern States, but very different from the *V. latifolia*, *V. labruscoides*, and the Southern Muscadine Fox Grapes. It is the Winter or Frost Grape of the Southern States: they are small, acid, of a pale or amber color.

29. *V. riparia* of Pursh, Elliot, Torrey, &c. River Grape. Branches smooth striated. Petioles striated pilose subequal. Leaves small reniform trifid acuminate, with large unequal acute teeth, smooth above, hardly glaucous beneath, with nerves and margin pilose. Racemes compound. Berries small. On the banks of streams from New York to Carolina. Flowers very sweet scented; the sterile plant is cultivated under the name of Bermuda vine and Mignonette vine, for the profusion of

the blossoms smelling like *Reseda odorata*. Var. 1. *Viridis*, berries greenish. 2. *Purpurea*, berries purplish.

III. Series. *Hypoleia*. Berries globular or depressed. Leaves smooth beneath, but commonly pubescent at the axilla of the nerves.

30. Sp. *V. odoratissima*, Donn. Sweet scented Grape. Branches and petioles smooth, not striated. Petioles short, half the length. Leaves small reniform trifid, subacuminate, subangular, unequally incisile toothed, smooth and green on both sides, axillas of nerves bearded beneath. Racemes pubescent, lax, compound. Berries pisiform and sweet. From New York to Kentucky, in groves, fields, commonly procumbent, not twining: blossoms in May, flowers very sweet, like *V. riparia*, from which it differs by the petioles, leaves nearly angular laciniate, not pubescent nor ciliated. Many authors have united it to *V. riparia*. Var. 1. *Atropurpurea*, grapes purplish black acerb, on the Ohio and Green Rivers. 2. *Purpurea*, grapes purple and sweet, in Ohio. 3. *Nigra*. Petioles equal to leaves, grapes black, fine flavor, in Ohio. 4. *Alba*. Grapes white, in New York.

31. *V. Amara*, Raf. Bitter Grape. Branches striated and smooth. Petioles very short, smooth, purplish. Leaves cordate acuminate, base obtuse, lobes distant, unequally toothed, teeth rounded mucronate, smooth on both sides, pale beneath, nerves brown, with bearded axillas. Berries small, black and bitter. Found near Philadelphia by Mr. Carr, and cultivated in Bartram's garden. Leaves about 6 inches long, 6 broad, petioles 2. Berries pisiform, intolerable bitter, with two seeds and hardly any pulp.

32. *V. vulpina* or *muscadina*, Raf. (*V. incisa*, Jaq. *V. vulpina*, L., Abbot, Walter, Smith. *V. rotundifolia*, Mx. P. N. Elliot.) Muscadine Grape. Branches pubescent. Petioles subequal smooth. Leaves cordate acute, unequally toothed, smooth and shining on both sides, nerves bearded at the axilla. Racemes with many capitules. Fruit depressed, large, juicy. From Virginia to Florida and Texas, near streams chiefly. It bears a multitude of vulgar names, such as Muscadine, Bullet, Fox and Scupernong Grape: the confusion in the botanical names is as bad, and as they do not apply, I have changed them

all. As I have not seen this species, I have chiefly relied on Elliot's description. The leaves are 2 or 3 inches long and broad. It blossoms in July and August: 6 to 8 flowers to the branches of the racemes. The fruit is large, 7 to 9 lines in diameter, oblate spheroidal or flattened, with a thick skin, purplish or bluish black; taste pleasant, sweet and musky, makes a very good wine.

33. *V. angulata*, Raf. See tab. 99, fig. D. Angular Grape. Branches cespitose, stiff, angular and striated, smooth and purple. Petioles subequal slender subpilose. Leaves small cordate rounded obtuse, with a few large lobular obtuse teeth, base acute, lobes divaricate, shining on both sides, axilla of the nerves bearded, margin subpilose. Fruit black, sweet and juicy. From Carolina to Arkansas and Texas, in glades, forming a bush, seldom climbing. Cultivated at Bartram's garden. Many vulgar names, Arkansas, Bushy, Currant, and False Scupernong Grape. Leaves hardly bigger than a dollar, sometimes purplish beneath: the young ones sparingly pilose on the nerves beneath, as in the series *Lasipia*. Old leaves nearly smooth, angles of the stem acute, fruit small, good.

34. *V. verrucosa*, Raf. Warty Grape. Branches round, stiff, smooth, warty or dotted. Petioles short, smooth. Leaves broad reniform acute, with large acute teeth, base subtruncate reniform, both sides lucid and smooth. Berries large, sweet, and juicy. From Carolina to Arkansas. This is another of the Scupernong Grapes; this name is given in Carolina to all the good juicy grapes. Leaves 2 inches broad, $1\frac{1}{2}$ long, petioles 1 inch. The fruit is white, sweet and good.

35. *V. peltata*, Raf. or *V. floridana*. Florida Grape. Petioles short and smooth. Leaves drooping, ovate cordate acute, base subpeltate, split acutely, lobes approximated, large acute teeth all around, smooth and green on both sides, beneath nerves reticulated prominent with bearded axillas. A very singular species, lately found in Florida, and communicated to me by Mr. Halsey. The leaf is very small, $1\frac{1}{2}$ inch long, one broad, petioles half of the leaf: a prominent net work beneath, formed by

prominent nerves instead of veins, as usual. Fruit unknown.

36. *V. integrifolia*, Raf. flor. Louis, 1817. Orbicular Grape. Leaves orbicular, entire, base hardly cordate, no teeth nor lobes. A doubtful species, inserted on the authority of Robin, but hardly described by him. From Louisiana.

37. *V. poiretia*, Raf. (*V. vulpina*, Poiret.) Chicken Grape. Leaves ample cordate, entire trilobe or 5 lobed, lobes distant at the base, lobes angular acuminate, unequally toothed. Both sides smooth, pale beneath, with yellow veins. Racemes with many ombellules, with a linear lanceolate bract. Berries small and black. This species, which Poiset describes as the *V. vulpina* of L. is totally different from it, and I strongly suspect only a variety of my *V. bracteata*, improperly described as smooth beneath.

38. *V. palmata*, Vahl. Palmate Grape. Branches smooth purple. Leaves palmate cordate, segments lanceolate acute, lateral ones with lanceolate teeth, the terminal serrate. Raceme oblong and short. Only described and seen by Vahl, grown in Europe from seeds sent from America. Perhaps a variety of my *V. multiloba*. Stipules lanceolate. Raceme only one inch long.

IV. Series. *Aglobulia*. Berries not globular nor depressed, but oblong or oval, as commonly in *V. vinifera*.

39. *V. Virginiana*. Poiret. Virginia Grape. Branches smooth and red. Leaves coriaceous, ovate cordate 5 lobed, lobes unequal rounded, terminal large acuminate, teeth unequal short acute, above lucid, beneath with pubescent nerves. Berries oval. Described by Poiret from garden specimens, sent by Mr. Hingston from the Potomac. Racemes nearly simple, pedicels slender. Berry of middle size, of an oval round shape.

40. *V. prolifera*. Raf. (See tab. 100, fig. F.) Prolific Grape. Branches substriated, subpilose. Petiole short, pilose. Leaves cordate acute, of a square form, trifid, trilobe or 5 lobed, base acute with distant rounded lobes, upper lobes and sinusses variable, margin acute serrate above smooth, beneath cinerous tomentose, nerves fulvous. Racemes compound proliferous. Berries large el-

liptical. A very interesting and valuable species, with many varieties, and a multitude of vulgar names, such as *Alexander*, *Tusker*, *Schuylkill*, *Madeira*, *Muscadel*, *Clifton*, *Legoux*, *Cape*, *Isabella*, *Catawba*, *Tokay*, *Muncy* Grapes, &c. all belonging to one kind, although forming several varieties. They are real native grapes, found from Pennsylvania to Carolina and Ohio, in woods. The grapes are plentiful, large, fine, with a tough skin and a rich sweet juice. Already much cultivated and valued for eating and wine. The chief varieties are: 1. *Vulgaris*. Alexander Grape. Petioles longer, leaves larger, variable on the same vine, often lobed, with broad ovate acute lobes and narrow obtuse sinusses. Fruit blackish, as large as the end of a finger. 2. *Isabella*. Isabella Grape, figured here. Leaves commonly trifid, fruit large and purple: found in North Carolina. 3. *Media*. Clifton Grape. Smaller grape than the first, and not so sweet. 4. *Catabiana*. Catawba Grape, from North Carolina. Leaves large, commonly trilobe, grapes purple, lilac or white, according to shade and exposure, flavour musky. 5. *Prunoides*. Muncy Grape. Similar to the Catawba, but taste different, similar to that of Wild Plumbs. 6. *Ohiensis*. Ohio Grape. Grape smaller, white.

41. *V. obovata*, Raf. Oboval Grape. Leaves similar to the *V. prolifera*, on long petioles, commonly cordate, trilobe acute, sinusses acute. Berries large oboval. From Pennsylvania to Virginia, in islands and banks of streams and rivers. Perhaps variation of the last; but it has itself many varieties. 1. *Rupestris*. Large vine, with loose branches, grapes purple, very juicy and sweet. 2. *Nigra*. Grapes loose, few, obovate, nearly black, very sweet. At the head of the Susquehannah. 3. *Pallida*. Grapes pale red, Alleghany River. 4. *Prunoides*. Bluish large grape, like a Plumb.

N. B. By the above enumeration of our Grapes, I have done for this genus what Michaux did for our Oaks. Owing to the great confusion of former authors, and the difficulty of comparing the leaves and fruits of all the species, it is hardly as perfect as I should wish. Rigid botanists may perhaps wish to reduce these species to a minor number, or consider some as hybrids: if they can find good permanent collective characters, let them re-

duce our Grapes and Oaks to a dozen species. But the angular or striated branches, the long or short petioles, the oval, cordate or reniform leaves, &c. must always be deemed essential specific characters, and several of my new species, such as *V. bracteata, V. angulata, V. peltata, V. canina, V. blanda, V. longifolia, V. acerifolia, V. amara, V. prolifera,* &c. must be deemed very distinct. It remains for me to apply the same principle to the Vines of the old continent, which I shall do in a very concise manner, and merely as an illustration of the American kinds.

II. *Section. Account of Exotic Grape Vines.*

42. *V. vinifera,* L. Common Grape. Branches twining cylindric. Petioles subequal. Leaves cordate sinuate 3 or 5 lobed, acute, base cordate, teeth unequally acute, green on both sides. Racemes thyrsoidal paniculated. Flowers all fertile, pistil turbinate. Berries ellipsoid. Native of central Asia, cultivated all over the world. A multitude of varieties and names, perhaps as many as 500; the utmost confusion has been thrown on the subject by writers, and no general classification nor synonymy attempted. The same grapes are often found in France, Spain, Italy, Greece and Asia, under very different names. In this dilemma, I can only offer a first (and perhaps rude) attempt at distinction and co-ordination, and thus divide the principal varieties into 3 series, the last of which he will include 15 species or subspecies, so different from the others in many respects as to be probably peculiar species; nay, 3 of them, *V. labrusca, V. pinnata, V. laciniosa,* have been so considered by many botanists already.

I. Series. Berries oblong, elliptic, or suboboval.

Var.1.*Precox.*Early Grape. Small leaves and branches, grapes small, loose, thick skin, juice insipid, pulp dry. Ripe in June and July.

Var. 2. *Burgundica.* Burgundy Grape. Leaves semi-5 lobed, red beneath, teeth subequal. Grapes black and sweet. 1. French. 2. Italian, larger and sweeter. 3. German, least sweet, austere.

Var. 3. *Edulis.* Chasselas Grape. Long petioles and lobes, teeth broad. Only good to eat. 3 subvarieties:

1. Yellow unequal berries. 2. Red. 3. White-green, musky.

Var. 4. *Moschata.* Muscat Grape. Leaves 5 lobed, with unequal segments and teeth, bunches long, grape very sweet and musky. 6 subvarieties. 1. White. 2. Green. 3. Yellow. 4. Red, rounder grapes. 5. Small black. 6. Black Constantia. 7. Persian. 8. Syracuse red. 9. Gray. 10. Lachryma Christi, black.

Var. 5. *Zibiba.* Muscatel or Raisin Grape. Very large, musky delicious flavor, pulp firm. Sev. var. 1. White. 2. Green. 3. As large as Walnuts, from Mount Atlas. 4. Large white, from Syria. 5. Black, thick skin. 6. Red, from Greece. 7. Malaga white. 8. Sicily white. 9. Damson Grape, large purple like a Plumb.

Var. 6. *Malvesia.* Malmsey Grape. Leaves like Muscat, grape large, juicy, very sweet, not musky. 1. Madeira purple, hard skin. 2. Sicily, purple, smaller. 3. Yellow.

Var. 7. *Nigraria.* Claret Grape, with thick black skin, commonly a bloom on it, juicy pulp, not musky. Subvariety 1. Spanish. 2. Italian. 3. Calabrian. 4. Tripoli large. 5. Lombard or Canaan, with large bunches of 4 to 10 lb. weight. 6. Claret Grape, small, juice red like blood, taste harsh.

Var. 8. *Violacea.* Purple Grape. Skin commonly thick, austere, purplish, pulp firm not musky. 1. Violet color. 2. Light purple. 3. Spanish, a little juicy. 4. Small and harsh. 5. Smyrna, very large.

Var. 9. *Aurea.* Golden Grape. Leaves velvet-like above, not lobed, glaucous beneath, berries yellow oblong, perhaps a peculiar species. 1. Burgundy. 2. Spanish large. 3. Straw Grape, thick vinose juice, delicious perfume, makes the fine golden Straw Wine.

Var. 10. *Versicolor.* Varied Grape. Leaves variegated of red, yellow and green. 1. Grapes mixt of black and white. 2. White and red. 3. Yellow and green. 4. Aleppo black and white. Curious, but indifferent. Perhaps var. of *V. bicolor.*

Var. 11. *Greca.* Grecian Grape, glaucous or pale color, skin rather thick, very juicy, not musky, hardly sweet. 2. Blanquette of France. 2. Medoc. 3. Malaga. 4. Cyprus. 5. Grecian bluish white. 6. White Hamburg.

7. Teneriffe or Vidonia. 8. Madeira Vidonia, producing the strong dry Wine. 9. Bagoal of Madeira, sweeter. 10. Fayal. 11. Sicily Greca. 12. Sicily harsh. 13. Graves. 14. White bitterish. 15. Rhenish or Hock. 16. Lisbon. 17. Alpine acid.

Var. 12. *Perla.* Pearl Grape. Leaves 5 lobed, much cut up. Grapes oblong, hard, greenish. 1. Large Pearl. 2. Small Pearl 3. Sicily Perna. 4. White. 5. Straw color.

Var. 13. *Felina.* Cat's Grape. Small pale green, soft, juicy, disagreeable taste.

Var. 14. *Acetaria.* Verjuice Grape. Leaves ample, nearly round; grapes ovate oblong, larger green, very acid.

Var. 15. *Dulcis.* Sweet Water Grape. Commonly small, with a very thin skin, juice very thin and sweet, no pulp. 1. White. 2. Black. 3. Tokay, white, delicious flavor. 4. Blue Tokay, small brownish, with a blue bloom. 5. Cotnar of Moldavia, green, makes green wine. 6. Nectar of Greece, white styptic. 7. Persian.

Var. 16. *Cuprea.* Coppery Grape, of a brick or copper color. 1. Small sweet. 2. Large. 3. Hard and harsh.

II. Series. Berries nearly round, but yet diameter a little less than the length.

Var. 17. *Oporto.* Portugal Grape. Leaves large, with unequal lobes and deep teeth: grapes large black, with harsh red juice. 1. Common, leaves 4 or 5 lobed. 2. Short bunch, leaves 2 or 3 lobed. 3. Etna or Mascali. 4. Dalmatian. 5. Schiraz in Persia.

Var. 18. *Tinto.* Tinto Grape. Similar to Oporto, but with sweeter and blacker juice. 1. Spanish Tinto. 2. Tintilla. 3. Alicant. 4. Calabria. 5. Grecian.

Var. 19. *Tinctoria.* Coloring Grape. Leaves 5 lobed, deeply toothed, bunches unequal: grapes unequal hard, red, with black and austere juice. Only used to color other wines.

Var. 20. *Crassifolia.* Mansard Grapes. Leaves large and thick, with small teeth; bunches long pyramidal, grapes large and black. 1. French. 2. Asiatic, bunches from 10 to 40lb. weight. 3. Grandifolia.

Var. 21. *Velutina.* Velvet Grape. Leaves trilobe, teeth very unequal; grapes of a fine velvet black. 1. Cahors. 2. Italian.

Var. 22. *Syriaca.* Syrian Grape. Large, of a delicious flavor, juicy, red or black. 1. Damascus black. 2. Jerusalem, red musky. 3. Morillon, black early. 4. Morella of Italy. 5. Lisbon juicy, black. 6. Black Frontignac, musky, smaller. 7. Grisly, mixt of red, brown, and yellow.

Var. 23. *Malvagia.* Malvesy Grape. Similar to Malmsey, but rounder and musky, white or yellow. 1. Cyprus. 2. Sicily. 3. Yellow. 4. Mingrelia or prolific, bunches 10 to 30lb.

Var. 24. *Laxa.* Loose Grape. Petioles slender and gray, leaves hardly lobed, unequally sinuate: grapes large white, loose. 1. Gouais of France. 2. Persian.

Var. 25. *Prolifica.* Prolific Grape. Leaves thick, hardly lobed, sinuate: grapes black, not sweet, austere, middle size or small. 1. Common gamet. 2. Leaves trilobe smaller. 3. Grecian. Are great bearers, but make bad Wine, and spoil the good.

The above include all the chief varieties and subvarieties of what I consider as the original Wine Grape. I shall next enumerate 15 other kinds, commonly considered as varieties, but widely different in the leaves, &c. so as to afford permanent specific distinctions. I therefore propose them as species, or at least subspecies. Linnæus deemed also the *V. laciniosa* a peculiar species.

III. Series. Vines specifically different from the *V. vinifera.*

43. *V. labrusca*, Raf. Wild Grape. Branches trailing striated. Petioles subequal pilose. Leaves ample cordate, 3 or 5 lobed, whitish beneath, (white when young) smooth above, (hairy when young) lobes acute, coarsely serrated. Racemes compound, short and lax, flowers all fertile, petals pilose at the top. Berries globular, small, black and acid. Native of Italy, Greece, Sicily, Barbary, &c. the only wild Grape of Europe, deemed by some the original of all the cultivated Grapes, by others a degenerated kind: both opinions appear false, since it is known by history that the Wine Grape came from Asia, and that it does not change into *Labrusca.* The blossoms are fragrant as in our *V. riparia*, and the berries like the American Chicken Grapes, quite spherical, not eatable nor suitable for Wine.

44. *V. farinosa*, Raf. Mealy Grape. Leaves trilobe, lateral lobes bilobate, covered with a hoary powder, downy in youth. Racemes short compact. Berries oval. Var. 1. Black and large. 2. White and large. 3. White and small. Often called Miller's Grape, good to eat, makes bad Wine.

45. *V. cana*, Raf. Hoary Grape. Petioles thick and red. Leaves hardly 5 lobed, with large teeth, green above, white tomentose beneath. Berries round, yellowish, sweet. Var. 1. Common. 2. Rochelle, leaves 5 lobed, grapes round, white, sweet, subacid, thin skin. 3. Leaves trilobe whiter, yellow grapes.

46. *V. bicolor*, Raf. Black and white Grape. Petioles long. Leaves 5 lobed with double teeth, white tomentose beneath. Berries round soft, black and white on the same branch. Is it a variety of *V. cana?* and is *V. vinifera versicolor* a variety of it?

47. *V. saccharina*, Raf. Sugar Grape. Leaves semi-5 lobed, villose and pale beneath, small subequal teeth. Racemes small conical subsessile. Berries round or oblong, very sweet. Var. 1. Pineau Grape. Oblong dense redish. 2. Griset Grape. Bunch deformed, grape round, gray, perfumed.

48. *V. rufa*, Raf. Mormain Grape. Leaves palmate, pale above, nerves rose color, villose whitish beneath. Berries round loose, rufous, sweet and fleshy.

49. *V. apiana*, Raf. Muscadel Grape. Petioles long. Leaves lobed laciniate, teeth acute, glaucous beneath. Berries round, white or rose. Var. 1. *Alba*. 2. *Rosea*. 3. *Parvifolia*.

50. *V. punctata*, Raf. Dotted Grape. Leaves hardly trilobe, deeply toothed, pale and smooth beneath. Racemes short. Berries oval acute, white dotted of yellow, very sweet. 1. Sauvignon small. 2. Puntillo, larger.

51. *V succinea*. Ambrette Grape. Leaves with acuminate lobes hardly toothed, smooth beneath. Berries oboval musky, transparent. Var. 1. Yellow. 2. Blackish.

52. *V. turbinata*. Ciotat Grape. Leaves 5 parted palmate laciniate, teeth elongate acute, smooth beneath. Berries oboval musky. Var. 1. *Alba*. 2. *Digitata*. 3. *Apifolia*, leaves cut like parsley, grapes red. 4. *Pyriform*. Pear Muscat.

53. *V. laciniosa*, L. Cutleaf Grape. Leaves digitate, 4 to 6 folioles subpinnatifid, unequal obtuse, pale and smooth beneath. Racemes simple oval pendulous. Berries rounded sweet and acid. Var. 1. White oval. 2. White round and small. 3. White and red. 4. *Grandifolia.* 5. *Dissecta.*

54. *V. pinnata*, Vahl. Branches smooth, round purplish. Leaves with 5 folioles, ovate petiolate serrate smooth, terminal lobe subsessile, lower ones often auriculate outside, pale and smooth beneath. Racemes twice compound, partial ombellulate. Grape not known. Genus doubtful, folioles 2 inches long.

55. *V. corinthiaca*, Raf. Currants Grape. Leaves large 5 lobed, lobes laciniate by long acute teeth, downy beneath. Berries small and round. Var. 1. White. 2. Red. 3. Transparent. 4. Sultana or Apyrena, without seeds. Native of Greece.

56. *V. maura*, Raf. Morocco Grape. Leaves subpalmate, teeth long acute, smooth beneath. Berries like a heart, unequal, large. Var. 1. Violaceous. 2. Tawny. 3. Very large purple. Native of North Africa, Morocco and Bombay.

57. *V. cylindrica*, Raf. Long Grape. Leaves ample, lobes and segments very unequal. Berries cylindrical, straight or curved, commonly acute, with hard pulp and two acute seeds. Var. 1. Olive Grape, oblong cylindrical greenish. 2. Long cylindrical, very hard. 3. Oblong, juicy, white. 4. *Incurva.* Curved yellow. 5. Curved oblong obtuse, green. 6. Curved, brick-red, acute. The French call this grape *Cornichon*, the Italians *Dattola* and *Oliva*. It is very good to eat, but rather insipid and not good for wine; grapes one or two inches long.

Here ends the supposed varieties of *V. vinifera*, and begins the series of tropical Vines or *V. indica* of authors.

58. *V. indica* of Rheede, L. Malabar Grape. Leaves cordate without lobes, smooth beneath, teeth acute. Berries globular and red. In Malabar and India.

59. *V. flexuosa*, Thunberg. Japan Grape. Branches smooth in zigzag. Leaves cordate acute serrate, downy beneath. Flowers glomerate in long panicles. In Japan, called there Itodori.

60. *V. glomerata*, Raf. (*V. indica* of the West Indies.) Tropical Grape. Branches gray pubescent. Petioles long tomentose. Leaves oval acuminate, base reniform, denticulate, cinereous pubescent beneath, Racemes tomentose pedunculate glomerate long. Berries glomerate subsessile, globular and red. In Cuba, Hayti, &c. The grapes are of middle size, 3-4 seeded, edible.

61. *V. maritima*, Raf. Seaside Grape. Leaves cordate rounded, acute with small teeth, tomentose and white beneath, tendrils floriferous. Berries small globular red, rough, harsh, and acid. In Jamaica and Yucatan, on the sea side. Grapes not larger than currants and very much like them, not edible, and yet make a good Wine. The twigs, when cut, distil a cool water. Many other kinds of Vines appear to grow in tropical climates, perhaps different from these 4 last, and the grapes of Mexico, Brazil, Africa, Abyssinia, Persia, Thibet, China, &c. have never been described as yet. The 3 south African grapes of Thunberg, *V. pentaphylla*, *V. capensis*, and *V. cirrhosa*, are probably species of *Quinaria* or *Cissus*.

62. Another species, *V. heptaphylla*, L. is said by Smith to be merely the *Aralia sciodaphylla*, yet by Poiret's description it is a true *Vitis*, although it has the habit of *Quinaria*. It is a native of the East Indies. Leaves with 7 folioles (or 5 to 8) ovate entire, panicles branched, flowers verticillate. Calyx 5 toothed, 5 petals cohering at the top. 5 stamens, a sessile stigma as in *Vitis*.

III. *Section. Qualities and Properties of Grape Vines and Wines.*

Every part of these useful Vines is valuable and available. The countries where they are a staple, boast of being blessed above all others, and are envied by their neighbours. The ancient nations have cultivated them from the most remote antiquity, and ascribe their introduction to primitive legislators and benefactors. The Hindus, Persians, Armenians, Arabs, and Jews to Nahusha or Noah. The Greeks said that Bacchus carried them from Asia to Greece and India, Saturn to Crete, Orestes son of Deucalion, to Sicily, Osiris to Egypt, Janus to Italy, Geryon to Spain, &c. Their various uses

were known very early, and many Wines made at very early periods.

Vines live from 100 to 500 years, when allowed full scope, their roots and stems become very large, sometimes several feet in circumference. The bark is used for straps, ropes, baskets, mats, &c. The wood of the root and stem is very hard, and has a fine grain; it resembles Walnut and Cypress, is employed to make tables, doors, implements, &c. which are very durable; it is too valuable for burning when large. The branches and twigs are chiefly used for burning, and fagots made with them after trimming the Vines; much used in vine countries for ovens, to light fires and cook, &c. In the spring, the vernal sap of the Vines is similar to water, and very cooling.

The leaves are used for many purposes, to carry fruits, butter, and saleables to market, to cover, clean, scour, &c. Cattle are fond of them: they are given to cows, goats, and hogs. They form one of the best manures for the Vines themselves. A kind of Wine may be made of them with sugar.

The blossoms of the fragrant kinds are used as perfume, and to give this perfume to Wine, being put in when fermenting.

From the Grapes are made, 1. Verjuice. 2. Must. 3. Syrup. 4. Grape butter. 5. Sugar. 6. Wines. 7. Boiled Wines. 8. Nectar. 9. Piquette. 10. Lees. 11. Vinegar. 12. Brandy. 13. Alcohol. 14. Varnish. 15. Preserves. 16. Pies and Tarts. 17. Raisins. 18. Tartar or Argol. 19. Cordials. 20. Perfumes, &c. and they are one of the most palatable and healthy fruit of the table, of which there is a succession from the end of June to November: they may even be preserved fresh the whole winter in saw dust, and are thus exported.

The seeds of Grapes are eaten by fowls, pidgeons and birds; they are astringent and oily. A fine fixed oil is made from them by pressure in Parma, Lombardy, and other parts of Italy, similar to Olive oil, and used for burning and frying. The husks and peduncles are a valuable manure. When burnt, they make the best Potash used for soft soap. Argol or Tartar is extracted from the lees or settlings of Wine, and is incrusted in the

vats and casks: burned lees are called *Wine ashes.* From Argol are made tartaric acid and cream of tartar. Acetic acid is made from vinegar.

Verjuice is the juice of unripe Grapes and chiefly of the Verjuice Grapes, which never ripen. It is acid and harsh, containing malic acid, tartrate of potash, and extractive. It is used as a condiment like vinegar and lime juice. It is cooling and laxative: a peculiar Wine can be made with it by the addition of sugar, which resembles fine Cider or Champaigne, according to the mode of fermenting.

Ripe Grapes contain 1. Tartaric acid. 2. Sugar. 3. Water, and 4. Mucilage, in different proportion, according to the kinds: these are the essential elements of Wine before fermentation. The adventitious elements are: 1. Malic acid. 2. Carbonic acid. 3. Potash. 4. Tannin. 5. Aroma. 6. Coloring principle, which are not always present, except tannin, which is always found in the husk or skin, as well as the peduncles and seeds of the Grapes. Ripe Grapes are cooling, antiseptic, and nutritious: when eaten in large quantities, they become diuretic, laxative, and pectoral. They form an excellent diet in all inflammatory diseases, incipient phthisis, phlegmasis, convalescence from fevers, &c. The sweetest and well flavored kinds are the best, all the harsh and bad tasted are only fit to make Wine. It is with Grapes as with Apples, the best for the table do not always make the best Wine or Cider. Among American Grapes, out of 40 species, we have only 17 suitable to make good Wine, and among these only 8 very palatable, such as the Bland, Alexander, Scupernong, Muscadine, Elsinburg, Owisburg, River and Maple Grapes, with their varieties.

Raisins are the dried Grapes, which is commonly done by scalding the bunches in boiling water with ashes, which shrivels them, and next hanging them on strings to dry in the shade. A few are dried in the sun in very warm countries. These operations dissipate the water of the Grapes; they diminish the acid and increase the sugar, which often crystallizes spontaneously in them. Raisins are less cooling than Grapes; nay, eaten in quantity, they are heating and flatulent. Boiled Raisins

are almost restored to the primitive state of Grapes; they become very emolient, pectoral, and laxative. We could make raisins in America with most of the 8 kinds mentioned above as palatable, and also with some of the large Fox Grapes.

Many culinary preparations are made with fresh Grapes and Raisins, such as pies, tarts, plumb puddings, dumplings, preserves, jellies, &c. In America, we use for pies and tarts almost all the kinds except the bitter sort, and even the smallest Chicken and Pidgeon Grapes: they improve and enlarge by cooking. Grape Butter is made like Apple Butter, by boiling the Must or juice of the Grapes to the consistence of honey; it is much used in Europe and Asia, the French call it *Raisinet*; the best is made sweeter and granular by the addition of sugar, and is then one of the greatest delicacies. We could easily make it with our Grapes.

The unboiled and unfermented Must or recent juice is used as a pleasant and cooling beverage, with water and sugar, all over the Oriental countries; it is called *Sherbet*, and much liked by the Mahometans, who are forbid the use of wine; several kinds are made by the addition of raisins, cinnamon, rose water, spices and other ingredients; the best is cooled with snow. Syrup and sugar can be made from Must and raisins. The Must of sweet Grapes give a syrup by condensation or evaporation, which prevents fermentation; and raisins boiled to a pulp and strained give the same. This syrup has the flavor of the grape, and may be used like any other syrup. From it sugar is made by chemical operations, concentration, saturation, separation of water, granulation, &c. The Grape Sugar is peculiar, it never crystallizes perfectly, commonly forms lumps, and it is difficult to bleach it; but it makes very good and sweet coarse sugar. In Europe, the manufacture has been tried on a large scale, but chiefly in France, where the Grapes are not so saccharine as in Spain, and the preference has been given to the better and whiter home sugar of Beets and Chesnuts.

But WINE is the chief and most useful produce of the Grape. It is the juice of the Grape altered by the vinous fermentation. There are innumerable kinds of

Wines produced by the various Grapes, their mixture, climate and soil, cultivation and manipulation, care and skill. Perhaps 3000 kinds! of which 500 in France, 700 in Italy, 600 in Spain and Portugal, 100 in Germany and Hungary, 300 in Greece and Turkey, 100 in Persia, 200 in Thibet and China, 150 in Egypt and Barbary, 30 in South Africa, 50 in the Atlantic Islands, 60 in North America, 40 in South America. But several of these differ little from each other.

The chemical analysis of Wine gives, 1. Water. 2. Alcohol. 3. Sugar. 4. Carbonic, tartaric, and malic acids. 5. Tannin. 6. A coloring matter. 7. A volatile oil different in each Wine, and producing the bouquet or perfume distinguishing them. The predominance of these principles affords the best classification of Wines into 8 classes, red, white, sparkling, acid, astringent, strong, sweetened, exquisite Wines.

1. *Red Wines* owe their color to the coloring matter; they are the most common, often called table Wines or Clarets, they vary from pale purple to black, and from the thinness of water to the thickness of syrup. When new, or less than three months old, they are less agreeable, difficult to digest, flatulent, liable to irritate and inflame the bowels. When from 3 to 18 months old they are palatable and perfect. When older they become better still, lighter, milder, and healthier, very stomachic and reviving.

2. *White Wines* are made with white Grapes or red Grapes without husks, they are commonly limpid, thin and dry, whence often called Dry Wines or Sack. The color is white, pale, yellow or brownish. They are milder and less acid than the red Wines, very diuretic and useful in dropsies. Such are Hock, and Sherry.

3. *Sparkling Wines* contain an excess of carbonic acid. Commonly called Champaigne, white and frothy, very mild and healthy; but liable to affect nervous persons.

4. *Acid Wines* have too much malic acid; they are thin and sourish, but very cooling. The northern and mountainous countries afford hardly any other, the grapes being deficient there in sugar. Several American grapes

can produce no other unless sugar is added. The colors are white or pale red.

5. *Astringent Wines* contain more tannin, they are commonly red, rough and austere. Such are Port or Oporto, Catalonia, Roussillon, &c. Useful for persons of lax fibres, or who have undue evacuations; but liable to bring on gout.

6. *Strong Wines* have an excess of alcohol, which makes them affect the head; they are commonly white or brown. Such are Madeira, Teneriffe, Lisbon, &c. Unless drank very moderately, they produce intoxication, dyspepsia, inflammation, and chronic diseases.

7. *Sweet Wines* contain much sugar, some strength and perfume, they are commonly white or pale, but some are red also, commonly thick, luscious, delightful, acting as mild cordials, and very nourishing. Such are Cyprus, Malaga, Lachryma, Muscat, Malmsey, Constantia, &c. Used moderately, they are reviving, tonic, stimulant, and useful in all diseases of debility.

8. *Exquisite Wines* abound in delicious and fragrant aroma, are sweet, but not strong. Such are Tokay and Nectar, the best of all Wines or Cordials, the best kinds of which sell on the spot at $15 the bottle, or $60 the gallon, while common table wines often sell in Europe at 5 cents the gallon. The finest perfumed sweet Wines may be concentrated by frost into exquisite Essence of Wine.

Some of the most famous or valuable Wines are the following kinds: each has its peculiar flavor.

French Wines. 1. *Sillery*, amber color, dry, fine perfume, stomachic. 2. *Rose colored Champaigne.* 3. *Moselle*, white, light, agreeable. 4. *Straw Wine*, similar to Tokay, made with Grapes kept on straw till spring. 5. *Rangen*, white, very strong, bad for the nerves, may cause palsy. 6. *Pineau*, sweet, light, fragrant. 7. *Vouvray*, sweet, soft, strong, white. 8. *Grosnoir*, black, thick, rough, looses color and taste by age. 9. *Burgundy*, red, brisk, delicate. 10. *Coted'or*, red, strong brisk, high flavor. 11. *Auxerre*, red, fine, delicate, fine bouquet. 12. *Leclos*, white, quite limpid, fine. 13. *Chambertin*, red fine, sweet perfume. 14. *Volnay*, red, very fine, delightful smell. 15. *Grillet*, white brisk perfumed, sweet

when young, dry when old. 16. *Hermitage*, red fine perfumed. 17. *Golden Hermitage*, golden color, delicious perfume and flavor. 18. *Medoc*, or best perfumed Claret, 19. *Graves*, white Claret. 20. *Roussillon*, red, rough. 21. *Muscat*, white, sweet, delicious. 22. *Ciotat*, similar, but thin. Most of these best wines are drank as luxuries or medical tonics, and the very best are seldom exported, costing from 1 to $5 the bottle.

Spanish Wines. 1. *Tinto*, black, thick, strong. 2. *Tintillo*, ditto red. 3. *Seco*, white dry bitterish. 4. *Xeres*, or Sherry, white, dry, nutty, strong. 5. *Paxaret*, white sweet, high flavor. 6. *Grenada*, amber color, very sweet when young, losing the sweetness by age. 7. *Albaflora*, like Hock, white, not so dry. 8. *Sweet Malaga*, brown, sweet, strong, a fine cordial when old. 9. *Dry Malaga*, whiter, thinner and dry. 10. *Alicant*, red, strong, very tonic. 11. *Catalonia*, red and rough like Port. 12. *Malmsey*, sweet, redish, fine flavor. 13. *Red Malaga*, fine strong. 14 *Salamanca*, pale red fine.

Wines of Portugal are commonly called *Port* when red, and *Lisbon* when white: both are strong and rough, but improve by age, unless adulterated as usual with brandy. 1. *Carcavelos* is the sweet Lisbon. 2. *Bucellas*, the dry Lisbon. 3. *Setubal*, like Muscat. 4. *Minho*, best pale Port. 5. *Douro*, very rough.

Italian Wines. 1. *Chiaretto*, pale red fine. 2. *Pennino*, white, thin like water, acid, made in the Alps and Appennines. 3. *Florence* or *Tuscany*, similar to Burgundy, thinner, cannot keep. 4. *Lombard*, *Modena* and *Montserrat*, red thin acid. 5. *Montepulciano*, red, strong, hot. 6. *Vicentino*, red, strong. 7. *Falerno* and *Salerno*, red delicate. 8. *Calabrese*, black thick sweet. 9. *Tarento*, red, rough. 10. *Malvagia*, sweet, strong, delicate. 11. *Lacrima*, red, sweet, strong, perfumed. 12. *Moscatello*, yellow sweet luscious. 13. *Nobile* and *Vergine*, exquisite, similar to Tokay. 14. *Rosolio*, or *Fiascone*, white, sweet, thick, like a cordial. 15. *Paglino*, straw color, fine. 16. *Agrodolce*, sweet and acid, white. 17. *Venacio*, black and thick. 18. *Puglia*, pale red, brisk. 19. *Viterbo*, red and rough. 20 *Trappola*, sweet and bitter. 21. *Amaro*, red bitterish. 22. *Zafferano*, saffron color. 23. *Doro*, golden sweet. 24. *Albano* and *Sangui-*

nello, bright and pleasant. 25. *Greco*, yellow pungent sweet. 26. *Morello*, black strong. 27. *Vesuvio*, red strong. 28. *Ischia*, pale strong. 29. *Pergola*, pale, thin, flat. 30. *Passola*, fine, made with shrivelled grapes. 31. *Miele*, yellow, as sweet as honey. 32. *Corsican*, similar to Catalonia. 33. *Sardinian*, similar to Burgundy, many kinds. The Italian wines are hardly known out of Italy, being seldom exported; those of south Italy alone keep well.

Sicilian Wines. 1. *Di Pasto*, pale strong. 2. *Catania*, similar, with the pitch taste. 3. *Mascali*, red, strong. 4. *Etna*, white, firy. 5. *Palermo*, pale red, strong, but thin. 6. *Castelvetrano*, yellow, strong, limpid. The Marsala or Sicily Madeira is made with this Castelvetrano, brandy, bitter almonds, &c. well fined and kept two years. 7. *Tusa*, sweet brown, flavor of Cyprus. 8. *Siracusa*, sweet strong, yellow like Muscat. 9. *Noto* and *Lipari*, strong pale rough. 10. *Modica*, pale red, flavor of Malaga.

Swiss Wines. 1. *De Vaud*, dry like Rhenish. 2. *Neufchatel*, red, like Burgundy. 3. *Boudry*, red, good flavor. 4. *Montagnard*, thin and acid.

German Wines. Commonly dry and acid. 1. *Treves*, a specific for gravel. 2. *Hock*, white, very dry. 3. *Rhenish*, white delicate. 4. *Berg*, strong and perfumed. 5. *Heidelberg*, fine red. 6. *Bohemia*, like Burgundy. 7. *Danube*, delicate, do not keep. 8. *Austrian*, greenish, strong. 9. *Styrian*, pale strong. 10. *Spitz*, fine. 11. *Tyrol*, red, weak.

Hungarian Wines. 1. *Auspruck Tokay*, white, luscious, soft, mild, oily, exquisite. 2. *Marlas* and *Common Tokay*, inferior, thinner. 3. *Szeghi*, white, aromatic perfume. 4. *Moda*, nearly similar to Mazlas. 5. *Zombor*, strong, pale red. 6. *Matra* and *Arad*, red, sweet, strong wines.

Russian Wines. Only produced in the South. 1. *Zimlansk*, red, fine. 2. *Don*, white, fine. 3. *Tangarog*, disagreeable taste. 4. *Kaffa* or Champaigne of Crimea. 5. *Sudagh*, white, sweet, similar to Hungarian. 6. *Cutnar* or Moldavian, green, very strong.

Grecian Wines. 1. *Carlovitz*, red, fine brisk. 2. *Posega*, white, fine flavor. 3. *Dalmatian*, red, strong fine.

4. *Lissa*, dark red, very strong, the strongest of all wines. 5. *Morea*, red perfumed. 6. *Napoli* Malmsey. 7. *Malmsey* of Mount Ida in Candia. 8. *Nectar* of Candia, exquisite, delicate sweet. 9. *Sumos*, sweet and acid white. 10. *Nectar* of Scio, sweet astringent. 11. *Scio*, pale red, fine. 12. *Tenedos*, like Medoc. 13. *Tenedos*, red Muscat. 14. *Santorin*, very sweet and agreeable, but sulphurous. 15. *Pitch wine*, brown, with the taste of tar. 16. *Holy wine*, very fine. 17. *Cyprus*, sweet perfumed, red when young, yellow when old, similar to Malaga, a fine cordial and stomachic.

Asiatic Wines. 1. *Smyrna*, red, strong, fine. 2. *Astracan*, red, similar to Lacrima. 3. *Caspian*, like Moselle. 4. *Caspian*, Champaigne. 5. *Kuma*, red light thin. 6. *Tartary*, strong, made very intoxicating by poppies. 7. *Tiflis*, fine wine made from wild grapes! 8. *Armenian*, red and white, fine strong. 9. *Syrian Claret*. 10. *Damascus*, golden dry. 11. *Lebanon*, thick perfumed red. 12. *Gold wine*, yellow, from Syria. 13. *Jerusalem*, white good. 14. *Sana* in Arabia, good. 15. *Shiraz*, red harsh, high flavor. 16. *Nectar of Shiraz*, white sweet, strong perfumed. 17. *Ispahan*, white fine. 18. *Tabriz*, red and white, many kinds. 19. *Shirvan*, red like best claret. 29. *Afgan*, similar. 21. Many wines in Bukaria, Thibet and China, hardly known.

African Wines. 1. *Jews wine*, red, good. 2. *Berber*, white, fine. 3. *Madeira* or *Vidonia*, dry, strong, yellow, flavor of bitter almonds. 4. *Bagoal* of Madeira, sweeter. 5. *Pingo*, Malmsey of Madeira, exquisite. 6. *Tinto* of Madeira, red, perfumed, austere, useful in dysentery. 7. *Canary*, white, similar to Lisbon. 8. *Vidonia* of Teneriffe, similar to Madeira when old. 9. *Gomer*, white, sharp, limpid as water, flavor of Madeira. 10. *Palma*, yellow, light dry. 11. *Palma Malmsey*, flavor of Pine apple. 12. *Fayal*, white, thin, strong. 13. *Azorian*, pale red, like light Port. 14. *Constantia*, red, highly perfumed, sweet. 15. *Cape* or *Henapop*, less perfumed. 16. *Stony*, dry like Graves. 17. *Rota*, red, strong. These 4 last from the Cape of Good Hope.

South American Wines. Only made in Chili, Cuyo, Tucuman, &c. little known, similar to Catalonia, pale red. In the Andes of Peru wine is also made, but weak

and bad tasted. The wine made in the West Indies with *V. glomerata* and *V. maritima*, is red, harsh acid.

North American Wines. Are made from Canada to Mexico, chiefly from native grapes. In the United States, 17 species can make good wine, either alone or with a little sugar. The principal wines already made are, 1. *Vincennes*, pale red, light. 2. *Vevay*, red, acid. 3. *Vevay prime*, brown and sweetish, fine. 3. *Alexander*, pale red, flavor of raspberries, and similar to best Burgundy, made with *V. prolifera*. 4. *Bland*, acid, strong, yellow, made with *V. blanda*. 5. *Lufborough*, red, rich, fine musky flavor. 6. *Catawba*, yellow, fine body and perfume. 7. *Scupernong*, yellow, limpid, very strong, firy when brandy is added. 8. *Muscadine*, yellow, sweet perfumed. 9. *Catskill*, strong, between Madeira and Port in taste and color. 10. *Coopers*, brown, similar to Lisbon, but acidule. 11. *Elsinburg*, fine flavor. 12. *Orwisburg*, very fine, white. 13. *Isabella*, pale and fine. 14. *Worthington*, similar to Port. 15. *Winter wine*, dark red, acid and harsh. 16. *York*, red, harsh. 17. *Harmony*, red, acid, good. 18. *Alabama*, brown, fine, &c. The European vines thrive in our gardens, and produce good eatable grapes with some care; but are often injured in the fields by late frosts, and do not ripen well, or give a thin acid juice unsuitable for good wine: we must, therefore, rely on our native hardy grapes, some of which are equal to the best exotic.

The Mexican wines made from Spanish vines, produce wines similar to Spanish, but little known as yet.

Good wines have wonderful effects on the human system. Externally they are useful in frictions and lotions, in cases of local debility; they may restore to life new born and very weak children, likely to die, by merely rubbing it on their stomach.

Internally they are good for suckling infants, troubled with worms, or with weak bowels, a teaspoon full is sufficient for them with milk or sugar. A popular vermifuge for children in Italy, is a mixture of wine, lime juice, olive oil, and sugar. Children, youths, and females ought to abstain from the daily use of it, and then it will be a cordial for them in almost all the diseases. The use of wine as a beverage ought to begin

only when the body is ripe, and always with moderation, avoiding all those adulterated by brandy or pernicious ingredients, as are Madeira, Port, and Sherry, which are never pure ; the best wines for daily use being the French wines, Clarets, Burgundy, Malaga, Lisbon, Fayal, Samos, Cyprus, besides our own American wines.

In old age good wines become more needful, they support strength and life. Plato called them the *milk of old age.* An old Italian proverb says, that *milk is the wine of youth, but wine the milk of old age.* Aged people can indulge with benefit in their daily use, but never to excess, and always with water in large proportion.

Temperance does not consist in abstaining from wine, but in using with moderation, and with water, none but the good and mild. The Temperance Societies lately established with us, have done a great deal of good in checking the vile habit of drinking spirituous liquors, but have done wrong in proscribing such wines : they ought merely to proscribe the vile trash called *Port* and *Madeira,* which are not *Wines,* but impure brandy mixtures or *Wine Grogs!* and encourage the importation and cultivation of mild healthy wines for substitutes. Christians and Jews can never abstain altogether from wine like the Mahometans, since it is needful in some of their religious rites.

When wines are drank in extra doses, they produce hilarity, and in excess intoxication. In both cases they quicken the pulse, stimulate all the organs, inflame the fluids, excite the mind, the nerves and head are more or less affected ; but this excitement is followed by drowsiness, head-ache, sleep, dejection, relaxation, stupor, diarrhœa, stupidity, or madness. All these effects are owing to the brandy or alcohol contained in the wines, thus they depend on their amount in each dose or glass, and on the habit of the drinker. Children may be intoxicated by a single small glass. Drunkards get gradually used to wines, and require more and more to affect them, thus losing for them altogether its medical effects. At last their bloated red face shows the appetite to have become a disease, *Oinomania,* or craving for wine, and they become liable to a multitude of chronic

diseases, gout, epilepsy, pleurisy, palsy, tremors, nervous diseases, liver complaints, dropsy of the chest, consumptions, inflammatory fevers, dyspepsia, madness, apoplexy, &c. and they entail them on their offspring!

This disease is rare in wine countries, not one in 500 becoming drunkards there, as they are despised and hooted; while in countries where wines are scarce, England, Sweden, Russia, and the United States, five at least in 100 become drunkards, and get beastly drunk on strong liquors and strong wines, rum, brandy, whiskey, Port and Madeira, without being despised as they ought, drunkenness being rather considered as a bad habit or infirmity, than a moral disease or shameful vice. The best cure for drunkenness are abstinence, mild and cooling drinks, bathing and emetics, besides moral restraint, religious feeling, and public opinion. *There would be no more drunkards if they were all despised and avoided by men and women! or put into hospitals as sick, insane, vicious, and criminal.*

The medical properties of good wines on temperate persons are numerous. They are useful in all atonic diseases arising from debility, in scrofula, scurvy, rachitis, paleness, leucorrhea, promoting digestion, stimulating the heart, increasing the heat of the body. They are the best vehicles for tonic medicines used in all fevers, debilities, prostrations, &c. Wine is to be forbid or avoided by those who have a nervous, irritable, or plethoric constitution, or some inflammatory diseases; but even then some acid wines, well watered, may be available and serviceable.

Several modifications of wine deserve to be known. *Must* is the pure unfermented juice. *Pure wine* is made of Must alone. *Impure* or *brewed wines* have ingredients added. *Colored wines* have a coloring matter added. *Mixed wine* is made with different grapes. It is *adulterated* when wines are united after fining. *Brandy* WINES are those adulterated by brandy, like Madeira and Port. *Moustille* is sharp and sweet wine still fermenting. BOILED WINE is reduced and thickened by boiling. *Piquette*, wine made by throwing water on the husks after pressure, it is like cider, and is drank without water by the labourers. *Protopion* wine made without pressure

by mere percolation of the grape, such is Tokay. *Deuterion* of the Greeks, is pressed, or rather wine made by mashing the grapes. *Nectar* is made by a slight pressure of the sweetest grapes. *Essence of wine* made by exposing wine to frost, throwing off the icicles, and thus concentrating the strength. It may be made as strong as brandy, without its pernicious quality, is very portable retains the perfume, and may be restored to wine by adding water. *Honey of wine*, congealed by age in 100 years to the state of honey, may be restored by warm water. *Solar wine*, exposed to the sun, made by it thicker, sweeter, and milder. *Crust of wine*, some thick wines, such as Arcadian or Morea, become hard and dry like salt or argol by age, may be dissolved again in warm water. The *Lees* or settlings of wine, are deposited by fermentation and fining, they are rich in argol and potash : from those of the best wines is made the *Oil of Wine*, by a very slow distillation with water. This oil which has the flavor and perfume of the peculiar wine it comes from, serves to give it to other wines, or to make false brandy with alcohol and water.

Quelled wine is such as was stopped in fermenting by throwing cold water in it, or exposure to cold weather. *Eager* or Pricked wine is becoming sour by the acetous fermentation having begun. *Flat wine* has lost its flavor by being exposed to the air or other means ; many poor wines become flat or sour by age ; they may be restored by chemical processes, lime, plaster, brandy, oil of wine, &c. *Burnt wine* is any wine made hot, but not boiled and drunk with spices, &c. useful for gout, cholics, and chills. Wine is often employed in cookery, for sauces, soups, ragouts, stews, puddings, and jellies ; it is always preferable to brandy and stronger liquids ; the ancients used to boil some fish in wine instead of water as a luxury.

Medicated wines are vehicles of various soluble medicines, chiefly tonics, emetics, and febrifuges. They are excellent preparations, although latterly some deluded physicians have preferred alcoholic tinctures, which are pernicious, unless used merely in drops. Wine tinctures are milder, more palatable, and quite as efficient. Those of iron, gentian, opium, colchicum, &c. are much

used. The Iron wine was known to the ancients; it was made by putting rusty nails into it, or quenching in it nails made red hot: it is a powerful tonic and restorative. The Emetic wine is now made with tartar emetic dissolved into wine: it is one of the most certain and less disagreeable emetics. Every febrifuge medicament ought to be given in mild wine, as it increases the effect.

Vinegar is the result of acetic fermentation; the best is made with sour wine, both red and white. Any bad wine unfit to drink becomes vinegar by itself after a while. When wanted quick, it must be put into a barrel washed with boiling water. Vinegar is used as a condiment in sallads and many dishes: to make pickles, sauces, syrup, distilled vinegar, acetic acid, medicated vinegars, perfumed vinegars, &c. It is highly medical, antiseptic, refrigerant, analeptic, &c. The external use of it is very useful in fevers, head aches, syncope, asphyxia, hysteric and nervous affections. From it are made the vinegar of squills, colchicum, opium, camphor, &c. Vinegar can be discolored and made as clear as water, by filtration over animal charcoal or burnt bones: and it is then a good vehicle for perfumes, scented waters and washes used by ladies. The ancient Romans drank vinegar and water. A kind of lemonade may be made with it and sugar. The syrup of vinegar is very refreshing in summer. Pickles are only good when the substances pickled are healthy, thus boiled beets, carrots, onions; tomatos, &c. make good pickles, while pickled cucumbers, walnuts, cayenne pepper, &c. are very bad and unhealthy.

Braudy is distilled wine, consisting of alcohol, water, and the peculiar oil of wine. It contains over one half of alcohol. Wines produce more or less brandy, according to their strength, many weak French wines produce only one-fifth. The quality of the brandy depends on the wine, and the mode of distilling it. When new it is as clear as water, but gets a coloring in the oak casks: it is also colored by burnt sugar, and thus is always impure. By age it loses its firy taste, and becomes mellow or milder. It is always unhealthy, even drank moderately and with water, but perhaps less so than rum and whiskey. It speedily produces the worst kind of

intoxication and the disease of intemperance. It acts on the stomach and brain as a pernicious stimulant and corrosive. It is, however, used medically in sudden chills of the stomach by gout or cold water; but warm wine has exactly the same effect. Externally it is often employed in bruises, contusions, wounds, sprains, as a stimulant and resolvent. A peculiar kind called aniseed brandy, (*Zambu* in Sicily) is made in Italy with wine and aniseeds, which makes water milky. Brandy is called oil proof when lighter than olive oil, a drop sinking in it. To know how much oil proof brandy any wine will give, boil slowly a measure of it, as soon as the vapour rises set fire to it, and when the blaze subsides, take it from the fire and measure it again; the deficiency will be the brandy contained in the wine. A very pernicious custom consists in adding brandy to weak wines; brandy thus added never amalgamates well, decomposes the wine by a slow process, and changes the wine into bad grog! Whenever strength is required in wine, the brandy must be put in the Must before fermentation, by which it is incorporated and modified; the alcohol of wine is always so chemically combined as to be harmless. Fruits preserved in brandy are very unhealthy.

The only proper use of brandy is to make alcohol by a second distillation: this of course can only be done in wine countries, where wine is worth 5 cents the gallon, and brandy 20 cents, when alcohol comes to 50 cents only. Alcohol being the principle of all fermented liquors, and a chemical alteration of their sugar, is produced by cider, beer, rum, arrack, rice, and barley malts, at a rate nearly as cheap. Alcohol is a violent poison taken in any quantity, it burns and corrodes the stomach like aqua fortis; but externally it is a good stimulant and strengthen ng tonic. It is, however, much used in medicine and the arts, being a powerful solvent of many substances, resins, oils, &c. With it are made medical tinctures, elixirs, sweet scented essences, lotions, varnishes, cordials, &c. Used also to preserve animals for museums; but it has the defect to destroy their colors. It ought to be much diluted when for internal use. It is saturated with sugar to make cordials, and thus rendered

milder and luscious; but yet the alcoholic cordials are pernicious, even in small doses, and pure good wines are by far better for all the purposes of cordials. The best use of alcohol is for economical fuel to heat and cook in tin vessels.

Wine and water is, after all, the best of all beverages, and the most healthy, when mild wines alone are used. Wines of good body are those that bear a great deal of water without losing their flavor. All white wines bear water sparingly, and some are spoiled by it, such as Madeira, Graves and Hock, while Clarets are improved by it, and bear from 3 to 5 parts of water to one of wine. Some thick and strong wines bear 15 or 20 parts of water. The strongest of all wines, such as *Lissa* and *Cutnar*, give 40 per cent of alcohol, or 80 per cent of brandy. The strong wines, such as Port, Madeira, Marsala, Sherry, Lisbon, &c. hold from 40 to 60 per cent of brandy. The mild wines from 20 to 40 only: the mildest (and thus the best) is Tokay, which has only 27 brandy, or 10 per cent alcohol, no more than cider! The quantity of brandy afforded by mild wines is thus the measure of their healthiness and body. Clarets have 30 to 36. Burgundy 30 to 32. Hock 27 to 30. Champaigne 25 to 27. Muscat 22 to 25, &c. The milder they are the less water they bear, and *vice versa*.

Section IV. *Principles of the cultivation of Grape Vines, and chiefly in North America.*

1. It is not my intention to give an elaborate treatise on the cultivation of vines all over the world, but rather practical hints on the management in the United States of our own kinds.

2. Vines being cultivated in all parts of the world, in different climates and soils, require different management, are often not kept alike, even in the same countries, and thrive under several modes of cultivation.

3. In general, temperate climates (from which they are mostly native) are the best for them: the boreal and tropical climates are not suitable for them, as the excess of cold or heat either chills or burns them.

4. In Europe, vines are cultivated for wine every where, except in England, Netherlands, Denmark, Swe-

den, Prussia, Poland, and Russia, and even there are found in gardens producing grapes for the table; but their juice has not sugar enough to make tolerable wine.

5. In North America, the wild vines grow as far as Canada, in lat. 45, and from thence to the Gulf of Mexico; how far south they extend in Mexico is not known. Wherever found wild, wine can be made. In Europe, the wine limits extend from lat. 48 to 50 N. and south to Africa.

6. In France alone, the vineyards occupy five millions of acres, (besides the garden grapes) which produce yearly about 1000 millions of gallons of wine, besides the grapes eaten, thus averaging 200 gallons per acre. The wines sell from 7 cents to $4 the gallon wholesale, according to quality. France having 32 millions of inhabitants, this produce gives 20 gallons for beverage to each, and 360 millions for exportation or making brandy, vinegar, &c.

7. In Italy and the Islands, with a population of 24 millions, nearly as much wine is made, and as many acres cultivated; thus giving a much larger average to each individual, since less is exported or made into brandy. The price varies from 4 cents to $5 the gallon.

8. In Spain and Portugal the amount is less, much brandy and raisins being manufactured and wines exported. In Germany and Greece but little is made in proportion; and in all Mahometan countries, except Persia, where wine is less proscribed, none but the Greeks, Armenians, and Jews make wine and drink it; but grapes are much cultivated for the table, preserves, raisins, &c.

9. In North America wine was very early made from our native grapes, by the French in Illinois. Our native tribes drank the juice or must of the grapes, but were unacquainted with the art of making wine. Small trials were made in the English colonies and United States at several periods; but all the trials directed towards the imported vines have failed, owing to our climate being unfavourable to them, while it is very favorable of course to our native grapes.

10. The European and African grapes succeed pretty well in our sheltered gardens, and thus will give us good

fruit for the table; but when planted in exposed vineyards, the late frosts and heavy showers of the spring injure them or render them sterile.

11. A capital mistake was the attempt to make Madeira wine in America, instead of American wine. Our climate and soil being neither dry nor volcanic as in Madeira, could never produce similar wine, even if we had the *Vidonia* or Madeira Grape, and knew how to cultivate it and manage the wine. Besides Madeira, although a fashionable and costly wine, is bad, unhealthy, and not worthy of our attention. The same with Port wine.

12. These and other causes have discouraged the attempts of a vine company established on purpose in Pennsylvania. Mr. Legoux, the manager, by his deceptions in grapes, calling them by false names, and his bad management, threw discredit on the attempt. However, by calling our Bland and Alexander grapes, *Madeira* and *Cape*, he was instrumental in diffusing them among those who would not have noticed nor bought them if known as native vines.

13. Notwithstanding these difficulties, many patriotic individuals have persisted in the endeavor to make the United States a wine country, by establishing nurseries and vineyards. Such were Major Adlum, of Georgetown, and Mr. Dufour, of Vevay, who have also both published works on the cultivation of vines. Mr. Samuel Maurick, of South Carolina (the first exporter of our cotton in 1784) who established a large vineyard at Pendleton. Mr. Thomas Echelberger, of York, Penn. who has been instrumental in establishing 20 vineyards near York.

14. In 1825 I collected an account of our principal vineyards and nurseries of vines. They were then only 60 of 1 to 20 acres each, altogether 600 acres. While now, in 1830, they amount to 200 of 3 to 40 acres, or nearly 5000 acres of vineyards. Thus having increased tenfold within 5 years, at which rate they promise to become a permanent and increasing cultivation.

15. Wishing to preserve the names of the public benefactors who had in 1825 established our first vineyards,

I herewith insert their names. They are independent of the vineyards of York, Vevay, and Vincennes.

In New York, George Gibbs, Swift, Prince, Lansing, Loubat, &c.

In Pennsylvania, Carr, James, Potter, J. Webb, Legoux, Echelberger, E. Bonsall, Stoys, Lemoine, Rapp.

In Delaware, Broome, J. Gibbs, &c.

In Maryland, Adlum, W. Bernie, C. Varle, R. Sinclair, W. Miles, &c.

In Virginia, Lockhart, Zane, R. Weir, Noel, J. Browne, J. Duling, &c.

In Carolina, Habersham, Noisette, &c.

In Georgia, Maurick, James Gardiner, S. Grimes, Checteau, M'Call.

In New Jersey, Cooper at Camden. Another at Mount Holly.

In Ohio, Gen. Harrison, Longworth, Dufour, &c.

In Indiana, Rapp of Harmony, the French of Vincennes.

In Alabama, Dr. S. Brown, and at Eagleville.

16. The average crop of wine with us is 300 gallons per acre. At York, where 2700 vines are put on one acre, each vine has often produced a quart of wine, and thus 675 gallons per acre, value $675 in 1823, besides $200 for 5000 cuttings. One acre of vineyard did then let for $200 or 300, thus value of the acre about $5000! This was in poor soil unfit for wheat, and for mere Claret.

17. Now in 1830, that common French Claret often sells only at 50 cents the gallon, the income must be less. I hope our claret may in time be sold for 25 cents the gallon, and table grapes at one cent the lb. and even then an acre of vineyard will give an income of $75, and be worth $1000 the acre.

18. The greatest check to this cultivation is the time required for grapes to bear well, from 3 to 6 years: our farmers wishing to have quick yearly crops; but then when a vineyard is set and in bearing, it will last forever, the vines themselves lasting from 60 to 100 years, and are easily re-placed as they decay.

19. The next check is the precarious crops if badly managed. Every year is not equally plentiful, and some-

times there is a total failure when rains drown the blossoms; but an extra good crop of 500 or 600 gallons commonly follows and covers their loss.

20. The cultivation of the vines includes several considerations, a choice of ground, soil, and vines, repairing the ground, planting, manuring, dressing, trimming, grafting, harvesting, besides the diseases of the vines and grapes.

21. Vines may grow any where, but do not thrive equally every where. Table grapes thrive best in sheltered gardens, espaliers, and bowers, producing more and better fruit. Wine grapes thrive best of all on the eastern slope of hills exposed to the rising sun, and in a volcanic or gravelly soil, producing stronger and better wine.

22. All our native grapes will grow well near to their native soil, and produce different wines. Some species are peculiar to the Southern States, and will not thrive so well north of the Potomac and Ohio rivers. They grow spontaneously in rich soils, or loam, sand, gravel, rocks, near streams: in fact every where, but seldom in clay and mountains.

23. The best situations for native vineyards are sheltered valleys, banks of streams, on the eastern and southern sides of hills in the Northern States; but further South plains and open grounds will do as well. If they have a wood to the north west or south west to shelter them from the cold blasts or sudden storms, so much the better. In the north they may also require such shelter from the north east storms.

24. These are the best soils for them in the order of excellence. 1. Volcanic, scarce with us. 2. Pseudovolcanic, of New York and Connecticut. 3. Granitic, rotten rocks. 4. Sandstone gravel. 5. Gravel and sand. 6. Barren and worn out soils. 7. Rich or loamy soils are the worst, except clay and damp and cold soils, which always produce bad wine. Pine barrens will do.

25. Thus it is seen that the worst soils for all other agricultural purposes are the best for vines. Many millions of acres of our rocky, gravelly, or barren soils, now hardly worth any thing, may thus, if turned to vine-

yards, give $50 at least neat yearly income, becoming worth $500 or more an acre, at a small expense of a few years. A single million of acres of vines might produce yearly 200 millions of gallons of wine, worth $50,000,000 at only 25 cents, and affording from 10 to 20 gallons yearly to each individual for beverage.

26. In the choice of vines, select those that grow best near you or bear the best fruit. If you find in the woods any vine bearing plenty of good grapes, mark it, and cut it up into cuttings in the winter for your use. It is essential with our wild grapes to see them in fruit, in order to ascertain if they are worth cultivation, and that the mother vine is a fruitful one, there being many sterile with us.

27. If we raise our vines from seeds, we are never sure to have the same kind, a variety will often spring up: besides half of those thus raised are sterile or male vines with us, which does not happen with the exotic grapes. Moreover, a seedling vine (unless grafted) will not bear fruit till 10 or 15 years old, while cuttings bear in 3 to 5 years. Therefore seeds ought never to be sown except for experiments.

28. Whether for gardens or vineyards, let us select none but the best kinds of exotic or American vines. The ample account given of them may serve to guide the choice. The very best of our vines being *V. blanda*, *V. prolifera*, *V. muscadina*, *V. ciliata*, *V. dimidiata*, *V. labruscoides*, *V. longifolia*, *V. acerifolia*, &c.

29. All vines may be cultivated alike, and bear very different treatment. When allowed to grow over trees, or on the sides of a house, or in bowers, without much trimming they last several centuries! and a single stock may produce 150lbs. of grapes, giving 10 gallons of wine.

30. The very best mode would be to cultivate the vines together with mulberry trees, as in Italy, allowing them to mingle and hang in festoons. This saves the great expenses of poles for support, and afford silk and wine on the same spot. One acre produces as much in this way as if it was a solitary vineyard.

31. Our American grapes are impatient of control, and thrive best when left to climb aloft without much

trimming. When kept under as usual in vineyards by annual cutting, they only last from 40 to 60 years, and thus less than the European vines.

32. The best foreign grapes ought to be raised in sheltered gardens for table fruit. Even the most delicate may be naturalized gradually, by sowing the seeds, and sowing a second or third time the best seeds produced in the country. This, however effectual, is a very long process, which requires patriotism and patience.

33. To prepare the ground for vines or a vineyard, a crop of potatoes or turnips ought to be raised on it before planting, which improves and opens the ground, or else it ought to be manured and ploughed deep several times in the fall previous.

34. The best manure for vines then, and at any other times, are composts made to suit the soil, or mixtures of good earth, ashes, gravel, sand, iron dregs, rubbish, brick dust, oyster shells, vine leaves, and grape husks, with a little dung. If the ground is rich of itself, it requires more ashes, sand, and other loosening manure. If poor, more earth and dung.

35. But the very best manure for vines are volcanic ashes, which might be imported on purpose in ballast, from Naples, Sicily, Portugal, the Canary or Azore Islands. *Puzzolana* above all, which is a kind of it, useful also for water cement. These ashes might highly improve our wine. Next to them are crumbling iron stone and granite; also the gravel dregs of forges, or the powdered dross. The residue of the grapes, after mashing them for wine, the lees of the wine itself, and even the decayed leaves of the vines are also excellent manures.

36. A regular vineyard ought to be in rows, if to be worked with a plough; but in Europe, where the hoe is more commonly used, they often plant the vines checker wise. The hoe is better than the plough, because more vines can be planted on one acre, the whole ground is kept better open, and the produce is greater; but with us the plough is preferred as cheaper.

37. The rows from 5 to 10 feet apart, and each vine from 2 to 5 apart: thus allowing from 1200 to 3000 vines on one acre. The more on the acre the greater the expenses at first, but also the greater the produce after-

wards. Each good vine ought to bear from 30 to 60 clusters of grapes, weighing from 5 to 15lbs.

38. The rows must run north and south, so as to have the full advantage of the rising and setting sun, or else from north east to south west, so as to be better sheltered from those winds which with us bring sudden rains and storms, while the first protect the others from the bleak vernal north west wind.

39. When rows and vines are crowded, nothing can grow besides in the vineyards; but 3000 vines in one acre, if only producing 5lbs. each, may give 1000 gallons of wine. While, when kept remote, many crops can be raised in the intervals, such as potatoes, turnips, beans, &c. It is a prejudice to think this injurious to the vines: it is not so, provided the crops are such as require previous ploughing and do not shade the vines.

40. But different grapes must not be planted promiscuously, so as to prevent the mixture of blossoms, pollen, and change of fruit. Each kind ought to be kept separate, and even divided by fence, walls, hedges, or meadows, forming a vineyard by itself.

41. Plant the cuttings in pits or a trench one or two feet deep, made with the hoe or plough, and filled with good manured earth or rich made soil with some rubbish, gravel, or ashes at the bottom, below the cuttings.

42. The time of planting is from October to May: the best months are November and March. If you plant in the fall, cover each plant with a little hillock, and uncover it in the spring. If the weather be dry after planting, water them.

43. Choose your cuttings from good vines, and strong shoots of last years growth, from 16 to 24 inches long, with 5 or 6 buds. Let them be cut smooth below at a joint and slanting one inch above the upper bud; the slope must be opposite to the bud, that no bleeding of the sap may follow it.

44. If the cuttings are to be kept over winter, or sent to any distance, keep them in sand or dry earth, or else in moss or straw. They must be kept dry, moisture is pernicious, and frost still worse.

45. Put the cuttings in the loose ground of the pit or trench, at the chosen distance, in a slanting way, bend-

ing the bottom of it and pressing the earth close to it with the foot. Put the whole in except the upper bud, which is to become the shoot, all the others, 4 or 5, are to become roots. Sometimes 2 buds may be left out.

46. Keep the ground very clean and free of weeds at all times, but above all the first years, by working it often with the plough or hoe, or by pulling the weeds. At the end of the first year, cover each vine with a hillock in November, and uncover it the next spring.

47. *Second year.* Begin to preserve the vine either by rubbing the buds or cutting weak shoots, leaving only 2 or 3 strong buds or shoots. Put in the stakes or poles on which they are to climb. Plough or hoe the ground and clear the weeds.

48. *Third year.* Rub off the lower buds and prune the side shoots. Put on cross poles if meant to be used. Plough, hoe, and weed. Many vines will begin to bear grapes this year,

49. The fourth year ought to be the first crop, a full bearing beginning at 5 or 6 years old. The annual pruning and trimming must then depend on the mode adopted for cultivation.

50. It is well to rub off in the spring all the buds except such as are meant to bear, in the summer to cut off all superfluous or weak shoots without blossoms, and in the fall to make cuttings for planting, selling, or burning of all shoots grown too long. But it must be remembered, that too much pruning weakens the vine as much as extra foliage and extra bearing.

51. Trim the vines to suit the chosen method, leading, bending, and fastening them over the poles, cross poles, treillisses, trees, bowers, side walls, &c. of the vineyard or garden. The poles or stakes must be of durable wood, oak, chesnut, locust, or cedar with us ; but need not be large nor thick. Thin split ones will do for cross bars. Even canes and split canes will do well, and are commonly used in south Europe as cheap and light : the large ones being used for standing stakes.

52. The grapes commonly grow on the spring shoots, and these on the last year shoots : it is therefore needful to spare these in pruning. All dangling branches must be raised ; when trees are the support, they may

be led from one to the other, still less pruning is required with trees for support.

53. In warm countries, vines must be left well shaded by the leaves. In a cold climate or a cold season, it is usual to cut many leaves so as to expose the grapes to the sun to ripen well. Leaves, shoots, and grapes must never be pulled, but cut with the sickle, knife, or nail.

54. In a dry climate, a circular hollow ought to be dug at the foot of the vine, so as to allow rain to collect there, while in a wet climate or season, the reverse is needful, and a small hillock must be raised around it.

55. When the vineyard is in full bearing, a single ploughing or hoeing is required, very early in the spring. Manuring is only required once in 3 or 5 years, similar to what has been mentioned already; the whole ground need not be manured, but merely the foot of each vine in the winter. Dung compost, in small quantity, is very good.

56. Grafting is needful upon bad or sterile vines or seedlings, &c. It must be performed in March, with good scions and cuttings by cleft, grafting and binding with clay: also by approach in a pot. Good grafts ought to bear fruit the same year. In gardens, a variety of grapes may thus be procured. Our wild vines are excellent hardy supports for all exotic grapes, which thus become less liable to early motions of the sap.

57. The crop or harvest of grapes is called vintage. It is always a season of festivity. Although grapes may be produced for eating from July to November, the vintage is always in September, when most are ripe. The clusters are cut with a knife, and carried in baskets to the vat or press.

58. Many diseases attack the vines in Europe, and several insects prey on them. Our own vines are seldom liable to them, and have fewer insects than any other fruit. The worst diseases are the blight and the yellows.

59. The blight or mildew may affect the leaves, blossoms, and fruits. It is always caused by drops of rain of a shower on which a hot sun shines, which burns them by acting as a lens. The leaves and fruits become covered with shrivelled brown spots. There is hardly any

remedy for this, but the diseased leaves and fruit ought to be cut off.

60. Another kind of blight happens in the critical time of the vines being in blossom, if a heavy shower then falls, the pollen or farina is drowned, and cannot fertilize the fruit buds. This sometimes spoils the whole crop. If we could shelter the vines from our south west vernal storms by buildings, walls, woods, or a thick foliage, this would seldom happen. Never work the vines when in blossom.

61. The yellows are caused by the root becoming weak by bad food or overbearing. The leaves then become sickly and yellow. This is more easily cured by removing the leaves, pruning the shoots, cutting some clusters, but above all by manuring, removing the earth from around the root, and re-placing it with good compost.

62. Some small caterpillars group under the leaves, curl and eat them. They must be destroyed by cutting the leaves attacked, and crushing the insects under foot. Bugs and other insects feeding on the vines are not dangerous. No Aphis is found on our vines, and no insects destroy the roots nor the grapes.

63. Depredations on the grapes when ripe is a great evil, but as this happens only for a short while, it must be guarded against by watching the vineyards night and day as soon as the grapes begin to get ripe. Rural watchmen are paid on purpose in Europe. Dogs will not do, because they are fond of the grape. Foxes and birds are also depredators. Vineyards ought not to be near roads, or easily accessible, on that account.

64. Let us conclude by giving a pro forma account of the expense of forming and keeping up a vineyard, calculating all charges as cash to be paid, although most farmers may own the land, and give their own labor, or procure their own cuttings and props, which will be so much less.

One acre of land, from - - -	$1 to 10
Preparing the same and manure, - -	5 to 10
1000 to 3000 cuttings, if bought, - -	5 to 30
Planting them, - - - - -	5 to 20
Expenses of first year, - -	$16 to 70

Brought forward, - - - -	$16 to 70
Second year, poles, canes, &c. - - -	5 to 10
Cultivation, pruning, &c. - - - -	5 to 8
Third year, cultivation, &c. - - -	5 to 8
Fourth year, cultivation, manure, &c.	5 to 8
Total, - -	$36 to 104

65. This shows the lowest and highest cost, the medium may be $40 or 50 per acre. On the fourth year the income may cover this whole cost, if it is only 150 gallons of wine at 50 cents; $25 being deducted for casks and making the wine.

66. On the fifth and succeeding years, the annual expenses will be only from $10 to 30, or $5 to 10 for cultivation, pruning, manure, and the remainder for making and keeping the wine, while the income will be from $100 to 200, for 2 to 400 gallons of wine at 50 cents, or half if only sold at 25 cents. Thus, at the lowest, leaving a yearly clear income of $40 to 100, or as much yearly for ever as was spent at first to plant the vineyard! The land will be worth from $500 to 1000 the acre! and may let at $25 to $50 to tenants. Thus upon an average, each vine is worth half a dollar, and any one who plants 100,000 vines, acquires a fortune of $50,000, or a clear yearly income of $2000 or more!

Section V. General principles of Vinification, or the art of making Wine.

1. I do not mean to give the numberless modes of making all kinds of wines; but rather the general principles of the art, with their application to American wines.

2. Whatever wines we make here, can never be Burgundy, nor Champaigne, nor Hock, nor Port, nor Lisbon, nor Tinto, nor Madeira, nor Malaga, and so forth; but AMERICAN WINES. It is idle, it is silly, it is needless, and it is a deceit to attempt it, or to give them foreign names.

3. But we may make, nay, we have already made, several very good American wines, quite peculiar to us; and we may imitate several foreign wines, such as claret

Burgundy, Oporto, Malmsey, Carcavelos, and many more. Let us be honest and give them as such, with pompous American names if we like.

4. Wines can be made with almost all juicy fruits, although the real wines are the produce of the grapes. Thus, currants, gooseberries, elder berries, huckle-berries, persimons, black-berries, oranges, peaches, pears, apples, pine apples, &c. have all been used to make peculiar wines. Those of apples and pears are called Cider and Perry. Each other kind ought to have also a peculiar name, because they all differ somewhat from wine.

5. These fruit or domestic wines will only be mentioned slightly. The wine of currants or *Ribesium*, is the most important for us, because it is already often made, is nearest to the best grape wines, and can be made to any amount with profit. Several kinds are made, which are very good when not spoiled by the addition of brandy, which makes them firy and pernicious!

6. Currant wine or *Ribesium*, always requires water and sugar, because currants contain malic acid and no tartaric acid. But it requires no brandy nor whiskey. To make it more like wine, some good wine, with a little quicklime and argol, may be put into it before fermentation.

7. Mr. Dyers' currant yard near Providence, Rhode Island, may be mentioned as an example worthy of imitation. This yard contains 40 acres; each acre has 1400 currant bushes, and produces yearly 120 to 150 bushels of fruit, which, with water and 4000lbs. of sugar, make about 1600 gallons of wine from each acre, selling at 75 cents and one dollar per gallon. Thus each acre producing $1200, or $800, deducting the cost of sugar, casks, cultivation, &c. as I was informed.

8. At this rate, the whole yard would give 64,000 gallons of wine, and an income of $32,000! if all made into wine and sold. Mr. Dyers makes two kinds of wine, *Groseille*, or *Red Ribesium*, and *Malmsey*, or *White Ribesium*. He uses no brandy nor strong liquors. Both are excellent, and equal to many fine foreign wines. He exports much of it to the West Indies. Is not this a profitable industry?

9. Wine making is a chemical operation, in which a due proportion of needful elements is essentially requisite. No liquor is a wine unless it has undergone the real vinous fermentation.

10. The needful elements of fermentation are, 1. Sugar. 2. Water. 3. Tartaric acid. 4. Mucilage. The adventitious elements, which may or may not exist, are tannin, potash, carbonic and malic acids, arome, coloring principle, &c.

11. The Must is the liquor produced by grapes. A perfect Must ought to have a due proportion of the four elements of wine. When deficient in any, it ought to be supplied, if we want to make good wine. If any element is in excess, it ought to be corrected.

12. The due proportion of sugar or sweet principle, is 3lb. in one gallon of Must. When less, the Must makes a very dry or weak wine, when more, a very sweet wine. The sugar is changed by fermentation into alcohol, chemically combined in the wine, and only evolved as a vapor by fire or the process of distilling. In all sweet wines, a portion of the sugar is not decomposed, still more involving and weakening the alcohol.

13. The due proportion of tartaric acid and mucilage does not exceed 5 per cent. of each. The excess of tartaric acid makes the wine sour or acid. When deficient, or supplied by malic acid, the wine is deficient in body and strength. Malic acid changes wine into cider liquors; grapes have little malic acid, whence best to make wine.

14. Currants, gooseberries, blackberries, apples, &c. containing too much malic acid, and no tartaric acid, can never make but bad and sharp cider wines by themselves; but by the addition of quicklime, the acid is absorbed and corrected, the tartaric acid may be supplied: water dilutes the juice, and sugar strengthens it, whereby imitation wines are made.

15. When mucilage is deficient, no due fermentation can take place. The substitution of yeast spoils the wine, and gives to it the flatness of beer. Mucilage is rather to be supplied by dissolved gum, in case of need. An excess of mucilage produces only a greater quantity

of lees. Wine hardly retains any mucilage when clear; it ought to be precipitated in the process of fermentation and clarification along with tartar and potash.

16. Tannin, or the astringent principle, is communicated to wine by the peduncles, husks, and seeds, whence rough wines are made, such as Port. Delicate wines ought to have no perceptible astringency or roughness, and the seeds ought not to be bruised in mashing the grapes, nor allowed to fall in the Must, nor the husks neither.

17. The arome, or peculiar taste and smell of wines, also called flavor and bouquet, is produced by a fixed oil, different in almost every kind of grape and wine. A peculiar grateful flavor and scent enhances the value of wine many fold, (witness Tokay) and all excellent wines ought to have this quality.

18. To preserve the arome of wines, it is needful to stop the fermentation before the natural end of it; and to procure it to deficient grapes, some peculiar flavored substance must be immersed in the Must while fermenting. In this depends the art or secret of making valuable wines, worth from $1 to 5 a gallon, instead of 5 to 25 cents. Each celebrated vineyard has a peculiar secret process. Time and experience alone can teach us this secret art to its full extent.

19. Yet we know the substances employed; they are oil of best grapes, vine blossoms, *Reseda*, or Mignonette, cowslip blossoms or *Primula*, elder blossoms, violets, oris root or *Iris florentina*, raspberries, strawberries, &c. In Cyprus, they are Smilax blossoms. In Xeres, Madeira, and Marsala, bitter almonds are employed. These substances are suspended in the casks in bags, while fermentation is proceeding.

20. Our best native grapes give to our wines a peculiar grateful flavor similar to raspberries. Our fox grapes, with a musky or foxy taste, impart to their wine a Muscatel flavor, somewhat similar to Constantia. Our fine scented vine blossoms, even when dried, give a rich grateful flavor and scent to our wines. To currant wine, which is made when the vines are in bloom, these fresh blossoms may give a flavor near to Tokay wine.

21. The coloring principle is immaterial to wines. There are wines of all colors, clear as water, white, yellow, green, hyacinth, red, brown, black, &c. These colors do not impart any value to wine; although the finest and dearest wines are commonly pale, yet Constantia and Lachryma, &c. are red.

22. Some wines lose their color or change it by age. Any wine can be made colorless, or clear as water by infiltration through animal charcoal or ivory black. It may be colored afterwards to any shade of yellow by burnt sugar, and any shade of red by cochineal or Brazil wood. The red Champaigne is colored by elderberries juice, boiled with tartar, a few drops are sufficient to color a bottle of wine. Some kind of grapes are used to color pale wines.

23. Therefore, the essential operations to correct a bad Must, or to make a good Must and wine, are to obviate any deficiency in the juice of the grapes or other fruits, by supplying the due proportion of sugar, tartaric acid, mucilage, and water that may be lacking, besides destroying or absorbing the malic acid, avoiding the mixture of tannin, and procuring a grateful aroma.

24. The art of wine making includes, besides this fundamental knowledge, many practical operations, such as gathering the grapes, carrying them, extracting the juice, mending it, fermenting the liquor, fining and clarifying, preserving the wine, obviating the defects and diseases. It is even a part of this art how to drink the different wines.

25. Carbonic acid is always evolved in the act of fermentation, and escapes with some alcohol by evaporation. When restrained and prevented from escaping, it produces the brisk and sparkling wines. When fermentation is allowed to take its course, all the carbonic acid disappears.

26. Grapes ought to be gathered in the day time and a dry fair day. For the best wines, none but the sound clusters are to be used; for the very best, the sound grapes ought to be separated from the peduncles, which are to be thrown away. Grapes are to be carried to the vats or presses in baskets, without being crowded and bruised. If dirty, they ought to be washed.

27. The thin skin grapes require peculiar care in handling. Our native grapes have all a thick skin, and require little care. Tokay and some other delicate wines, are made with grapes so soft as to drop their juice by their mere weight. All wines thus made without mashing, were called *Protopion* by the ancient Greeks; they are the very best.

28. Must and wine are made not only with ripe grapes, but also with unripe ones, also shrivelled or over ripe ones from the vines, grapes kept on straw, scalded or half dried grapes, nay, even with raisins and vine leaves. Very different wines are thus made.

29. Green and unripe grapes make dry light wines, similar to Champaigne, Hock, Rhenish, Moselle, and Graves. Their elements are similar to currants and gooseberries, composed of pure acid and extract, but deficient in sugar, which must be added, else their Must is nothing but verjuice. All our acid wild grapes, sour even when ripe, have a similar juice, and may make a red dry wine with sugar.

30. The due proportion is 40lbs. of fruit to 5 gallons of water, added by degrees while mashing. Then add 30lbs. of sugar, half a pound of crude tartar, the whole should make 10 gallons of Must at least. Keep 12 hours, strain, put in a tub or vat, cover with a blanket and boards, keep two days, put next in casks with a vent hole and peg. Decant in December, fine it several times, and bottle in March. If too sweet, ferment again before fining by exposure to air and heat upon the lees.

31. All grapes shrivelled or over ripe make good strong wines often sweet. Some grapes thus used, produce very valuable wines, but the quantity is always less. They never require addition of sugar. Raisin wine is seldom made, although many good sweet wines can be made with them. Raisins must be scalded, pressed, and the juice treated as common Must.

32. The wine of vine leaves and tendrils is altogether artificial: it is brisk like Champaigne. The process is to infuse 100lbs. of leaves and tendrils for 24 hours in 16 gallons of water, poured boiling hot over them. Press them twice very hard, add to the juice 50lbs. of sugar, and water sufficient to make up 20 gallons of Must.

Then ferment it as above for green grape wine. If a sweet wine is desired, more sugar is required, and the fermentation must be stopped by racking in sulphured casks.

33. There are many ways to procure the juice of ripe grapes. Mashing is the most ancient, and as yet, the most usual. This is done for common and cheap wines by trampling the grapes under naked feet over the boards of the vats, where they are heaped, by walking and dancing over them. Although this antique process appears not very clean, yet it is not more unclean than kneading the bread dough with the hands, and besides the fermentation purifies the juice completely.

34. But for the best or valuable wines, the grapes are mashed by rollers in a trough, or a peculiar press with a circular trough. Juicy grapes are very easily mashed; the hard or tough grapes even require but little pressure, and nothing like apples for cider. Our fox grapes with tough pulp, require rather to be left standing after bruising or mashing, so as to allow the pulp to dissolve, before the juice is extracted.

35. In no case are the seeds to be bruised, else the wine will be rough and harsh: thus any hard pressure that might mash the seeds and husks is to be avoided. When the seeds fall in the vats, and are allowed to remain there during the fermentation, they impart an austere taste to the wine. It is therefore essential to avoid seeds, husks, and peduncles, in making delicate wines, unless we wish to imitate Port wine. This may be done by straining.

36. Commonly fifteen pounds of grapes ought to afford one gallon of Must, and 5 gallons of Must ought to give 4 gallons of wine, after fermenting, settling, and fining. But juicy grapes give more, and tough grapes less, thus from 12 to 18lbs. of grapes may give a gallon of Must.

37. A deficient Must may be mended by the rules already stated. It is then that sugar, water, brandy, lime, scented substances, &c. may be introduced to advantage before fermentation, so as to incorporate well, which can never be done after it.

38. Sugar is not the leaven of wine, as often erroneously supposed, but the parent of strength and alcohol,

into which it is changed by fermentation. Therefore, adding sugar to the Must, if not sweet enough, is equal to giving strength to it, and is by far preferable to adding brandy then or afterwards.

39. Sugar is seldom added to weak wines in Europe, because it is too dear: while brandy is added because it is cheap. We may easily avoid this error in America, where the reverse happens. In Spain, they often add the brandy to the Must, this makes Sherry tolerable. In Port, Madeira, &c. the brandy is added after fermentation, and thus they become WINE GROGS!

40. Any other spirituous liquors added to the Must or wine besides brandy, spoils the wine completely; rum and whiskey, above all, give a very bad burning taste. Peach brandy is used for our Scupernong wine, which spoils it also and makes it firy.

41. In many countries, a part of the Must is boiled to condense the sugar of it, and then added to the whole to strengthen the wine. This is a very old and very good practice; but since sugar is now in general use, and so cheap, it is hardly needful. When the whole Must is boiled, very sweet wines are produced.

42. To know the strength of the Must, which varies every year, let it be weighed with the hydrometer or any other means. A good Must ought to weigh at least one tenth more than water, or 1.100 up to 1.140 when water weighs 1.000. Or if a gallon of water weighs 8lbs. a gallon of good Must ought to weigh 9lbs.: the more the weight the better, and greater the strength. Whenever an egg floats in the Must, the weight is 1.125. Our wild grapes give a Must of 1.040 to 1.100 weight, the Muscadine or Scupernong is only 1.040.

43. By a simple yearly trial, we may thus know the state of our Must, and how much sugar is required to give it a proper strength. This will vary from 4 to 20 ounces per gallon, in order to produce strong excellent wines. Many of our grapes, however, can produce good thin clarets without sugar, like common French and Italian wines; but if superior wines are wanted, sugar becomes needful. Every 4 ounces of sugar per gallon increases the weight of Must 11 in 1.000, or above 1 per cent.

44. Water is seldom wanted to dilute the Must, unless to make Piquette, or a very thin poor wine, in quantity rather than quality. Coarse sugar is the best to sweeten the Must, because it contains mucilage. Syrup will do as well; but molasses will not do, unless deprived of their bad taste by charcoal. Honey gives a flat taste to wine. Our maple sugar will do very well, and also the fresh syrup or molasses of maple.

45. Mucilage is the leaven of wine; it separates by fermentation into lees that sink, and froth or yeast that rises. Whenever mucilage remains in the wine, it is liable to ferment again even in bottles, therefore, the whole must be separated by racking and fining. If a second fermentation is needed, it may be produced by putting any wine over lees, and mixing them by rolling the casks.

46. Yeast of beer must never be used for any wine, not even currant wine; it gives a bitter taste of hops, an ammoniacal flavor and flatness. A wine leaven, useful for all artificial wines, may be prepared by drying the lees and froth of wine: it may be kept long for use.

47. So true are these principles, that sugar and vegetable mucilage or extract may form wine alone with water, but tartar adds to the strength and helps the fermentation by promoting the change of sugar into alcohol. But such artificial wine would be tasteless unless flavored by fruits.

48. Sweet wines are the best of all wines, because the whole sugar has not been converted into alcohol, either by a deficiency of mucilage or by the fermentation being suspended before the end of it: which may be done at any time by decanting or separating the liquor from the lees and froth, then straining or filtering, clarifying and sulphuring.

49. Whenever tartar must be added, crude tartar is the best, because it contains some mucilage of the grapes. Cream of tartar is not so good, although it is said to promote the briskness or sparkling property.

50. Quicklime is the ingredient commonly used to correct the acidity of some grapes: but if not used sparingly it gives a bad urinous taste to wine. In Spain, they only sprinkle the grapes with it. In France, they

put one gallon of slacked lime for 100 gallons of wine. Pidgeon dung, being almost pure lime, is often used for the same purpose. It is often collected and sold for this purpose in Europe. If not sparingly used, the urinous taste is still worse in the wine. Ground plaster is also used.

51. Turpentine, tar, firwood, &c. cover the acidity of wine, but impart to it the tarry taste. This is the great defect of common Grecian wines; but the Greeks do not dislike that taste. Our spruce twigs would give to our wines the taste of spruce beer.

52. The best heat for fermentation is variable. It merely begins at 54 degrees F. and is very slow till 60 degrees: from this up to 100 degrees it improves; the greater the heat in the vintage time, the quicker and the more violent is the fermentation, and the wine is commonly the better for it. The froth of fermentation, when allowed to escape, makes the wine sweeter, when kept in the wine, drier.

53. Fermentation ought to be carried on under sheds, in the open air, and in close vessels, with bungs, spile holes, pegs, or safety valves. The larger the casks the sooner it is completed, whence the usual use of vats or large tuns and tubs, holding 1000 gallons or more. Light brisk wines, like Burgundy and Champaigne, are allowed to remain only for a few hours, (from 6 to 24) in the vats. White wine only 36 hours. Red wine from 2 to 5 days.

54. Wines removed from the vat to casks after straining through the hair sieve, will continue in a slow state of fermentation, depositing lees and throwing froth. If the froth is removed repeatedly, or the wine often changed from cask to cask, it will ultimately cease. The casks are kept in cellars, wells, or cool stores.

55. The choice of casks is not useless. Old casks are always preferred. New casks, unless burnt, communicate a taste and color to wine, therefore, the inside ought always to be charred; the best casks are made of oak or chesnut staves; the larger they are the better, for the sake of uniformity in the wine.

55. Each change of casks leaving the lees behind, is called a racking, the best wines require several, and

thus a set of casks on purpose. Sulphuring is the operation by which a cask or the wine is impregnated with sulphuric acid, whereby the mucilage is precipitated and the fermentation stopped. The black oxide of manganese has the same properties.

57. A sulphuring liquor may be made by the action of sulphuric acid on saw dust, the fumes being conveyed to the wine, and some of the dust liquid thrown in it. However, the most usual mode is to fumigate the empty cask, before racking, by burning sulphur matches in them.

58. Another mode has lately been found to destroy fermentation in wine or other liquors, or even to prevent it altogether. It is the use of *Sulphite of Potash* (not the sulphate) diluted in them. A single ounce weight of it will do for 600 or 800 gallons.

59. Fining or clarifying the wine is the next operation, and always needful before bottling. Many substances are employed, sand, gypsum, fishglue or isinglass, salt, gum, starch, rice, milk, charcoal, albumen or white of eggs, ox blood, &c. They all act in the same way, by precipitating the tartar, acid, and every remain of mucilage : whereby the turbid wine becomes perfectly clear and transparent.

60. The use of these substances is optional, the cheapest being most frequently used. They must be dissolved in wine before mixing, and are all precipitated themselves. The proportion required depends on the foulness of the wine : they may be added by degrees. Eggs and milk are the best. The ox blood and salt give a bad taste to delicate wines. Isinglass may destroy the aroma, if not sparingly used.

61. The acid fermentation of wine, whereby they are changed into vinegar, takes place when there is too much water in it, when the vinous fermentation has been imperfect in weak wines, or when the leaven predominates over the sugar. Vinegar may even be produced by mixing brandy and milk, or by passing the compound carbonic acid gas of the vinous fermentation through water and mucilage.

62. No acetic fermentation can take place as long as there is a portion of undecomposed sugar in the wine ;

whence the need of stopping fermentation before it is quite decomposed. Sweet wines never change into vinegar. Sugar put into light and dry wines prevents the acetic fermentation; but if put in after it has begun, it increases it. Charcoal, plaster, and lime must then be used to absorb the acid. Brandy is of no use then.

63. The fretting of the wines in the spring after vintage, is a second slow fermentation. It is the best time then to bottle brisk wines, to give flavor to insipid wines by immersions of odorous substances, and to clear the whole mucilage by fining, else the wine may fret and become pungent.

64. Sherry wines are made by sprinkling the grapes with brandy and wine, some brandy is put in the Must; several rackings, at one month's interval, with some brandy added each time. This is the least objectionable mode of making strong wines, yet the brandy is not totally incorporated. In Vidonia, Sercial, Madeira, Teneriffe, Port, Fayal, &c. the same precautions are seldom used, and the brandy put in is only diluted: whence their unhealthy and pernicious use. Brandy can only be put in strong wines to make them still stronger: because it decomposes and destroys all the delicate fine wines like Claret, Burgundy, Champaigne, Hock, &c.

65. The mixture of wines can be subject to no rules, as it may be varied in numberless ways. Many wines are only used for mixing and improving (or spoiling) others. Some dark wines serve to color the pale clarets. The Catalonia is made into Port, with brandy and logwood. Nay, it is said that much Port is drank in England, which has no wine at all in it! Madeira is made with Teneriffe, brandy, and Prussic acid! Thus drunkards are gratified and poisoned.

66. The only proper mixtures of wine ought to improve them. This may be done by adding some good wine, or some essence of wine, or oil of wine, to wines of inferior quality. The essence of pure excellent wines, concentrated by frost, is the most valuable addition to any kind. The art of mixing wines and grapes is the practical secret of vineyards.

67. All poor wines, whether thin or brisk, do not keep long, and ought to be drank new. The best wines are

those that keep well, and are improved by age and a sea voyage : they are commonly sweet and rich. These best wines must be drank alone, in small glasses, like cordials. Good table wines ought to bear from 3 to 6 times their bulk of water, to be improved by it, and always drank with it.

68. Delicate and superior wines ought to be bottled as soon as perfectly clear and 6 to 9 months old, particularly if to be transported. Common wines ought to be kept or sent in barrels or quarter casks. Large casks are only useful at the vineyards. Some wines improve by travelling, and are better than on the spot ; this they owe to the shaking and time elapsed.

69. Mustiness, harshness, acidity, and ropiness are the four principal diseases of wines. When wines acquire a musty or bad taste, they may be restored by charcoal and toasted bread put in gradually. To mend harsh wines, put in it gradually milk, salt, and sand. If too acid, sugar, lime, or ground gypsum, or add sweet wine to it. Lead formerly used, is a poison, and must never be employed, as it makes the wines deleterious, producing cholics, &c. When wines get ropy, they must be fined or clarified again.

70. To recapitulate. Wine is as easy to make as cider, notwithstanding such needful cares. Very little additional trouble will produce superior wines, of double value at least. The same grapes may produce several kinds, white or red, sweet or dry, rough or sparkling, according to the mode of fermenting. Sugar must be used to strengthen the wines, and never brandy. It is worth while to attend to the quality rather than the quantity. Time and experience will teach us still better the practical details.

LEXICON

OF

MEDICAL EQUIVALENTS:

OR

Alphabetical Enumeration of all the Medical Plants of the United States omitted in the 100 *selected Articles, with additions and corrections, &c.*

1. This second part of the present work could easily have been enlarged to a size equal to the first. But it must be limited to a mere catalogue of additional medical plants, with a short account of their uses and properties.

2. Some of the mentioned plants are as valuable as many of the selected ones, and of well ascertained properties; upon these, it will be needful to dwell a little longer. Such are the genera *Abies*, *Iris*, *Angelica*, *Sinapis*, *Croton*, *Mentha*, *Quercus*, *Esculus*, *Hieracium*, *Nicotiana*, *Viburnum*, *Laurus*, *Lactuca*, *Morus*, *Prunus*, *Phytolaca*, *Liatris*, *Pinus*, *Sambucus*, and many more.

3. No botanical account can here be given; the botanical names will enable to consult books on the subject. When the plants are undescribed in Michaux, Pursh, Nuttall, Elliott, Torrey, Eaton, &c. they will be described in the botanical supplement.

4. The medical indications are taken from all sources, personal observations and communications, or from authors, chiefly from Schoepf, Cutler, Thatcher, Mease, Bigelow, Smith, Henry, Williams, Josselyn, Castiglione, Kalm, Ives, the two Bartons, Drayton, Gambold, Elliott, Coxe, Zollickoffer, Eberle, &c. Thus including the result of the whole actual knowledge on our medical plants.

5. When medical plants are mere equivalents of each other, they may be mentioned as such. But even such equivalents may have some peculiar separate property. The whole will evince how ample is our vegetable Materia Medica, and how adequate to all needful purposes.

6. Many economical uses will be added, as well as several useful or remarkable facts worthy of notice. Most of the vulgar names will also be given.

ABALON (Adamson) ALBIFLORUM, Raf. *Blazing Star, Devil's Bit, Devil's Root, Rattle-snake Root, Eenhorn, &c.* (*Verateum luteum, L. Melanthium divicum, T. Helonias dioica* of others.) Root large tuberous, nauseous, pungent bitter. It is tonic, diuretic, sialagogue, and vermifuge. In large doses, emetic. The plant kills cattle feeding on it. The decoction kills insects, bugs, and lice. Corn steeped 24 hours in it before sowing, is not eaten by birds. Used by empirics and Indians for cholics, fevers, worms, &c. As wash in scurvy, which produces diuresis by the mere external application. Carver relates an Indian story about being once a cure for all disorders, the devil bit off part of the root to lessen its value, whence the name. It has been driven from genus to genus, while it was a peculiar one. I have adopted the good name of Adamson. The flowers are white and not yellow, in dioical racemes. Estival, from New England to Florida and Kentucky, in meadows and savannas.

ABIES, J. *Fir* or *Spruce Trees*. Tall Evergreens, wrongly united to Pines by L. the tallest trees of North America, some reaching 300 feet. A dozen species are spread from Canada to Alaska and Carolina, all equally useful, ornamental, and medical. They are: 1. *A. balsamea*, L. or Balsam Fir. 2. *A. canadensis*, L. Hemlock Spruce. 3. *A. nigra*. 4. *A. alba*. 5. *A. rubra*, or black, white, and red Spruce trees, all united to the second by L. besides 6 species of the Oregon country called by me, 6. *A. trigona*. 7. *A. heterophylla*. 8. *A. aromatica*. 9. *A. microphylla*. 10. *A. obliquata*. 11. *A. falcata*, Raf. Those which have a balsamic smell, produce in small bladders on the branches, the Canada Balsam, (wrongly called Balm of Gilead) which is healing, useful for internal and external sores. It is injurious in recent wounds, but good after they begin to heal. It may be

taken internally on loaf sugar. It is equivalent to turpentine and storax.

Spruce beer is an American beverage, made by the Indians with twigs and cones of spruces, boiled in maple syrup. Now it is chiefly made with molasses and yeast, when no spruce is put in, it is only molasses beer. The proper spruce beer is a palatable and healthy drink, powerfully antiscorbutic. The first discoverers of Canada were cured of the scurvy by it, since which, it has become in common use in Canada, the Northern States, and even in Europe. If the use was still more general, it might destroy the bad effects of the scorbutic habit or land scurvy, so prevalent among those chiefly feeding on salt meat. The essence or extract of spruce, is an article of exportation, used as naval stores: spruce beer may be made by it in a short time, and any where.

The bark of Spruce trees is sudorific, and in extensive use for tanning leather, also to die of a brick red color. The inner bark is used by empirics in powder and tea for bowel and stomach complaints, rheumatism, and gravel. The timber is valuable for masts, spars, rafters, and boards. The resin exuding from the trees is nearly like frankincense. Josselyn says that it is very good in powder over wounds, to re-produce the flesh; but as the resin of the European fir is used in plaster to produce itching, rubefaction, and blistering, the resin of all the firs must be heating and irritating.

ABRUS PRECATORIUS, L *Liquorice bush, Red bean, Love pea.* A small ornamental and medical shrub, found from Florida to Brazil, also in Egypt and East Indies. It belongs to monodelphia enneandria, and to the leguminose tribe. Well known by its beautiful scarlet seeds with a black spot, used as beads by the Hindus and Mahometans. The roots and leaves are equivalents to liquorice, sweet, mucilaginous, demulcent and expectorant; a good tea of the leaves used for colds and fevers. The seeds, although farinaceous, are hard and tough, yet they are eaten in Egypt. In America, they are considered purgative and deleterious. Perhaps our American is different from the Asiatic kind.

ABSYNTHIUM OFFICINALE, Tourn. J. (*Artemisia absynthium*, L.) *Common Wormwood.* In our gur-

dens, sometimes spontaneous. Taste intensely bitter, smell strong, contains an essential oil and bitter extractive. Very valuable medical plant. Two scruples of the extract cure intermittents. Useful in cachetic, hydropic and hypochondriac affections, in jaundice, against worms, &c. Essential oil dark green, a powerful stimulant, antispasmodic, and vermifuge. The wormwood wine is an excellent tonic; wine, ale and beer are medicated by it. Sometimes substituted for hops in brewing. Leaves excellent topical resolvent, applied to swelled breast and tumors. The ashes produce the salt of *Absynthium*, useful in gravel, and to dissolve the stones as formerly believed. Many other properties, very early known. It is said the continual use of this plant has cured the gout, increased the milk of nurses, removed dropsy and hepatitis.

ABUTILON CORDATUM, J. *Yellow Mallow.* (*Sida abutilon* of L.) Common from Canada to Mexico. Equivalent of *Malva* or common Mallow, being mucilaginous, emollient, and demulcent. A tea is used in Virginia for internal inflammations, stranguary, gonorrhœa, &c. The leaves are edible, the negroes use them in the South in soups, gombos, and calalous. It was one of the plants affording a kind of hemp to the Southern Indians to make nets, fringes, coarse twist cloth, and the frame of the fine feather mantles.

ACALYPHA VIRGINICA, L. *Mercury weed.* Common from Canada to Florida. Elliot says that Dr. Atkins has found it expectorant and diuretic, useful in humid asthma, ascites, and anasarca. The empirics of the South use it for many other purposes. This plant deserves investigation; the other species of the genus have probably similar properties.

ACER, L. *Maple Trees.* Valuable trees found all over the United States: a dozen species at least. Wood handsome and valuable for furniture, tools, guns, &c. Commonly pale yellow, when veined called curled maple. The bark of *A. rubra*, red maple, dies wool and flax of a brown color; the Cherokees use the inner bark boiled for sore eyes. Maple sugar is made from their sap in the spring. The Birch tree (*Betula*) and Hickory trees (*Hicorya*) have a sweet sap as well as the Maples. The Indians made syrup and sugar from all, but chiefly

from *A. saccharinum*, *A. nigra*, *A. rubra*, *A. dasicarpa*, and *A. negundo*, (now called *Negundium fraxinifolium.*) The two first, Sugar Maple and Black Maple, afford the most. This sugar is equal to the cane sugar of *Saccharum officinarum.* When badly made, it is dark and has an empyreumatic taste. When properly made, it granulates well, may be easily refined into loaf sugar, and has a pure sweet taste. The syrup made by boiling the sap is very good : when boiled longer, it becomes sugar with little care. A single tree affords from 10 to 20 gallons of sap by mere tapping. and 3 or 4 gallons give nearly a pound of sugar. We could make maple sugar in sufficient quantity for the whole use of our population, and even for exportation. But instead, the trees are wantonly destroyed or neglected. Hardly 100,000lbs. of sugar are made annually, and chiefly in remote settlements. We ought to plant and cultivate these trees instead of destroying them, or leave from 10 to 50 on each acre of cleared land. Whole forests of them have lately been planted in Germany, Hungary, and France. The leaves of *A. striatum*, called Dockmockie maple, are used in topical application for the inflamed breast.

ACHILLEA MILLEFOLIUM, L. *Yarrow, Milfoil.* Common to Europe and America, from Canada to Louisiana, in woods and fields. Whole plant used. Bitter and niderose, tonic, restringent, and vulnerary, but subnarcotic and inebriant. Used for hemorrhoids, dysentery, hemoptysis, menstrual affections, wounds, hypochondria, and cancer. The infusion and extract are employed. The American plant is stronger than the European, and has lately been exported for use : this often happens with our plants, our warm summers rendering our medical plants more efficacious. The *A. ptarmica*, or Sneezeweed, is said also to grow in New York; few botanists have seen it. Used as an errhine in Europe.

ACHRAS SAPOTA, L. *Sapodil.* Florida and Bahama. Fine fruit. Seeds acrid diuretic, useful in emulsion for nephritis, dysury, and diseases of the urethra.

ACNIDA CARMABINA, L. *Willow Hemp.* This was the best white hemp of the Northern Indians, who

made nets, ropes, thread, and purses with it. The seeds were eaten by them.

ACONITUM NAPELLUS, L. *Wolfsbane.* Schoepf says that it grows in Virginia, no one else has seen it; he must have mistaken for it the *A. uncinatum*, our only native species, which grows from Virginia to Missouri, and has probably similar qualities. The Wolfsbane is an acrid nauseous poison, but diuretic, drastic, pellent, sudorific, errhine, vesicatory, &c. Producing vertigo and convulsions. It is, however, used in Europe in minute does, as a heroic remedy in schirrus, anchylosis, spina ventosa, amaurosis, gout, rheumatism, and even intermittent fevers.

ACTEA ALBA and RUBRA. *White and red Cohosh*, or *Baneberry, Toadroot.* From Canada to Carolina, in woods. Root bitter, repellent, nervine, used for debility in Canada. Equivalent of *Botrophis.* Plant and berries poisonous, said to be liked by toads. Berries white or red in the second species. Wrongly blended by L. with *A. spicata* or *A. nigra* of Europe, which has black berries.

ACTIMERIS. Many species, all called formerly *Coreopsis alternifolia.* Dr. Eoff informed me that they cure the ringworm by rubbing with the leaves.

ADIANTHUM PEDATUM, Add, Mrs. Gambold says that the Cherokees used a strong decoction of it as an emetic in agues! this would indicate greater activity in this plant.

ADICEA GLABERRIMA, Raf. 1815. (*Urtica pumila*, L.) *Cool weed.* Very common. Very different from nettles, quite smooth and cool. The leaves applied or bruised give immediate relief in inflammations and painful swellings. As a wash, they cure the topical poison of Rhus or Shumac. Called *Newasha*, meaning *as cool as ice*, by the Osages. Its peculiar grateful strong smell indicates other properties.

AGARICUS. *Punk.* Many species, growing on decayed trees. All more or less styptic and bitter, useful to make the Agaric, a soft powder for stopping arterial hemorrhage, in amputations of limbs, without ligature. A pleasant bitters may be made with an equal quantity of orange peal infused in wine, &c. Punk is the Indian

name for all perennial fungi growing on trees and of a spongy nature : useful to make spunk or touch wood to light easily fire with. Those growing on pines and hickories are commonly deemed best.

AGAVE AMERICANA, L. *Flowering Aloes. Maguey* of Mexico. *Zabara* of Cuba, Spain, and Sicily. From Carolina and Florida to Mexico. Valuable economical plant. Radical leaves evergreen, 2 to 6 feet long, the inside is edible after coction, tasting like lemonade. The juice flowing from the young central leaves cut off is sweetish, by fermentation it produces the Pulque or Mexican beer ; by coction, syrup, honey, and sugar can be made of it. The old leaves dressed like flax, produce a strong white silky thread ; the Mexican cloth and paper were made from it, also fine fringe and lace. The central stem grows in a few months 18 to 20 feet high, bearing a beautiful pyramid of yellow blossoms. It is a false notion to suppose that it blossoms only once in 100 years ; this happens once in 15 to 25 years, and afterwards the plant dies, but the root sends off lateral offsets. The stems are used for light rafts and posts ; cattle and sheep feed on the blossoms. Cultivated for hedges and use in Mexico, Spain, Sicily, and Barbary. Worthy of attention in Florida.

AGAVE VIRGINICA, L. *Virginia Aloes, Rattlesnake master.* Root bitter, tincture used for cholics, chewed in obstinate diarrhœa by the Cherokees, violent, but efficient.

ALCHEMILLA ALPINA, L. *Ladies' mantle.* On the White mountains, and in Canada. Astringent, equivalent of *Potentilla.*

ALETRIS AUREA, Mx. Add, harsh bitter root, used in vinegar for dropsical fevers in Carolina. Elliot.

ALISMA PLANTAGO, L. *Water Plantain.* Had once much celebrity in Russia, as a cure for hydrophobia ; time has not confirmed this valuable property.

ALIMA ODORATA. Raf. Fl. lud. *Sweet Plantain.* The whole plant odorous, used for wounds and bruises in Louisiana.

ALLIUM, L. *Wild Garlic, Landlauch.* Several species, *A. canadense* most common, give a bad taste to the milk and butter of cows feeding on them. The tincture

used for gravel. The Cherokees use them in cookery. Many species cultivated in gardens and fields. *A. sativum* or *common Garlick*, is a well known condiment, highly medical, externally as a stimulant, rubefacient, and blistering, internally as a diffusible stimulant, diuretic, expectorant, sudorific, &c. useful in diseases of a languid character and interrupted secretion, catarrhal disorders, and chronic cough, pituitous and spasmodic asthma, flatulent cholics, hysterical and dropsical complaints, intermittent and typhoid fevers, retention of urine, &c. It is also a powerful vermifuge, and has expelled the tenia. It is given in substance, conserve, milk, wine, &c. Properties residing in a yellow, thick, acrid oil. Applied to the sole of the feet as an excellent revulsion from disorders of the head. Ointment or poultice repellent, discutient, diuretic, and cures deafness produced by atony or rheumatism. The excessive use of garlick in cookery, may produce head-ache, flatulence, fetid breath, thirst, inflammations, fevers, and bloody piles. Parsley and celery correct partly its strong smell and taste, and also that of onions.

ALLIUM CEPA, L. or *Cepa vulgaris*, Tt. *Onions.* Have the same properties as garlick, but weaker. Very useful as food in dropsies and suppressed urine. Onions correct the taste of fish, and can cure the bad effects produced by bad fish, salt, smoked, or putrid. They promote secretions and excite appetite. Their excess produces flatulence, thirst, head-ache, bad dreams, and may derange the central functions. Externally, they form good cataplasms for suppurating tumors. Raw onions can only suit strong stomachs, they render the breath offensive. When boiled or stewed, they are palatable and healthy. The ancients thought that onions and garlic could cure or prevent the plague. The *A. porrum* or Leeks, have the same qualities and uses, they are still milder than onions : both roots and leaves used.

ALNUS SERRULATA, Aiton. *Black alder.* Near streams from Canada to Florida. Leaves vulnerary and astringent, repel the milk when bruised and applied to the breast. Bark styptic, dies brown, and with vitriol black. The cones also die black. The inner bark of the root is emetic and dies yellow. The wood produces

a light charcoal, the very best for gunpowder. The *A. undulata*, *A. glutinosa*, *A. glauca*, &c. found in mountains and Canada, are equivalent. The *Primos*, also called Alder with us, has different properties, and bears red berries; both are called *Sulling* by the Canada tribes, who use the bark in poultice for swellings and strains.

ALSINE MEDIA, L. *Chickweed.* Antiscorbutic and pectoral, may be eaten boiled for greens. Birds are fond of it.

ALTHEA OFFICINALIS, L. *Marsh Mallow.* European plant, becomes spontaneous with us in many places. Plant and root mucilaginous, demulcent, emolient; used in cataplasms, gargles, fomentations, clysters, and decoctions, for diseases of the throat and lungs, bowels, bladder, and urethra, also for pains, irritations, and inflammations. Equivalent to mallow and gum Arabic, but better. In France, lozenges of it are used for cough.

AMANITA, Lam. *Mushrooms*, with gills beneath, and a central support: nearly 500 species in North America. Several are excellent for food, the best are, *A. muscaria*, *A. deliciosa*, *A. edulis*, *A. campestris*, *A. albella*, *A. aurantiaca*, *A. procera*, *A. ovoidea*, &c. All the European species are found with us, 50 kinds are eaten in France, 100 kinds in Italy. Here we are afraid of them, and only eat 2 or 3. An easy test can teach us which are harmless: boil or cook a white onion with them, if it retains the color, the mushrooms are good: if the onion becomes bluish they are bad or unhealthy. Many species are poisonous, all the milky ones are such, also the black and thin kinds. The fleshy and firm are commonly good; those who have a fine smell are the best, some are delicious. They may be dried and used for condiment. Dried mushrooms are an article of trade in Italy: we could collect them in abundance. They are an essential ingredient of good catchup sauce. When poisonous mushrooms are eaten by mistake, they produce anxiety, spasms, convulsions, and death; the best remedies are emetics, ether, milk, &c. The *A. atramentaria* can make ink. The best kinds are

cultivated in Europe in dung beds and cellars, by sowing the little bulbs or filaments.

AMARANTHUS, L. *Amaranth, Princefeather.* Many species cultivated for beauty, and many wild. The leaves of several can be eaten boiled like spinage; in Louisiana they eat my *A. diacanthus*, Raf. The *A. sanguineus*, L. called *Lovely bleeding*, is a powerful styptic, the decoction is in popular use to stop the flow of menses, when other remedies have failed. The *A. pumilus*, Raf. may be pickled like other fleshy sea plants.

AMARYLLIS ATAMASCO, L. *Ground lily, Stagger grass.* Said to poison horses and cattle, producing the disease called Staggers. Beautiful vernal white blossom.

AMBROSIA, L. *Ragweed.* The *A. elatior* and other species with jagged leaves bear that name, called also *Carrot-weed, Conot-weed, Bastard Wormwood.* Bad weeds in old fields, not eaten by cattle; if cows eat it by chance, their milk becomes bitter: the plant deemed emollient and antiseptic in fermentations, the seeds mixed with wheat, give a bad bitter taste to bread. The *A. trifida* is called Horseweed and Wild Hemp, was used by the Indians to make a kind of hemp and ropes, may be available, sometimes 10 feet high.

AMPHICARPA MONOICA, Elliot. (*Glycine do*, L.) *Pea Vine.* Cattle are greedy of this plant, and destroy it almost every where, ought to be cultivated for fodder. The seeds are like peas, and as good to eat. In Carolina they begin to cultivate it for the table.

AMYGDALUS COMMUNIS, L. *Almond tree.* Cultivated from Virginia to Florida; but our late vernal frosts injure it, as it blossoms in February and March. Sweet almonds are a fine fruit; they contain the same elements as human milk. The bitter almonds contain besides Prussic acid; they are pernicious, and poison birds. The oil of almonds is produced by both, 2lbs. give 1lb. of oil, very bland, demulcent, useful in tickling cough, heat of urine, pains and inflammations. The emulsion or milk of almonds has equal properties, a fine flavor, and is cooling. Orgeat is made with it, sugar and orange flower water.

AMYGDALUS PERSICA. *Peach tree.* Was cultivated by the Indian tribes before Columbus, either indigenous or brought from Asia. Now common from Canada to Louisiana, in orchards. Fruit delicious. Wine can be made with it. Peach brandy is a pernicious liquor. Peach kernels are similar to bitter almonds. The peach blossoms are bitter, anodyne, carminative, diuretic, and vermifuge, much employed in Europe for worms, colic, gravel, &c. in the form of tea. Said also to subdue inebriation and deafness. The peach leaves have the same properties, but are weaker, more bitter, and less agreeable, sometimes purgative in large doses. Deserving attention as an efficient vermifuge.

AMYGDALUS GLABRA, Dec. *Nectarine.* Peculiar species, and not a variety of peach. Properties similar to peach, but much weaker. Rare with us.

AMYRIS FLORIDANA, Nuttal. *Florida Balsam tree.* The berries are black and fragrant, the leaves aromatic. Properties similar to *L. maritima* and *A. balsamifera* of the West Indies, called Rosewoods, cephalic, diaphoretic, used for weak eyes, &c. The whole genus is balsamic, producing Gum Elemi, Balm of Gilead, &c.

ANACARDIUM OCCIDENTALE, L. *Cachewnut.* In Florida, and spread to Brazil. Very valuable tree, it grows in pure sand and consolidates the same. Wood very fine and hard. The nut good and healthy; the cover of it produces a black exsudation, dies black, and is used to cure the itch and diseases of the skin. Ought to be cultivated.

ANAGALLIS PHENICEA, Lam. *Red Pinepernel.* From New York to Carolina. Seemingly inert, yet acrid and active. Believed useful in hydrophobia by Boerhaave, and ever since. Employed in Europe for mania, epilepsy, melancholy, &c. thus useful in all nervous diseases; Clayton recommends it in febrile delirium. Also pulmonic and alexiter. It is poisonous to cattle; yet Colden says the decoction was used in New York in the bloody sweat or murrain of calves.

ANDROMEDA, L. the *A. nitida* of Carolina, *Sour wood* or *Pipestem*, is equivalent of *Kalmia* for the itch, the leaves are acrid, the bark dies purple with copperas.

The *A. angustifolia*, or *Titi* of the Florida tribes, is also equivalent of *Kalmia*. The *A. mariana* or Wicke, likewise very useful in the ground itch of negro's feet. The *A. racemosa* or *White Pepperbush, White Osier*, is used for baskets and fish flakes. The powder on the leaves and buds of *A. pulvcrulenta* or *Mealybush*, and other kinds is a powerful errhine : even the powdered leaves are such.

ANDROPOGON, L. *Sedge Grass.* Many species, disliked by cattle because coarse and dry ; but the *A. ciliatus* makes good hay in Florida. Some of our species may be equivalent to *A. schenanthus* and *A. nardus.*

ANEMONE VIRGINICA, L. *Windbloom.* Kalm says the hairy seeds dipped in alcohol, are used in odontalgy, being put in the hollow teeth.

ANETHUM FENICULUM, L. *Fennel.* Cultivated and often spontaneous. Seeds pungent, aromatic, equivalent to anniseeds, but a different flavor. The sweet fennel is bleached and eaten like cellery in Italy.

ANGELICA ATROPURPUREA, L. *Masterwort.* From Canada to Carolina. The root has a strong smell, when fresh it is a poison, the juice is acrid and blisters the lips ; the Indians of Canada use it for suicide. But when dry, it loses its virulenee, and becomes a warm aromatic, similar to lovage. Cutler says the stems are candied in New England.

ANGELICA LUCIDA, L. *Angelic root, Belly-ache root. Nendo* of the Virginian Indians. *White root* of the Southern tribes. Equivalent of Ginseng and officinal Angelica. Root like Ginseng, taste similar, smell like aniseed. Highly valued by the Southern Indians, and cultivated by them : used as a carminative, and in cookery. This root is said to give the excellent flavor to Virginia hams and pork, when hogs feed on it. It is bitterish, subacrid, fragrant and aromatic, stomachic and tonic, useful in cholics, hysterics, menstrual suppressions, chlorosis, anorexia, &c. The powdered seeds kill lice. Schoepf and Henry mention the *A. sylvestris* as American, which is erroneous, they meant this species. Henry adds that it is sialagogue and repellent, useful to disperse tumors, and the root an antidote against yellow fever, chewed when visiting the sick.

The Missouri tribes call it *Lagonihah*, and mix it with tobacco to smoke; they also eat it, but it often produces indigestion.

ANTHOXANTHUM ODORATUM, L. *Sweetgrass.* Makes fragrant hay; cows fed on it give a very fine milk: sheep feeding on it produce excellent mutton.

APIOS TUBEROSA, P. (*Glycine apios*, L.) *Indian Potato, Potato Pea. Hopniss* of the Delaware tribes. *Noa* of the Missouri tribes. *Tucaha* of the Southern tribes. *Hanke* or White apple of the Oregon tribes. Valuable plant, formerly cultivated by the Indians (yet by the Creeks) for the roots, which are like potatoes, or rather like *Helianthus tuberosus*, and the seeds like peas and as good. Deserving to be cultivated by us. The roots are white, tender, very good boiled or roasted, and in soups, or even raw when dried.

APIUM GRAVEOLENS, L. *Cellery.* Much cultivated. When bleached a good pot herb; root, petioles, and leaves are excellent in soups, ragouts, fried, &c. They are stomachic, excite appetite, correct the alkalescence of meat and fish. Very useful in obstructions and liver complaints. When eaten raw less healthy, impairing digestion, but correcting fetid breath.

APIUM PETROSELINUM, L. *Common Parsley.* Cultivated for condiment and very medical. Diuretic and sudorific, the root chiefly so, and with an agreeable sweetish taste. In decoction, it increases urine, cures the suppression and strangury, gives relief in nephritic pains, better still if united to mallow and water mellon seeds. The leaves are pungent aromatic, they give a good flavor to soups, and keep the kidneys in good order. It is said that given to sheep, they prevent and cure the rot. They are injurious in nervous disorders and epilepsy. The seeds have been used in syphilis.

APLOCERA MARITIMA, Raf. (*Monocera*, E.) *Toothache Grass* of Carolina. Root bitter, sialagogue, used for the tooth-ache: the grass eaten by cows affect their milk, giving it a bad taste.

APOCYNUM, Add. Very valuable, affording hemp and cloth from the stems, cotton in the pods, sugar in the blossoms, shoots edible like asparagus, root very powerful, emetic, cathartic, diuretic, sudorific, vermi-

fuge, and pectoral, according to doses and forms. Six grains of the powder is sudorific, 30 grains will purge and vomit, useful in asthma united to skunkweed. Also used in dropsies, rheumatism, and whooping cough by empirics. All the species nearly equal, and deserving attention.

AQUILEGIA CANADENSIS, L. *Red Columbine.* A beautiful native flower, adorning our rocks, cultivated for beauty. Equivalent of *Aq. vulgaris*, which is diuretic, menagogue, sudorific, antiscorbutic, and aperitive. The roots, flowers, and seeds are used in Europe; the seeds are acrid oily, taken in vinous infusions for jaundice.

ARABIS RHOMBOIDES, Mx. *Meadow Cress.* Equivalent of Water Cresses, the tuberous root edible as well as the leaves, similar to Radishes, taste like Cochlearia.

ARACHIS HYPOGEA, L. *Ground Nut, Pea Nut.* Cultivated from Maryland to Florida. Erroneously called *Pistachoe Nut* in Carolina, the name belongs to the *Pistacia* of Sicily and Syria. Called *Pindars* in the West Indies. Cultivated by the Indians from Florida to Brazil before Columbus, by the name of *Mani.* Yet by the Creek tribes, who raise large crops in pure sand. The seeds or beans are oily, they produce much oil fit for all uses; commonly eaten roasted in the shell or pod: nutritive, demulcent and pectoral. A kind of chocolate can be made with them, quite inferior, though taste similar.

ARALIA SPINOSA, L. *Prickly Elder, Shot Bush, Pigeon Tree,* &c. Valuable medical tree, the bark is emetic, cathartic, sudorific, sialagogue, febrifuge, &c. that of the root is the best, the dry less active than the fresh. It is said to cure the bite of rattle snakes by emesis, &c. the Indians use it for dropsy, syphilis, tooth ache, cholic, rheumatism, &c. in decoction; the extract is also useful, the fresh roots are almost poisonous in the green state, they must be roasted and pounded, even then they act as a violent emetic. The berries are said to be a certain cure for spring intermittents, united to the bark, they have a good smell, and are eaten by wild pigeons. The bark has an aromatic taste, very useful in chronic rheumatism; equivalent of *Xanthoxylum,*

but milder. The leaves and seeds are pectoral. Add to *A. nudicaulis*, used for bilious complaints as a ptisan in Canada, and *A. racemosa* by the Indians as carminative, pectoral and antiseptic, in coughs, pains in the breast, mortification; the root with horse radish, made in poultice for the feet in general dropsy. The juice of the berries and oil of the seeds is said to cure ear ache and deafness, poured in the ears.

ARCTIUM LAPPA, L. *Burdock.* Common to both continents. Root valuable, diuretic, diaphoretic and detergent, equivalent to *Aralia* and *Smilax.* Useful in rheumatism, scurvy, syphilis, nephritis, phlogosis, oedema, gravel and gout. These properties are mild, since the boiled roots, stems and leaves are eaten in Canada; nay, the root even raw, like radishes, the taste is sweetish austere: the use of it makes the urine milky, and produces flatulence. The seeds are bitter snd purgative.

ARETHUSA BULBOSA, L. The bruised bulbs useful for the tooth ache, and in cataplasms for tumors. Schoepf.

ARGEMONE, L. *Thorn Poppy.* The *Flava* (*Mexicana*, L.) with yellow blossoms, and the *Albiflora* with white ones, have similar properties. From Pennsylvania to Mexico. Equivalent of *Chelidonium*, having a yellow bitter juice, which dies yellow, and when inspissated, becomes similar to Gamboge. It is anodyne, detersive, resolutive, hypnotic, diuretic, useful in herpetic diseases, psora, sore eyes, dropsy, jaundice, &c. The seeds are drastic and emetic, used in the West Indies for the belly ache and dysentery, their infusion is diaphoretic and ophthalmic, dose only a table spoon: when smoked, they are narcotic. The capsules used like Poppy heads in diarrhœa and dysentery. Deserving attention, appear to unite the properties of Opium, Gamboge and Celandine.

ARNICA, L. *Leopard's Bane.* We have several species, *A. nudicaule, doronicum, plantagineum*, &c. weak equivalents of *A. montana*, the roots and flowers of which are stimulant and discutient, very useful in palsy, rheumatism, congestions, typhus, &c. It is a narcotic, producing burnings, hemorrhage, vertigo and coma in large doses. Vinegar cures these symptoms.

ARONIA OVALIS, P. *Juneberry, Shadtree, Misascutu* of Algic tribes. Avery fine tree and northern fruit, which ought to be cultivated. It is sweet, black, like a cherry. The *A. alnifolia* of the South is similar and as good. My *A. cordata* also with redish berries. The Chokeberries are produced by 4 or 5 species of shrubby *Pirmia:* they are astringent and unpalatable.

ARUM ESCULENTUM, L. *Eddoes, Tanniers.* Cultivated in Carolina for the root, which is a common vegetable of topical climates all over the globe. These roots must be boiled in several waters, or roasted.

ARTEMISIA VULGARIS, L. *Mugwort.* Common to both continents. Equivalent of *Absynthium.* Antiseptic, stomachic, detergent, deobstruent, laxative, diuretic, diaphoretic, menagogue, corroborant, antispasmodic and vermifuge. Useful in hysterics, spasms, palpitations of the heart, worms, obstructions, &c. in tea, infusion or powder. The leaves, tops and seeds are used, these last and their oil are equal to Santomic seeds as vermifuge. Warm fomentations of the leaves are excellent discutient and antiseptic. Many equivalent species grow in the West, the *A. columbiensis* of Nuttall is very aromatic. The *A. santonica* is said to grow in the South, the seeds are an article of trade in Europe. The *A. dracunculus* of gardens is a fine condiment. The *A. abrotanum* or Southern wood of gardens is equal to Mugwort and Absynth in properties. It is said to prevent baldness and make the hair grow by a spirituous infusion of it. All the species make the milk of cows bitter when bruised upon. Moxa made with them.

ASARUM. Add, Dr. Firth says he has cured the tetanus by the decoction of *A. canadense.* The Indians make a fine snuff with *A. virginicum,* the fresh leaves are used for wounds and scrofula.

ASCLEPIAS. Add, the Indians of Louisiana use my *A. serpentaria,* Fl. lud. for the bite of rattle snakes. The *A. debilis* makes a kind of flax. The *A. phytolacoides* dies yellow green, the milk appears similar to opium; silk gloves have been made with the silk of the pods. The Oregon and Western tribes call many species *Nepesha,* they use the roots in dropsy, asthma,

dysentery, and as emetics, chiefly the *A. syriaca*, *A. incarnata*, and *A. obtusifolia.*

ASIMINA, Dec. Ty. (*Annona sp.* L. *Porcelia* of others.) *Papaw, Custard Apple. Asiminier* in Louisiana. The *A. triloba*, found from Ohio to Mexico. Fruit with a bad smell, but when ripe after frost, the pulp is sweet, luscious, yellow, similar to Custards. It is sedative, laxative and healthy. A wine is made of it, quite clear and good, useful for aphthas of children. The skin of the fruit and the seeds are fetid, smell similar to *Datura.* The *A. grandiflora* of Florida, has large fragrant white blossoms, and a fruit like Cucumber, rough outside, but with a fine hard yellow pulp inside, delicious and wholesome. The *A. incarnata* has also a fine fruit. All these shrubs deserve cultivation. The Indians make strong ropes with their bark.

ASPARAGUS OFFICINALIS, L. *Sparrow Grass.* Cultivated, often spontaneous. The shoots a well known vernal luxury, very healthy, diuretic, giving a strong smell to urine, purifying the blood, pectoral, sedative, and sudorific ; but the excessive use is said to bring on gout. The root and seeds are aperient, diuretic, aphrodisiac, &c. useful in gravel, nephritis, &c. A peculiar substance, asparagine, found in them. Valuable diet in many diseases of the breast, heart, kidneys and bladder, it allays the inordinate action of the heart. A syrup made with the green part of the shoots, is useful when out of season. Alcohol is made with the berries.

ASPIDIUM, Sm. *Malefern, Sweetbrake.* We have nearly 25 species, many are medical : the *A. filixmas*, most used as a vermifuge, to expel the tenia, it is united to Skunkweed and given before and after a purge ; useful also for rachitis or rickets ; the root is the part used, it is edible, and eaten by the Indians as well as the leaves. Plinius knew its vermifuge quality. All the sweet scented species are equally medical, vermifuge, pectoral, diaphoretic and demulcent. The *Aspidium* gives by analysis, a peculiar fatty substance, *Aspidine*, which is nauseous, heavier than water, has a bad taste, and forms soaps ; it contains also gallic and acetic acids, tannin, sugar, starch, gelatine, lignine, &c. The root

taste is bitterish, sweetish, subastringent and mucilaginous. Used in England to flavor Ale.

ASPLENIUM, L. *Spleenfern.* Many species. Equivalent of *A. trichomanes* and *A. rata*, such as *A. ebeneum*, *trichomanoides*, *rhizophyllum*, &c. Mild astringent, pectoral and corroborant, aperient and diuretic, useful for obstructions, gravel, syphilis, to clean the kidneys, hypochondria, &c. in decoction.

ASTER, L. *Starwort.* A fine prolific genus, we have nearly 100 species. Never before introduced in Materia Medica. I am indebted to Dr. Lawrence, of New Lebanon, for the following indications. The *A. novanglia* is employed in decoction internally, with a strong decoction externally, in many eruptive diseases of the skin: it removes also the poisonous state of the skin caused by *Rhus* or Shumac. The *A. cordifolius* is an excellent aromatic nervine, in many cases preferable to Valerian. Many other species must be equally good, such as *A. puniceus* and those with a strong scent; they ought to be tried as equivalents of Valerian in epilepsy, spasms, hysterics, &c.

ATRIPLEX, L. *Orach.* Several species. *A. laciniata* is refrigerant, watery, edible, similar and equivalent to Purslain. *A. halamoides*, Raf. or Sea Orach, is similar, also anodyne, useful in gout as a cataplasm, with starch; the young shoots are eaten like Asparagus. *A. hortensis* or Garden Orach, eaten like Spinage.

AVENA SATIVA, L. *Common Oats.* Seeds nutritive, demulcent, refrigerant, equal to Barley in fevers as a gruel. Oat cakes are eaten like Buckwheat cakes in Scotland. Oat meal is eaten in porridge like our mush; it cannot be made into bread for want of gluten. Porridge may be applied to phlegmons to make them suppurate. The thin gruel is useful in diarrhœa, dysentery, cough, hoarseness, ulceration of the throat. Sowins is a sour infusion of the husks, boiled to a jelly, rather fit for pigs than men. Oats is the chief food of horses in Northern climates, but Barley is far better.

AZALEA, L. Beautiful ornamental genus of shrubs, with fragrant splendid blossoms, often called *Swamp Pink*, *Wild Honey-suckle*, *Springbloom*. Cutler says

that the blossoms are made into fragrant conserves in the North.

AZEDARACA AMENA. Tt. 1700. (*Melia azedarac*, L.) *Bead tree, Hoop tree, Pride tree.* The old good name of Tournefort, Adanson, Jussien, &c. is much better than *Melia* of L. being part of *Bromelia* and *Melianthus.* Native of Arkansas and Texas. Cultivated from Carolina to Louisiana, often called there *Pride of China.* Valuable, elegant and medical tree, growing any where from America to Japan, improving sandy soils, bearing transplantation and lopping at any age. Good coarse wood, fine fuel; cattle eat the leaves, hogs and birds the berries. Inner white bark of the roots excellent vermifuge, dose 20 grains in powder or a decoction; but the outer bark is deleterious, purgative, narcotic, and must not be used: in Carolina, they boil the whole root and it thus becomes a violent remedy, causing vomiting and purging, stupor and spasms, like over doses of *Spigelia.* A cathartic is useful after it to carry off the worms. The berries are also vermifuge, children may be allowed to eat them: they contain a concrete oil, useful for burning, employed in Japan; it is extracted by coction, candles may be made of it; useful in tinea capitis, in the form of an ointment. The ample leaves are bitterish, nauseous, stomachic, discutient and emollient, used in the East and West Indies in decoction, for malignant fevers, and in cataplasms for bites of snakes. The blossoms are fragrant and medical like the leaves.

BACCHARIS HALIMIFOLIA, L. *Groundsel tree, Pencil tree.* Sea shore, from Long Island to Florida. Ornamental when in seed. Peculiar seent like *Conyza* and *Jacobea*, indicating medical properties.

BAMBUSA ARUNDINACEA, J. *Bambu Cane.* In Florida, below lat. 28. Very useful for rods, props, light carpentry, vessels, and other domestic uses. The young shoots are edible, boiled or pickled.

BATSCHIA, Mx. *Puccoon, Red paint, Alcanet.* Several species. One of them must be the *Anchusa virginiana* of L. and Schoepf. Red root, used as a die and paint by the Indians, also as a vermifuge. Perhaps equi-

valent of *Anchusa* and *Rubia*, dyeing deep orange rather than red.

BERBERIS. Add, barberies are used in Egypt in the plague and violent fevers.

BETA VULGARIS, L. *Garden Beet.* Root sweet, good food boiled, baked or pickled. Leaves diluent, refrigerant, useful in sore eyes, head ache, tooth ache, coryza, &c. applied on the parts: the best dressing for inflammations, cutcers, suttons. As good as spinage for greens. Blossoms errhine. Beet sugar is made in France on a large scale, is nearly as good as cane sugar, but lighter: the mashed roots after the juice is pressed out, are excellent food for cattle.

BETULA, L. *Birch Tree.* Valuable trees for the timber, sap and bark. The best is *B. lenta;* many vulgar names, *Sweet Birch, Black B. Cherry B. Spice B. Mountain Mahogany.* Wood much used by cabinet makers, takes a fine polish: bark with a sweet spicy smell and taste, like *Gautiera*, alterative and antiscrofulous, pectoral, diaphoretic and depurative. *Nelashkih* of the Osages, used for colds, coughs, and breast complaints, scrofula and sores. A tea of the bark or twigs commonly used by empirics for obstructions, complaints of the bowels; a syrup of birch bark and peach stones used as stomachic and restorative after dysentery. A beer is made with the decoction, also with the sap, which is sweet like maple sap, and can become syrup and honey by boiling. All the Birches give a similar sweet sap. The twigs, inner bark, leaves and buds have more or less the same smell and taste. The *B. rubra* or *Red Birch*, has a fine timber for cabinet makers. The Indians use the light bark for canoes, *B. papyracea* (*white or paper birch*) chiefly, whose white smooth bark can be written upon. The Birch wood makes fine hoops; the empyreumatic oil of the distilled wood, gives the peculiar smell to the Russia leather, no insects touch it, useful also to preserve furs.

BIDENS, L. *Spanish Needles.* Bad weeds in fields. Leaves small like carrot, they die wool of a fulvous color. Equivalent of *Daucus* and *Acmella.*

BLITUM, L. *Blite.* Several species, taste and smell like Cedar or Juniper. Edible and diaphoretic.

BOLETUS, L. *Touchwood.* Fungi with pores beneath; we have nearly 200 species: those with cells beneath are my G. *Phorima; Polyporus* has a central stem, *Dedalea* a labyrinth beneath, *Fistulina* hollow tubes beneath. The true *Boletus* are sessile, equivalent to *Agaricus* to make tinder and styptic lint. *A. cinnabarinus* dies red. *B. suberosus* is made into corks in Sweden. *B. igniarius* and *B. fomentarius* chiefly used for spunk or tinder. *B. marginatus* exudes an acid. *B. odoratus* and *B. suaveolens* smell like anniseed, their powder preserves clothes from insects, used in Europe with honey in phthisis. The *B. laricis* is tonic and used in fevers. Almost all the fleshy species of *Polyporus* are edible, test same as for *Amanita, B. edulis, B. juglandis,* &c. are excellent.

BOTROPHIS. Add, used for rheumatic pains, diseases of languor and squirrous tumors, in tincture or decoction, by the Cherokees and Southern tribes.

BOTRYCHIUM, Mx. *Rattlesnake Ferns.* Several species, mild astringents, equivalent of *Osmunda.*

BRASSICA OLERACEA, L. *Cabbage.* Well known vegetable, healthy, antiscorbutic, pectoral when boiled. Raw in coldslaw, or pickled in sourcrout, almost indigestible. Cauliflowers still better than cabbage, the best taste like beef marrow. Cabbage is good food for cattle, but spoils the milk of cows. Eaten by horses, the leaves cure the salivation or slabber. It contains sulphur.

BRASSICA RAPA, L. *Turnips.* Nutritive, diluent, flatulent, aphrodisiac, diuretic. Spontaneous with us. The *Rutabaga* is a variety much liked by cattle. Leaves good boiled for greens. The seeds produce much oil; this oil, as well as the decoction and soup of the roots, useful in gravel, cholic, asthma, aphtha, strangury, otalgy, &c. The *Br. napus* (*Kale* or *Cole*) is a native of Arkansas, little known as yet with us: the leaves bleached like Cellery, are sweet and tender; the oil of Coleseed or *Br. campestris,* almost exclusively used in Holland, Belgic and Flanders, to cook and burn.

BROMELIA ANANAS, L. *Pine Apple.* Cultivated in Florida. Delicious fruit, diuretic, menagogue and aphrodisiac: an excellent wine like Malmsey made with

it; the syrup and preserves exquisite. Ambrosial smell and flavor.

BROMUS PURGANS, L. *Broom Grass.* Medical grass, sudorific, vermifuge, laxative, diuretic, menagogue, &c. Excellent for cattle, purges them.

BUNIAS AMERICANA, Raf. *Seacole.* The *B. cakile* of Schoepf, *B. maritima* of others. On the sea shores. Acrid, diuretic, antiscorbutic. Edible, makes a fine pickle for scurvy; root mixed with bread in Canada.

BUXUS SEMPERVIRENS, L. *Boxwood.* Common in gardens for borders, grows very slow, a tree 8 feet high, must be 100 years old. Wood yellow, very hard, excellent for implements and wood cuts. Leaves and bark bitter, fetid, purgative, pellent, sudorific, alterative, antisyphilitic. Said to be equivalent of *Styllingia* in syphilis; also used in epilepsy and hysterics, also for beer.

CACALIA, L. *Caraway.* Many species. All more or less emollient like Mallow, the *C. reniformis* (called *Wild Cabbage!*) used like beet leaves. *C. suaveolens* equivalent of *Sonchos.*

CACTUS, L. Nearly 20 species in the United States. See *Opuntia* for the Prickly Pears. Almost all have edible fruits, acid and grateful: those of *C. bleo* are like cherries: those of *C. ferox* are purple, size of an egg. Many are very troublesome weeds, with formidable thorns.

CALLA PALUSTRIS, L. *Swamprobin.* Canada and New York. Roots acrid and caustic like Arum, yet by drying, grinding, macerating and boiling, a fine meal and bread is made in Sweden, very palatable.

CALLICARPA AMERICANA, L. *Sowerbush.* Virginia to Florida. Ornamental shrub, the purple berries die wool purple with alum; they are edible, acid, sweetish and subastringent. Leaves useful for dropsies in decoction, according to Dale, Miller, Schoepf, and Elliott.

CALTHA, L. *Marsh Marygold, Meadowbouts, Cowslip.* Several species, all acrid when fresh, not eaten by sheep; they kill the cattle bruising them, inflaming their stomach: yet Cutler says that they are a good pot herb boiled; see *Ranunculus.* The flower buds are

similar to capers when pickled. The juice stains yellow. Said to be equivalent of *Chelidonium*.

CALYCANTHUS FLORIDUS, L. *Sweet Shrub, Allspice.* Fine shrub, much esteemed for the blossoms, smelling like Pine-apple. The bark is aromatic, similar to cinnamon, the seeds taste like Pimento: often used in the South for substitutes to spices; yet said to poison dogs and wolves. The root is a very strong emetic.

CANNABIS SATIVA, L. *Common Hemp.* Well known, often spontaneous. Leaves and seeds virose, narcotic, phantastic, anodyne, repellent. Leaves used as Tobacco in the East Indies, under the name of Bang, smoked and chewed, pernicious, they exhilirate at first, but soon affect the head like opium; the excessive use brings on stupidity, mania, and many diseases like tobacco. Boiled in oil they form a good liniment for rheumatism. Used before surgical operations to produce stupor. The emulsion of the seeds useful for gonorrhea, leucorrhea, jaundice and impotency. Hemp seed oil is bland and good for lamps. Hemp beer intoxicates.

CAPRARIA BIFLORA, L. *Carib Tea.* Florida and Louisiana. Used as tea in the West Indies, taste very different from tea.

CAPSICUM, L. *Cayenne Pepper.* The *C. baccatum* wild in Florida. *C. annuus* cultivated every where. *Axi* of Haytians. *Chile* of Mexicans. Fruit a well known condiment, very strong stimulant, acrid and burning. The abuse or even use of it, often produce fevers and inflammatory disorders, liver complaints, obstructions, bloody piles, sores, &c. Useful in food only for flatulence, it is never of service to the healthy, but is medical to the sick, stimulating the stomach, exciting the nerves in lethargic and paralytic affections. Often used as a gargle in palsy of the tongue, putrid or ulcerated sore throat. Externally a good stimulant and rubefacient in chronic rheumatism, palsy, gout, tooth ache, dropsies, used in cataplasm or tincture rubbed on. Employed in the West Indies in the cachexy or morbid debility of negroes. A specific in the relaxed sore eyes, in a weak wash. The powder sprinkled on socks will cure the coldness of the feet. It has become a principal article in the practice of the empiric Thompson, to retain, as he

says, the vital heat and cause a free perspiration : he boasts of having used it in all diseases, in doses of half to one teaspoon full, with good effect, to have cured agues, fevers, spotted fevers, &c. with it, and to have always found it harmless. This must be false, it cannot be harmless in inflammatory disorders, nay, rather pernicious. By Dr. Conwell's analysis, it contains a peculiar substance, *Capsicine*, azote, mucilage, nitrate of potash, a coloring matter, &c.

CARDAMINE, L. *Ladies' Smock.* Many species. Equivalent of *Nasturtium*, but more diuretic, nervine and diaphoretic. Roots said to be purgative. Leaves edible. Flowers most efficient, used in powder for epilepsy, hysterics, chorea and spasmodic asthma, united to Valerian.

CAREX, L. *Sedge.* A tribe of grasses rather than genus : nearly 150 species lately ascertained with us, by Schweinitz, Torrey, Dewey, and myself. Not much liked by cattle: the large kinds make a rough kind of hay ; those of salt marshes rather better owing to the salt taste ; useful to consolidate marshes and sands. Those with odorous roots are medical, like *C. arenaria* of Europe, edible, stomachic, diuretic, equivalent of sarsaparilla, gayac and *Dactylon*.

CARICA PAPAYA, L. *Papay.* Wild in Florida, fine evergreen tropical tree : fruit like a pear, good to eat : milk of the unripe fruit a fine vermifuge, one dose is said to kill all worms, and even the tapeworm, a dose of castor oil is taken next to expel them.

CARLINA ACAULIS, L. *Ground Thistle.* In Rhode Island and Virginia, according to Gronovius, Forster and Schoepf : omitted by all our late botanists, perhaps a *Cnicus.* Bitter, aromatic, acrid, graveolent, sudorific and stomachic, useful in hysterics and hypochondria. Schoepf.

CARTHAMUS TINCTORIUS, L. *Bastard Saffron.* Cultivated, become spontaneous. Flowers and seeds nauseous, bitter and aromatic, laxative, diaphoretic and diuretic, useful in jaundice, cough, asthma, dropsy, measles, exanthema, &c. in infusion. The seeds produce oil suitable for burning. Flowers chiefly used to die yellow and make the *Ladies' rouge.* Often imposed

upon as the true Saffron or *Crocus*, which has other properties.

CASSINE PERAGUA, L. Schoepf. *Ilex vomitoria*, Ait. This, by some, is said to be the true *Cassine* of the Florida tribes; but *C. amulosa*, Raf. *Ilex cassine* and *dahon*, *Viburnum cassinoides*, are all equally so named and used. The leaves are bitterish, sudorific and diuretic, vomitive and purgative in strong decoctions, called *black drink* by the Indians. Said to be useful in gravel, nephitis, diabetes, fevers, and small pox.

CASTANEA, Tt. J. (*Fagus*, L.) *Chesnut*. The *C. americana* bears chesnuts one fourth the size of European chesnuts. Valuable tree for timber, posts, staves, hoops, &c. the bark tans and dies leather red, the Indians use it for deer skins. The sap of old trees is blackish, and can make ink. Chesnuts are flatulent eaten raw, better boiled or roasted: flour, cakes, bread and soap is made with them in Corsica, Italy, Switzerland, &c. The *C. pumila* or Chincapin, has a good fruit, tasting like filberts, and affording a good palatable oil: the wood is as durable as Red Cedar; the bark is astringent and tonic, used for agues in the South.

CATALPIA CORDATA, J. Mx. (*Bignonia catalpa*,) L. Catalpa or Cataba tree. Near streams. Beautiful tree, with a soft white wood like Poplar. Bark tonic and vermifuge; wood emetic; leaves emollient, anodyne, useful in cataplasm in parturition and nervous pains. Blossoms smell like *Martynia*, give a bad honey to bees. Pods useful for asthma in decoction; when young may be pickled.

CEANOTHUS OFFICINALIS, Raf. (*C. americ*, L.) *Jersey tea*, *Red root*. Small shrub, with a red root, imparting the color to water and alcohol. Excellent antisyphilitic and antiscrofulous: it is astringent, depurative and laxative. The root is better than the leaves, these were used as a tea, similar to Bohea, in the war of the revolution. The roots die red, and make a red ointment with lard, very good for scrofulous and syphilitic sores. The powder, infusion and tincture are used. It is a specific in the hands of many empirics to cure the gonorrhea in three days, without bad consequences, by the decoc-

tion. It is even useful in inveterate syphilis and chronic tumors. Probably equivalent of *Stilingia*.

CELASTRUS SCANDENS, L. *Fevertwig, Staffvine, Bittersweet*. Equivalent of Dulcamara and Mezereon, but weaker. Bark used, emetic, antisyphilitic, discutient; externally it expels indurated tumors, and the swelling of cow bags.

CELTIS, L. *Nettle tree, Hackberry* in the West. *Sugar-berry tree* in the South. Several species, with yellow, purple and brown berries. Bark anodyne, cooling. Berries sweet, subastringent, good to eat, useful for the dysentery.

CENTAUREA, L. Several species cultivated, some have become spontaneous. *C. benedicta*, (Blessed or Lovely Thistle) a good medical plant: leaves, flowers and seeds used, very bitter, somewhat nauseous, tonic and stomachic, sudorific and diuretic, purgative and subemetic, repellent and antacid. Employed in decoction, infusion, extract, for agues, pleurisy, gout, cachexy, anorexia, vertigo, head ache, whooping cough, and even the plague. It is also hepatic, and useful to correct the bile. 2. *C. cyanus*, called with us *Bluebottles*, has long been deemed ophthalmic. 3. *C. calcitrapa* or *Knapweed*. Root good for nephitis and gravel, in decoction, the analysis gives gum, resin, a green matter, fungine, silica, many salts. *C. jacea, C. nigra, C. solstitialis* also spontaneous and more or less equivalents, all called *Knapweeds*.

CEPHALANTHUS. Add, inner bark agreeable bitter, much used for coughs, and in a wash for palsy in Carolina; also diuretic, taken in pills for gravel.

CERCIS CANADENSIS, L. *Redbud*. Blossoms edible, eaten by Indians, equal to *Tropoleum* in sallad, or pickled.

CESALPINIA BRASILIENSIS, L. *Brazil Wood*. Cultivated in Carolina, Florida and Bahama. Equivalent of Logwood for dyeing and perhaps for medical use. The blossoms are menagogue.

CHAMEROPS, L. *Palm trees*. Several species, from Carolina to Texas. Afforded food, wine, sugar, fruit, cabbage, fans, darts, ropes and cloth to the Florida tribes. Some afford very good fruits, like plumbs, sweet or austere, others like dates. Bears fond of them. Now

chiefly used to make hats, baskets, fans and mats, with the leaves. The *Ch. palmetto* or Royal Palmetto, the largest rising 80 feet, wood spongy, valuable because incorruptible in water, and never eaten by worms, used for wharves and forts, resisting cannon balls. The central cabbage is delicious, trees often wantonly destroyed for it. Sap now little used, although affording Palm wine.

CHARA, L. *Water Feathers.* Aquatic plants, with a fetid smell, said to be antispasmodic and vermifuge. They contain a peculiar substance, *Charine*, similar to animal matter, a fetid green oil, and many salts, chiefly carbonate of lime, produced by crustaceous Polyps covering the plants.

CHEIRANTHUS, L. *Wallflower.* Several species cultivated, sweet scented nervine. The *Ch. asper*, N. of the West, is called *Bitter root* by the Indians, intensely bitter, and used by them as a tonic.

CHELIDONIUM MAJUS, L. *Celandine.* Probably native. Whole plant used, the juice or sap is a yellow milk, acrid and bitter, which extirpates warts, cures ringworms, and cleans old ulcers. Diuretic and diaphoretic, aperient and hepatic, stimulant and detergent. Beneficial in dropsy, cachexy, jaundice, oedema, tabes, &c. in decoction. A poultice boiled in milk has cured the herpes miliaris: a poultice of the roots mashed in vinegar, disperses scrofulous tumors of the neck: an ointment with lard cures the piles. Juice also ophthalmic, useful for sore eyes and to take off films in the eyes. The *Ch. glaucium*, L. (*Horn poppy, Bruiseroot*) found on the sea shore of Virginia by Schoepf, has a similar yellow juice, more fetid, deleterious, narcotic, phantastic. Seldom used internally; but very useful externally for wounds, contusions, gravelly pains, the ulcers of horses and cattle. In Portugal, leaves infused in wine taken for gravel in small doses. These plants are acrid narcotic, acting sometimes as drastic or diuretic. Their analysis gives a peculiar substance, *Chelidine*, bitter, nauseous and yellow, citric acid, lime, potash, mucilage, albumen, silica, &c.

CHENOPODIUM, L. *Lamb's quarter, Pig weed, Sow bank.* Several species, native or naturalized, eaten

boiled as greens, such as *Ch. album*, *Ch. bonus*, &c. cooling; vulnerary externally, useful in gout, pleuritis, oedema, varix, fistula. Correct in the article of *Ch. anthelminthicum*, two species equally medical are blended under that name. The southern and western species, which I now call *Ch. rugosum*, Raf. is well described by Elliot, it is really perennial, stem furrowed 4 or 5 feet high, leaves rugose, glandular beneath, &c. The *Ch. ambrosioides* or Mexican tea, used in Europe for hemoptysis, and to help parturition.

CHEROPHYLLUM SATIVUM, Lam. *Chervil.* Cultivated condiment, stimulant, diuretic: root, leaves, seeds, oil and extract used.

CHIMANTHUS AMYGDALINUS, Raf. Fl. lud. (*Prunus Carolin*, L.) *Winter Laurel*, *Laurier Amande* in Louisiana. Evergreen tree, blossoming in winter. Leaves give flavor of almonds to milk, creams, &c. Said to poison cattle.

CHIOCOCCA RACEMOSA, L. *Snowberry*, *David root.* From Florida to Brazil. Root bitter, pungent, nauseous, diuretic and menagogue, alterative and stimulant. Used in decoction, tincture or powder for dropsy, amenorrhea, rheumatism, syphilis, spina ventosa, osteocopia, &c. A powerful plant, acting without pains on the stomach, bladder, &c. Specific for dropsy and menstrual suppressions.

CHIONANTHUS, L. *Fringe tree.* Two species. Bark of the root febrifuge in agues and chronic fevers, externally in cataplasms, it cures wounds without suppuration.

CHROSPERMA, Raf. *Redseed.* United to *Melanthium* and *Helonias* by authors. Equivalent of *Abalon*, a narcotic poison, the roots put in molasses destroy flies.

CHRYSANTHEMUM LEUCANTHEMUM, Lin. *White Weed*, *Daisy*, *Goldens.* Common, leaves odorous, subacid, sometimes eaten in sallad, decoction pungent, diuretic; used for wounds, asthma, phthisis and tinea.

CHRYSOSPLENIUM, L. *Water Carpet.* Succulent, acrid, substyptic, aperient, corroborant: used for coughs, asthma, and abdominal diseases.

CICHORIUM INTYBUS, L. *Succory.* Naturalized. Tonic, aperient, diuretic, laxative, attenuant, accopro-

tic, detergent and corroborant. Useful in obstructions, jaundice, cachexy, hectic fevers, hypochondria, agues and bilious fevers, hemorrhage, gout, cutaneous eruptions, debility of the bowels, &c. The whole plant used, the juice, extract and syrup. The root roasted and ground makes a substitute for coffee in Europe, tasting bitterish and sweetish. A syrup of it with rhubarb, oats, &c. used for all diseases of the liver, kidneys, skin and blood, fevers, cholics, &c. The *C. endivia* or Garden Endive, eaten as a sallad, has similar properties, much weaker. The seeds were cold seeds of the Galenic school. Succory is also tinctorial, and dies yellow.

CICUTA. Add, the yellow juice of the root dies yellow.

CIRCEA, L. Two species, their roots die yellow, leaves useful in decoction and cataplasm, for piles and condyloma.

CISSAMPELOS SMILACINA, L. Carolina, equilent of *C. pareira.* Schoepf.

CISTUS CANADENSIS, L. *Frostwort, Rock rose.* Used by empirics for curing scrofula, in decoction and cataplasms. The roots throw off small white icicles.

CITRUS AURANTIUM, L. *Orange tree.* Native of South Florida. Cultivated from Florida to Louisiana. Very useful tree. Wood similar to Box, but softer. Leaves bitter, anodyne, diaphoretic, stomachic, forming a fine medical tea in nervous diseases, debility, &c. Flowers delightful fragrant ; their essential oil called *Nerolium*, contains a concrete oil, *Neroline ;* analeptic, antispasmodic, fine condiment and perfume. Fruit delicious, sweet and acid, many kinds, yellow or red, large or small, bitter, &c. The young fruits called *Arancini* in Italy, from the size of a pea to a walnut, make a fine bitter tincture, aromatic and stomachic, good preserves, &c. used also to keep cauteries open. Their bitter principle, called *Hesperidine*, found also with an essential oil in the orange peel, much used in syrup and powder, &c. as a good tonic, corroborant, pellent and vermifuge, useful in convulsions, histerics, hypochondria, jaundice, ischuria, hemorrhage of uterus alone or united to Nerolium. The Curasso liquor made with it. The unripe juice is acid, equal to lemons. Ripe juice sweet, healthy,

cooling, useful against scurvy and in fevers : the Orange-ade made with it and sugar, also the Orange wine. Orange juice and sea salt is a popular purgative in Jamaica. Seeds bitter, forming a bitter emulsion as good as the leaves or buds, and vermifuge.

CITRUS MEDICA, L. *Lemon tree.* With the last and equivalent. Many varieties, *Limes*, *Citron*, *Bergamot*, &c. The oils of Lemon peel and Bergamot peel well known as perfumes. Thick rind of Citrons fine tonic preserve. Inner bark white, tonic. Leaves, blossoms and seeds like those of Oranges. Juice very acid, containing much citric acid and mucilage, fine condiment, lemonade grateful drink, very useful in all fevers, scurvy, gravel, &c. Antiseptic, refrigerant, diuretic and anti-emetic. Punch is a bad drink, it gives head ache and dyspepsia. Wine punch is grateful and healthy. Citric acid is used in the arts. Oil of lemons to take off spots of grease. Lime juice purified of the mucilage, employed as mordaunt by the dyers.

CLADRASTIS TINCTORIA, Raf. (*Virgilia*, Mx.) *Yellow Ash, Fustic tree, Yellow Locust.* From Kentucky to Alabama. Fine tree, wood yellow and soft, like Mulberry and Fustic, fine canoes made with it. The bark gives a bright yellow dye, it is laxative, and that of the roots purgative. Flowers fragrant, like Robinia. The turners use the wood, it is good for inlaying. it dyes pale yellow like Fustic.

CLAVARIA, L. *Coral* or *Club Mushrooms.* All the fleshy kinds edible. The *C. coralloides* and *C. cinerea* delicious.

CLAYTONIA, L. *Pigroot.* Root tuberous, edible, dug by pigs. Antiscrofulous in cataplasms.

CLEMATIS, L. *Virgin bower.* Almost all the species medical like *Cl. flammula*, *Cl. vitalba*, and *Cl. recta* of Europe ; the bark, leaves and blossoms acrid, raising blisters on the skin ; a corrosive poison internally, loses the virulence by coction and dessication. The extract used for osteocopic pains, dose 1 or 2 grains ; frictions of an oily liniment cure the itch. Our *Cl. virginica* and *Cl. viorna* also used as diuretic and sudorific, for chronic rheumatism, palsy, and ulcers in minute doses. All ornamental vines. The flowers hold a peculiar sub-

stance, *Clematine*, similar to gluten. Bruised green leaves used by our empirics as escharotic for foul venereal ulcers, and detergent of other sores.

CLEOME EDULIS, Raf. Fl. lud. Leaves eaten in gombos, smell like Assafœtida. *Cl. pentaphylla* also. it smells of garlic.

CLINOPODIUM, L. *Dogmint*. Equivalent of *Nepeta:* much weaker.

CLINTONIA, Raf. Five species. See *Sigillaria. Blueberry, Cuscum* by Algic tribes. Leaves used by them as a plaster for bruises and old sores, applied wet or bruised. Berries sweetish, edible.

CNICUS, J. *Thistles*. Bad weeds, the Canada thistle or *Cr. arrensis* above all. Those with bitter roots tonic, used in poultices by Cherokees. My *Cn. edulis* of Oregon, has edible roots. Leaves of many hepatic, correct the bile in decoction or powder.

CNIDIUM CANADENSE, S. T. (*Sison do*, L.) *Wild Chervil.* Roots eaten like Chervil in Canada.

COCCOLABA UVIFERA, L. *Seaside Grape* of Florida, tropical plant, fruits too astringent to eat fresh, but make good pies, cause costiveness, good for diarrhœa. The extract of the wood is a kind of kino.

COCHLEARIA, L. *Scurvy Grass*. All the species antiscorbutic, acrid, pungent, diuretic, stimulant, &c. Whole plants used fresh (losing activity by drying) in scurvy, cachexy, dropsy, hypochondria, pituitous asthma, scorbutic rheumatism, pleurisy, cholics, cramps, tooth ache, &c. in sallad, juice, conserve ; they afford an acrid volatile oil : the fresh root purgative, has been used after poisoning by sublimate : in poultice it blisters. *C. officinalis* chiefly used. The *C. armoracia* is the *Horse Radish*, the root still more powerful, a hot stimulant, has equal properties, useful for condiment in dropsical and phlegmatic complaints : good external stimulant in palsy, rheumatism, head ache, gravel and gout, it raises blisters on the skin ; the infusion is emetic : used in the above diseases, also hoarseness, agues, anorexia, &c.

COFFEA, L. The Coffee tree, cultivated in Florida. Dr. Grindel has cured fevers by one scruple of raw coffee in powder, every hour : it contains *Coffeine* and a concrete oil. Torrified coffee in substance or usual de-

coction, promotes digestion, revives and keeps awake, being antinarcotic and antidote of opium; useful in asthma, chronic catarrh, gout, head ache, diarrhea, fevers, menstrual suppressions, scrofula, &c. It is astringent, antiseptic, stimulant at first, sedative afterwards. The abuse produces tremors, nervous diseases and palsy! Baneful to nervous, hot, choleric and phthisical persons.

COLUTEA, L. *Bladder Senna.* Equivalent of Senna, leaves purgative, dose 1 to 3 ounces in decoction.

COMANDRA, N. or *Thesium umbellatum*, L. *Toad Flax.* Used for fevers by the Algic tribes.

COMMELINA, L. *Dayflower.* We have 10 species blended under *C. virginica* and *C. communis*, forming even peculiar genera, *Ananthopus*, *Allotria*, *Nephrallus*, Raf. All equivalent. Root antifebrile, leaves eaten by the Indians as greens, emollient, pectoral and anodyne. The blossoms afford a fine azure blue, by a peculiar process, called *Hoosaki* in Japan.

COMPTONIA. Add, can make ink. Boiled in milk good for all fluxes, tooth ache and sore mouth.

CONVOLVULUS BATATAS. *Sweet Potato.* Cultivated from New Jersey to Louisiana. Healthy comestible, boiled, roasted, cakes, pies, bread: taste like chesnut. Containing water, starch, sugar, and ferment. *C. brasiliensis* in Florida, leaves antifebrile. *C. arvensis* is slightly purgative, and dies yellow. *C. sepium* is purgative.

CONFERVA, L. *Watermoss.* Can make paper, used for cooling lozenges in China, mucilaginous.

CONOCARPUS ERECTA, L. *Buttonbush.* South Florida to Brazil; root antisyphilitic in decoction.

CONVALLARIA MAJALIS, L. *Lily of the Valley.* Mountains Alleghany. Flowers very fragrant, sternutatory.

CONYZA, L. *Plowmanwort.* Several species, with strong balsamic smell, stimulant, antispasmodic, nervine.

COPTIS. Add, is the *Tissavoyane jaune* of the Canadians, the roots and leaves die skins, wool and flax yellow. Kalm.

CORALLINA. Plants, not animals. Equivalent of *Fucus* and *Spongia.* Vermifuge and absorbant. Many

species ; the *C. officinalis* contains carbonate of lime and magnesia, gelatine, albumen, sea salt, &c.

COREOPSIS, L. *Tickseed.* The flowers of nearly all the species afford a red dye to the Indians, similar to *Carthamus, C. auriculatus* used by the Cherokees.

CORNUS. Add, bark of *C. sericea*, smoked like tobacco by the Western tribes ; the black fruits of *C. polygama*, Raf. Fl. lud. very good to eat. *C. paniculata* has been substituted to *C. florida.*

CORYLUS AMERICANA, L. *Hazelnut, Filberts.* Good fruit, giving relief in nephritis : affords much oil of a bad smell, anodyne, odontalgic.

CRATEGUS, L. *Hawthorn, Thorn trees.* Many species. Fruits of several edible, red or yellow, acid or sweetish, making fine stomachic preserves, useful for diarrhœa and antiemetic; such are *Cr. coccinea, Cr. tomentosa, Cr. crusgalli.* The leaves and flowers of this last, used as pectoral in coughs and whooping cough, as a tea : the shrub makes fine hedges.

CRINUM AMERICANUM, Lin. *Louisiana Squill.* Splendid plant, substituted to Squills like the *Cr. latifolium* of East Indies, but weaker.

CROTON, L. Several species produce the Cascarilla bark, *Cr. eleutherea, Cr. cascarilla, Cr. odorifera* and *Cr. balsamifera ;* the two first grow in Florida and Bahama. Bark aromatic, fragrant, smoke musky, taste pungent, bitter. It contains resin, volatile oil, mucilage and a bitter principle. Tonic, carminative, stimulant, pectoral, eccoprotic, &c. useful in dyspepsia, asthma, fevers, measles, flatulent colic, diarrhea and dysentery, the thrush of children, putrid and malignant agues, internal hemorrhages. Dose 12 to 30 grains in powder ; tincture 20 to 60 drops, it loses the activity by coction.

CUCUBALUS BEHEN, L. *Campion Pink, Sea Pink.* Root anthelmintic, emetic in large doses.

CUCUMIS, L. Several species cultivated, chiefly *C. sativus* or *Cucumber*, fruit watery, mucilaginous, unhealthy unripe, raw and pickled : healthy boiled, fried or stewed, sedative, laxative : externally raw, refrigerant, emollient and cosmetic, useful in prickly heat and ringworms. The *C. melo* or *Muskmelon*, delicious fruit, laxative, diminishes transpiration and excite diuresis.

The seeds of both cooling in emulsions and used in strangury, gravel, fevers, &c.

CUCURBITA, L. Many species, often spontaneous, cultivated by the Indian tribes even before Columbus! *C. citrulus* or *Watermelon*, highly diuretic and refrigerant, useful in fevers, gravel, &c. too much chills the stomach like Cucumbers. *C. verrucosa* and *C. melopepo* are the Squashes, very healthy boiled. *C. lagenaria*, (*Gourd* or *Calabash*) also, rind used for bottles by the Indians. *C. pepo* or *Pumpkin*, valuable; pulp sweet, healthy, cooked in many ways, excellent with rice (*Furlata* dish of Italy); the Indians bake a bread of it or rather cakes, heavy, but sweet, yet made in the West, or united to Maize. The seeds of all cooling and much used in fevers, gravel, strangury, cholics, &c. in emulsions. Very oily, producing a fine sweet oil, pumpkin seeds might be saved for this purpose. Pumpkin pies are a peculiar delicate dish. Indians dry pumpkins in stripes for winter use. The *C. aurantia* (Orange vine or Squash) found native of Florida by Bartram, climbing on trees, now cultivated for beauty.

CUNILA. Add, Indians use it for wounds, to expel a dead child; it kills rattle snakes by holding it to the nose with a stick.

CUPRESSUS THYOIDES, L. *White Cedar.* Fruits fragrant, the oil drives off insects and worms. Infusion of the wood stomachic.

CURCUMA LONGA, L. *Turmeric.* Cultivated in Florida and Louisiana. Valuable yellow dye, principal ingredient of Curry powder. Weak aromatic smell and taste, slightly bitter. Gentle stimulant, diuretic, deobstruent and hepatic, useful in jaundice, diseases of the liver, gravel, cachexy, dropsy, agues, obstructions, menstrual suppressions, &c. Externally, it resolves tumors. It dyes saliva and urine yellow.

CUSCUTA AMERICANA, L. *Dodder, Devil's gut.* From Canada to Brazil: bitterish, subastringent, dyes of a pale red, stomachic, febrifuge, antiscrofulous; useful in decoction for agues and scrofula.

CYNARA, L. *Artichoke.* Cultivated. Very healthy vegetable when well cooked, supposed aphrodisiac, un-

healthy raw. The petioles very good bleached like Cellery.

CYNODON DACTYLON. *Dog's Grass, Bermuda Grass.* Root sweet, mucilaginous, aperitive, refrigerant; contains sugar and vanilline. Much used in Europe in decoction, to cool and purify the system. Valuable hay.

CYNOGLOSSUM, L. *Hound's tongue.* Root vulnerary, styptic, used in wounds and fluxes. The leaves are narcotic, smoked like tobacco. The seeds are mucilaginous.

CYPERUS, L. *Bullrush.* Many species, disliked by cattle, used for mats by the Indians. *C. esculentus*, or Ground Nuts. Roots edible, sudorific, diuretic, useful after fevers. Emulsions, mush, cakes, coffee and chocolate made of them by different preparations, besides a fine golden sweet oil. *C. hydra* (Nut grass, or Horse grass of the South) is a bad weed, roots like horse hair, with round nuts equal to the last in part, it spoils fields, but consolidates sandy soils. The *C. articulatus* of Florida, (*Adrue* in *Jamaica*) has roots stimulant, aromatic, equivalent to *Aristolochia serpentaria. C. odoratus, C. compressus*, and *C. strigosus*, equivalent of it, roots edible.

DAUCUS CAROTTA, L. *Carrots.* Wild and cultivated. Roots good food, healthy when well boiled, indigest otherwise, deemed aphrodisiac in the East: containing much sugar and mucilage, also mannite and the pretic acid, which makes a vegetable jelly. Sugar has been made from carrots, also vinegar by fermentation. Emollient and detergent applied to ulcers, in poultice boiled to a pulp, checking suppuration, fetid smell and callosity of bad ulcers. The wild roots have a stronger smell and taste, very diuretic and useful in strangury arising from blisters. Carrot seeds are still more so; they contain a peculiar oil, green, pungent, aromatic and bitter, also tannin: deemed stomachic, carminative, menagogue, useful in gravel, urinary and menstrual suppressions.

DECEMIUM HIRTUM, Raf. 1817. (*Hydrophyllum*, auct.) *Shawnee Sallad.* Eaten as greens in the West, in early spring.

DECODON VERTICILLATUM, Gm. (*Lythrum*, L.) *Grasspoly.* Baneful to farmers, causing abortion in mares and cows browsing it in winter. Equivalent of Lythrum.

DELPHIDIUM, Raf. (*Delphinium*, L. same as *Delphinus !*) *Larkspur.* Many genera blended here, *Staphisagria, Consolida, Ajaxia, Plectrornis*, Raf. *D. staphisagria* or Stavesacre in Virginia, Schoepf. Seeds bitter, nauseous and burning, owing to acrid oil and delphine ; powerful drastic and hydragogue, dangerous, except in minute doses ; powders used externally for cutaneous eruptions, itch, lice, tooth ache. *D. consolida* spontaneous in fields, milder equivalent. Flowers bitter, ophthalmic, used for gravel and chronic sore eyes in rose water. Seeds of *D. exaltatum* and *D. consolida*, found useful in spasmodic asthma, the tincture is used by drops, and gradually increased.

DENDROPOGON USNEOIDES, Raf. (*Tillandsia*, L.) Only 3 stamens, Elliott. *Spanish Moss.* From Carolina to South America, on trees. Very useful winter food of cattle. When rotted in water, only a black elastic fibre like horse hair remains, used to stuff mattresses, saddles, chairs, to make ropes and cables. *Pauska* of the Western tribes. Also medical, best growing on *Liquidambar*, used in sudorific baths, the infusion is pectoral in catarrh, asthma, &c.

DIANTHUS, L. *Clove Pink, Carnation.* Fragrant flowers, cordial, sudorific, alexitere, used in potions, conserves, and to give a pleasant flavor and color to medical syrups, vinegars, &c.

DICLYTHRA, M. (*Fumaria cucullaria*, L.) *Colic weed, Dutchman breeches.* Several species. Root tuberose, used for tumours, when eaten gives the cholic, the decoction purifies the blood. Equivalent of *Fumaria.*

DIERVILLA CANADENSIS, Tt. (*Lonicera diervilla*, L.) Nauseous, pellent, antisyphilitic ; has been used for disury, gonorrhea and syphilis, but is not efficient.

DIGITARIA, Mx. (*Crop grass, Crab grass.*) Several species, *D. sanguinalis, D. villosa, D. filiformis, D. divergens;* valuable grasses in the South, best fodder for cattle from April to June. Mild equivalent of *Cynodon*

DIONEA MUSCIPULA, L. form two species, *D. corymbosa* and *D. sessiliflora*, Raf. Wonderful plants, irritable, equivalent of *Drosera*.

DIOSCOREA, L. *Yam root*. Many species produce yams. *D. sativa* cultivated in Louisiana, healthy, but insipid roots, very nourishing. *D. villosa* or *Wild Yam*, used by the Western tribes, roots and meal. Leaves also edible.

DIOSPYROS. Add, *Piakmin* or *Ougoust* of Western tribes, a wine made by them. Seeds good for the gravel in infusion.

DIPSACUS, L. *Teasel*. Now spontaneous, heads used by fullers, root tonic aperitive, water held by the leaves deemed cosmetic.

DOLICHOS, L. *Cowage, Cowitch. D. lacteus*, Raf. Fl. lud. has yellow edible seeds, depurative and anodyne. *D. pruriens*, juice of the leaves diuretic, electuary made with the pods excellent vermifuge, acting mechanically.

DROSERA, L. *Sundew*. Many species. All subacrid, acidulous, hurtful to sheep, corroding the skin; juice used to destroy warts and corns, with milk for freckles and sunburns: it makes milk solid, but sour like bonyclabber, liked in Sweden. Deemed pectoral in South America, a sirup used for asthma. The dew-like drops of the leaves are acid and viscid, catching insects like *Dionea*.

ECHIUM VULGARE, L. *Blue Thistle*. Equivalent of *Borrago*, pectoral, depurative, antiepileptic. Root gives Orcanet a red dye, soluble in alcohol and oils. A light charcoal made of it, useful to painters for sketches as it does not soil paper.

ECLIPTA, L. Juice of the leaves of *E. erecta* black and dyeing the hair. *E. ciliata*, Raf. Fl. lud. is poisonous, smelling like *Cicuta*, with a very acrid taste.

ELEPHANTOPUS, L. One of the Indian tobaccoes.

ELYMUS, L. Many species, consolidate sand like *E. arenarius, Arundo arenaria*, and *Cyperus arenaria*. The seeds have been used for bread.

EQUISETUM, L. *E. arvense* and others are astringent and diuretic, used in hematuria, gonorrhea, phthisis, &c. *E. hyemale* and *prealtum*, polish wood, metals and utensils.

good food for cattle in winter. All the rough species used to scour and clean. Used in Italy for a cattle diuretic, given to oxen voiding blood. The *E. tuberosum*, Raf. of Oregon, roots food of Indians. Some tall species called *Nebratah* by the Missouri tribes, are used for brooms, mats, wicks, thatch. Their roots produce great thirst; they are powerful stimulant and diuretic, used in dropsies, menstrual and syphilitic diseases.

ERIGERON. Add, *E. canadense* is called *Horse weed* in Kentucky, and used for the strangury of horses. *E. bellidifolium*, called *Rosebety* and *Robert's plantain*, is bitterish, pungent, used for hard tumors, and for the bite of snakes, in large decoction and cataplasm.

ERIOPHORUM, L. *Cotton grass.* The wool may be spun like cotton.

ERYNGIUM, L. *Button Snakeroot.* Many species very active, diuretic and sudorific. *E. aquaticum*, *E. fetidum* and *E. yuccefolium*, mostly used, this last also called *Corn Snakeroot*, said to be the best cure for rattle snake bites, chewed and laid on the wound. *E. fetidum* equal to it, to Valerian and Contrayerva, antihisteric. The roots of all are pungent, bitter, aromatic, stimulant, corroborant and expectorant, deemed useful in debility, chronic diseases of the lungs and bladder. They produce salivation, and sometimes emesis in strong doses. The Indians value them much in fevers and dropsies. They unite *E. yuccefolium* to Iris in dropsy. They are a very powerful sudorific, quite equal to *Dorstenia contrayerva* in fevers. Requiring investigation. The *E. campestre* of Europe has a root edible, diuretic and aphrodisiac.

ERYSIMUM OFFICINALE, L. *Hedge Mustard.* Astringent, diuretic, used for asthma, cough, ischuria. The syrup used by singers to clear their voice. The *E. alliaria* is detersive, aperient, incisive and attenuant, used in dysentery and hysterics.

ERYTHRINA HERBACEA, L. *Coral bloom.* Roots sudorific, flowers pectoral. Very ornamental.

ERYTHRONIUM. Add, called *Tarmia* or *Deer's tongue* by the Missouri tribes, used externally by them in a wash and poultice for breast complaints. Internally diuretic vermifuge, used against the tenia in Asia.

ESCULUS, L. *Buckeye, Horse chesnut.* All our sp. belong to the sub G. *Pavia*, and are equivalent. Their roots are saponaceous and narcotic, used boiled instead of soap for woollens: the Indians stupify and catch fish with them. The wood is very soft and white, it cannot burn; it is made in the west into small tough and white chips for hats like Poplar in Europe: paper can be made with the shavings: Indians make bowls and spoons with it. Branches, leaves and nuts narcotic, with a nauseous smell: cattle eating them are poisoned, the symptoms are a wry neck, fixed eyes, swelled body, constipation, palsy, convulsions and death: the remedy is oil poured in the mouth and injected. Dr. Mac Dowell, of Danville, has tried the powder of the rind and found 10 grains in powder equal to 3 grains of opium. The pounded nuts used in poultices, the root in diarrhea by Indians. Deserving investigation: possessing probably all the uses of the Asiatic horse chesnut, *E. hipocastanea*, which has an astringent tonic bark, containing *Esculine*, equal to willow bark in agues before the fits, typhus, gangrene. The fruits give much starch, and may be eaten after being deprived of the bitter narcotic principle: used also as sternutatory in ophthalmia and head aches.

ESOPON GLAUCUM, Raf. Fl. lud. Equivalent of *Chicorea.*

EUDISTEMON, Raf. *Pepper grass.* The *Cochlearia coronopus* of Schoepf, since united to many genera *Biscutella, Lepidium, Senebiera, Coronopus.* Different from all. Mild tonic, astringent, diuretic, gives bad taste to milk of cows.

EUPATORIUM. Add, in small doses alterative, antiscorbutic and pectoral. *E. perpureum*, antisyphilitic. Schoepf. *E. crassifolium*, Raf. Fl. lud. *herbe á chevreuil* of Louisiana, used for wounds. *E. pilosum*, *E. rotundifolium* and *E. scabridum*, bitter, stomachic, tonic and febrifuge, used for snake's bites and as equiv. of *E. perfoliatum.* The *Eupatorine*, the active principle, is an alkali, in white powder, soluble in alcohol and ether, peculiar taste, it burns in fire, and gives sulphates.

EUPHORBIA. Add, the *E. lathyrus*, Mole plant or Spurge Capers. Milk drastic. Although the unripe

seeds are eaten like Capers with us, it has lately been found in Europe that the ripe seeds contain 44 per cent. of a purgative oil, similar to that of *Croton tiglium*, but mild and not drastic : dose from 3 to 8 drops. The *E. helioscopia* gives a similar oil. The pretty *E. leucoloma*, Raf. (*marginata*, N. not Kunth) of Arkansas is used by Indians as emetic and sudorific in fevers, bowel complaints. By handling it, some persons are poisoned as with *Rhus*, or feel a kind of nervous cramp in the hand.

EUPHRASIA OFFICINALIS, L. *Eyebright.* Bitter, subastringent, ophthalmic, formerly used for many complaints.

EVONYMUS, L. *Spindlebush, Wahoon.* Leaves pectoral. Fruits emetic, decoction or powder equiv. of *Sabadilla* and *Staphisagria*, for the itch and destroying vermin.

FAGUS, L. *Beech trees.* Leaves in decoction useful for burns, scalding and frost nipping. Bark also used with oil or butter. Nuts edible, much liked by hogs, contain much sweet oil, proper for all uses. Wood less valuable than chesnut. Shade baneful to grass, beech lands little fruitful. Ashes good for potash. Beech shavings give much pyrolignic acid.

FEDIA RADIATA, Mx. (*Valeriana*, L. Sch.) *Lamb Lettuce, Corn Sallad.* Good sweet sallad, in winter and spring. Deemed diuretic and useful for hypochondria.

FICUS CARICA, L. *Fig tree.* Cult. Spontaneous in Florida. Milk of the tree caustic, takes off spots from the skin, becomes a kind of gum elastic by drying. Wood soft, spongy. Leaves emollient. Figs contain much sugar and mucilage, very nourishing fresh and dried, laxative, pectoral, emollient, hepatic, herpetic, supurative, &c. Useful in cough, cholic, constipation; externally in poultice for buboes, phlegmons, anthrax, &c. to make them supurate. The skin of fresh figs is acrid and must be peeled off.

FILICES. *Ferns.* All the fragrant kinds are pectoral, anthelmintic, often edible, used to make good beer. Unless collected in summer, they become nearly inert.

FILINGUIS, Raf. (*Scolopendrium officinale*, Sm. same as *Scolopendra!*) *Hart's tongue.* Astringent, oint-

ment made with oil for burns and piles ; in tea for diarrhea and dysentery.

FISTULINA HYPODRIS, Bull. (*Boletus hepaticus*, Dec.) *Liver Mushroom.* Eatable when young, topical calmant in gout.

FLOERKEA, W. *Sweet Sallad.* Edible, good and sweet.

FRAGARIA. Add, dried for use in Europe, used in coughs, phthisis, mania, melancholy and gout. Roots bitter astringent, contain tannin and gallic acid, the decoction is red, and dies the alvine excretions, used in blenorrhagy, diarrhea, hemorrhage, and also as a diuretic.

FRASERA. Add, used by empirics in cold infusion or oxymel for griping cholics, nausea and costiveness of pregnancy.

FRAXINUS, L. *Ash trees.* Many sp. Valuable wood, compact, elastic, used for implements, screws, wheels, &c. Bark bitter astringent, used for hemorrhages and agues. Leaves for bites of snakes in poultice. Seeds aromatic, dessicative, said to prevent obesity! Ashes diuretic.

FUCUS, L. *Wrack, Seaweeds.* A family of marine plants, all more or less equivalent. They contain gelatine, fibrine, muriate and phosphate of soda, iodine, sulphate and carbonate of lime, iron, manganese and silica. Some sp. have a sweet principle similar to Mannite and are edible, such are, *F. edulis, dulcis, saccarhinus, esculentus, palmatus,* belonging to the N. G. *Laminaria,* and eaten in Greenland, Iceland, &c. Being burnt, they furnish the kelp used for glass : iodine was first discovered in it, and they chiefly owe to it their medical properties, rendered bland by mixture. Burnt in close vessels, they furnish the vegetable Ethiops, composed of carbone, carbonate of soda and iodine. So abundant on some shores as to afford much manure, cattle like to feed on them and it keeps them healthy. They are vermifuge, diuretic, deobstruent, resolvent, &c. useful in gout, bronchocele, scrofulous swellings, goitres, tumors, buboes, swelled testicles, chronic leucorrhea, &c. and in all disorders where iodine avails. The *F. helminthocorton* is much used in France against worms, for children

an ounce for 3 doses in powder with honey, or decoction. We used instead the *F. natans*, (Sea Oak or Gulfweed) Kalm says it was given in fevers and to women in childbed: Josselyn in wine for gout. The esculent Swallow nests of India are made with the *F. corneus*. Vases as hard as leather made with *F. potatorum* of Australia. The *F. natans* is edible also, used for fevers and retention of urine in Germany. *F. serratus* gives most iodine. The charcoal or ethiops of *F. vesiculosus*, used for scrofula, contains fucic acid, resin, a little iodine. *F. giganteus* of the ocean is a vegetable wonder, the stem being often *three miles long!* *F. tendo* used for ropes in China, very tough.

FUMARIA OFFICINALIS, L. *Fumitory.* Tonic bitter, antiscorbutic, depurative: useful for exanthema, prurient itching, scurvy spots, scabs, weak stomach, in syrup, extract or wine.

FUNGI. *Mushrooms.* Extensive class of plants, of which a multitude found with us. Many are edible and yield sugar, 150 are eaten in Italy, nearly all found with us, belonging to the genera *Amanita*, *Boletus*, *Phallus*, *Clavaria*, *Hydnum*, *Tuber*, *Lycoperdon*, &c. *Helvella amara* and *Boletus laricis* are bitter, tonic and febrifuge. Tinder, corks, ink, &c. are made with several. *Fungine* is a peculiar substance found in them. All the tough, lactescent, deliquescent and fetid kinds are poisonous if eaten, being acrid, narcotic, causing inflammation of the stomach and bowels, great thirst, gripings, convulsions and death. The remedies are emetics, purgative injections, antispasmodics, emollients, acidulous drinks, &c.

GALARDIA AMARA, Raf. Fl. lud. fragrant, eq. of Anthemis, gives intolerable bitter taste to milk of cows.

GALAX ROTUNDIFOLIA, L. *Carpenters' leaf.* Vulnerary, used for all kinds of wounds, bruises and sores.

GAUTIERA. Add, *Moschar* of the Missouri tribes, indicates poor soil. Berries used in home beer in the North, gives it a fine flavor, they are good antiscorbutic, invigorate the stomach, &c.

GEASTRUM, Pers. *Ground Star.* The *Lycoperdon bovista* of L. and Schoepf. Several sp. My G. *Actigea*

has the peridium like a star instead of the volva. Dust inside styptic, absorbent, ophthalmic, gastritic, &c. Used in amputations, hemorrhage, hemorrhoids, ulcers and intertrigo. Schoepf.

GELSEMIUM SEMPERVIRENS, J. (*Bignonia do*, L.) *Jessamine, Woodbine.* Root and flowers narcotic, their effluvia may cause stupor, tincture of the root used for rheumatism in frictions.

GENISTA TINCTORIA. *Dyers' broom, Greenwood, Woodwaxen.* Often spontaneous. Dyes yellow like *Reseda.* Decoction diuretic, leaves and seeds mild purgative, the seeds sometimes emetic, used for hydrophobia in Russia. They contain a yellow fat, a straw colored matter, osmazome, albumen, wax, mucilage, tannin, concrete oil, &c. *G. scoparia*, branches used for brooms, seeds also purgative. The bark of all the sp. give a kind of flax, *G. juncea* chiefly.

GENTIANA. Add, *G. ochrolenca* and *G. catesbei* often called *Simpson root* or *Snake-root* in the South, nauseous, used for bites of snakes, nervous fevers, pneumonia, &c.

GERANIUM. Add, *G. robertianum* or *Herbrobert, Rockweed*, musky smell, astringent and diuretic, gives relief in gravel and blenorrhagy, good cataplasm for erysipelas, gargarism in sorethroat : used for the disease of cattle called bloody water.

GERARDIA QUERCIFOLIA, Mx. *Golden Oak.* Specific of the Sioux for the bite of rattle snakes, used also for the tooth ache.

GEUM. Add, the analysis of the root has given tannin, adraganthine, gum, resin, peculiar oil heavier than water. The *G. radialum*, Mx. is probably the *G. odoratissimum* of Bartram's travels, or *Spiceroot*, the roots taste like Cloves and Pimento, and may be used like them.

GILLENIA. Add, given to horses in Carolina to mend their appetite. Elliott.

GLECHOMA HEDERACEA, L. *Ground Ivy, Alehoof, Robinrunaway.* Bitterish, subacid, tonic and vulnerary, pectoral and opthalmic. Used for coughs, obstructions, laxity and debility of viscera, to purify the blood, cleaning ulcers in the lungs and kidneys ; also in

jaundice and hypochondriac cholic, asthma, &c. Snuffed up the nose it has cured inveterate head aches. Used in tea, united to cherry bark; for sore eyes united to Celandine. It makes ale antiscorbutic and tonic. Said to be baneful to horses.

GLEDITSIA, L. *Honey Locust.* Useful tree, good wood, leaves and pods liked by cattle and sheep, the pods have a sweet acid pulp, good to eat, good beer and metheglin made with it. The prickly kind used for hedges. Equivalent in America of the *Ceratonia* or Carub tree of South Europe.

GLYCIRHIZA, L. *Liquorice. G. lepidota* of Missouri has a bitter, nauseous root, yet eaten roasted by Indians, another sp. called *Cahohamo* by the Oregon tribes, is sweet and good, tasting like sweet potatoes.

GNAPHALIUM, L. *Cudweed.* The *Gn. margaritaceum* also called *Silver leaf, None so pretty,* is anodyne and pectoral, used in colds and coughs, pains in the breast, also mild astringent and vermifuge, used in dysentery and hemorrhage in powder or decoction. Externally used in tumors, contusions, sprains, in a wash. Also in the diseases of sheep. One of the good substitutes for tobacco in smoking. Many other sp. of the genus are equivalent. The *Gn. plantagineum* and *dioicum,* belonging to S. G. *Antennaria,* have many names, *White plantain, Poor robin* or *Rattle snake plantain, Squirrel ear, Scinjachu* of some Indians. Both pectoral, used in coughs, fevers, bruises, inflammations, debility: also against the negro poison and rattle snake bites: Indians will for a trifle allow themselves to be bitten and cure themselves at once.

GONOLOBUS HIRSUTUS, Mx. *Negro vine.* Root drastic, acting on the bowels like Colocynth. The juice serves to poison arrows in Guyana. Deserving examination. Found in North and South America.

GONOTHECA HELIANTHOIDES. *Melon apple flower.* Root tuberose, fragrant, nervine. Equiv. of *Polymnia.*

GOODYERA PUBESCENS, Br. *Tussaca reticulata,* Raf. *Satyrium* and *Neottia* of others. *Rattle snake leaf, Networt, Netleaf, Scrofula weed.* Deemed by some empirics a specific for the scrofula, the fresh leaves are ap-

plied bruised to the sores, renewed every 3 hours, and the warm infusion used as tea freely, also to wash the sores. It is employed by the Indians, and has effected some cures.

GORDONIA LASIANTHUS, L. *Swamp Laurel.* Beautiful tree, reaching 100 feet, wood coarse but beautiful, cinnamon color, veined of white, yellow and brown, used for inlaying, &c. The inner bark dyes wool, cotton, linen and deer skins of a redish or sorrel color; equal to oak for tanning. Beautiful fragrant blossoms lasting nearly the whole year. Leaves in the fall become versicolor, yellow, red and brown.

GOSSYPIUM, L. *Cotton.* Two sp. cult. from Virginia and Kentucky to the Gulf of Mexico, *C. herbaceum* and *G. hirsutum*, are become a valuable staple of the Southern States, might be cult. as far N. as Long Island. *G. arboreum*, *G. indicum*, *G. religiosum*, &c. are cult. in the East and West Indies. The whole plant useful. Leaves emollient, eq. to Mallow. Seeds sweet oily, liked by cattle and poultry, emulsion useful for nephritis, giving much sweet oil available for many purposes, similar to almond oil: we could make several millions of gallons at 25 cents the gallon! Cotton wool is a peculiar chemical principle, *Gossypine*: medical use for ear ache and tooth ache, but makes bad lint for wounds, the fibres being with flat sharp edges and irritating. Used for making threads, cloth, quilts, wicks, fringes, muslins, paper, &c.

GRATIOLA, L. Many sp. purgative like *G. officinalis* of Europe. *Gr. aurea* the nearest akin. *Gr. virginica* or Water Jessamine, used as such, said to grow from Canada to Guyana, but many sp. probably blended in that name.

GUAYACUM OFFICINALE, L. *Guayac. Lignum-vitæ.* In South Florida. Valuable tree, all the parts available. Wood very hard, used for tools by turners like boxwood. An oil smelling like Vanilla is distilled from it. Flowers make a fine pectoral syrup similar to violets. Seeds purgative. The gum or *Guayacine*, is a peculiar bitter substance, different from gums and resins, very actively medical, the bark, wood, oil and extract are much weaker. All aperient, stimulant, ster-

nutatory, depurative, alterative, repellent, &c. Very useful for gout, rheumatism, syphilis, diseases of the skin, tooth ache, ozena and scrofulous affections. The tincture, wine and powders are the most powerful preparations, in large doses it is purgative, it produces diaphoresis when the body is kept warm and diuresis when kept cool.

GYMNOCLADUS CANADENSIS, Mx. *Coffee tree, Mahogany, Nickar tree, Bondue.* From Ohio to Louisiana. Fine wood, hard, often veined. Leaves purgative containing *Cytisine*, a bitter nauseous principle. Seeds one of the best substitutes for Coffee, much used in the West.

GYNEMA BALSAMICA, Raf. Fl. lud. *Baume des Sauvages* of Louisiana. Strong aromatic sweet smell, a powerful stomachic and sudorific used like tea.

HABENARIA, W. equiv. of *Orchis.*

HAMILTONIA OLEIFERA, W. *Oil nut.* Producing an oil similar to that of Beech nuts and Filberts.

HEDERA HELIX, L. *Ivy.* Cult. Wood very hard. Leaves bitterish, vulnerary, used for ulcers, issues, rachitis, ozena, epiphora, atrophy : macerated in vinegar, it cures the ulcers of the feet. Berries acid. Equiv. of Elder berries.

HEDYCHLOE PUMILA, Raf. (*Killingia do.* L.) *Sweet grass.* Eaten by sheep, produces the fine mutton of the west, also rich milk and butter of cows.

HELIANTHUS, L. *Sunflower.* The seeds of *H. giganteus* and other sp. eaten by the Indian tribes all over N. America, put in the *Sagamite* or Maize soup of Canada ; parched, ground and baked into cakes by the Oregon tribes. Roots of *H. strumosus* eaten roasted, not so good as *H. tuberosus ;* this last oddly called *Jerusalem Artichoke* by us, and cult. Roots very good, tasting like Artichoke when cooked ; cattle fond of them ; they contain sugar and the new substance *Dahline*, a beer is made with them, they grow in the worst soils. *H. annuus* or large Sunflower of Mexico, is common in our gardens : leaves astringent, useful for diarrhea, they afford much potash. Seeds much liked by fowls, give much sweet oil by mere expression, good for all uses, deserving attention on that score.

HELICHROA, Raf. Several sp. called *Rudbeckia purpurea* by L. *Red Sunflower*. Root acrid and burning, used in syphilis by the Mandans; Schoepf says to cure the ulcers on the back of horses.

HELICTERES, L. A sp. found in Florida and Bahama, the root bitterish, used for ulcers, exanthems and whitlows.

HELLEBORUS, L. Schoepf says *H. fetidus* (Bearsfoot, Settiswort) found in Virginia, and *H. viridis* Canada and Pennsylv. Acrid, nauseous, purgative, emetic, vermifuge, used for lumbrics and worms of horses, to kill lice, &c. they dye yellow. Equiv. of *H. orientalis* and *niger*, dangerous drastics and hydragogues, prescribed in mania, coma, dropsy, psora, amenorrhea, &c.: they must be used with great caution.

HELONIAS BULLATA, L. Decoction of the peeled root used in N. Jersey for the belly ache, cholics, &c.

HEMATOXYLON, L. *Logwood*. Florida and Bahama. Well known dye wood. Extract sweet and astringent, used in dysentery and obstinate diarrheas, relaxed bowels, &c.

HEPATICA. Add, Decandole has made two peculiar species of our kinds, *H. americana* and *H. acutiloba:* Eaton has adopted them. Their true names are *Liverleaf*. Physicians disagree on the powers of these plants. Dr. Tully considers them of little use. Dr. Mease informs me that the leaves alone are useful, the roots and flowers useless. Dr. Lawrence has seen some good effects from them. Considered as mild deobstruent and diuretic by others. They have failed to give even relief in many diseases of the lungs. A syrup made with them has been used with little effect.

HEPTALLON GRAVEOLENS, Raf. *Hogwort, Bearsfright*. Has a stinking porcine smell, sudorific, cathartic, antispasmodic, &c. used by the Indians.

HERACLEUM LANATUM, Mx. *Cow parsnep, Masterwort*. Root with a rank strong smell, pungent caustic taste, it blisters the skin when fresh, dry it becomes aromatic, diuretic, carminative, sialagogue, expectorant, laxative, nervine, &c. useful in cardialgy, dyspepsia and epilepsy. Dr. Orne has cured some cases of epilepsy by using the pulverized root in doses of 2 or

3 drachms for a long while, with a strong infusion of the leaves and tops at night. Requiring attention, as we have so few remedies for this cruel disease. Leaves used as maturative in cataplasms. Seeds incisive. Roots and leaves used by empirics for many other complaints, cholics, flatulence, asthma, amenorrhea, disorders of the brain, agues, palsy, apoplexy, &c. in doses of one drachm. Probably equiv. of *Angelica* and *Imperatoria*.

HIBISCUS, L. *Water Mallow, Sweatweed.* Many sp. all furnish by maceration of the stems, tow, flax, cloth, silk, and paper: ought to be cultivated for this. Root of *H. moscheutos* paregoric. Our *H. speciosus*, *H. coccineus* and *H. croceus*, Raf. cult. for the splendid blossoms. *H. abelmoschus* cult. for the musky and emetic seeds. *H. esculentus* or *Okra*, cult. for the pods, a fine mucilaginous vegetable when unripe, in soups, boiled or stewed, main ingredient of Gombos or Calalous, a famous dish, luscious and aphrodisiac. Seeds pectoral, make a good flour and a substitute for coffee.

HICORYA, Raf. 1807. (*Carya* N. 1818, *Juglans sp.* L.) *Hickory tree.* Very useful. Good heavy wood, best for fuel. Leaves sweet scented, nervine. Vernal sap sweetish and acid, producing syrup, sugar and beer like Maples. Tendrils of the young roots edible, eaten by Indians when hungry. They made milk, oil and many dishes with the nuts. As good as walnuts, sweeter; some have hard shells, the best, *H. oliva* or *Pecan*, and *H. sulcata* or *Shellbark*, have soft shells. The *Pignut hickories*, such as *H. amara*, *H. porcina* and *H. aquatica* have bitter nuts, their bark is styptic. The inner bark of some sp. chiefly *H. oblonga* is cathartic. Equiv. of *Juglans cinerea.*

HIERACIUM VENOSUM, L. *Hawkweed, Blood-wort, Snake plantain,* &c. Antiseptic, vulnerary, astringent, sudorific, pectoral, &c. Active plant, root and leaves used, bitterish: long used bruised or chewed and applied for bites of rattle and pilot snakes, known to Schoepf, lately confirmed by Dr. Harlan, who made experiments on it. Used by empirics in tea or syrup for scrofula, amenorrhea, hemorrhage, hemoptysis, &c. United to *Sanguinaria* in powder, for curing the polypus of the nose. Many other sp. may be equivalents: the *H.*

gronovi only used, the roots said to cure toothache, and the fresh leaves to destroy warts.

HIPPOMANE MANCINELLA, L. *Manchenil tree.* In Florida. Poisonous, the shade and effluvia dangerous, affecting chiefly children. Narcotic poison producing sleep, tremors, convulsions, &c. Milky juice acrid corrosive, a few drops kill worms, root also vermifuge, but a dangerous one. Gum similar and equal to Guayacine. The milk is burning, blistering, inflames and depilates the skin.

HOPEA TINCTORIA, L. *Sweet leaf, Horse sugar.* Delaware to Florida. Useful tree. Root stomachic, depurative. Leaves sweet, eaten with avidity by horses and cattle, their decoction dyes wool and silk of a bright yellow.

HORDEUM VULGARE, L. *Barley.* Cult. Seeds contain hordeine 55, starch 32, sweet gum 9, gluton 3, yellow resin 1. They produce 70 per cent. of flour, which contains starch 68, gum, sugar, gluten, &c. Very useful grain, it makes a coarse bread, but cleaned and pearl barley make excellent soups and dishes, eq. of Rice. Decoction cooling, demulcent, useful in inflammations. Malt is barley sprouted and dried, from which ales and beers are brewed: the decoction of malt is useful for scurvy and scrofula. Barley beer is healthy, but the reverse of wines, making the body and mind heavy and dull; disdained in wine countries and nicknamed *horse piss.* Barley best food for horses and mules, used from Spain to China instead of Oats.

HURA CREPITANS, L. *Sandbox tree.* Florida. Singular fruit, opening with noise, used for holding sand. Seeds drastic and emetic like *Croton tiglium.*

HYDRANGEA, L. *Bissum.* Several sp. Dr. Eoff has found the leaves tonic, sialagogue, cathartic and diuretic. Used in decoction or powder, action mild, eq. to *Arbutus* in gravel, &c. Useful in dyspepsia.

HYDROPHYLLUM, L. Schoepf says the *H. canadense* is used against the bite of snakes and the poisonous erysipelas produced by *Rhus.*

HYPERICUM PERFORATUM, L. *St. Johnswort.* Bad weed in fields. Vulnerary, pectoral, pellent, nervine, &c. Blossoms chiefly used, although yellow they

dye oils red, infused in sweet oil or bears grease, they make a fine red balsamic ointment for wounds, sores, swellings, ulcers, tumors, rough skin, &c. .The tea of the leaves gives relief in diseases of the breast and lungs. Used for many other disorders by empirics, in diarrhea, menorhea, hysterics, hypochondria, mania and low spirits. A syrup made with sage, specific for croup, dose a tablespoon full for a 12 months child, half if 6 months old. Used with *Iris* and *Sanguinaria* for sore mouths and throat. An ointment of it with Bittersweet, Elderbark and *Datura*, said to be a specific for hard breast and tumors. Other sp. are mostly equal.

HYPOGON ANISATUM, Raf. Fl. lud. *Aniseroot. Tuteshehah* of Missouri tribes. Root aromatic, smell between Anise and Lemon, diuretic, carminative and febrifuge, much valued by the Indians, they also make a fine tea from the tops. Equiv. of *Collinsonia* and still more active.

HYPOPYTHIS. *Birdsnest.* Equiv. of *Monotropa*, aphrodisiac, used in Sweden for the cough of cattle and sheep.

HYPOXIS ERECTA, L. *Stargrass.* Root edible, vulnerary, febrifuge, used in chronic ulcers and agues.

HYSSOPUS OFFICINALIS, L. *Hyssop.* Cultiv. Leaves pungent aromatic, eq. of sage : used in coughs, asthma, and other diseases of the chest as expectorant. Gives essential oil.

ICTODES FŒTIDA, Big. 1818, or rather *Spathyema fœtida*, Raf. 1807. Wrongly united to *Dracontium, Pothos, Calla, Arum* and *Symplocos* by L. and other authors! Vulgar names *Skunkweed, Skunk Cabbage, Collard, Itch weed, Stink Poke, Skoka* of the Indians. Singular plant, blossoming in winter before foliation. Smell nauseous, similar to *Mephitis* or the Skunk, Polecat, and Assafœtida : very volatile, cannot be retained by any menstruum. The roots contain an acrid principle similar to *Arum*, dissipated by heat, also resin and mucilage. They form a bundle of fleshy fibres and are the most active part. Powerful antispasmodic, expectorant, incisive, vermifuge, menagogue, sudorific, &c. Used in powder, tincture, syrup, extract, &c. Used with success in spasmodic asthmas and coughs, hysterics,

pertusis, epilepsy, dropsy, scurvy, chronic rheumatism, erratic and spasmodic pains, parturition, amenorhea, worms, &c. Doses in asthma 20 to 50 grains of the powder. All preparations with heat are less powerful. The syrup is a mild one, useful in senil catarrh. In delicate stomachs, this plant produces nausea, emesis, headache, vertigo and dimness, even in small doses. The leaves are less powerful, but the seeds most active, requiring smaller doses, being pungent, containing albumen and a fixed acrid oil. Leaves externally used for wounds and ulcers, herpes and cutaneous affections, bruised and applied: also used to dress blisters, promoting the discharge. It is said that bears are fond of this plant and feed on it. The lotion of the root cures the itch.

IMPATIENS, L. *Touchmenot, Jewel weed, Slippers, Celandine, Quickinthehand, Weathercocks.* Two sp. *I. fulva* and *pallida*, both in common use for jaundice and asthma, as a tea. In large doses emetic, eccoprotic and diuretic. Leaves used for piles and wash for wounds: they dye wool saffron color and yellow.

IMPERATORIA, L. *Imperial Masterwort.* Cult. Root bitter, acrid, aromatic: carminative, sudorific, menagogue, &c. Used for flatulence, cholics, hysterics, agues, palsy and even sterility, said to make women fruitful.

INDIGOFERA, L. *Indigo plants.* The *I. caroliniana* wild, *I. tinctoria* and *argentea* cult. All producing indigo, whose blue principle is now called *Isatine*. Leaves hepatic and deobstruent, used in liver complaints, diarrhea, lochial diseases, and to kill lice.

INULA HELENIUM, L. *Elecampane.* Native. Root very active, bitterish, aromatic, stomachic, attenuant, stimulant, pectoral, vermifuge, diuretic, laxative, diaphoretic, &c. Useful in coughs, humid asthma, hypochondria, cholic, tremors, viscid phlegm, it excites diuresis and diaphoresis, gently loosens the bowels, strengthen the stomach and the viscera. Taken in tea, electuary, syrup. United to Comfrey and Elm bark, it makes a good electuary for consumptive cough, whooping cough. The extract is of little value. Leaves useful in scabies. Root by no means weak as lately sup-

posed ; it contains several active substances, a peculiar concrete oil, similar to Camphor, a peculiar fecula, called *Inuline*, a crystallizable resin, acetic acid, albumen, &c.

IPOMEA QUAMOCLIT, L. *Cyprus vine, Red Jessamine*, &c. From Florida to Mexico, beautiful vine. Root said to be purgative in the West Indies, juice cephalic and errhine in the East Indies. *Ip. avicularis*, Raf. Fl. lud. has edible seeds, eaten by the Indians, ducks fatten on it. *Ip. macrorhiza* has a huge root, amylaceous, edible, eaten by negroes.

IRIS, L. *Flower de luce, Flag lily*. Many sp. useful and ornamental. Roots of all more or less medical. *I. versicolor*, or common blue Flag, chiefly used : roots sweetish mucilaginous, taste nauseous subacrid, it contains white resin and fecula. Cathartic, diuretic and astringent. Much esteemed by the Southern tribes, and kept in ponds for use, as a purgative ; very active, a few grains of the fresh root operates on the bowels with much nausea, 60 drops of the juice are drastic, milder when dry. In large doses drastic and emetic ; formerly used in syphilis and hydrophobia. Useful in anasarca and hydrothorax, the decoction in sore mouth, ulcers and wounds in a wash. A decoction of $\frac{3}{4}$ Iris and $\frac{1}{4}$ Eryngium *yucefolium* has cured the dropsy, without disturbing the bowels. The leaves used for many diseases of children, being milder, purgative and vermifuge. The sweet blossoms still better, their syrup similar and equal to that of violets, pectoral, laxative, &c. The seeds may be used like coffee, eq. of Okra seeds. All these properties appear common to *I. verna, I. virginica, I. gracilis, I. pseudacorus*, and perhaps to all our sp. The root of *I. cristata* are also cathartic, when fresh the taste is sweet at first, but next burning like *Capsicum*, the leaves used to alleviate thirst. *I. florentina* cult. produces the perfumed *Oris root*.

ISANTHUS, Mx. Equiv. of *Teucrium*.

ISIPHIA, Raf. 3 sp. *I. glabra, I. tomentosa, I. tripteris*, united to *Aristolochia*, are equivalents. The first or *A. sipho*, Mx. (*Pipe vine* or *Sasafaril*) has the root very pungent and aromatic, eq. of Seneka root ; the bark and twining wood are warm, bitterish, fragrant with a tur-

pentine smell, used as pellent and diuretic in decoction for dropsy, cachexy, gout, &c. The seeds are bitterish and stronger.

IVA FRUTESCENS, L. *Bastard Jesuit bark.* Sea shores, bark smelling like Elder flowers, tonic, eq. of *Sambucus*. Leaves fragrant, may be pickled.

JACOBEA, Tt. All the radiated *Senecios* of L. *J. aurea*, (*Ragwort*, *Liferoot*, *Anumguah* of Indians) is an active plant, aromatic and pungent, roots and radical leaves chiefly used; diuretic, deobstruent, vulnerary, repellent, pectoral, febrifuge and menagogue. Useful in gravel, sugilation, pains in the breast, chronic coughs, debility, amenorhea, &c. in tea or powders. The Indians call it the female flower, using the blossoms for menstrual suppressions attended with debility. Said to relieve melancholy and cause cheerfulness, to relieve epilepsy, cure the gravel, and to dissolve coagulated blood. It acts as a gentle but efficient stimulant. The activity resides in a grateful essential oil. *J. obovata* and *J. balsamita* are nearly equivalents: the first is the *old Roberts root* of Schoepf, it is an acrid bitterish tonic, said to kill sheep and horses, used for diseases of the skins, ulcers and the yaws, drank and the powder applied. *J. lobata* or *Butterweed* is also active.

JANIPHA, Kunth. *Jatropha*, L. The *J. stimulosa* (my *Bivonea*, 1814) *Sandnettle.* Sea shore, from Virginia to Florida, burns the hands like nettles, juice milky acrid, seeds purgative. *J. manihot* cult. in Louisiana, is the *Maniho* or *Manica* of S. America: roots poisonous, yet producing the edible flour called *Cazabi* or *Cassave*, made into cakes, bread, tapioca, gruel, &c.

JUGLANS, L. We have 3 sp. 1. *J. nigra*, Black Walnut. 2. *J. fraxinea*, Ash Walnut. 3. *J. cinerea*, Butternut or White Walnut. All valuable trees, producing fine timber, sugar, nuts, oil, medicines, &c. *J. nigra* has the finest wood, hard and brown, bark and rind of the nuts dye wool brown boiled alone, and black with vitriol. Leaves scented, said to shelter from the thunder. Vernal sap sweet, may give sugar. Young green nuts pickled in vinegar, styptic, unwholesome. The green rind rubbed on tetters and ringworms dispels them: their decoction vermifuge and sudorific, also an-

tisyphilitic. Nuts very oily, flatulent; the oil fit for painters and lamps, it is said to expel worms and even the tapeworms taken with sugar. *J. fraxinea* has a better nut, similar to the *J. regia* or European Walnut.

The *J. cinerea* (fig. 32 of Bigelow) has the most saccharine sap, equal to Maples, a tree gives 4 to 5 gallons weekly when tapped, and eight gallons afford one pound of sugar. Fresh outer bark rubefacient and blistering, the lint of it used to dress the bites of snakes. Inner bark bitterish, styptic, purgative, that of the root stronger. The pills and extract in doses of 10 or 30 grains, one of the safest and mildest cathartic, equal to jalap, friendly to the bowels, almost a specific in dysentery; much used in obstructions, jaundice, agues, worms, costiveness, &c. Also in colds, coughs, hemorrhage in small pills. A cordial made with aromatics. Employed to cure the murrain of cattle and yellow water of horses. The extract ought to be made in the spring, and with care. The nuts are very oily, but pretty good when fresh: the rind and husks dye brown: often pickled when green.

JUNCUS, L. *Rushes.* Many sp. *J. acutus* and *effusus* most common, used for ropes, brushes, baskets, mats, carpets, &c. The seeds are cathartic, used for diarrhea and fluxes.

KRAMERIA LANCEOLATA, Ty. Perhaps equiv. of the valuable *Kr. triandra* (or *Ratanhia officinalis*, Raf.) of Peru, a very valuable astringent tonic.

KUHNIA, L. 3 sp. Weak eq. of *Eupatorium.*

LACTUCA, L. *Lettuce.* Several sp. all equivalents. *L. elongata* most commonly used. *L. gigantea*, Raf. 10 feet high. Bitter milk of all affords the *Lactucarium* or *Tridace*, or lettuce opium. Useful and powerful anodyne, diaphoretic, laxative and diuretic. The extract very efficient in pills for the dropsy and ascites. The *L. sativa* or Garden Lettuce is milder. Eaten in sallad, boiled or cooked it acts as a good refrigerant, paregoric, diluent, sedative and anodyne: good topical sedative and a good diet in many diseases, hypochondria, satyriasis, nymphomania, consumption, nervous complaints, &c. producing a propensity to sleep, and allaying pain. The milk of it easily collected by incisions, cotton or a

sponge, is similar to opium when inspissated. The extract of the whole plant, although less pure, is quite equivalent, 24lbs. of Lettuce give 1lb. of it. The tincture is also equal to that of opium. A better equiv. in all cases for opium, although the doses must be double, because inducing sleep without delirium or irritation: it holds no narcotine nor morphine, but some elastine, water, extractive and salts. The *L. fistulosa*, Raf. Fl. lud. is not bitter, properties between *Lactuca* and *Chicorea*.

LAMIUM, L. *Deadnettle, Henbit.* Two sp. wild. *L. purpureum* and *L. amplexicaule*, said to be corroborant and cephalic, sudorific and laxative, used by empirics for gout and rheumatism with *Xanthoxylon*, and for a cephalic snuff with *Asarum*.

LANTANA, L *Sagetree, Blueberry, Cailleau* in Louisiana. Two sp. *L. floridana*, Raf. and *L. undulata*, Raf. mistaken for *L. camara* and *L. annua* by authors. Leaves form a fine scented tea like *L. camara* or Bahama tea, and *L. pseudothea* or Brazil tea, said to be better than the Chinese. Diaphoretic, useful in fevers, but nauseous when very strong: the tea of the blossoms is still better. Twigs coagulating water like Sassafras.

LARIX, Tt. J. *Larch, Tamarack, Hacmatack.* We have two sp. Black Larch, *L. pendula*, and Red Larch *L. microcarpa* in the North. Equiv. of *Pinus*, producing a fine balsamic turpentine, good for wounds.

LAURUS, L. *Baytrees, Laurels.* Beautiful genus, all the sp. valuable: *L. sassafras* above all, found from Canada to Mexico and Brazil. Roots, bark, leaves, flowers fragrant and spicy. Flavor and smell peculiar, similar to Fennel, sweetish subacrid, residing in a volatile oil heavier than water. The *Sassafrine*, a peculiar mucus unalterable by alcohol, found chiefly in the twigs and pith, thickens water, very mild and lubricating, very useful in opthalmia, dysentery, gravel, catarrh, &c. Wood yellow, hard, durable, soon loses the smell, the roots chiefly exported for use as stimulant, antispasmodic, sudorific and depurative; the oil now often substituted; both useful in rheumatism, cutaneous diseases, secondary syphilis, typhus fevers, &c. Once used in dropsy. The Indians use a strong decoction to purge and clean the body in the spring: we use instead the tea

of the blossoms for a vernal purification of the blood. The powder of the leaves used to make glutinous Gombos. Leaves and buds used to flavor some Beers and Spirits. Also deemed vulnerary and resolvent chewed and applied, or menagoue and corroborant for women in tea; useful in scurvy, cachexy, flatulence, &c. Bowls and cups made of the wood, when fresh it drives bugs and moths. The bark dyes wood of a fine orange color with urine, called *Shikih* by Missouri tribes, and smoked like tobacco.

L. benzoin has many vulgar names, *Spicewood, Allspice, Feverbush*, &c. is equiv. to Sassafras, taste and oil different, more spicy, all the parts used in tea or powder, chiefly as stimulant and depurative, also as tonic and vermifuge. Good febrifuge in agues. Red berries once used like Pimento, afford a fine stimulant oil. used for bruises, cholics, itch and rheumatism, leaves and berries for dysentery. All the other species more or less equivalents, *L. carolinensis* and *L. catesbiana*, Mx. (*L. indica* and *Borbonia*, Schoepf) called *Redbay, Redlaurel, Sweetbay, Toluchluco* of Indians, are fine Evergreens, wood like Mahogany, dyes beautiful black; bark acrid aromatic, substituted to Cinnamon: leaves aromatic, bitter-sweet, twigs and leaves give a sweet mucilage. *L. ludoviciana*, Raf. Fl. lud. is used like *L. nobilis* of Europe, wood dyeing yellow, leaves used in cookery. *L. persea* or *Avogado pear, Avocat* in Louisiana, large good fruit like a pear, taste like *Pistacia*, deemed aphrodisiac: buds and leaves stomachic, carminative, menagogue and resolutive, used for cholics, histerics, jaundice, dysentery, itch, &c.

LEDUM, L. *Marsh tea, Labrador tea.* Both *L. palustre* and *L. latifolium*, boreal plants, used as tea, contains 20 chemical substances, even wax and osmazome, very near to Chinese tea, but stronger, owing to a fragrant resin. Leaves bitterish nidorose, cephalic, pectoral, exanthemic, &c. Useful in coughs, exanthema, itch. scabies, leprosy, &c. in strong decoction, kills lice and insects. Said to be narcotic and phantastic by Schoepf.

LEONURUS CARDIACA, L. *Lionstail, Throwort.* Spontaneous, stimulant and pectoral, used for coughs and catarrhs, formerly for cardialgy.

LEPARGYREA, Raf. 1816. *Silverbush, Hippophae canadensis*, L. *Sheperdia*, N. Berries purgative.

LEPIDIUM VIRGINICUM, L. *Peppercress.* From Canada to Guyana, probably many sp. blended, forming my G. *Dileptium*, Fl. lud. with 2 stamens, *D. diffusum* and *precox* 2 sp. there ascertained, equiv. Eaten as cresses. All acrid, diuretic, antiscorbutic, antiscrofulous: used in scurvy, dropsy, asthma, scrofula, hernia, gravel, &c. as a diet.

LEPTAMNIUM VIRGINIANUM, Raf. 1810. *Orobanche do*, L. *Epifagus!* N. 1818. *Cancer root, Beech drops.* Root and stem astringent, bitterish, nauseous, known to Schoepf as useful in cancers: base of Martin's powders (with white arsenic, sulphur and *Ranunculus*) a painful remedy for curing cancers by application, but hurtful in scrofula and scrofulous cancers. A sirup of it united to *Iris, Sanguinaria* and *Polygonum* used by empirics for sore mouth, cancer in the mouth, dysentery, &c. Plant parasite on Beech roots.

LESKEA. Several sp. subastringent Mosses.

LIATRIS, Auct. *Throatwort, Sawort, Button Snake root.* 25 sp. all medical eq. made 2 by L. *Serratula spicata* and *scariosa!* Many vulgar names, *Backache root, Devilsbite, Rattlesnake master, Blazing Star, Prairie Pines, Gayfeather, Rough root*, &c. All have a tuberous medical root, acrid, bitterish, pungent, spicy, smelling like turpentine or juniper, holding a peculiar balsamic resin, but no oil: properties partly soluble in a watery decoction, wholly in alcohol. Most powerful diuretics, acting mildly, may be used ad libitum: also discutient, tonic, diaphoretic and deobstruent. Very useful in dropsy, gonorrhea, angina, croup and hives, sorethroat, scrofula, gravel, pains in the breast, after pains of women and bites of snakes, both internally and topically. The *L odoratissima* or *Vanilla leaf*, used like the *Piqueria trinervia* or Trevel of Cuba, to perfume Havana segars.

LICHEN, L. Prolific tribe of plants now divided in many genera: *Treemoss, Rockmoss, Liverwort, Livermoss, Iceland moss, Lungwort, Orchil*, &c. Many useful and medical, the *L. islandicus, pulmonarius* and *cocciferus* chiefly used as tonic and pectoral, mucilagi-

nous, bitterish, used in coughs, neglected catarrhs, hemoptysis, jaundice, diabetes, emaciation, pituitous phthisis, scurvy, &c. They contain bitter extractive, gluten, *lichenine*, a peculiar starch not glutinous, &c. edible after long boiling, one lb. swells to 3lbs.: decoction tonic, dyes brown. *L. cocciferus* chiefly used for convulsive coughs. *L. caninus* or *Dogmoss*, once used for hydrophobia, base of Dr. Mead's powders. *L. plicatus* and other sp. of G. *Usnea* or *Beardmoss*, are astringent, once used for hemorrhage, hernia and epilepsy. All the Lichens can be used for dyeing, they afford a multitude of shades of brown, fawn, rufous and yellow colors. The most valuable are those growing on the rocky shores of the sea, and affording the Orchil, which dyes purple and red by maceration in urine: they are now called *Rocella tinctoria*, *fucopsis*, *Gyrophora pustulata*, *Lecanora parella* and *tartarea*, &c.

LIGUSTICUM, L. *Lovage, Smellage. L. scoticum* is native, eq. of the warm pungent Ombelliferous.

LIGUSTRUM VULGARE, L. *Privet, Privy, Reimveide.* Native N. Y. and Pennsylv. Leaves and flowers bitterish, subastringent, detersive, vulnerary, used for the diseases of the mouth and ears, sorethroat, angina, scurvy in gargarisms. Unripe berries dye silk and wool green with alum, give a green ink and fecula, make a green pigment with ceruse. When ripe a purple pigment can be prepared.

LILACA VULGARIS, Tt. (*Syringa*, L.) *Lilac.* Cult. Wood by distillation affords a fat oil smelling like Rosewood oil, the infusion is yellow balsamic. Tincture bitterish, affording by evaporation a resin similar to Dragonsblood. Extract of green buds a pure bitter, used like Cinchona in Italy for fevers.

LILIUM, L. *Lily.* Many sp. all eq. Roots edible roasted, poultices good maturative. A fragrant pectoral conserve made with the flowers of the white Lily.

LIMNETIS. *Marshgrass.* Give a strong rancid smell to the milk and butter of cows, even to the breath and meat of cattle; but affords a good hay for horses.

LINARIA. *Toadflax.* Bad smell, bitterish, anodyne, pellent, diuretic, purgative, vermifuge, &c. Used for

sore eyes, jaundice, dropsy, chiefly for piles in ointment.

LINNEUSIA BOREALIS, L. *Twinflower, Ground vine.* Bitterish subastringent, diuretic, eq. of *Arbutus*, used also for rheumatism and disorders of the skin.

LINUM VIRGINIANUM, L. *Wild Flax, Wechkenah* of the Missouri tribes, whole plant laxative, pectoral and sudorific, used for cough and asthma. *Common Flax* or *L. usitatissimum* is become spontaneous, producing tow, flax and linen. Seeds medical, demulcent, pectoral, emollient, &c. Flaxseed tea used in coughs, hematuria, cholic, gravel, hemoptysis, gout, dysuria, &c. Flaxseed or Linseed oil much used by painters, being dessicative, said to expel the worms of children, given mixt with sugar.

LIQUIDAMBAR STYRACIFLUA, L. *Sweet gum, White gum.* Beautiful fragrant tea from N. Y. to Mexico. Much used by the Indians. Inner bark in tea for nervous diseases, leaves for smoking; buds sudorific and febrifuge, cure fevers in 2 or 3 days. The gum was the copal or incense of the Mexicans, a fragrant perfume; used as a drawing plaster by the Cherokees, also for diarrhea, dysentery, itch, &c. Wood compact, tough, warps but takes fine polish. The balsam made by coction of the branches similar to Storax, gray, acrid, fragrant. Leaves smell delightful, cephalic and corroborant, make a fragrant tobacco.

LIRIODENDRON TULIPIFERA, L. *Tulip tree, Poplar.* Two varieties. 1. *Alba acutiloba* or *White wood.* 2. *Flava obtusiloba* or *Yellow wood.* Valuable, ornamental and medical. Reaching 120 feet high and 30 round. Durable timber, heavy, hard and tough, but subject to warp, the yellow kind softer and brittle. *Espetonga* of the Osages, use bark of the roots and green seeds as febrifuge and vermifuge for children. Found from Lake Champlain to Texas, in rich soils. Medical eq. of *Magnolia*, less aromatic and more astringent. Bark must be collected in winter. Active tonic, antiseptic, stimulant and sudorific, deemed equal to Cinchona in the same doses for intermittent and low fevers, weak stomach, dyspepsia, hysteria, dysentery, chronic rheumatism, gout, &c. Used in powders, infusion, tincture

and extract. Contains gum, resin, mucus, fecula, muriatic acid, an oil, &c. A palliative in phthisis. Sometimes used in cholera infantum and worms, also in the botts of horses. Often united to *Cornus*, *Quercus* and *Prinos*. Inner bark of the root most powerful: a fine cordial made with it. Leaves used by Cherokees in poultice for sores and headache, ointment for inflammations and mortifications: make the milk of cows bitter. Extract of root equal to Gentian. Remedy for syphilitic ulcers of the nose. Seeds laxative.

LITHOSPERMUM, L. *Gromwell.* 8 sp. Equiv. of *Cynoglossum.*

LOLIUM, L. *Darnel.* Seeds narcotic, pernicious when mixt with wheat, make the bread bad, unhealthy.

LONICERA, L. *Honeysuckle.* All sp. leaves and flowers bitterish, mucilaginous, astringent, detersive, &c. A sirup used for sorethroat, irritation of the lungs.

LUDWIGIA, L. Several sp. subastringent.

LUPINUS PERENNIS, Linn. *Lupin, Fingerleaf.* Grows in poorest sandy soil and improves it, liked by horses and sheep. Seeds bitter and flatulent, edible by lixivation like *L. sativus* of Europe, flour resolutive.

LYCOPERDON, L. *Puff balls.* Edible when young.

LYCOPODIUM, L. *Ground pine, Hog bed.* Many sp. *L. clavatum* and *selago* chiefly used. Diuretic, menagogue, drastic, nervine, attenuant, aperient and corroborant. Used in dropsy, gout, scurvy, diarrhea, suppressions. Externally for ulcers of infants, serpigo, tinea, plica, &c. They kill lice and insects, dye various colors, mend bad wines, inflammable, pollen, much used in pyrotechny.

LYSIMACHIA QUADRIFOLIA, L. *Crosswort, Yellow balm.* Subastringent, stomachic, expectorant, used in tea for colds, coughs, agues, to mend the appetite, &c.

LYTHRUM SALICARIA, L. *Willowort, Loosestrife.* Subastringent, mucilaginous. Decoction very useful in diarrhea and dysentery after a purgative.

MALVA, L. *Mallow.* All the sp. eq. mucilaginous, insipid, emollient, laxative, edible. Ingredient of Gombos, and the *Dolma* of Greeks, with *Scolymus, Rumex* and oil. Very useful in gonorrhea, strangury, &c. topi-

cally in inflammations, much used in fomentations, cataplasms and clysters: also in dysentery, acrid humors. Flowers and seeds pectoral in coughs, soreness of the throat and lungs.

MARANTA, L. *Arrow root*.. Two sp. from East Indies, *M. arundinacea* and *M. indica*, now cult. from Carolina to Brazil. Root yielding a large quantity of peculiar fecula, forming a jelly in hot water. One acre yields 1400lbs. of this fecula. Excellent demulcent and analeptic equal to Salep, good diet for invalids and convalescents, also for acrid secretions, hectic fever, diseases of the kidneys and bladder, bowel complaints, debility, &c. Used against poisons in West Indies. Best prepared with milk and sugar. The Malabar Arrow root is made with *Curcuma angustifolia*.

MARCHANTIA, L. formerly used in herpetic diseases.

MARRUBIUM VULGARE, L. *Horehound*. Rank smell and bitter taste. Mild aperient, deobstruent, menagogue, vermifuge, &c. much used in humoral asthma, dysmenorrhea, hysteria, obstructions, jaundice, cachexy, coughs, dropsy, &c. It removes the salivation of mercury! In large doses laxative. Base of the Negro Cesar remedy against rattle snakes united to *Gnaphalium*. The sirup, candy, tea with honey, often employed.

MARTYNIA PROBOSCIDEA, L. *Doubleclaw*. On the Mississippi. Fruits make good pickles when young.

MATRICARIA, L. *Featherfen*. Cult. Eq. of *Anthemis*. Aperient, menagogue, vermifuge.

MAYZEA CEREALIS, Tt. Raf. (*Zea Mayz*, L.) *Maize, Indian Corn*. Valuable cereal plant, cult. in Asia 2500 years ago! in Tartary in 1240, see Marco Polo! in Java and Africa before Columbus! In America from Canada to Peru. Producing from 50 to 100 bushels per acre. Several var. with round or flat seeds, white, yellow or colored, a peculiar sp. in South America, *M vestita*, Raf. with a valve to each seed. See my memoir on Maize. A Mexican var. *gigantea* is 20 feet high. The stems produce sirup and sugar like canes, but much less, very good fodder. Leaves and husks used for mattresses. Very good thatch. Green corn de-

licate food, but heavy and breeding worms in children. A black acid oil is distilled by descension from the cobs in Kentucky, used to cure ringworms. The meal eaten in cakes, breaid, puddings, mush, this last deemed useful in Italy as a diet in atrophy, dysentery, phthisis, &c. It contains 77 of fecula, besides albumen, gum, sugar, water, iron, many salts, and 3 per cent. of *Zeine*, peculiar substance, between gluten and resin, similar to yellow wax, elastic, not combustible.

MEDEOLA VIRGINICA, Linn. *Cucumber root.* Wrongly called *Gyromia* by N. since *M. asparagoides* was long ago made a N. G. Root succulent, eaten by the Indians like Cucumbers, good taste, when much is eaten acts as diuretic and hydragogue, but not emetic as supposed by Schoepf.

MELANTHIUM VIRGINICUM, L. *Quafidil.* Root used by Cherokees as a poison for crows, and a sure but violent remedy for the itch.

MELILOTUS, Tt. *Melilot Clover.* Two sp. with yellow and white blossoms, both native, sweet scented leaves, make fine hay, giving rich milk, butter and cheese. The flowers and leaves pectoral, emollient, resolvent, lubricant, used for disury, leucorrhea, coughs, &c, also topically.

MELISSA, L. *Balm.* 3 sp. spontaneous and equiv. *M. officinalis*, *M. nepeta* and *M. sylvatica*, Raf. Pleasant smell, make fragrant tea. Stimulant, antispasmodic, stomachic, expectorant, menagogue, pellent, resolvent. Useful in obstructions, suppressions, headache, piles, pleurisy, asthma, hysteria, inflammatory fevers, &c. Eq. of *Monarda.*

MELOTHRIA NIGRA, Raf. A. N. 1820. Very different from *M. pendula* of West Indies. *Blackberry vine. Charopesha* and *Shagahinga* of Missouri tribes. Root very bitter, vermifuge. Berries black and small, while *M. pendula* has them as large as nutmegs, pickled unripe, and eaten ripe in West Indies.

MENISPERMUM CANADENSE, L. *Moonseed. Pisswort, Yellow Sarsaparilla.* Root bitter, tonic, mucilaginous, used for the strangury of horses.

MENTHA, L. *Mint.* Several sp. native and cult. all eq. the *M. piperita* strongest. Fragrant, pungent, stimu-

lant, carminative, stomachic, resolvent, pellent, anti-emetic. Much used in sauces, conserves, paste, candy, distilled water and oil. The oil contains camphor and all the properties, dose a few drops. Useful to allay spasmodic affections of the stomach and bowels, obviate nausea, check emesis, expel flatulence, prevent cramps in the stomach, also in cholics, hysteria, whooping cough, &c. Used by drunkards to flavor and modify their drams or slings.

MIEGIA MACROSPERMA, Pers. *Cane.* Several var. from 6 inches to 15 feet high. Kentucky to Texas. Seeds like oats, larger, give good flour, produced only once in 3 or 4 years. Fine angling rods, walking canes, weaving looms. Winter food of cattle, much destroyed by them. The Natchez made bread and mats with it.

MIMOSA, L. or *Acacia*, W. Several sp. *M. eburnea* first plant growing on the sea sand of Florida. *M. farnesiana* from Florida to Mexico, *Popniac, Goldbriar,* flowers fragrant but strong, used in perfumery, give head ache to nervous persons : seeds give a fetid breath. The beautiful *M. julibrisin* naturalized as far north as Pennsylvania.

MIRABILIS, L. *False Jalap, Four o'clock.* 3 sp. Cult. Root uncertain cathartic, 2 drachms often produce only one stool, used in bowel complaints. One lb. yields one ounce of resin.

MITCHELLA REPENS, L. *Partridge berry.* Mild diuretic, tea used in New England to cure dropsy and gout. Red berries mild astringent, a popular remedy for diarrhea in the North, and for disury in Carolina.

MONOTROPA UNIFLORA, L. *Iceplant, Pipe-plant, Nestroot, Fitroot.* Ophthalmic and nervine. Used by Indians and herbalists, juice mixt with water deemed specific lotion for sore eyes. Dried root in powder used in epilepsy and convulsions of children, dose a teaspoon full, often united to Valerian ; cures also inveterate ophthalmia.

MORUS RUBRA, L. *Red Mulberry.* Fruits refrigerant and corroborant, useful in sorethroat, angina, putrid fevers ; sirup chiefly used. Bark said to expel the tenia, the Indian tribes make mats, ropes, baskets with it (paper can be made also) and a kind of flax with the

young shoots, used for their twisted cloth. All the sp. are eq. fruits containing tartaric acid, white Mulberries sweeter. Leaves of all can feed the silk worm like *M. alba*, our native kinds give stronger silk. The white Mulberry was found by Soto in 1540, by Laudoniere in 1567, and by Joutel in 1685, from Florida to Texas, it is not the *M. alba*, but my *M. tomentosa*, Raf. Fl. lud. The Black Mulberry of Louisiana and Texas is my *M. scabra*.

MUSA, L. *Banana, Plantain tree.* Native of Florida below lat. 28. Several sp. cult. in all tropical climates. The most valuable of all trees. Each tree produces 100 lbs. of delicious food, one acre holds 1600 trees, and gives 160,000lbs. of food, while wheat only 1200lbs. per acre, and potatoes 4000lbs. Fruits excellent, edible in many ways. Young shoots edible boiled. Stems give bread and wine from pulp and juice, when old afford ropes, thread and tinder, leaves a thatch, &c.

MYRICA, L. *Sweetgale, Bayberry, Waxberry, Wax-myrtle.* All the sp. equiv. Valuable evergreen shrubs. Leaves fragrant, balsamic, containing like the bark tannin, resin, gallic acid and mucilage; they are emetic, pectoral, astringent, nervine, subnarcotic, cephalic, vermifuge, menagogue, stomachic, &c. Useful in uterine hemorrhage, hysterical complaints, palsies, cholics and scrofula in powders, decoction and tea. The tea of *M. gale* milder, formerly drank in Europe as tea, and leaves put in soups, used in Russia for gout, fevers, itch and insects. The bark chewed is a good sialagogue, made into snuff it is a powerful errhine: taste acrid, stimulant, in large doses of a drachm it produces a burning sensation and vomiting, sometimes diuresis. Bark of the root used for the tooth ache. The inner bark pounded soft dispels scrofulous swellings and sores, a strong tea of the leaves being drank also. A tincture of the berries with *Heracleum* is used for violent flatulent cholics and cramps. The buds dye yellow. The berries are covered with a peculiar wax, easily extracted by boiling, cooling and purifying, they give 32 per cent. of wax, fragrant, greenish and brittle, used for beautiful fragrant candles, soap, blacking balls, plasters. It contains cerine, *Myricine* insoluble in alcohol, and a peculiar oil. It is ac-

tively medical, astringent, vulnerary, anodyne, subnarcotic. Dr. Fahnestock announced in 1822, that it is a specific for typhoid dysentery : this valuable property has been confirmed, I have verified it on myself in diarrhea, others in cholera morbus : it was known in Kentucky before 1822. It is used in powder, pills or lozenges, made with sugar and mucilage.

MYRTUS COMMUNIS, L. *Common myrtle.* Cult. fragrant, leaves astringent, corroborant, dye purple : two var. with black or yellow berries, austere, sweetish, eaten in Greece and Sicily, useful for diarrhea, a sirup made with them.

NEGUNDIUM FRAXINEA, Raf. Eq. of *Acer.*

NEPETA CATARIA, L. *Catmint, Catnip.* Bitterish, hircose smell, liked by cats. Resolvent, pellent, cephalic, menagogue, carminative, vermifuge, antispasmodic. Useful for hysterics, some fevers, a specific in chlorosis.

NERIUM OLEANDER, L. *Rose Laurel.* Cultiv. Poisonous for men and cattle : milky juice caustic, takes off spots in the eyes. Leaves acrid errhine, useful for itch, ringworms and rheumatism, either boiled, in powder, or infused in oil.

NEVROSPERMA BALSAMINA, Raf. 1820. Dec. *Balsam vine.* Probably *Momordica do.* L. but a different genus, nay, our sp. somewhat different from the tropical kind called *Cerasee* in Jamaica. Found from Florida to Texas. Cult. in gardens for use. Root useful in jaundice, liver complaints, mesentery, powder emetic, equiv. of *Bryonia,* leaves also emetic in decoction. Pulp of the fruit vulnerary, red oil made by infusion like *Hypericum,* much used and excellent for wounds, bruises, cuts, chinks, burns, piles, &c.

NICOTIANA, L. *Tobacco.* Well known, many sp. cult. in Asia long before Columbus! The very best and mildest is the *N. paniculata* or Tobacco of Persia Syria, Peru, Varinas and Cuba. *N. fruticosa* is cult. in China. *N. rustica* or green Tobacco, cult. in Mexico and Africa. *N. quadrioalvis* by the Mandans, &c. *N. tabacum* the most common in America, and the strongest or worst. *Cohiba* was the ancient name of it in Hayti, and *Tobacco,* the name of the tube, pipe or segar used to smoke

it, whence the name, see my memoirs on Maize and Tobacco. All equiv. Nauseous narcotics, poisonous weeds, disgusting taste and smell; first used by the priests of Indian nations to intoxicate and appear inspired, adopted by the idle savages and the vicious civilized men as a stimulant narcotic to tickle the throat and nose. Its baneful effects are well known, but disregarded by the vicious and selfish because used to it. A poison at first, many always loath it. Chewing is the very worst mode for health, smoking the most offensive, unless we use mild kinds or mix it with sweet herbs as the Asiatic and Indian do. The constant use of it spoils the breath, smell, saliva and stomach, dims the sight, hurts the brain, nerves, lungs and liver, causing dyspepsia, tremors, hepatitis, scurvy, consumption, apoplexy, cardialgy, &c. Total abstinence or mild substitutes are the needful remedies. Medically and topically a powerful anodyne, antispasmodic, emetic, sedative, antiherpetic, errhine, &c. Useful in all diseases of the skin, hysterics, toothache, schirrus, epilepsy, worms, &c. The smoke or infusion injected revives vital action in locked jaw, obstinate constipation, ileus, strangulated hernia; baneful in asphyxia and parturition, nay, always dangerous, a strong injection may kill. In very small doses eq. of *Digitalis* as a violent diuretic for dropsy, &c. in tincture. Juice of green leaves instantly cures the stinging of nettles. Poultices of leaves with vinegar applied to stomach cause vomiting, applied to abdomen expel worms! useful when emetics and vermifuges cannot be taken. Much care is required in using the ointment for psora, tinea, and the wine or tincture for disury. The use often attended with tremors, giddiness, fainting, &c. The seeds equally poisonous, a dangerous vermifuge. Green thick oil of leaves a violent poison, one drop can kill a dog! Two other active substances found in it, *Tabacine* and *Nicotine*. The *N. quadrivalvis* is the *Nonehaw* of Missouri tribes, used in decoction with Water oak as discutient of abscesses, local tumors; leaves applied warm for local inflammations; poultice with bears grease used for cutaneous eruptions and swellings, also to dispel dropsy and expel worms; commonly producing nausea, vomiting, vertigo, prostration, &c. Tobacco stems,

leaves and snuff destroy all kinds of insects, moths, caterpillars, &c.

NYSSA, L. *Tupelo, Peperidge, Sourgum, Blackgum.* Six sp. of trees eq. Wood white, very soft when fresh, very light, tough and compact when dry, much used for bowls, implements, wheels, tubs, troughs, &c. Fruits bitter and acid. *N. coccinea*, Bartr. *Ogeechee tree, Lime tree* has a red acid fruit, size of a plumb, used like limes in the South.

OCYMUM BASILICUM, L. *Sweet basil.* Aromatic, stimulant, cardiac, used in cookery. Cult.

ODOSTEMON, Raf. 1817. *Mahonia*, N. 1818. *Mountain holly.* Purple acid berries. Eq. to *Berberis.*

OENOTHERA BIENNIS, L. *Sundrop, Primrose tree, Scabish.* Young roots edible boiled or pickled. Leaves vulnerary bruised and applied to wounds. Flowers fragrant and phosphorescent at night. Schoepf says the *O. molissima*, L. (leaves linear lanc. undul.) omitted by our authors, from N. Y. to Carolina in fields, is also vulnerary. The beautiful *O. grandiflora* is equally so, and perhaps all the sp.

OLEA EUROPEA, L. *Olive tree.* Cult. in S. Green fruit lixiviated and salted for food, ripe fruit dryed. Olives are tonic and stomachic, produce the best sweet oil, so useful for food and light. Deemed a panacea in Africa and Greece for wounds, sores, cholics, tenesmus, cough, rheumatism, hydrophobia and poison! Excellent for burns, lately found a prophylactic for the plague!

ONOPIX SERICEA, Raf. Fl. lud. Eaten like *Cynara.*

ONOPORDON, L. *White Thistle.* A sp. in Ohio. Edible like Cynara.

OPHIOGLOSSUM VULGARE, L. *Snakeleaf.* Emolient, used for ulcers and sores.

OPHIORHIZA MITREOLA, L. *Pink Snakeroot.* Equiv. of *Spigelia* and *Aristolochia* for worms and snake bites.

OPUNTIA, Tt. Dec. *Prickly Pears.* Many sp. all eq. blended under *Cactus opuntia* by our authors! distinguished by myself. *O. humifusa*, descr. 1820, and since *O. mesacantha, O. cespitosa, O. maritima*, (Elliot sp.) *O. coccinea*, &c. Fruits edible, small and acid in

our sp. but in *O. coccinea* size of a pear, of a livid purple, juice scarlet, acid and cool like Pomegranate, very diuretic, tinges urine of a bloody color, yet very wholesome. Young leaves eaten by negroes like *Hibiscus*, split leaves good emollient topic for acute rheumatism, baked for chronic ulcers, gout and wounds. The juice and gum used for the gravel.

ORCHIS, L. *Salep, Twinroot.* All the sp. with tuberous twin roots become Salep by dessication, analeptic and pectoral. *O. morio* and *mascula* chiefly produce the Oriental Salep. All the fragrant sp. are stimulant and nervine, once deemed aphrodisiac. *O. fragrans*, Raf. 1817, of N. Y. is such. *O. orbiculata* and *macrophylla*, vulnerary leaves, called *Healall.* *O. fimbriata* roots vermifuge, powder used, kills worms by touching them, is similar to a fecula; smell like *Cypripedium*, taste like *Ulmus fulva.* Many sp. now removed to *Habenaria.*

ORIGANUM VULGARE, Linn. *Wild Marjoram.* Fragrant, pungent, acrid bitterish. Stomachic, corroborant, detergent, stimulant, menagogue, diaphoretic. Useful in tea for cough, asthma, chlorosis, oedema. Lotions and fumigations used in chronic rheumatism and palsy. Flowers and tops most grateful and efficient, they also dye purple. Dry leaves form a grateful tea. Fresh used for baths in uterine disorders. The distilled oil has all the properties, it is acrid and caustic, burns the skin, relieves toothache. *O. majorana*, or Sweet Marjoram, is eq. but milder, very grateful, used in cookery, cult.

ORNITHOGALUM L. *Bethlehemstar.* Root edible emollient.

OROBANCHE AMERICANA, Linn. *Broomrape, Earthclub, Clapwort.* Astringent, antiseptic and antisyphilitic, deemed in the West a specific for gonorrhea and syphilis. Useful for obstinate ulcers, aphthose and herpetic sores, diarrhea and dysentery.

ORONTIUM AQUATICUM, L. *Tawkin.* Useful plant of the Indians now neglected. Seeds eaten like pease, acrid when fresh, make good bread and soups by coction. Fresh roots acrid, but good and edible roasted or dried. Eq. of *Arum?*

ORYZA SATIVA, L. *Rice.* Cult. many Sp. and Var. little known yet : the *O. mutica* or Mountain Rice is cult. in the West. Excellent food, and even suitable to invalids, convalescent, and the phthisical. Boiled in soups, puddings, &c. Pilau or Serom is the Rice boiled dry, the chief food of Hindus, Chinese, Turks, &c. Made grateful by spices, oil, butter, meat, fowls, and fish, their substitute for bread. The Rice flour has 85 per cent of starch and 5 of water, no gluten nor sugar, thus makes bad heavy bread. In China, *Saki* or Beer, and Wine of Rice are made, starch being turned into a sugary substance by fermentation, and thus yielding alcohol.

ORYZOPSIS (Mx. bad name! or rather *Dilepyrum*, Raf. 1807) *angustifolia. American Rice*, Eq. to Rice, seeds large white, eaten by Indians, good flour and cakes.

OSMOSHIZA DULCIS, Raf. 1817. (*Myrrhis claytoni Mx?*) *Sweet Sisily.* Root fusiform, with a sweet smell and taste, near aniseed, edible, carminative, expectorant, demulcent, useful for coughs with Malva, for flatulent bowels with *Heracleum*, Eq. to *Angelica.* Children are fond of this root, may be poisoned by mistaking for it, two sp. of the same Genus or *Myrrhis* Auct. called *Poison* and *Bastard Sisily*, distinguished by the root less aromatic, foliage the same, but in *O. dulcis* base of the folioles acute, in my *O. vilosa* or *M. longistylis* obtuse, in *O. cordata* Raf. cordate. These last produce, when eaten, effects very similar to those of the virulent Umbellate. The *Yarhah* of the Shoshonis is my *Osm? edulis* (perhaps *Oxypolis,*) the roots are tuberose fasciculated, fusiform nodose, white, smell like aniseed. Esculent, make fine meal and cakes.

OSMUNDA, L. *Ruttlesnake Fern.* Many Sp. nearly Eq. Roots demulcent, sub-astringent, corroborant, discutient, esculent. *O. spectabilis* gives a fine mucilage boiled in milk, like arrow root, useful in diarrhea, dysentery, cholera infantum, phthisis, &c. a topical discutient. *O. cinnamomea* Eq. of *Tussilago* vermifuge besides, used also in rachitis and ruptures. Eaten by Indians, deemed aphrodisiac, *O. virginica* deemed efficient for bites of Rattlesnakes.

OXYPOLIS, Raf. G. formed by *Sium rigidum, tricuspidatum, denticulatum, teretifolium* and *Angelica triquinata*, Mx. All poisonous or dangerous plants. Eq. to *Sium*.

PANCRATIUM, L. *Squilily*. Fresh roots emetic like tulip and narcissus, eq. to squills, much weaker: diuretic given in decoction to horses for diarrhea.

PANICUM, L. *Panic grass*. *P. miliaceum* or common millet cult. fine fodder, round yellow seeds feed fowls, good flour, cakes, puddings. *P. italicum* cult. for birds. *P. maximum* or *Guineagrass*, perennial good hay of tropics, Florida. *P. amarum* is the *Bittergrass* of Carolina. We have 55 native sp. all coarse grasses, *P. glaucum* and others called *Catgrass, Barngrass*, bad weeds in fields.

PAPAVER, L. *Poppy*. All the sp. produce opium. *P. rheas*, now spont. mildest, flowers emollient, demulcent, anodyne, pectoral, used in tea, also a fine red syrup: capsules mild eq. of *Lactuca*. The *P. somniferum* cult. for beauty, seeds, and opium: seeds afford 25 per cent of fine useful sweet oil, and much mucilage, not narcotic, eaten torrified for cakes. Unripe capsules give milk by excision, which is opium when inspissated. See medical books for properties of opium, too much used by physicians, being a dangerous stimulant, narcotic, sedative, &c. in fact a rank poison: best mode to employ it in frictions. Two active elements of it the *Morphine* or sedative principle, and the *Narcotine* have lately been separated and the morphine used in minute doses without producing delirium or irritation,

PARIETARIA, L. *Pellitory*, Four eq. sp. *P. heterophylla* and *P. rufa* Raf. are new. Juice or decoction used as diuretic, deobstruent, menagogue, in gravel, nephritis, suppressions, obstructions. Contain Nitrate of potash.

PARNASSIA, L. once deemed eq. of *hepatica*.

PASSIFLORA, L. *Passion flower*. Fruits of all edible acid, a syrup made used in fevers cooling. *P. incarnata* called May apple, fruit yellow as large as an egg, pulp like jelly. Leaves used topically and juice given to dogs to cure the staggers or Epilepsy.

PASTINACA SATIVA, L. *Parsnep.* Root esculent, sweet, diuretic, flatulent, seeds aromatic used in agues. Root of wild parsnep acrid, emetic, producing sores by handling.

PEDICULARIS, L. *Lousewort.* *P. Gladiata* is one of the vulnerary plants called *Healall.* *P. canadensis* deemed by Indians to cure Rattlesnake bites.

PELTANDRA, Raf. 1817. (*Lecontea* Ty. 1824) Five sp. blended in *Arum sagitifolium. Taroho, Tuckah, Wampee* of Indian tribes. Fresh roots and seeds acrid, pungent, stimulant, eq. to *Arum;* but mild and edible when roasted or boiled: seeds used like pepper.

PEONIA, L. *Peony.* Cult. root and seeds nervine, used in palsy, convulsions, epilepsy. Contains starch, fat, mannite, gum, acids, tannin, salts, &c.

PHALARIS, L. *Canary seed,* seeds food of birds, flour aperient, the best to glue cotton stuffs.

PHASEOLUS, L. *Beans.* All esculent, flatulent, cosmetic, nephritic. Flour makes Purey soup. Some used for catchsup. Several cult. by Indians.

PHYSALIS, L. *Ground cherry.* All sp. eq. to *Solanum virginicum;* but berries acid bitterish, liked by children, good diuretic and sedative.

PHYTOLACA DECANDRA, *Poke, Pocan* of Virginia tribes, *Coakum* of northern tribes, *Garget* or *Pigeon berries* in N. Engl. *Chougras* in Louisiana, *Jucato* in Jamaica, *Cuechiliz* in Mexico. Valuable active plant. Root emetic and cathartic without spasms, dose 10 to 30 grains of dry powder, safe and powerful. Young shoots and leaves eaten like asparagus and spinage, also in calalous merely laxative. Old leaves acrid purgative. Stems and leaves contains more potash than any plant, 67 per cent by burning, and 42 per cent of pure caustic potash by lixivation. Has a peculiar acid *phytolacic* near malic. Fresh roots and leaves escharotic, discutient, specific in poultice for cancerous or malignant ulcers, psora, tinea capitis, &c. or extract as a plaster, a wash of *Rumex* used at same time. Berries juice alterative, specific for chronic and syphilitic rheumatism, fresh or kept by adding $\frac{1}{3}$ alcohol, a tablespoon full each 4 hours. The extract less certain, one lb. is made by 4lb. doses 5 grains. Berries sweetish, nauseous, subacrid, eaten

by birds and fowls, give bad taste to their flesh: furnish a purple evanescent stain and ink, and a fixed blue dye with urine for mordaunt. Leaves used by farriers for ulcers of horses, &c.

PINUS, L. *Pines.* Valuable genus, many sp. all medical, affording tar, pitch, rosin, turpentine and oil of it, diuretic, depurative, equiv. to *Abies*, see medical works. Timber, boards, masts, &c. *P. teda*, pitch pine. *P. lutea*, yellow pine, *P. strobus*, white pine, mostly used. The Indian tribes use the bark in poultice for sores and piles, the boiled roots for drawing plaster, the decoction of buds as purgative, the cones in rheumatism, and tar dissolved in spirits as a wash to cure itch, tetters and wens.

PISUM SATIVUM, Lin. *Sweet peas.* Equiv. of *Phaseolus.*

PLANTAGO MAJOR, L. *Great Plantain.* Root good febrifuge, astringent, vulnerary, used for tabes, ulcers, sore eyes, fluxes, bloody urine, diarrhea, &c. lately for fevers. Leaves bruised good for slight wounds, spider bites, sores and tumors. Seeds vermifuge, antidysenteric. Cattle like it. Many sp. equiv. *P. lanceolata* and *P. maritima* cult. in Europe for cattle, but cows dislike the last, which makes good pickles.

POPULUS, L. *Poplar.* All sp. useful. Wood white, soft, chip hats made with it, cotton of the seeds make paper and cloth. Bark used for tanning in Africa, mixt with bread in Siberia. Buds tonic, stimulant, sudorific, fragrant and balsamic, good ointment in rheumatism, gout, burns, sores, diseases of the skin, internally for chronic catarrh and diseases of the kidneys. They hold 20 elements, oil, *populine*, peculiar fat, albumen, resin, &c. Inner bark used by Indians and empirics in tea or bitters for faintness, hepatic and nephritic diseases. Bark of *P. balsamifera* emetic and cathartic, of *P. tremula* or Aspen, tonic, stomachic, febrifuge.

PORTULACA OLERACEA, L. *Purslain.* Esculent in salad or boiled. Diluent, cooling, corroborant, antiscorbutic, diuretic, vermifuge, subastringent, antisyphilitic, &c. Very mild, used in gravel, strangury, scurvy, gonorrhea, ulcers of the mouth. Good food for

children with worms. A cool salve made with it for sore lips and nipples.

POTENTILLA, L. *Cinquefoil.* All the sp. mild astringent, tonic and vulnerary. *P. reptans*, *P. canadensis* and *P. fruticosa* mostly used in weak bowels, hemorrhage, agues, menorhea, &c. *P. anserina* (Silverweed) also antiseptic, used in gargles for loose teeth, spongy gums : by coction becomes edible.

PRENANTHES, L. *Gall of the Earth*, *Dewitt snakeroot*, *Lion's foot.* Many sp. Eq. Root and milk very bitter, used in dysentery and to cure snake bites in men and cattle in poultice. *P. alba* and *serpentaria* chiefly. *P. opicrina*, Raf. 10 feet high, eq. of *Laetuca.*

PRINOS, L. *Black Alder*, *Fever bush*, *Winter berry.* 8 sp. Eq. *P. verticillatus* mostly used. Inner bark emetic, cathartic, tonic, antiseptic. Used in agues, fevers, debility, anasarca, dropsy, incipient sphacelus, herpetic eruptions, gangrene, jaundice, foul ulcers, &c. in powder, decoction and tincture, a wash or poultice. Berries purgative and vermifuge, mild eq. of bark, bitters made with them. Popular remedies.

PRUNUS, L. *Cherry trees* and *Plumb trees.* Useful genus, we have nearly 40 wild sp. of which I have prepared a monography, only 25 described by authors. All our wild Plumbs esculent, some cult. by Indians, make good pies, preserves, &c. The best are 1. *Pr. angustifolia*, Cherokee Plumb, yellow, fine. 2. *Pr. coccinea*, Raf. Fl. lud. large, crimson, acid. 3. *Pr. stenophylla*, Raf. sweet and black. 4. *Pr. umbellata*, Elliot, acid. 5. *Pr. versicolor*, Raf. several colors. 6. *Pr. aurantiaca*, Raf. 7. *Pr. chicasa.* 8. *Pr. hyemalis*, &c. Few wild Cherries are esculent, but *Pr. rotundifolia*, Raf. *Pr. hirsutus*, E. are good. *Pr. virginiana*, *Pr. canadensis* and *Pr. serotina*, are active medical, berries in racemes, called *Black Cherries.* The bark is bitter astringent, contains Prussic acid, tannin, gum and mucus. Tonic, febrifuge, sedative. Very useful in fevers, agues, hectic fever, dyspepsia, lumbar abscess, chronic asthma and hysteria, cardialgy, &c. Taken in powders, dose 10 to 40 grains in infusion, tincture, &c. heat drives off the Prussic acid. Bark of the root stronger. Reduces pulse from 75 to 50. In large doses narcotic and vermifuge. Leaves

poison cattle, berries intoxicate birds, used for cherry bounce, baneful: kernels equal to bitter almonds. Common cherries and plumbs cultiv. Prunes are laxative, cherries refrigerant. *Pr. armeniaca* or Apricot, fine fruit, the abuse produce fevers. *Cerasine* gum produced by all.

PTELEA, Lin. *Wingseed, Boispuant* in Louisiana. 3 sp. Leaves vulnerary, vermifuge, in tea or poultice.

PTERILIS, Raf. *Pteris*, L. *Brake.* Roots of all edible, vermifuge, leaves fragrant, used in beer.

PTEROCAULON, Elliot. *Blackroot, Hinih* of Western Indians. Root alterative, detergent, drastic, abortive. It may cause bloody stools, vertigo and dizziness even in small doses. Said to be used for phthisis by Florida tribes, but must be dangerous internally, also to clean ulcers.

PULMONARIA, L. *Lungwort.* 6 sp. Equiv. Root vulnerary, eq. of *Symphytum.* Leaves used in diseases of the lungs, influenza and hooping cough, with *Marrubium* and *Prunus*: smoked by some Indians like tobacco.

PUNICA GRANATUM, L. *Pomegranate.* Cultiv. Fruit acid refrigerant, useful for fevers. Flowers tonic, astringent, anodyne, diuretic, used in decoction, lotion, injection for chronic diarrhea, prolapsus, cephalgy, &c. Rind of fruit styptic, makes ink, used for tanning and dyeing brown and black. Inner bark of the root yellow, excellent vermifuge, specific for tenia, known to Plinius, since forgotten, lately restored. It is bitter astringent, dyes yellow, contains tannin, gallic acid, wax, mannite, &c. 2 ounces in 3 doses after castor oil and lemon syrup, expel the tenia or tapeworm.

PYCNANTHEMUM, Mx. *Mountain mint, Wild Basil.* Aromatic plants, mild eq. of *Monarda.*

PYRUS MALUS, L. *Apple tree.* Cult. Affords fine fruits, cider, apple butter, preserves, brandy, vinegar, hard wood. Apples refrigerant when ripe, very healthy boiled, roasted, then laxative: very baneful when unripe, cause diarrhea and cholera: abuse of apples and cider gives cholic and rheumatism. *P. coronaria* (wild Crab) fragrant blossoms and fruits, austere, good preserves. *P. fusca*, Raf. (Oregon Crabapple) has brown acid pulpy fruits, wood very hard, used for wedges. *P. communis*

or common Pear, cult. better and healthier fruit, Perry better than Cider, wood very useful, as hard as ebony. *P. cydonia*, Quince. Astringent fruit, sirup and preserves used for diarrhea, cholera, cholic, nausea. Eaten raw in Italy. Seeds fine mucilage, inviscant, demulcent, coagulate water.

QUAMASIA ESCULENTA, Raf. 1817. *Quamash, Bear grass, Wild Hyacinth.* Wrongly united to *Scilla* and *Phalangium*. Kentucky to Oregon. Onion sweet, esculent, makes a fine bread tasting like Pumpkin bread. Used in poultice for inflamed breast.

QUERCUS, L. *Oak*. Nearly 40 sp. All valuable and medical. Useful wood, bark, sap, galls and fruits called acorns. Fine timber used for staves, casks, fences, shingles, boards, houses, ships, &c. Acorns often esculent, taste of chesnuts. *Q. edulis*, Raf. and *Q. prinos* sweet and good even raw, in *Q. virons* good roasted and afford sweet oil, the bitter kinds become worse by roasting, but sweet by boiling, Indians make oil and bread of them. Sap of *Q. prinos*, &c. acid sweet, make a beer like Beech sap. Wood of *Q virens* and *Q. laurifolia* (Live Oak, Laurel Oak) as heavy as Guayac, cannot split, nails driven in cannot be taken off, hardens by age, strong, compact, durable, our best timber; the next furnished by *Q. alba, obtusiloba, prinos, montana*, &c. Bark used for tanning, chiefly *Q. rubra, falcata, alba*. Bark of *Q. tinctoria* is the Quercitron bark dying yellow, also *Q. castanea* and *nigra*. *Q. alba* and other sp. dye brown, contain much tannin, and 18 per cent. of a peculiar substance *Quercine*, insoluble but inflammable, the sulphate of quercine soluble in acidule water. Febrifuge, astringent, antiseptic, weak eq. of *Cinchona* for fevers, very useful in cynanche, ulcers, dysentery, gangrene, hemorrhage, sorethroat, wounds, prolapsus, tabes mesenterica, hernia, &c. Used in wash, bath, poultice, decoction, &c. Cups and acorns equiv. used also in spasmodic cough, asthma, chronic hysteria, amenorhea, rheumatism. Dry emanations of oak bark useful in phthisis. Some Indians use *Q. lyrata* in dropsy and as an emetic. Oak galls still stronger, used to dye black, make ink, powerful astringent and styptic.

QUINARIA, Raf. *Creeper.* 2 sp. *Q. hederacea* and *hirsuta* blended with *Hedera, Vitis* and *Ampelopsis.* Beautiful vines. Leaves bitter, eq. of *Hedera.*

RAPHANUS SATIVUS, L. *Radish.* Cult and wild. Root attenuant, diuretic, stimulant, carminative, eructive. Useful in convulsive asthma, rancedo, ischuria.

RHAMNUS CATHARTICUS, L. *Buckthorn.* Native. Berries used to make sap green. Drastic hydragogue, nauseous bitter. Used in dropsy, rheumatism and gout, cause griping nausea and thirst. Dose 20 fresh berries, the sirup is the best preparation.

RHEUM, L. *Rhubarb.* Cult. Root popular stomachic and laxative chewed fresh, purgative when dry. We have not the true Chinese sp. or *Amodi* of Thibet, *R. australe. R. undulatum* mostly cult. also tonic astringent. Leaves edible, laxative, eq. to *Rumex.*

RHIZOPHORA, L. *Mangrove.* In Florida. Bark astringent styptic, tans like oak bark, a bath of it useful for petechial fevers. Eq. of *Quercus.*

RHODODENDRUM, L. *Mountain Laurel, Rosebay.* 8 sp. Eq. of *Kalmia.* Bark and leaves astringent. Bigelow denies their narcotic quality. Contains tannin and resin. Bark used as stimulant, it increases the heat of the body, excites thirst, increases secretions and excretions. Used in rheumatism and gout, by our Indians for ulcers and sour stomach; they mix the ashes with tobacco. Leaves poison cattle. Blossoms viscose, when dry errhine, yield resin and sugar.

RHUS, L. *Shumac.* All the sp. medical, two series of them. 1. Harmless. 2. Poisonous. 1 Series, *R. glabrum, typhinum* and *copallinum* eq. Roots antisyphilitic, used by Indians, dye wool redish. Leaves have much tannin, make the Morocco leather, dye wool and silk black, good astringent for all fluxes. Bark and berries make ink. Fresh roots used for rheumatism, spirituous infusion rubbed with flannel. Gum similar to copal, cures tooth ache put in hollow teeth. Indian flutes made of the stems. Berries used in dysentery, rheumatism, dysuria, sorethroat, putrid fevers, hemorrhage, gangrene, &c. they have an agreeable acid taste, make a cooling drink infused in water. Efflorescence on them used as salt and vinegar: it is malic acid. Seeds in

powder used for piles and wounds. The juice removes warts and tetters, is the fine red mordaunt of Indian dyes. Seeds afford oil for lamps. *Sacacomi* article of trade in Canada, made by drying the berries in ovens after bread, fine substitute of tobacco, those who use it loath tobacco! *Kinikah* of western tribes is root and leaves, half mixt with their tobacco, used also for dropsy. Galls of Shumacs lately found equal to Aleppo galls. Second series, *R. vernix*, *pumilum*, *radicans* and *toxicum*, called *Poison wood* or *vines*, are poisonous even by handling, or exposure to the effluvia in some persons, causing a distressing cutaneous disease or eresypela: remedy rest, evacuations and parsley poultice, ice and lead. Acrid milky juice, becomes black in the air, forms indelible ink, inspissated becomes fine black resin and varnish, with cinnabar red varnish of Japan. Root used in chronic asthma, anasarca, phthisis, obstinate herpetic eruptions. Extract of leaves chiefly used, a specific in palsy, doses a grain, also for hemiplegia and rheumatism. Contain tannin, gallic acid, green fecula, *toxine* resin, &c. poisonous gas is carbonated hydrogen. *R. cotinus* is cultiv. *Feather tree*, wood dyes fine orange, leaves tan well.

RIBES, L. *Gooseberries* and *Currants*. Nearly 30 sp. wild. *R. nigrum* on Kennebec river. Roots in infusion, bark in gargles used for eruptive fevers, dysentery of cattle, fruits and jelly for sorethroat. Anodyne, diuretic, pellent, depurative, used in angina, exanthems, dysentery, hydrophobia, scabs and ictus. A fine cordial made of black currants. *R. rigens* smells like *Ictodes*. *R. rubrum*, fruit very cooling, useful in bilious and high fevers, jelly very grateful. Wine made with currants and gooseberries. Many edible sp. in Alleghany and Oregon mountains, deserving cultivation.

RICINUS COMMUNIS, L. *Palmacristi*, *Castor*, Cult. wild. Leaves revulsive emollient, cure swelled breast, and dispel the milk of nurses at weaning by mere application. Seeds drastic, vermifuge. Castor oil mild purgative, useful in iliac and painters' cholic, nephritis, worms, constipation, &c. It is pale, thick, viscid like hemp oil, sweet when fresh, acrid when old. Seeds give 66 per cent. of oil, an acre produces 100 to 150 gallons, may be

used for lamps, quite soluble in alcohol. Dose 1 or 2 ounces in lemon syrup, emulsion, broth, coffee, chocolate, &c.

ROBINIA ACACIA, L. *Black Locust.* Very useful tree, fine timber, leaves greedily eaten by cattle. Inner bark sweetish like liquorice, emetic, cathartic and pectoral, according to doses, root best; much used by Indians and negroes. Blossoms fragrant laxative, liked by bees. Seeds oily. Wood used for posts, rafts, bows, ships, &c. *Ehowah* of Western tribes.

ROSA, L. *Roses.* Beautiful G. queen of flowers, we have 30 wild sp. and many cult. Roots, galls, buds and fruits of all astringent, sweetish, corroborant, used in dysentery and diarrhea; contains tannin, sugar, myricine, resin, fat oil, volatile oil, acids, salts. Blossoms of red roses similar, styptic, have gallic acid, fine conserves; while pale or white roses, *R. damascena* chiefly are laxative, a fine syrup used for children. Rose water fine perfume, useful for sore eyes. Oil of Roses or *Otto* delightful perfume, stimulant, the best made from *R. moschata.* Fruits edible, but give the cholic, preserves made. *R. macrocarpa*, Raf. size of pigeon egg, very good. Leaves make a good palatable tea, chiefly the Eglantine Roses with fragrant leaves. Petals of *R. gallica*, smell increased by drying.

RUBIA, L. *Madder*, 2 native sp. *R. tinctoria* cult. all eq. Roots fine red dye, principally *Rubine* and *Alizarine.* Dyes bones, milk and urine of animals fed on it. Menagogue and deobstruent, used for suppressions, jaundice, diseases of bones, rachitis and atrophy of children, doses 20 to 30 grains.

RUBUS, L. *Bramble.* Nearly 30 wild sp. *R. ideus, cesius, strigosus, occidentalis, deliciosus, odoratus,* &c. are our delightful Raspberries. Those with black fruits called *Blackberries*, such as *R. villosus.* The creeping kinds are *Dewberries.* The *Cloudberry* is *R. chamemorus.* Roots of all more or less astringent, subtonic, much used in cholera infantum, hematemesis, chronic dysentery, diarrhea, &c. The Cherokis chew them for cough; a cold poultice useful in piles: used with Lobelia in gonorhea. Fruits of all cooling, mild astringent, antiseptic, analeptic, diluent, cordial, &c.

Ripe fruits, preserves, jam, jelly or syrup grateful and beneficial in diarhea, gravel, hemoptysis, phthisis, sore-throat, putrid and malignant fevers, scurvy. Black-berries dye purple, are more astringent and acid. Raspberries afford delicious distilled water, beer, mead and wine. Said to dissolve tartar of teeth. Twigs dye silk and wool.

RUMEX, L. *Dock.* 25 sp. mostly eq. *R. britanica, sanguineus* and *aquaticus*, chiefly used. Roots astringent, deobstruent, tonic, diaphoretic: useful in scurvy, cutaneous eruptions, syphilis, ulcers of the mouth, foul ulcers, itch, cancerous tumours, &c. in decoction, wine, lotion. They dye yellow. Contain sulphur, starch, oxalate of lime, &c. Syrup with *Prunus* or *Diospyros* used for dysentery. Leaves edible equal to spinage. *R. patientia, obtusus, acutus* and *crispus*, similar, but root less astringent, laxative or purgative, diuretic, seeds used in dysentery. *R. acetosa* or sorrel is cult. fine acid vegetable, laxative, refrigerant and antiscorbutic. *R. acetosella* or sheep sorrel, similar but subastringent.

SABAL, Ad. *Sand palm, Latanier*, 7 sp. eq. of *chamerops* for mats, hats, baskets, thatch, fans. Fruits bad, in *S. adansoni* black and sweet.

SACCHARUM, L. *Sugar Cane.* Sugar is made with *S. officinarum*, the taller and hardier Tahiti cane gives most, *S. sinensis* Chinese sugar, *S. violaceum* Java sugar, the worst kind, but gives most rum. Sugar is edulcorant, relaxant, pectoral, vulnerary. Affording molasses, rum, candy, syrups, cordials, &c. Used as food, condiment, and preservative.

SAGITTARIA, L. *Arrowleaf, Katnip of Lenaps, Wapatu* of Oregon tribes, 12 sp. eq. valuable esculent roots of Indicus, (cult. in China and Japan) trade with it, make bread, soups, dishes, &c. Refrigerant, subastringent; useful applied to feet for yaws and dropsical legs; leaves applied to breast dispel milk of nurses like *Ricinus.*

SALICORNIA, L. *Kelpwort, Samphire.* All sp. furnish Kelp by burning. Edible, fine pickle, liked by sheep: med. eq. of *Fucus.* Antiscorbutic, give appetite, used as deobstruent in abscesses, scelotyrbe, hyper-

sarcosis, scrofula, goitres, tumors and swellings. Contains Soda and Iodine.

SALIX, L. *Willow.* Valuable prolific genus, 45 native sp. Twigs used for baskets, wood soft white for chip hats. Bark of all bitter astringent, febrifuge and antiseptic. Eq. of *Cinchona* in many cases, contains tannin, gluten and *salicine* similar to Quinine, 3 doses of 6 grains of Salicine have cured agues, *S. alba, latifolia, fragillis, helix, caprea,* &c. chiefly used in Europe. Schoepf mentions the yellow and swamp willows used with us, roots and bark in bitters. Dose of powders ½ to 1 ounce. Rose Willow much used by empirics for fluoralbus, menorhea, cutaneous eruptions and agues, in tea. The seed wool of some sp. may be spun.

SALSOLA, L. *Barilla.* All the sp. produce Barilla or crude Soda: cult. in Spain and Sicily for it. Stimulant, antacid, diuretic, &c.

SALVIA, L. *Sage.* Several sp. *S. lyrata, claytoni, mexicana, &c.* called *Cancerweed,* fresh leaves used to dispel warts, tumors, said to have cured Cancers. *S. officinalis* cult. grateful subtonic, nervine, uterine, stomachic, useful in languor, convalescence, aphthas, soft gums, to dispel milk, &c. Sagetea chiefly used, leaves also in cookery.

SAMBUCUS CANADENSIS, L. *Black Elder.* Root and inner bark acrid purgative, berries laxative, baneful to birds and fowls: acid, afford Wine, Alcohol and Oil. Shade deemed baneful, leaves being subnarcotic, said to cure the rot of sheep, laxative, nauseous, a cooling ointment made with them, poison for insects and mice. Bark dyes black, boiled and applied to cheeks cure toothache, in small doses diuretic deobstruent, useful in obstinate glandular obstruction and dropsies. Rob of berries aperient, diuretic and diaphoretic, used for coughs and costiveness. Young leaf buds drastic and unsafe. But Elder flowers anodyne, pectoral, sudorific, pellent, emollient, useful in erysipelas, fevers, rheumatism, gout, exanthems, &c. in decoction, lotion, cataplasms. Also, in pleurisy, chronic cough, eruptions and bruises. They give a fine flavor to vinegar and wine.

S. pubens and *ebuloides*, Raf. or Mountain Red Elder Dwarf Elder, are eq.

SAMOLUS VALERANDI, L. Bitterish, edible in salad or boiled. Eq. of *Veronica becabunga*.

SANICULA MARILANDICA, L. *Sanicle.* Subtonic, astringent, antisyphilitic. Useful for leucorrhea, gonorrhea and syphilis, hemorhagy, dysentery, &c: whole plant used in decoction, also vulnerary and balsamic, root for tumors and wounds of horses.

SAPINDUS FALCATUS, Raf. *Soaptree. S. saponaria* of Schoepf and Elliott, but different from tropical sp. Nuts saponaceous, viscose, sweetish, bitterish acrid; used as a soap but spoils linen, also in chlorosis and leucorrhea.

SAPONARIA OFFICINALIS, L. *Soapwort.* Spont. active. Contain *Saponine* 17, Gum 16, Resin 12, extract 12 per cent. Tonic, diaphoretic, hepatic, &c. Useful in jaundice, obstruction, gout, rheumatism, syphilis, herpetic diseases, liver complaints, cachexy, leucorrhea, &c. in decoction. Eq. to *Smilax* in syphilis. Deemed diuretic, menagogue, and vermifuge formerly. Taste bitterish, spumescent with water, used like soap in Europe. Lately used in scrofulous and venereal ulcers. Dose 2 ounces, boiled and taken in one day by degrees. *S. villosa*, Raf. Fl. lud. and *S. viscaria* are eq.

SAROTHRA GENTIANOIDES, L. *Groundbroom, groundpine.* Vulnerary traumatic : used in contusions, bruises and sprains, united to *Cunila* and *Conium*, boiled and applied.

SAURURUS CERNUUS, L. *Lizard tail.* Roots emollient, discutient, used in poultice roasted and mashed by Cherokis, useful in Lumbago, pains in the breast, sore nips. Leaves and blossoms peculiar grateful smell, promise to be useful in other diseases.

SAXIFRAGA, L. Several sp. Eq. to *S. granulata*, bitterish astringent, roots used for gravel in decoction. *S. Pensylvanica* appears active.

SCHUBERTIA, DISTICHA, Mirbel, (*Cupressus. L.*) *Cypress.* From Delaware and Kentucky to Mexico. Wonderful tree, reaching 150 feet and 40 feet circuit in 100 years. Wood soft but excellent and durable, used for boats, boards, shingles, &c. 2 var. white and

black, known by bark only. Nuts balsamic fragrant, their resin makes a fine orange varnish ; diuretic, carminative, pellent in decoction.

SCLEROTIUM CLAVUS, Dec. or *Sphacelia segetum* of others. The ergot of rye, parasitic fungus. Poisonous, causing dreadful dry gangrene when mixt with rye bread. Contains rocella or violet color, fulvous chrome, sweet oil, ammoniac, ferment and phosphoric acid. Specific as uterine parturient to help parturition, in doses of 5 to 10 grains. Dangerous abortive for women and cows.

SCORZONERA HISPANICA, L. Cult. healthy esculent root, mild sudorific, menagogue, &c.

SCROPHULARIA, L. *Figwort, Holmesweed, Heal-all.* 4 native sp. *S. marilandica, lanceolata, S. hastata* Raf. Fl. lud. and *sylvatica*, Raf. All eq. to *S. nodoso, aquatica* and *canina* of Europe. Bad rank smell, like Elder, bitter acrid. Vulnerary, resolutive, antiscrofulous in decoction, poultice and steam bath. Much used in N. Jersey, N. Y. and New England ; often united to *Cistus* and tonics. Deemed good for all kind of sores in men and cattle, cures the scab of dogs and swine.

SECALE CEREALE, L. *Rye.* Cult. Flour resolvent, contains starch 60, gluten 10, mucilage 11, sugar 3, albumen 3 per cent. Good sweet heavy bread.

SELINON CANADENSE, Linn. or *Cnidium do.* Deemed eq. of *S. palustre* lately found atonic, useful in epilepsy in doses 10 to 20 grains, in convulsions of children, dose 2 gr. In larger doses poisonous.

SENECIO, Lin. *Groundsel, Fireweed.* Vulnerary, acrid tonic, astringent, useful in hemorrhage, wounds, headache, inflammations, salt rheum, herpes, diseases of skin, chiefly externally. *S. hieracifolius* and *vulgaris* chiefly used. Emetic in large doses. Smell strong, stems of var. *gigantea*, 8 feet high, thick grooved, juicy, sweet, edible. Birds like the leaves.

SESAMUM, L. *Benny, Zezehan ; Vangle* in Jamaica. *Semsem* of Arabs. *Jugotine* of French. *Giugiolena* of Italy. Cult. in Asia 2500 years ago for oil, yet from Spain and Guinea to China. Oil of seeds preferred to Olive oil by Arabs, said to make women fat! skin soft, clean hair. Brought by negroes to Southern States.

Seeds eaten with Maize, make good cakes with honey, put in bread to flavor it. Emulsion pectoral. Horses, cattle and fowls grow fat on them. Leaves fine emollient, thicken water like Sassafrine, very good for diarrhea and dysentery as common drink. Seeds give 90 per cent. of oil! mild, sweet, keeps many years, fit for food and lamps, laxative like Castor oil, equivalent and better, not nauseous.

SICYOS ANGULATA, L. *Bryony, Wild Cucumber.* Root and seeds bitter, purgative, diuretic, eq. of Bryony in dropsies, Canada to Mexico.

SIDA, L. *Softy.* Eq. of *Malva. S. spinosa* and *rhombifolia,* used as tea in the west, leaves roasted first, good, palatable and diuretic.

SIDEROXYLON, Lin. *Ironwood, Turlbay.* Very hard wood, berries sweetish astringent, useful in diarrhea.

SILENE, L. *Wild Pink.* Several sp. have a vermifuge deleterious root, such as *S. virginica, pennsylvanica, caroliniana.* Eq. *Spigelia?*

SILPHIUM, L. *Turpentine Sunflower.* Several sp. *S. gummifer, terebinthaceum, undulatum,* Raf. *reniforme,* Raf. produce by exudation and incision a fine fragrant and bitterish gum like Frankincense, white or amber color, chewed by Indians to sweeten breath and clean teeth.

SINAPIS, L. *Mustard.* Cult. and wild, 2 sp. *S. nigra* and *alba* eq. Leaves acrid antiscorbutic. Seeds very active, contain fixed oil, acrid oil, sulphur, &c. Oil by expression similar to rape oil, good for lamps; in India *S. ramosa* and *dichotomo* cult. for this oil. By distillation the acrid oil is evolved, it is the active principle. Flour of mustard much used as condiment, but the abuse produces dyspepsia, atrophy and palsy! It is errhine, rubefacient, in topical use; applied to the feet, forms Sinapisnes very useful revulsions in fevers. Otherwise stimulant, diuretic, antiscorbutic, useful in chronic diseases of languor, dropsies, palsies, giddiness, pains in the head, cachexy, lethargy, tinea, scurvy, &c. Externally in chronic rheumatism, palsy, nervous diseases. Formerly and lately again praised as a panacea in asthma, gravel, chlorosis, dropsy, dyspepsia, &c.! the milder *S.*

alba or white Mustard seeds chiefly used whole in large doses, proved by Gassicourt to be merely laxative, nearly inert. Nay, larger doses still or infusion are emetic by irritating the stomach: may cause convulsions in children when mixt with bread. Decoction in small doses aperient and diuretic.

SISYRINCHIUM, Lin. *Lily grass, Scurvy grass.* Eaten by horses and cattle. Root yellow acrid, decoction purgative, said by empirics to be antidote of sublimate! and used as eq. of *Cochlearia!*

SIUM, L. *Water Parsnep.* Several wild sp. Equiv. *S. nodiflorum*, deleterious plant, yet deemed diuretic, menagogue, herpetic, lithontriptic, cures obstinate cutaneous diseases, 6 spoons full of juice in a day said not to hurt the head, stomach, nor bowels. Doubtful to me. *S. latifolium* certainly poisonous. *S. rugosum*, Raf. called *Muskrat weed*, because Muskrats feed on it, and Indians bait the traps with it. Roots tuberose, poisonous to men, but boiled useful for tumors and bruises. *S. sisarum* or *Skiret*, cult. in Europe, rare with us, roots sweet, esculent, astringent, vulnerary, useful in hemoptysis and internal hemorrhage.

SMILAX, L. *Sarsaparilla.* Valuable prolific genus, we have 25 sp. divided by me in 3 *G. Nemexia*, (*S. herbacea* and *pedunculata*) and *Parillax* with monosp. berries, (*S. pumila laurifolia*). All more or less eq. *Sm. sarsaparilla* best known; *Sm. pseudo china* largest roots, extend 100 feet in damp soils forming clusters. Much used by southern Indians for food in meal, cakes, fritters, jelly, mush, &c. The fecula is a red brown flour. Good beer made with Sassafras and molasses, purifies the blood. Shoots eaten like asparagus. *S. caduca, laurifolia, tamnoides*, &c. equally used. *S. ovata* and *fragrans*, Raf. have fragrant blossoms, give aroma to Wine liquors like *S. aspera* of Europe. Berries of many dye blue and black. Roots fine alterative, depurative, sudorific and diuretic, in decoction, syrup. Much used in cachexy, syphilis, gout, mercurial disease! scrofula, rheumatism, cutaneous eruptions, &c. Properties reside in the bark, containing *Parilline*, fecula, mucus, albumen. The centre is pure fecula, inert, esculent.

SOLIDAGO ODORA, Ait. *Sweet Goldenrod.* Prolific genus, we have nearly 70 sp. This easily known by its sweet scent near to aniseed. Essential oil of it has same scent, much used for head ache, in frictions. Whole plant aromatic stimulant, diaphoretic, carminative, useful in flatulence, nausea, spasms of the stomach, chiefly used as a grateful tea. Leaves prepared like tea, have been sent to China, much used in some parts of our country, used in fevers by Cherokis. Some other sp. also medical, but more astringent, aperient, corroborant, useful in gravel, ulceration of the bladder, fevers, dropsy, cachexy, lax bowels, *S. virgaurea* (wild) and the subodorous sp. chiefly used. A species said by Schoepf to be used for wounds and bites of rattlesnakes in decoction, also in tumors, angina, pains in the breast and viscid tumors.

SONCHUS, L. Mild eq. of *Lactuca.* Many sp. *S. oleraceous* edible, milk dispels warts.

SORBUS, L. *Mountain ash, Service tree.* 3 sp. eq. Bark smells and tastes like cherry bark, equal to it, more astringent, fine tonic, antiseptic, contains Prussic acid, used in fevers and other diseases, like Cinchona. Fruits very austere, never ripen, become mellow and edible when rotten; yield malic acid, make a very strong cider, and furnish alcohol. *S. pumilus,* Raf. of Oregon mountains, has large edible fruits, eaten and dried by the Shoshonis.

SORGHUM, Lin. *Broom corn, Indian millet,* 2 sp. cultivated. *S. sacharatum,* yields sugar, much used for brooms. *S. vulgare,* seeds afford flour, cakes, coffee and chocolate.

SPINACIA, L. *Spinage.* 2 sp. cult. *S. oleracea* and *spinosa,* esculent, diluent, laxative, eccoprotic.

SPIREA, L. Add, *Sp. salicifolia* used as an agreeable subtonic and subastringent tea near Albany, &c. My. *Sp.. corymbosa* also in Virginia.

SPONGIA, L. *Spunge.* Prolific tribe, 250 sp. Not animals, but sea plants, having no motion whatever! All eq. of *Fucus.* Very nseful in surgery, wounds, ulcers, &c. Best poison for rats, cut small. Burnt sponge specific for bronchocele. Coutain iodine and osmazome.

STEREIMIS, Raf. 3 sp. blended with *Illecebrum*, *Gomphrena* and *Achyranthes* by authors. *St. repens*, *ficoideum* and *vermicularie*. Diuretic, subastringent, useful in ischury and disury.

STILLINGIA SYLVATICA, L. *Yawroot*, *Marcory*, *Cockup hat*, *Queens delight*. Large woody root, purgative, alterative, antisyphilitic. Very active, specific in yaws, sores, ulcers, chiefly syphilitic and all venereal diseases, also lepra and elephantiasis. Ingredient of Swaim's panacea.

STYRANDRA, Raf. *Harewost*, *Adders' tongue*, *Matasbuck* of Algic tribes. Root diuretic, eq. of *Sigillaria*.

STYRAX, L. *Spring Orange*. Blossoms fragrant like orange, balsamic, aphrodisiac. Bark vulnerary, deer cure their wounds by rubbing against the tree.

SURIANA MARITIMA, L. Florida, Bahama. Bark mucilaginous, used for sore lips.

SWIETENIA MAHOGANI, L. *Mahogany tree*. In South Florida. Wood very useful and beautiful. Bark bitter astringent, tonic, febrifuge, used in fevers: shavings of wood in diarrhea.

SYMPHORIA, J. *Raccoon berry*, *Bluewood*. 3 sp. Eq. *S. racemosa*, *glomerata* (Snowberry) and *debilis*, Raf. Root tonic astringent, used for agues in Virginia. Bark of it for syphilis by Western tribes. Active febrifuge in small doses.

TANACETUM VULGARE, L. *Tansey*. Cult. now spont. Bitter nidorose, peculiar strong smell, eq. of *Anthemis* when fresh, sudorific, pellent, menagogue, vermifuge, carminative, deobstruent, a balsamic tonic stomachic. Tansey tea much used in fevers, agues, cachexy, hysterics, dropsy, strangury, &c. deemed very efficient in gout, it strengthens the stomach and kidneys. When dry milder, but fine stimulant and vermifuge, equal to Contra. The flowers contain an alkali *Tanacetine*, the tanacetic acid, phosphate of lime, &c. Leaves besides tannin, gallic acid, peculiar oil. Poultice of leaves cure sprains and bruises, used to dye and flavor puddings. They dye green and the flowers yellow. Said to preserve meat from flies.

TAMARINDUS INDICA, Lin. *Tamarind*. Fine shade tree, cult. as far as lat. 38. Pulp of the pods fine

acid, refrigerant, laxative, quenches thirst, useful in fevers, constipation, gout. A kind of beverage made with it, very grateful in summer heat. Contains sugar, citric acid, gum, water, salts, &c.

TAXUS, L. *Yew, Chinwood.* 2 sp. *T. canadensis* and *baceata.* Wood red, hard, useful. Leaves baneful to cattle and sheep. Berries edible, contain sugar, gum, malic and phosphoric acids, a red fat; but seeds acrid, pernicious, oily, the oil of it used for lamps in Japan.

TECOMA, J. *Bignonia sp.* Linn. *Trumpet flower, Crossvine.* 3 sp. of beautiful vines or creepers. Leaves sweetish acrid, depurative, mild eq. of *Stillingia*, used with it for yaws, and to clean the blood as a tea.

TEPHROSIA, Pers. *Galega sp.* Lin. *Turkey pea, Catgut, Devil's shoestrings, Suckehihaw* of Osages. 4 sp. *T. virginica* most common, ornamental, bad weed in fields, roots matted very tough, powerful vermifuge in decoction. Seeds food of turkeys.

TEUCRIUM, L. *Germander.* Prolific genus, but few American, *T. chamepytis* in Virginia, Schoepf. All more or less aromatic bitter, stimulant tonic, pellent, menagogue, useful in agues, chlorosis, gout, rheumatism, hematuria, &c. *T. canadense* has a suballiacous smell.

THALICTRUM, L. *Meadowrue.* Root of some sp. deemed useful for snake bites in Canada, leaves put sometimes in spruce beer, perhaps *Th. purpurascens.*

THALESIA UNIFLORA, Raf. 1814. *Orobanche do.* L. *Squaw drops, Cancer drops.* Eq. of *Leptamnium*, often used promiscuously, root astringent antiseptic, useful in cancers, gangrene, fluor albus, &c.

THASPIUM, N. (*Thapsia sp.* L.) *Roundheart.* Vulnerary, antisyphilitic, sudorific, antidote of rattle snakes. *Th. trifoliatum* chiefly used.

THEAPHYLLA, Raf. (*Thea*, L.) *Tea Shrub.* Cult. might be in fields in the South, 40 kinds in China, some delicious fragrant, only the worst imported and lose much by age. Contain *Theine*, tannin, gum, gluten, volatile oil, &c. Mild sudorific and diuretic, baneful to nervous persons, useful in indigestion and to help digestion of the usual bad and gross food of Chinese and ours. The Chinese ascribe to it many uses in diseases

of the head, bladder, breast, stomach, &c. they say it removes obstructions, quenches thirst, revives heart, purifies brain! prevents drowsiness and lethargy, clears the sight, dispels wind. &c. Boiled in vinegar used in diarrhea and tenesmus. The seeds furnish good lamp oil, seeds and oil useful for colds and asthma. The abuse of strong tea may cause tremors, palsy, epilepsy, apoplexy, mania, &c.

THUYA OCCIDENTALIS, *Arbor Vita, White Cedar*. Fine tree, only 36 feet high and 14 inches diameter when 150 years old. Ointment of fresh leaves with bear's fat, excellent for rheumatism, decoction useful in coughs, fevers, cacoehyma, scurvy, gout, &c. Distilled water for dropsy; poultice of the cones and *Polypodium*, in powder with milk remove the worst rheumatic pains.

THYMUS SERPYLLUM, Linn. *Ground Thyme*. Spontaneous. Pennsylvania. Fine fragrant condiment and stimulant.

TIARELLA CORDIFOLIA, L. *Paasemung* of Algic tribes, root mucilaginous pectoral.

TILIA, L. *Linden, Basswood, Whitewood, Spoonwood, Sucumug* or *Sugumuck* of Mohegans, *Sucuy* or *Wuckopy* of Algic tribes. Beautiful and useful trees, we have 5 sp. with *T. stenopetala*, Raf. Fl. lud. All eq. Wood very white and soft, used for canoes, models, spoons, turning, &c. when dry it swims like cork, makes fine light charcoal for gunpowder. Bark used by Indians for ropes, thread, cloth and tinder, also make of it a hard paste to pitch canoes. Blossoms fragrant, cephalic, sudorific, antispasmodic, useful in tea for head ache, epilepsy, spasmodic cough, &c. They contain a peculiar substance *Tiline*, soluble in water only and yellow brown, gum, tannin, salts, &c. Leaves and bark emollient, flax and paper has been made with bark. Seeds can make a kind of chocolate.

TOXYLON AURANTIACUM, Raf. 1817. (*Maclurea*, N. 1818) *Ayac, Stinking wood, Bow wood, Yellow wood*. Lately supposed the *Morus tinctoria* by some! which has fruits yellowish, edible, size and shape of mulberries! while *Toxylon* has fruits of size and shape of oranges, not edible! In Arkansas and Texas, wood

dyes yellow, best bows made of it, hard and elastic. Useful for hedges, grows quick from mere cuttings.

TRADESCANTIA, L. *Spider flower.* 12 sp. ornamental, leaves much liked as greens by Cherokis.

TRAGOPOGON, Lin. *Oyster root.* Fine vegetable, cult. and spont. Root tasting like oysters.

TREMELLA, L. *Treejelly.* Many sp. that growing on Maples deemed useful in sore throat.

TRIADENUM PURPURASCENS, Raf. 1807. *Hypericum virginicum,* L. Schoepf. Tincture of flowers used in cholics, against vomiting, &c.

TRICHODIUM, Mx. *Walter grass.* Smooth and sweet sugary grass, perennial, good winter fodder in the South.

TRIFOLIUM, L. *Clover.* Valuable fodder, flowers fragrant, give much honey to bees. White clover or *Tr. repens* blossoms once used in gout, subastringent. We have 15 sp. *Tr. stoloniferum* or Buffaloe clover worth cultivation.

TRIOSTEUM PERFOLIATUM or MAJUS, Linn. *Fever root, Tinker weed, Horse Ginseng, Ipecac, Wild Coffee, White Ginseng, Sincky* of Indians. Root purgative, emetic, diuretic, tonic, &c. taste bitter and nauseous, 5lbs. give 2lb. of extract, yields no resin nor oil. A mild purge, eq. of jalap in doses of 20 to 30 grains in powder, or half of extract. In larger doses emetic. Impaired by age. Useful in fevers, agues, pleuritis, &c. Leaves diaphoretic, seeds used as coffee by the Germans near Lancaster. *Tr. angustifolium* or Minus, is equivalent.

TRITICUM, L. *Wheat.* Valuable cereal grasses, many sp. cult. Affording straw, paper, hats, flour, bran, shorts, *semola, vermicelli, macaroni, nudles,* gruel, porridge, pastry, cakes, bread, crackers, biscuit, starch, toasts, soups, &c. *Tr. spelta* equal to pearl barley. *Tr. monococum* affords best gruel and a good beer. *Tr. amyleum* the best white starch, and grows any where in driest or swampy soils. Wheat has much gluten, 12 to 24 per cent. whence makes best bread. Dry toast is good for weak stomach, the infusion of it in fevers and debility. Burnt bread best charcoal to clean the teeth. Roots of *Tr. repens,* Schoepf, eq. of *Cynodon,* sweet

aperient, diuretic, vermifuge, decoction in obstructions. *Tr. durum* or flinty wheat, makes best *Semoln* or coarse meal, and this the best vermicelli and other Italian figured gruels and nudles, very healthy as diet for invalids, convalescents.

TROPEOLUM MAJUS, Lin. *Nusturtium, Indian cress.* Leaves and flowers eaten in sallad and soups, subacrid, diuretic, antiscorbutic.

TUBER, L. *Truffle, Tuckaho.* Subterranean Fungus, the most delicious of all food. We have several native sp. not yet distinguished nor described. Bosc mentions one from Carolina, of fine taste, excellent to eat, but inodorous. European very odorous, contains albumen, ammoniac, phosphate of lime, arome. Very nourishing, aphrodisiac. Many dishes and a syrup made with them. Eaten greedily and destroyed by hogs, dogs, foxes and wolves.

TUCAHUS, Raf. or *Gemmularia. Tuckahoe, Tuckahoo* of Indian tribes. Very different genus from *Tuber* and from *Uperhiza* of Bosc, although same native name, nay all esculent roots called *Tuckaho,* such as *Apios* and *Patatos.* Also subterranean fungus, *Tuber* has internal veins, *Tuckahus* a solid white mass, with wrinkles and gemules outside. Several sp. I have seen 3. *T. rugosus, leviusculus* and *albidus.* Parasite on the roots of Oaks and Hickories when young, detached when old. *T. rugosus* reach 40lb. weight. Fungose when fresh, hard brittle like starch when dry, tasteless, inodorous, esculent, eaten by Indians in many ways ; asserted by Dr. Macbride to be altogether modified gluten, without fecula nor fibrine !

TULIPA, L. *Tulip.* Cult. *T. suaveolens* is fragrant. Fresh roots emetic. A native sp. *T. montano,* Raf.

TYPHA, L. *Cat tail, Reed mace.* 4 sp. *T. latifolia, angustifolia, crassa,* Raf. and *elatior,* Raf. 10 feet high. All eq. useful. Roots subastringent, febrifuge, esculent, yield one tenth of a fine fecula similar to salep, eaten by Indians of Oregon, useful in fevers. Leaves used by coopers and to make mats, chair bottoms. Pollen equal to *Lycopodium* for medical use and pyrotechny. Burs or hairs of seeds used to fill cushions, united to ashes

and lime make a cement as hard as marble. Seeds kill mice. Ought to be cult. in swamps.

ULMUS FULVA, Mx. *Red, Slippery* or *Sweet Elm.* This sp. is the best officinal Elm. The inner bark is used, it is fulvous, rather brittle and very mucilaginous. It contains fecula, ulmine and gum. Edible, very mild, yet very efficient demulcent, diuretic, pectoral, deobstruent, emollient, &c. Used in decoction, infusion, poultice, &c. The powder is a flour making a jelly like arrow root with warm water. Useful in all urinary and bowel complaints, strangury, sorethroat, catarrh, pneumonia, pleurisy, inflammation of the stomach and bowels, dropsy, scurvy, scorbutic spots, herpes, inveterate eruptions and even lepra. It has cured lepra being continued several months. When most diuresis is produced, the effect is certain. Beneficial in diarrhea, dysentery, cholera infantum, &c. Very nutritive, but eaten alone produces sour stomach and eructations. Medical doses of the flour a small spoon full, with as much sugar dissolved in water. Very useful externally in poultice for ulcers, tumors, swellings, shot wounds, (help to extract the ball) chilblains, burns, cutaneous eruptions, eresypelas, felons, old inveterate sores, scabs; sore mouth or thrush in wash. It allays inflammation, promotes suppuration and heals speedily. Equivalent to sarsaparilla in almost all cases! A specific to procure easy labour to pregnant women by using the tea for 2 months previous, well known to Indian women, whose easy parturition has often been noticed; now becoming in general use. Said to have cured fevers by repeated topical poultices on the abdomen. We have 6 other native Elm trees, all eq. but less efficient, bark tougher, often bitterish and subastringent. In Norway bread is made with it. The outside bark soaked in water makes ropes. Wood very tough and durable, used for wheels, tools, &c. Seeds are esculent. Leaves emollient.

ULVA, L. *Sea Lettuce.* Many sp. edible, in sallad, boiled or pickled, such as *U. lactuca, umbilicalis, palmata, edulis, ciliata,* &c. Liked by sheep, contain iodine, mild eq. of *Fucus,* furnish good manure. *U. saccharina,* very good boiled in milk, contains 20 substances, mucus, hydriodate of potash, &c.

URTICA, L. *Nettles.* 15 native sp. all nearly eq. *U. dioica* best known as medical. Diuretic, pectoral, subastringent. Used in decoction for nephritis, gravel, hemorrhage, hemoptysis, jaundice, bloody urine, bloody piles, &c. The property of stinging when fresh, called urtication, formerly used as a powerful stimulant and rubefacient, in palsies and to cause revulsions instead of sinapisms. When dry no longer stinging. Cultiv. in Sweden for fodder, cows fed on it give much milk and yellow butter. Make horses smart and frisky. Stimulate fowls to lay many eggs. Spring shoots are boiled in Europe for pot herbs. The stems of all afford a kind of tow, hemp or flax, cloth and paper. *U. nivea* cult. for linen in Japan. *U. canabina* for hemp in Russia. Our *U. procera* and *canadensis* (sub G. *Oblixilis*) once begun to be cult. as fine perennial hemp. Seeds vermifuge, laxative, good food for fowls and turkeys, said to cure the goitre, and to reduce excessive corpulence.

UVULARIA, L. *Bellwort.* All sp. eq. although *U. perfoliata* and *grandiflora* mostly used. Root subacrid when fresh, with a fine mucilage. Eq. to *Cyprypedium* as a nervine, but much less efficient. When chewed and the saliva swallowed, it cures sorethroat. Said to be equal to *Hieracium nervosum* in bites of rattle snakes. Useful in wounds and sores. Decoction of the plant in sore mouth, inflamed larynx and gums. Shoots edible like Asparagus, roots edible when dry and cooked.

VACCINIUM, Lin. *Whortle berries, Huckle berries.* We have 40 sp. Almost all produce fruits, blue or black, acidule, cooling, subastringent, diuretic, &c. Useful in scurvy, diarrhea, dropsy, bilious fevers, &c. Eaten alone or with milk, sugar. Make syrup, wine, pies, puddings. The Indians dry them in cakes. They stain and dye purplish. Leaves astringent, can tan leather, a tea used for sore mouth. *V. dumoeum, frondosum, tenellum* produce large fine berries. *V. distichum*, Raf. of Oregon, fine flavor, baked into bread. *V. vitisidea* produces the bilberries. *V. arboreum* or *Farkle berry*, fruit astringent, but good flavor, best when dry; bark of the root very astringent, used for diarrhea and dysentery like the berries.

VALERIANA PAUCIFLORA, Mx. *American Valerian.* Leaves edible in sallad. Root may be tried in nervous diseases, perhaps eq. of *V. officinalis.*

VANILLA. A sp. grows in S. Florida and Bahama, perhaps *V. claviculata.* The true Vanilla is *V. aromatica.* Pods of all the sp. delightful smell and taste, ambrosiac, stimulant, antispasmodic, aphrodisiac, corroborant, cephalic, diuretic. Useful in melancholy, atecnia, diseases of languor, &c. Commonly used to perfume chocolate, ice creams, sweet meats, &c.

VERATRUM VIRIDE, P. (*Album.* Sch. Mx.) *Ichweed, Hellebore, Indianpoke, Earthgall, Devilbit, Wolf bane, Duckretter, Puppet root,* &c. Poisonous active plant. Root employed, acrid nauseous, drastic emetic, errhine, accoprotic, repellent, powerful stimulant, followed by sedative effects, escharotic and inflamming the skin if applied to it. Useful in epilepsy, gout, mania, cophosis, acute rheumatism; and topically in scabs, tinea capitis, lepra, scorbutic cutaneous affections. But a powerful dangerous article, requiring caution in exhibition; doses 3 to 10 grains of powder as emetic, but often fails in some persons, and always acts tardily. Wine of it used for gout, with $\frac{1}{4}$ opium, doses 15 to 30 drops repeated. Ointment used externally, has happened to cause emesis by application even on the legs! It is a poison for all insects in decoction, noxious to swine, sheep, geese, fowls; crows intoxicated by steeping corn in it. In gout it removes paroxysms, allays pains, procures rest and sleep, reduces puise, and abates fevers. Keeps issues open in ulcers. Used by some empirics as a tonic, menagogue, in quinsy, sorethroat, suppressions, but dangerous. Improper doses produce dimness, faintness, insensibility, &c. Used once to poison arrows. Lately to tan leather very quick. It contains *Veratrine,* a narcotic alkali.

VERBASCUM THAPSUS, L. *Mullein.* Leaves soft like velvet, equal to flannel in rheumatism for frictions, formerly thought to cure agues: emollient in poultice, good discutient to reduce swelled and contracted sinews. Tea subastringent bitterish, used for diarrhea, strong decoction in wash for piles, scalds, and wounds of cattle. Blossoms better than leaves, anodyne, antispasmodic, repellent, pectoral, make a perfumed tea useful for

coughs, hemoptysis, hemorrhage, proctalgy : they contain gum, sacarin, chlorophylle, yellow resin, volatile oil, the oleic, malic and phosphoric acids. Blossoms of *V. thapsoides* and *blattaria* are equivalent, nay, perhaps all the sp.

VERBENA, L. *Vervain, Purvain.* Bitterish, substringent, tonic. deobstruent, sudorific, &c. Our best medical sp. is *V. hastata,* (Wild Hysop, Simplersjoy) stronger bitter, emetic, expectorant, tonic, a good substitute to *Eupatorium,* but much weaker, used in agues and fevers. Said by Thompson to be next to *Lobelia* for an emetic in tea or powder, to check fevers and incipient phthisis. *V. urticifolia* herb useless, but root bitter, used against the eresypela of *Rhus* with milk and oak bark. *V. spuria* and others eq. to *V. officinalii,* as vulnerary, febrifuge, used in hemicrania, obstructions, agues, coughs, gravel, worms, scrofula, icteris, wounds. Was the holy herb of Greeks and Druids, used as panacea, in incantations and to drive evil spirits.

VERBESINA VIRGINICA, L. *Herbe a 3 quarts* in Louisiana. Valuable sudorific and depurative of Indian tribes : roots used in decoction.

VERNONIA, Ait. *Ironweed.* All the sp. equiv. Roots bitterish, used for fevers in Kentucky, spirituous bitters made. Schoepf says used against poisons ! Stems afford a kind of hemp, *V. altissima* 10 feet high. Leaves astringent, used for sorethroat.

VIBURNUM, L. Many sp. medical and useful. *V. acerifolium* or Dockmockie, leaves applied to inflamed tumors by Indians. Fruits of many edible, *V. oxycocus* and *edule* resemble Cranberries and are equal, those of *V. prunifolium* and others, blue sweetish acid edible. Bark of many smoked like tobacco by Western tribes. Leaves of *V. cassinoides, levigatum, prumifolium* used for tea in the South. Bark of *V. lantana* and others give glue like *Ilex. V. dentatum,* (Mealy tree, Arrow wood and *Tily* of Indians.) Bark used by the Indians and Shakers as a diuretic and detergent, bitterish, contains a peculiar fragrant oil ; used in decoction daily and freely to prevent and remove cancerous affections, extract, pills and plaster also used.

VINCA MINOR, L. *Periwinkle.* Pretty evergreen creeper, become spont. Leaves bitter acrid astringent,

useful in hemorrhoids, dysentery, hemoptysis, leucorrhea, fluxes; also antilacteal or repelling milk.

VIOLA, L. *Violet.* Prolific genus, we have nearly 40 native sp. Properties more or less alike in all. Roots commonly mild emetic and cathartic, leaves emollient laxative, blossoms and seeds laxative, pectoral, &c. All the parts contain the *Violine*, a peculiar kind of Emetine. Flowers of the fragrant *V. odorata* cult. much used for a grateful tea and syrup, used for cough, sorethroat, constipation, often given to children. We have only two fragrant wild sp. eq. *V. canadensis* and *blanda*, smell sweeter but fainter. Roots bitterish acrid, tonic in doses of 10 grains, purgative 25 to 30, emetic 40 to 50, also used as depurative in diseases of the skin. *V. tricolor, arvensis* and *calcarata* used in Europe, their leaves also purgative. We use chiefly *V. clandestina, rotundifolia, palmata, heterophylla*, sometimes called *Healall.* Leaves emollient, suppurative, used for wounds and sores, bruised or in poultices. Elliott says the negroes eat the leaves of the two last in soups.

VISCUM, L. *Misseltoe.* Sev. sp. eq. My *V. serotinum* is monoical triandrous. Leaves contain nitrate of potash, jump in the fire before burning. Fruits viscose, birdlime made with them. Contain wax, glue, gum, *viscine* insoluble, clorophylle, iron, salts, &c. They are lubricant, sweetish, febrifuge, antiepileptic. Leaves and berries given in tea or powder for epileptic fits, convulsions, vertigo, pleuritis, dysentery. By no means inert, although now neglected. Once the sacred plant of the Druids. Powder must be used fresh, and in large doses.

VITEX AGNUSCASTUS, L. *Chaste tree.* Found by Schoepf in Virginia and Carolina. Leaves discutient, dispel swellings of joints and testicles, applied warm. Seeds acrid, aromatic, nidorose, stimulant, subastringent, used in hysteria and gonorrhea; but by no means sedative as formerly thought.

XANTHIUM, L. *Burweed, Burthistle, Clotburr.* 2 native sp. *X. crassum* and *undulatum*, Raf. mistaken for *X. strumarium* and *orientale* by authors. *X. spinosum* is besides become spont. All eq. bitterish subacrid, dy yellow; astringent, pellent, diaphoretic. Useful in scrofula, herpes, eresypelas. Seeds or burs baneful to sheep, spoil their wool by entangling with it.

XANTHORHIZA APIFOLIA, Marshall. *Yellow wort.* Southern shrub with yellow roots and stems, dyeing silk yellow and wool drab color, without mordaunt, but neither cotton nor linen, dyes olive green with Prussian blue and alum. Fine and pure tonic bitter, containing bitter resin and gum, equiv. of Frasera, dose in fevers 40 grains. Bark stronger than the wood. Infusion yellow, a pleasant mild stomachic bitter.

XYRIS, L. *Eyegrass, Headgrass.* Several sp. eq. Roots and leaves used against lepra and diseases of the skin by the Hindus.

YUCCA, L. the *Y. gloriosa* or Palmetto Royal is a fine ornamental tree, used for hedges and fences when young in the Sea Islands of the South. Young leaves dye green (also those of *Y. aloifolia.*) Roots edible. Fruit like a Cucumber, purple, juicy, aromatic bitterish, eaten although purgative, eccoprotic, or good for the gout. *Y. filamentosa* called *Adam's needle, Silk Aloes, Beargrass*, useful, roots pounded and boiled used instead of soap for woollens and blankets by Indians. Intoxicate fish when thrown in the water. Leaves eq. of Agave, furnishing a silky thread, fine strong flax, twisted ropes, traces, and even cables.

ZAMIA INTEGRIFOLIA, W. *Sugarpine.* In Florida, coral fruits in conical strobile, covered with a sugary substance like Manna, edible rich food.

ZIZANIA, L. *Wild Rice, Water Oats.* Good green fodder for cattle in winter, *Z. aquatica* much liked by horses and cattle in the South, while they refuse *Z. miliacea.* Seeds like oats and like rice when cleaned, excellent food, saccharine, make good flour, cakes, soups. Chief food of Indian tribes between lat. 40 and 50. Grows and bears plentifully in water, ponds and lakes, ought to be spread in all : might become the rice of the North.

This volume has been swollen beyond the contemplated size by the Supplement, article on Vines and long Lexicon. Therefore no other additions can be inserted. But the author proposes to publish very soon a separate Medical and Botanical Supplement, with 12 additional plates of Medical plants.

END OF THE SECOND AND LAST VOLUME.

No. 53.

ILEX OPACA.

AMERICAN HOLLY.

No. 54.

ILLICIUM FLORIDANUM.

FLORIDA ANISETREE.

No. 55.

JEFFERSONIA BARTONI.

COMMON TWINLEAF.

No. 56.

JUNIPERUS COMMUNIS.

COMMON JUNIPER.

No. 57.

KALMIA LATIFOLIA.

BROADLEAF KALMIA.

No. 58.

LEONTODUM TARAXACUM.

COMMON DANDELION.

No. 59.
LEPTANDRA PURPUREA.

PURPLE QUITEL.

No. 60.
LOBELIA INFLATA.

COMMON LOBELIA.

No. 61.

LYCOPUS VIRGINICUS.

COMMON BUGLEWEED.

No. 62.

MAGNOLIA MACROPHYLLA.

BIGLEAF MAGNOLIA.

No. 63.

MENYANTHES VERNA.

AMERICAN BUCKBEAN.

No. 64.

MONARDA COCCINEA.

SCARLET ROSEBALM.

No. 65.

NASTURTIUM PALUSTRE.

YELLOW WATERCRESS.

No. 66.

NELUMBIUM LUTEUM.

YELLOW NELUMBO.

No. 67.

NYMPHEA ODORATA.

No. 68.

OXALIS ACETOSELLA.

COMMON WOOD-SORREL.

No. 69.

OXYCOCA MACROCARPA.

LARGE CRANBERRY.

No. 70.

OXYRIA RENIFORMIS.

BOREAL SOURDOCK.

No. 71.

PANAX QUINQUEFOLIUM VAR 1.

No. 72.

PINCKNEY, PUBENS.

PINCKNEY BARK.

No. 73.

PODOPHYLLUM MONTANUM.

MOUNTAIN MAY-APPLE.

No. 74.

POLANISIA GRAVEOLENS.

COMMON CLAMMY-WEED.

No. 75.

POLYGALA PAUCIFOLIA.

DWARF MILKWORT.

No. 76.

Fig. 1.—POLYGONUM AVICULARE.

Fig. 2.—POLYGONUM PERSICARIA.

Fig. 1.—COMMON KNOTWEED.

Fig. 2.—COMMON SMARTWEED.

No. 77.

POLYPODIUM VULGARE.

COMMON POLYPODY.

No. 78.

PTEROSPORA ANDROMEDEA.

SCALY DRAGONCLAW.

No. 79.

PYROLA MACULATA.

SPOTTED PIPSISEWAY.

No. 80.

RANUNCULUS ACRIS.

ACRID CROWFOOT.

No. 81.

RUTA GRAVEOLENS.

COMMON RUE.

No: 82.

SABBATIA ANGULARIS.

ANGULAR CENTAURY.

No. 83.
SANGUINARIA CANADENSIS.

COMMON BLOODROOT.

No. 84.

SCUTELLARIA LATERIFLORA.

OFFICINAL SCULLCAP.

No. 85.

SIGILLARIA MULTIFLORA.

No. 86.

SOLANUM DULCAMARA.

BITTERSWEET NIGHTSHADE.

No. 87.
SPIGELIA MARILANDICA.

COMMON PINK ROOT.

No. 88.
SPIREA TOMENTOSA.

RED MEADOW SWEET.

No. 89.

STATICE CAROLINIANA.

AMERICAN THRIFT.

No. 90.

SYMPHYTUM OFFICINALE.

COMMON COMFREY.

No. 91.

TRILLIUM LATIFOLIUM.

BROADLEAF BETHROOT.

No. 92.

TUSSILAGO FRIGIDA.

BOREAL COLTSFOOT.

No. 93.

UNISEMA DELTIFOLIA.

SHOVEL PICKERELWEED.

No. 94.

VERONICA BECABUNGA.—Var. Amer.

WATER SPEEDWELL.

No. 95.
VICIA FABA.

HORSE BEAN.

No. 96.

XANTHOXYLON FRAXINEUM.

SHRUBBY PRICKLY-ASH.

No. 97.

CHELONE GLABRA.

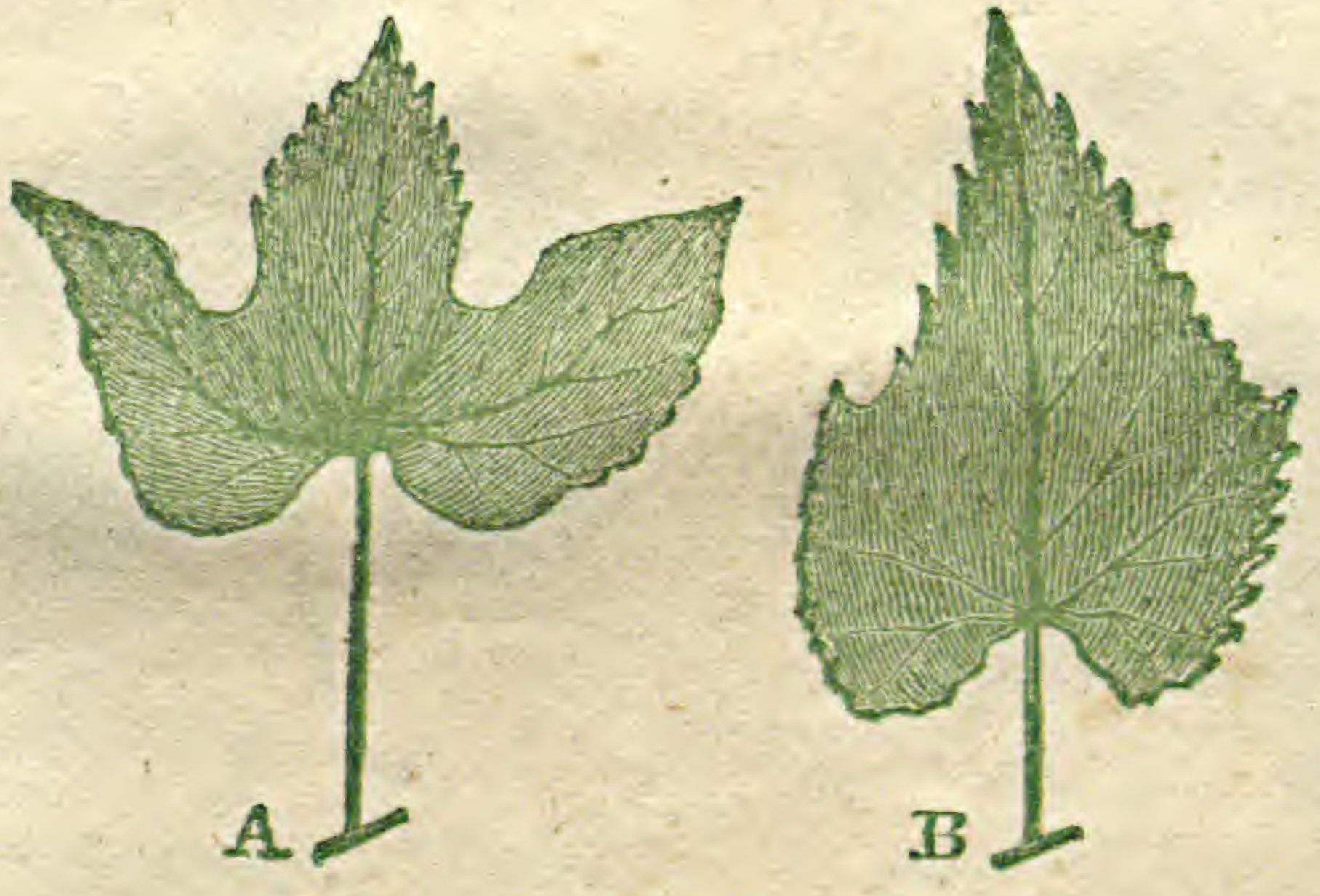
COMMON SNAKEHEAD.

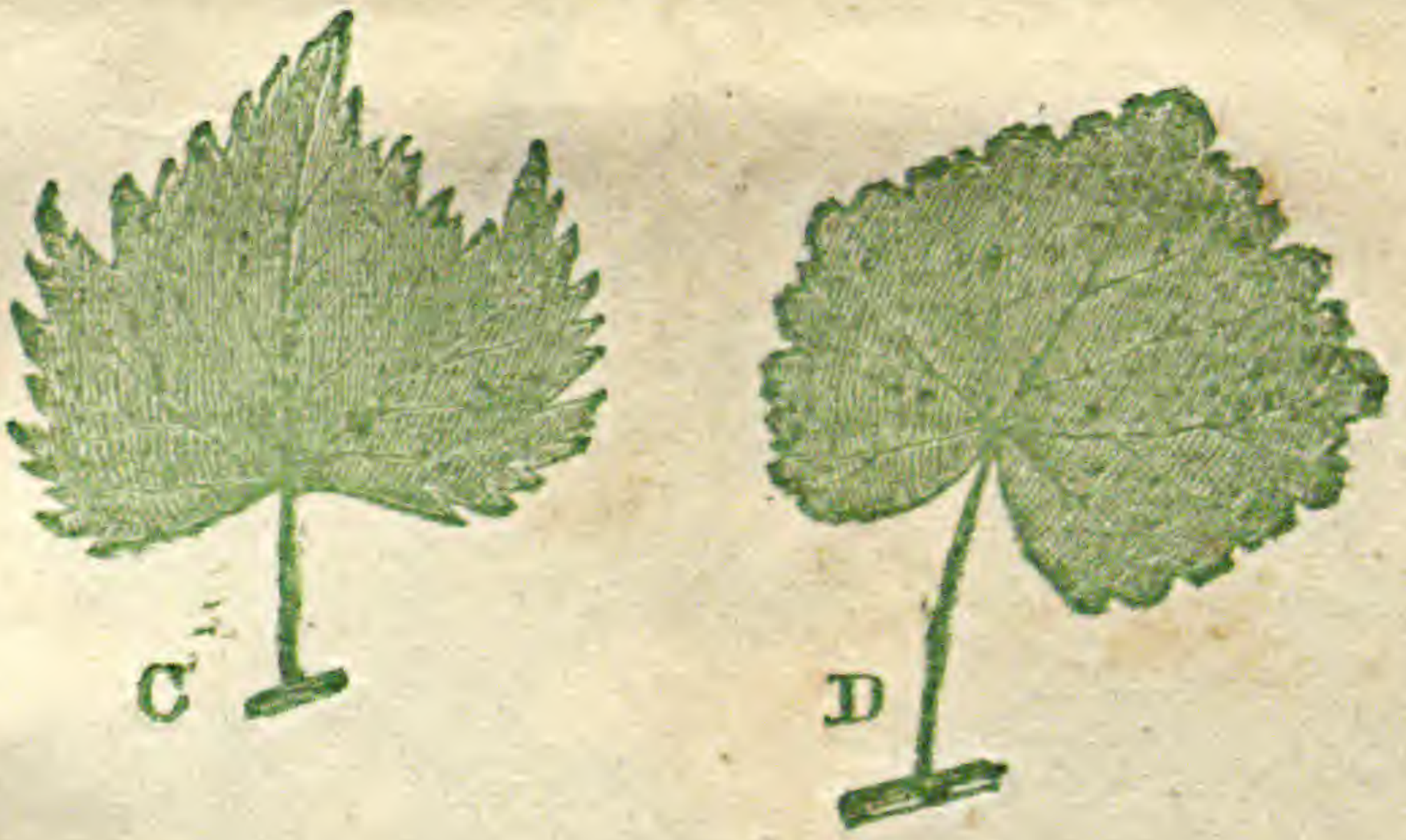
No. 98.
GALIUM VERUM.

COMMON CLEAVERS.

No: 99. VITIS:

A.—V. Saxatilis. B.—V. Longifolia.
C.—V. Acerifolia. D.—V. Angulata.





A.—Stony Grape. B.—Longleaf Grape.
C.—Mapleleaf do. D.—Angular do.

No. 100. VITIS.

E.—V. Ciliata. **F.—V. Prolifera.**
G.—V. Multiflora. **H.—V. Blanda.**

E.—Elsinburg Grape. **F.—Isabella Grape.**
G.—Dissected do. **H.—Bland do.**