EUPHORBIACEAE

No Minutes should be written on this page. A separate half-sheet to be used if required.

THE ARNOLD ARBORETUM
HARVARD UNIVERSITY
JAMAICA PLAIN, MASS., U.S.A.

September 22nd,1941

Mr. R.E. Holttum
Botanic Gardens,
Singapore

PERSONAL

Dear Mr. Holttum:

In the last number of the"Journal of the Washington Academy of Science", Dr. O.F. Cook,of the U.S.A. Department of Agriculture,has published an incredible article on Hevea. The gentleman in question must be insane to reel off such stupidities,as you may readily learn reading his "vapours". Since he does not like Hevea he renames it Siphonia,then to add to the discomfiture of the reader he kneads it up with Caoutchoua. In brief,the contribution in question is incredible and you should read it to decide whether I exaggerate.

Normally,a thing of the kind goes to the wastebasket,where it belongs. But I am sure that in this case some confusion will result. Seeing a work by somebody who is on the staff of the Department of Agriculture of the U.S.A.,which is published by the Washington Academy of Science,the candid reader will believe that Cook is justified in some measure in changing names for these very important economic trees. The truth is that he is not justified at all.

I have written a short article on the score,which I include. If you think you can use in any coming number of of your Journal you are welcome to it. I am not very anxious to have it published very soon,either. For instance: I would rather have it published in the autumn of 1942 than in the Spring. I am sure that I will have oppositions for " tapping on the head " Dr. Cook,and I never care to have oppositions coming up when the time for being reconfirmed on the staff here comes up. That time,I should specify,is between January and April each year,so I do not care to have anything ruffling the waters in those months,or too shortly before January, From August to November are the best months,that is,the safest. Seeing that I do not particularly indorse the use of " old names " our good friend Corner will understand where I stand. Then,of course,with Corner I believe that we should confess that we are still very much ignorant of the systematy of tropical plants. To confess that here?!. Oh mais non.! jamais!.We know all.

Sincerely yours,

Ren Coigat

mss. of 13 pages attached

I did not receive this in time to reply. Craigat's paper seems to me unsatisfactory because it does not correctly state the objects and why: it is too diffuse. There is too much discussion already in this matter

R Holttum.

Dr Fontado
pl. see attached
Leider nit explain what Cook has done
so I cannot judge whether he effectively refutes Cook.
Have you any comments?
Ro. W 10/11/41

F3/2

Copy CROIZAT
Arnold Arboretum Harvard University
Jamaica Plain, Mass.. U.S.A.

On the nomenclature of the Rubber Tree

Several correspondents have called my attention to a recent article of O.F. Cook (in Jour. Washington Acad. Sc. 31:46-65. 1941) in which this author renames the cultivated Rubber Tree Siphonia Ridleyana and comments its history, nomenclature and classification.

It is evident that this article proves to be confusing to economic botanists and agronomists who are not especially interested in taxonomy. Few of its readers, for instance, are aware that Cook, in addition to renaming the Rubber Tree, does something else, as follows: (1) He certainly publishes a new combination, Caoutchoua guianensis (Aubl.) Cook; (2) He seemingly effects a transfer calling for a second combination, Siphonia janeirensis (Mueller Arg.) Cook ; (3) He implicitly breaks up Hevea into Caoutchoua and Siphonia.

In his treatment Cook sharply dissents with everyone of the botanists and taxonomists who have dealt with the cultivated Rubber Tree. His conclusions are altogether novel and historical and botanical references. Nor is this all. The discussion is frequently interrupted by digressions that puzzling a casual reader as they involve controversial issues of nomenclature. To verify Cook's statements rare texts must be consulted and the Rules of International Nomenclature must be throughly understood.

Since Hevea is one of the most important of our economic trees, not only, but belongs to a family, the Euphorbiaceae, in which are other economically important genera such as Aleurites, Manihot, Ricinus and Euphorbia I expect to deal briefly in the coming pages with some of the fallacies of

Cook's paper. My own conclusions concerning this paper are summarized by three synonymies which it is interesting to record without undue delay. It is not my intention to consider here Cook's historical notes, and even less to deny that they are interesting.

Nomenclatural changes are of common occurrence in taxonomic practice and it is not unconceivable that a hasty reader of Cook's article may come to the conclusion that there is some justification for publishing Siphonia Ridleyana Cook, 1941, to replace Hevea brasiliensis Muell. Arg., 1865. This is absolutely not the case. Cook rejects Hevea brasiliensis merely because he does not like this name, which is forbidden by the Rules of International Nomenclature (Art. 16, Art. 59, Art. 60(1)). Moreover Cook attacks the Rules themselves, disputing their soundness in principle as well as in detail. F3/4

The Rules of Botanical Nomenclature are the product of a theory and practice of botany that has survived close to two centuries of international usage. To suppose that the Articles and the Recommendations in these Rules are either fully bad or fully good is a manifest fallacy. It is but plain common sense to believe that they are fairly good, because thousands of men of different minds at work upon the same problems can not always and completely err in their conclusions.

It is common sense, likewise, to believe that they can be made better, because science moves on, and a critical study of the issues that bob up in its wake can never be dismissed as superfluous, boring, or deplorable.

Speaking of the [illegible] of botanists, the Rules freely admit (Art. 74) that the Articles and the Recommendations can be altered, rejected or modified. This admission is hedged in by the conditional clause that changes can be introduced into the Rules only at the proper time and in the prescribed manner. Since little has been done so far to regulate the work of the bodies which are charged with the actual writing up of the Rules, it is not to be denied that [illegible] have a legitimate ground of complaint against existing certain Articles [illegible], and the manner in which proposals may happen to be voted in and out the Rules.

So far, so good but not an inch farther. Since in a democracy, such as botany is, the minority is not lined up against a wall but is allowed to survive and to use the pen as their sword, grievances can be freely ventilated and proposals discussed in view of turning the minority into a majority. Once an Article has been approved by the Botanical Congress it can neither be rejected nor be mutilated to have it state what it does not mean. A botanist is left free to follow good usage when the consequences of the Rules are doubtful (Art. 5), and he is expected to use his freedom in such a manner that stabilizes nomenclature (Art. 4), stability of names being the ultimate goal of the Articles. A clear mandate is incorporated in the Rules is there to stay, and it shall stand there until it is properly revoked. If this mandate is unwise it can be fought best by those who rigidly enforce it. Enforcement will lead to inconveniences which may be brought to the attention of the competent bodies at the proper time. Flouting Articles because they are not liked or not understood begets anarchy much sooner than reform. Some contend that the Rules are a nuisance, as it were cavils laid over botany. Be this so: the alternative to the Rules is chaos in nomenclature. This is an evil, that is, something that is less tolerable than a nuisance.

Cook points out that the name Hevea is based upon a misapplication of native names and that Aublet was guilty, anyway, of introducing into taxonomy swarms of barbarous words. This is true as a fact. It is not less true a fact, however, that the Rules say (Art. 15) thereof: " The purpose of giving a name to a taxonomic group is not to indicate the characters or the history of the group, but to supply a means of referring to it ". They state likewise (Art. 25): " These (generic) names may be taken from any source whatever, and may even be

composed in an absolutely arbitrary manner ". In plain English: the Rules understand and define botanical names as pure labels, not as abridged treatises of phytogeography, biology or linguistics. Thus, we have here two facts, as follows: (1) Aublet has misapplied the vernacular name heve to the plant which he has published as Hevea; (2) The Rules say that Aublet has validly published Hevea, nevertheless.

Which one of these two facts interests primarily the botanist ? The latter, (facetiously) for the very simple reason that the name Hevea has no more significance or value than a label. I write about Hevea guianensis Aubl. because I am informed that any botanist in any country of the world knows that (in so doing) I speak of a certain plant which Aublet has described and illustrated in 1775. I accept this name with a full realization that it is objectionable on grounds other than those of nomenclature. My acceptance of it does not mean as yet that I am completely ignorant of the history of this plant. The Rules do not expert an unbearable coercion upon me as a scientist when they order me to use the name Hevea guianensis. I am altogether free to write a volume to tell the world how objectionable is this name, and how great are the misconceptions and errors that have presided upon its birth. I use this name as a label, not as a badge of mental subservience, to a tyrannical alien power.

It is but natural that the Rules should treat botanical names as labels. Chaos would come if the Rules were to concern themselves with the "philosophical" preoccupations of this or that taxonomist, providing an Article for these who believe that the species is a "complex", and a second Article for those who believe that the species is an "individual" or anything such. The Rules disclaim any wish to interfere with individual opinions (species) concerning taxonomic categories (Art. 13) for the very same reasons that any civilized

country is loath to have its legislators write up laws to tell a citizen when to get up in the morning. Taxonomist John Doe may happen to believe as Gospel's truth that the trinomial typicus is rank poppycock and that those who use it are guilty of a gross betrayal of " good " botany, but botanist John Smith may believe even as firmly that such a trinomial is pure gold. The Rules, as between the two, know better than to take sides, realizing that both may be right today and wrong tomorrow. Meanwhile, John Smith may publish as many trinomials typicus as he likes, and John Doe may reduce them all to synonymy, the one telling the other in the process how hopelessly mistaken he is in his " biological concepts ", in his believing the species to be a " collection of individuals " instead of something else, and the like. The Rules stand by silently. All they are interested in is to arbitrate the game, and to see to it that the players abide by a certain code of practice which prevents the discussion from becoming a brawl. Rules are needed, and must be closely followed, if John Doe is to relegate to proper synonymy everything which John Smith does and the other way around. Obviously, the Rules step in when John Doe in the heat of the argument violates priority, uses a nomen confusum, publishes a nomen alternativum and the like. The names are labels, and the labels that read " Vinum annorum C " can not be put on a flasks filled with " Aqua pumpae ". That is all: let everybody think what he wishes, but let all deal their cards out according to the rules of the house.

It may be objected that the Rules are hopelessly wrong in taking such an " artificial " view of nomenclature. Let those who believe that the Rules are wrong write up a new set of Articles to make them right. Since, as Cook points out, it is unbearable to treat as Asclepias syriaca a weed that hails from New Ehgland, and as Simmondsia chinensis a shrub native to Southern California, let us see what

can be done to remedy these wrongs. We have scores of epithets like: orientalis, occidentalis, australis, septemtrionalis, marianus, [redacted], virginianus, canadensis, brasiliensis, mauritanicus, aethiopicus, sarmaticus, ponticus, chinensis, indicus, and so forth, which are glaringly misapplied in their relation to species. Not only, but Euphorbia antiquorum L. never was the true " Euphorbium of the antients ", (and) E. officinarum L. never was the sole source of the gum euphorbium, secured prevailingly from E. resinifera Berg. Errors in the designation of geographic origin, in the indication of commercial uses and the like are rife all over the records of taxonomy. Once the gate is open to "correct" botanical names on such grounds as the ones just stated, why not change the name of a plant that is glabrous and its author, nevertheless, has dubbed pubescens ? Why, which is worse yet, tolerate that the main biotype of a complex enjoys only trinomial status when an insignificant form of this complex, having been described first in time, bears a full binomial name ?

Would-be reformers face a serious issue: they must remedy existing evils seeing to it, meanwhile, that these evils under their hasty manipulations do not become worse. Since the proper place for introducing corrections into the Rules is in the Articles that are most immediately concerned, let those who object against the botanical names being labels write up another text under Art. 15, to state, for instance, that the purpose of giving a name to a taxonomic group is to indicate the characters and the history of the group. So written, Art. 15 will please botanists who do not like Hevea. Other botanists, however, will object pointing out that once the principle is accepted that "corrections" can easily be made, we must know who is to make corrections, when, why and how. And it is here that the true difficulty lies.

7

Cook's biting castigation of " indexers, cataloguers, or even herbarium assistants " who believe, as he states, that new names must be accepted at once, and old names summarily discarded has no support in fact. The Rules have never stated, nor do they state, that new names must be accepted at once, and that old ones must be cast off forthwith. Stability of nomenclature, not priority is the fundamental purpose of the Articles. (Art. 1, Art. 2, Art. 21). A botanist is not presented with freshly unearthed old names without being placed thereby under the immediate obligation of accepting them. A name may be so old, paradoxical as this seems, that having been used by too many authors in too many senses it must ultimately be discarded as a permanent source of confusion and error (Art. 62). Likewise, an old name which can not be properly applied is rejected (Art. 63), with the understanding that it may be used again (Rec. xxxvii), if its correct use can be determined. An old name which is based upon a type-specimen resulting from two plants confused together, and believed by the author of the name to be a single one, is to be discarded (Art. 64). A monstrosity does not warrant the publication of a name, and an ancient name published for an occasional aberrant form has no legitimate status in nomenclature (Art. 65). Most significant of all, an acknowledged old name, effectively published and having full legitimate status, may be disposed of in favor of a younger one in certain special cases (Art. 21), this principle having been extended to preserve certain spellings as against certain others, Bougainvillea, for instance, as against the perfectly correct Latinized form Buginvillea. Cook's statement that : " The older names are never completely discarded, but remain in reference use among students of botany who have sufficient interest to follow the history of a plant to the original sources " is both true and false. It is

true to the extent that older and illegitimate names remain in the synonymy of the plant involved, this synonymy revealing the history of the entity in taxonomy and, mayhaps, in economic botany. It is false when it is read to imply that old names, or what is supposed to be old names, are necessarily legitimate in nomenclature. One may agree with Cook wholeheartedly that " Constructive reforms are needed to keep taxonomy as a part of the study of plants and to open this field of natural interest to a wider public ", but one does not discover at a glance the connection that binds such constructive reforms with renaming Hevea brasiliensis, as Siphonia Ridleyana. I do not know whether in quoting Santayana as a successful critic of botany " a trivial, overtechnical science with a peevish insistence on the right names for flowers ", Cook does actual justice to the intention of that author. Santayana, as a philosopher knows that one of the first and most important steps taken in the ascent of man is the discovery of language, which made it possible for certain names to be attached to certain objects. Santayana, most likely, alludes to the doings of botanists who, being handed a correct and standardized label, refuse to use it and insist upon speaking a language of their own because the color of the paper is not to their fancy.

One of the chapters of Cook's work is titled " Siphonia an alternative name ", and in this chapter Cook says: " The notion of disregarding the names that were considered by their authors as provisional is one of the strange proposals in recent efforts to reform the system of nomenclature ". Once again there is no support in the Rules for this interpretation. It is true that Art. 37 ter is poorly worded, and that serious misinterpretations have crept in about the difference between "provisional" and "alternative" names. Anyone who reads the Article in question

and the debates which have led to its adoption knows that a name considered by its author as provisional is not a nomen provisorium under the Rules. Let us not confuse the issue right at the start, and mistake, for example, the word "crime", as it is being used in colloquial language, with the term " crime" as it reads in the laws of the land. To allow good food to go to waste may be a " crime " to a housewife, but is not necessarily a "crime" to a gowned judge sitting on the bench. Likewise, a [redacted] name [redacted] is not provisional under the Rules merely because an author openly states in its publication that he is not certain whether the name will stand as given. To coin a true provisional name under the Rules a botanist must publish or use two or more names at the same time, making the acceptance of one of them contingent upon events to be verified in the future. I may publish a Planta quaevis stating that this name has "provisional" status because I am not certain of the genus and even less of the rank, whether a good species or a trinomial, but this does not make me guilty of publishing a provisional name under the Rules. I become guilty of coining such a name under the Rules when I publish in the same paper, and at the same time, both Planta quaevis and Arbor quaevis, tagging two names to one and the same entity, and leaving it to somebody else in the future to decide which one of these two names is "good." That names of the kind, the latter one at least, are not legitimate is readily understood. The reasons why it is so are at least three, as follows: (1) The interests of stability and certainty of nomenclature are not served when one plant is published contemporaneously under two or more names. Let each plant bear one name, and let each name be properly and definitely dated as to its publication. This is straight record[redacted]; to secure a

(2) It is convenient, to say the least, that each publication should be perfect in itself, that is, that everybody should know that it was made at such date, by such author, and that it was delivered to the press without trailing if's and but's. Since a true provisional name becomes "good" only when certain conditions are verified, what are we to think of it so long as these conditions have not come to pass? Is it good or not? By what rule are we to judge? ; (3) It is unethical that an author should refuse to decide an issue but should retain the right to tell another author, who is willing to decide it, what name to use. Let everybody coin his own names and use them himself, standing squarely behind what he does. In a classic instance of nomen provisorium which I have discussed a short time ago (Croizat in Jour. Arnold Arbor. 21: 499. 1940; see also Croizat, op.cit., 22: 137. 1941) Hooker uses the name Croton laevifolius Bl. (Fl. Brit. India 5:391. 1887) for a certain plant from N.E. India (Khasia). Then, in the next page, under C. Griffithii Hook.f., he states: " A solitary specimen of Griffith's from Malacca (Kew Distrib. 4779) has the very slender racemes of C. laevifolius and lepidote ovaries.- It is possible that this is the true laevifolius of Blume; and if so, the Khasian plant so called

F3/12

should bear the name of khasianus ". Hooker's hesitations invite the following comment: " Please, do secure on loan the holotype of C. laevifolius, or at least some well authenticated material, and make up your mind whether the Khasian plant is C. laevifolius Bl. or a new species, C. khasianus Hook. f. If you publish C. khasianus and are wrong, your name will go to synonymy. If you are right, you will have one more binomial to your lasting credit. All I ask you, please, is to make up

your mind. Why should I be expected to do your work and to check Blume's specimen ? Why should I not be free to use any name I wish, if I am the one to decide whether the Khasian plant is different from C. laevifolius ? True enough, you may not as yet be in the position to reach a conclusion because you have not enough material available. This I understand. But why should you have the right of publishing a name by anticipation when I have no such right myself? Science goes on endlessly, so, please, let each one of us work out that problem for which he has the material or about which he feels competent. The future will take care of itself. I trust that the shadows of Hooker, in the Great Beyond where there are no wars and everybody is intelligent (blessed with common sense), forgive me if I address them in colloquial American upon an issue that Hooker, not being bound by our Rules, was after all free to solve any way he wished. I believe, rather, that Hooker's spirit, reminding itself of having once lived as a great and fair botanist, chuckles, seeing that the beings of the flesh must speak the plainest language in order to be understood even by their brothers in the craft. F3/13

The fallacies in Cook's work are so numerous that it is actually impossible to discuss them all within the limit of a (barely technical) (scientific) useful paper. It might be true, although it is not quite certain, that tree- and plant-names in Latin take feminine adjectives, to agree with arbor or herba as an implied appositive. It is undoubtedly true that the modifications introduced in Art. 72 by the Amsterdam Congress of 1935 are ambiguous and confusing, leaving it uncertain what is to be done about the gender of generic names. But the generic names in use in taxonomy are not entirely (ael) Latin. Many, and these are legitimate too, are derived from Greek roots compounded in the modern manner or used according to classical usage, or from (taxon) unclassical language. Rules are needed to determine the gender of these names. As to Hevea and Evea being, or not, homonyms, the Rules provide a good answer. They decide (Art. 70," Examples Of Different Names 2) that Durvillea and Urvillea are different names, which settle the issues to everybody's knowledge.

Every botanist has a duty and a right in regard to the Rules. He has the duty of studying and knowing them, and has the right to ask his fellow-workers to do the same. This is because the Rules protect any and all, and provide a (convenient) meeting ground for the exchange of ideas and data. The right of insurgency and secession against the Article, be it manifested in willfull

opposition, or by ignorance and neglect of what the Articles say, is not to be made the subject of philosophical discussions. However, out of a decent respect for the opinions of mankind let insurgents and secessors read the law against which they lift their hands before firing the first shoot. One is often amazed hearing arguments about the Rules which have no reason to be for the simple reason that the Rules do not say what their accusers or self-appointed expounders try to have them say. There are three kinds of offenders against the Rules, namely: (1) those who occasionally violate Art. 16 because they overlook a previous publication; (2) those who do not, or can not read the Articles as they stand, but build up castles in Spain to suit their own notions how the " articles " should read; (3) those who stubbornly overload the Rules with barnacles to foresee any petty and extreme contingency that may arise under any and all Articles. It is that the sinners against Art. 16 are almost the only one who get caught and summarily executed.

In pointing out some of the errors in Cook's treatment it is not my intention to minimize the value of the data he contributes outside of nomenclature. The classification of Hevea, like that of many other euphorbiaceous genera, suffers from an initial over-splitting, that is, the first authors who have treated it, Mueller Argoviensis especially, had no concept of specific limits in this genus. Thus, the work of these authors has created precedents and methods that must be radically revised and, if need be, reversed before any real approach to correct classification can be made.

To simplify the coming taxonomic work on this genus I affirm here the following synonymies:

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1) Hevea brasiliensis Muell. Arg. in Linnaea 34:204. 1865

Syn. Nov. : Siphonia Ridleyana Cook in Jour. Washington Acad. Sc. 31:46-65. 1941.

2) Hevea guianensis Aubl. Hist. Plant. Guian. 2:871, Pl. 335 (sphalm.:peruviana). 1775.

Syn. Nov. : Caoutchoua guianensis (Aubl.) Cook in Jour. Washington Acad. Sc. 31:58. 1941.

3) Hevea janeirensis Muell. Arg. in Martius, Fl. Brasil. 11[2]:706. 1874.

Syn. Nov. : Siphonia janeirensis (Muell. Arg.) Cook in Jour. Washington Acad. Sc. 31:61. 1941.

I hope that these precise synonymies conform with Cook's vague treatment of Hevea, Siphonia and Caoutchoua. I restrict them to the barest essentials because I do not intend at this writing to enter into the merits of the classification of Hevea. It is clear in my understanding that much is to be done in the treatment of the Euphorbiaceae in general before we can have this classification put on a tolerable basis. Here, I merely deal with six labels of which three are correct on technical grounds of nomenclature while three others are manifestly erroneous on the same grounds. Placing the synonyms where they belong is quite a different deed than deciding which are the characters, for instance, that may or may not separate specifically Hevea brasiliensis from H. janeirensis. To this at we will attend later.

Btzg 6 Febr. 1939

Euphorbiaceae

Dear Henderson,

Numerous thanks for your kindness in tracing 2 numbers of Materials absent in my series. I have ordered the Euph. by Gage and have tried also to get No. 1 which is the last part which fails. I will have them rebound as they are thrown through one another, which can easily be done without much costs/t. The only fear I have is that No. 1 is not longer available. W'll wait and see. Possibly they have odd numbers of the journal at Calcutta. Many thanks for all the trouble you took.

Sincerely yours

C. Rechinger

F3/16

The monograph of the Euphorbiaceae is only par of Gage's msc. and gives only some genera, if I remember well only 7 genera. Has this been decided on Malay Peninsula materials by the editor in Calcutta. Have they tried to get funds in the Peninsula. The reason they mention is the existence of the Flora by Ridley. But I believe that Gage's work will exceed Ridley's in usefulness. It is a pity that the rest of Gage's work will never be p blished any further.

NAAM EN ADRES VAN DEN AFZENDER
NAMA DAN 'ALAMAT SIPENGIRIM

HERBARIUM EN MUSEUM VOOR SYSTEMATISCHE
BOTANIE VAN 's LANDS PLANTENTUIN
BUITENZORG (JAVA).

BRIEFKAART
KARTOEPOS

ADRES ALAMAT

Mr M.R.Henderson

Botanic Gardens

Singapore.

Letter of Enquiry from Author
"L"

Euphorb.

618/36. 17th December, 6

Dear Dr Quisumbing,

I wonder if you would be so kind as to lend me specimens of Cheilosa homaliifolia Merrill (Euphorbiaceae). I find that specimens from Malaya, described as Baliospermum malayanum Hook., are really Cheilosa and I cannot see how to distinguish them from Merrill's description of C.homaliifolia. We have only one specimen of C.homaliifolia in Singapore, namely Ramos 1667: it is identical with the Malayan species except for the edge of the leaf. If my surmise is correct, it means that Merrill's name becomes a synonym, which will be unfortunate, but I suppose such is the rathless advance of science and better now than later. I have written to Dr van Steenis to ask him about Cheilosa montana, because I verily believe Cheilosa malayana will have to be reduced to C.montana and we shall again have Cheilosa as a monotypic genus.

I apologise for the long delay in returning the specimens of Ficus subgen. Synoecia which you so kindly lent me. I shall do so early next year. I have been delayed because I have been trying to locate the type of Ficus scratchleyana, and I have also been trying to get specimens of the Formosan F.terasoensis for comparison with your F.megacarpa. In both objects, I have been unsuccessful. However, King's description of F.scratchleyana is very good, and relying on that, I determine your Philippine

Dr. E. Quisumbing,
Bureau of Science,
Manila, PHILIPPINES. F3/17

specimens named F.apiocarpa as F.scratchleyana, which is known only from New Guinea. F.scratchleyana is the eastermost representative of the subgenus and it is very interesting to find it in the Philippines. F.apiocarpa seems not to occur in your country: it is a species of the Sunda shelf.

Thanking you, again, for your ready assistance.

Yours sincerely,

E.J.H.C.

Assistant Director of Gardens, S.S.

F3/18

Euphorbiaceae

T

MEMORANDUM

G 39

From	*To*
Curator of the Herbarium,	Veterinary Officer,
Botanic Gardens, Singapore.	Pahang.
25th July 1938.	

Your No.4 in V.Phg.222/38.

The specimen is Agrostistachys Gaudichaudii (Euphorbiaceae), Malay name Julong-julong.

I cannot find any reference to any poisonous properties it may possess and it is certainly not usually regarded as in any way poisonous.

F3/19

(Gen. 67)

Official Memorandum.

4 in V.Phg.222/38.

Raub, 22nd July, 1938

From Veterinary Officer,
Pahang.

To The Curator,
Botanical Gardens,
Singapore.

I forward herewith leaf samples of a jungle shrub or tree? known locally in Temerloh as Kechulun (cf. Wilkinson's dictionary - Clerodendron disparifolium). I would appreciate your identification, the correct generic name and any information concerning its assumed poisonous properties and the nature of the active principle involved.

Aphrotistachys Gaudichaudii

C. Lloyd Turner
Veterinary Officer,
Pahang.

F3/20

8803—4,500/100 p—28-12-37—R 45/37.

Euphorbiaceae

OSMELIA MAINGAYI and
ANTIDESMA VELUTINOSUM

here (and maybe elsh) Compared in
Mem. Sing Gdns.

F3/21

Euphorbiaceae

624/32

Dear Sir,

I should be very grateful if you could let me have an authentic specimen of Richeviella gracilis (Merr.) Pax and K. Haffm. (Baccaurea gracilis, Merr.) with flowers.

This genus has been collected in the Malay Peninsula, but I have no material of the Philippine species for comparison, and the two seem closely allied.

Yours faithfully,

Curator of the Herbarium.

The Director,

Bureau of Science,

Manila,

Philippine Islands.

F3/22

ccg

THE GOVERNMENT OF THE PHILIPPINE ISLANDS
DEPARTMENT OF AGRICULTURE AND NATURAL RESOURCES
BUREAU OF SCIENCE
MANILA

ADDRESS REPLY TO:
DIRECTOR,
BUREAU OF SCIENCE.
MANILA, P. I.

December 3, 1932.

The Curator of the Herbarium,
Botanic Gardens,
Singapore, Straits Settlements.

My dear Dr. Henderson:-

In reply to your letter of October 18th, 1932, (No. 624/32), I have the pleasure to advise you that under separate cover I am sending you a package containing two flowering specimens of Richeriella gracilis (Merr.) Pax & Hoffm. Hoping that the specimens will reach you in perfect condition.

Very truly yours,

WILLIAM H. BROWN,
Director, Bureau of Science.

By
EDUARDO QUISUMBING,
Botanist.

EQ

Returned 3/1/33

F3/23

45903. Richeriella gracilis (Merr.) Pax & Hoffm. Bur. Sci. Coll. McGregor. Palawan, Sept., 1925. (EUPHORBIACEAE)

29249. Richierella gracilis (Merr.) Pax & Hoffm. For. Bur. A. L. Cenabre. Puerto Princesa, Palawan. Feb., 1923.

F3/24

ccg

THE GOVERNMENT OF THE PHILIPPINE ISLANDS
DEPARTMENT OF AGRICULTURE AND ~~NATURAL RESOURCES~~ Commerce
BUREAU OF SCIENCE
MANILA

ADDRESS REPLY TO:
DIRECTOR,
BUREAU OF SCIENCE,
MANILA, P. I.

January 27, 1933.

Dr. R. E. Holttum,
Director, Botanic Gardens,
Singapore, Straits Settlements.

My dear Dr. Holttum:-

This is to acknowledge receipt of 2 mounted herbarium specimens of Richeriella which were loaned to you about a month ago. The material arrived in very good condition.

Very sincerely yours,

EDUARDO QUISUMBING,
Botanist.

EQ

F3/25

Euphorbiaceae

Bengal Form No. 3.

GOVERNMENT OF BENGAL

OFFICE OF The Superintendent, Royal.....

Botanic Garden, Calcutta.

DEPARTMENT.
.....GROUP.
BRANCH.

No. 44/1017.

FROM

K. Biswas, Esq., M.A.,
Curator of the Herbarium, Royal Botanic Garden,
Calcutta.

To

The Curator of the Herbarium,
Botanic Garden, Singapore, Straits Settlements.

Dated the 19th Decr., 1932.

Subject:—

Sir,

I have the honour to acknowledge with many thanks the receipt of the specimen of Sumbavia macrophylla Muell Arg., the return of which has been advised in your letter No. 688/32, dated the 29th November, 1932.

I have the honour to be,

Sir,

Your most obedient servant,

K. Biswas

Curator of the Herbarium,
Royal Botanic Garden, Calcutta.

AOJP—A3881—1930-31—13,00,000

F3/26

637/32

Sir,

I ahoulds be very grateful for an authentic duplicate of Sumbavia macrophylla,Mull.Arg. if you can spare one, or instead the loan of a specimen for a short time.

What is apparently this plant has recently been collected in the Malay Peninsula, but we have no material for comparison.

I have the honour to be,

Sir,

Your obedient servant,

Curator of the Herbarium.

The Curator of the Herbarium,

Botanic Gardens,

Calcutta,

India.

F3/27

688/32

Sir,

I am very grateful for the loan of the specimen of Sumbavia macrophylla, Muell. Arg., which is being returned to you under separate cover.

I have the honour to be,

Sir,

Your obedient servant,

Curator of the Herbarium.

The Superintendent,

Royal Botanic Gardens,

Sibpur,

Calcutta.

F3/28

Bengal Form No. 3.

GOVERNMENT OF BENGAL.

OFFICE OF...The Superintendent, Royal...
Botanic Garden, Calcutta.
DEPARTMENT.
.....GROUP.
BRANCH.

No....4/966.....

FROM

K. Biswas, Esq., M.A.,
Curator of the Herbarium, Royal Botanic Garden,
Calcutta.

To

The Curator of the Herbarium,
Botanic Garden, Singapore.

Dated....the 8th Novr., 1932.

Subject:—

Sir,

Your letter No. 637/32, dated the 20th October, 1932.

I am sending by separate post a duplicate sheet of Sumbavia macrophylla Muell Arg, bearing field No. 11800. Kindly return the sheet securely packed when you have done with it. Please acknowledge receipt of the sheet.

I have the honour to be,

Sir,

Your most obedient servant,

D. Srinivasan

For: Curator of the Herbarium,
Royal Botanic Garden, Calcutta.

ACJ...-A 3881--1930-31—13,00,000

F3/29

230/33

26th April, 33.

Dear Dr. Smith,

I have to acknowledge with very many thanks your letter of 3 April, with the identification of Phyllanthodendron coriaceum, Gage. I note your remarks on the modification of the generic diagnosis as given by Ridley.

Yours sincerely,

J.M.H. Burkill

Dr. J.J.Smith,
Endegeester Straatweg 16,
Oegstgeest,
Leiden,
Holland.

F3/30

Wageningen, 3-IV-1933.

Dear Mr. Henderson,

I have just received your letter by air mail with the description and figures of the Euphorbiaceae plant in question. I have little doubt it is: Phyllanthus-dendron coriaceum Sage.

Ridley in his Flora pt. IV, 205 describes 6 petals: I think you are correct in calling them disc glands.

In the case the plant belongs really in the genus Phyllanthus-dendron and if the diagnosis as Ridley cites it, is correct, the same should be modified as to include also "this species": in the ♂ flower there are no petals, only 3 stamens cohering only at their bases, no pistillode, 6 disc glands.

One of these days I will return the materials together with the description and figures.

Yours sincerely,

J. J. Smit.

F3/31

41/33

24th January, 3.

Dear Dr. Smith,

Under separate cover, I venture to send you a mounted sheet of an Euphorbiaceous plant. This has quite puzzled me and I was unable to trace it at Kew. Dr. van Slooten at Buitenzorg has also failed to recognise it, and suggested that I should send it to you. Unfortunately I have only this one sheet on which female flowers are very scarce, so I am sending you a short description of the flowers and some sketches made under the camera lucida.

Any help you can give me will be very much appreciated.

Yours sincerely,

(Sd) M F Henderson

Dr. J. J. Smith,

Endegeester Straatweg 16,

Oestgeest,(near Leiden)

Hollandd.

F3/32

Euphorbiaceae

565/38. 4th January 39.

Dear Nelmes,

When I was last at Kew I remember seeing the latest part of the Materials for a Flora of the Malay Peninsula, containing Euphorbiaceae by Gage. At that time (1936) it was either newly published or you had advance copies. Unfortunately I did not note particulars of where this was published, although I suppose it was in the Journ.Roy.As.Soc.Beng. However, as Biswas of Calcutta, to whom I have written, does not seem to know about it, I should be very grateful if you could confirm that it was published and give me the volume etc. in which it appeared. Biswas says that the Index to the Materials is in the press.

Yours sincerely,

NL

E.Nelmes, Esq.,
The Herbarium,
Royal Botanic Gardens,
Kew, Surrey,
ENGLAND.

F3/33

Bengal Form No. 3.

GOVERNMENT OF BENGAL

OFFICE OF the Superintendent, Royal Botanic Garden,
Sibpore near Calcutta.
.....GROUP.
BRANCH.

No. Lib. 61. 4 - 38.

FROM

Dr. K. Biswas Esq, M.A., D. Sc., F.R.S.E.,
Superintendent, Royal Botanic Garden,
Sibpore near Calcutta.

To

The Curator of the Herbarium ,
Botanic Gardens, Singapore, Straits Settlements.

Dated 22nd December, 1938.

Subject :—

Sir,

With reference to your letter No.565/38 dated the 5th December, 1938, I have the honour to furnish you with the following list of publications by the late Sir George King and Col. Gage on the Materials for a flora of the Malay Peninsula published in the Journal of the Asiatic Society of Bengal. As regards the Journal of the Asiatic Society of Bengal (now Royal Asiatic Society of Bengal), you will have to apply to the General Secretary, Royal Asiatic Society of Bengal, 1 Park Street, Calcutta. The Records of the Botanical Survey of India Vol. IX. no. 2 , 1922 as well as Kew Bulletin no. 7, 1914 are, I think, already in your library. The Index to the flora of the Materials of the Malay Peninsula is now passing through the press and will be published by the Royal Asiatic Society of Bengal.

I have the honour to be,
Sir,
Your most obedient servant ,

K Biswas

Superintendent Royal Botanic Garden, Calcutta

ACJP—A 3473—1934-35—10,00,000

F3/34

Materials to the flora of the Malay Peninsula published in the following journals.

1. Journal of the Asiatic Society of Bengal Vol.LXVI.pt.2,189
2. " " " Vol.LXV.pt.2,1896.
3. " " " Vol.LXIX,pt.1,1900.
4. " " " Vol.LXX pt.2,1901.
5. " " " Vol.LXXI.pt.2,1902.
6. " " " Vol.LXXII.pt.2,1903.
7. " " " Vol.LXXIII.pt.2,1905.
8. " " " Vol.LXXIV.pt.2,1909-10.
9. " " " Vol.LXXV , 1912-15.
10. Records of the Botanical Survey of India,Vol.X.No.2,1922
11. Kew Bulletin of the Miscellaneous Informations,No.7,1914

BAMBUSEAE

NOTES MADE BY J.L. PESTANA

(LABORATORY ASSISTANT)

SPECIMENS COLLECTED BY HIM

ARE PLACED IN THE

GARDENS HERBARIUM

F3/36

(G 3)

From Whom	
Place	
Date	

SUBJECT

Mosses

Correspondence with H. W. Dixon Esq

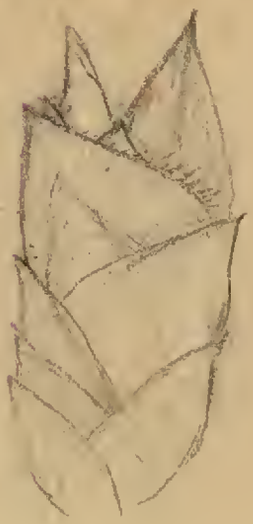
1925.

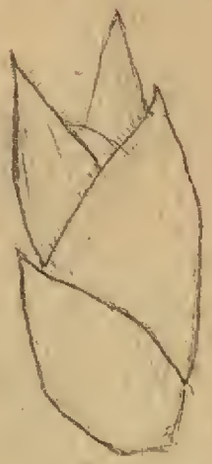
Connected Papers

MINUTES

No Minutes should be written on this page. A separate half-sheet to be used if required.

G. verticillata H. N. Ridley 119 cited.





Spikelet

fl. glume

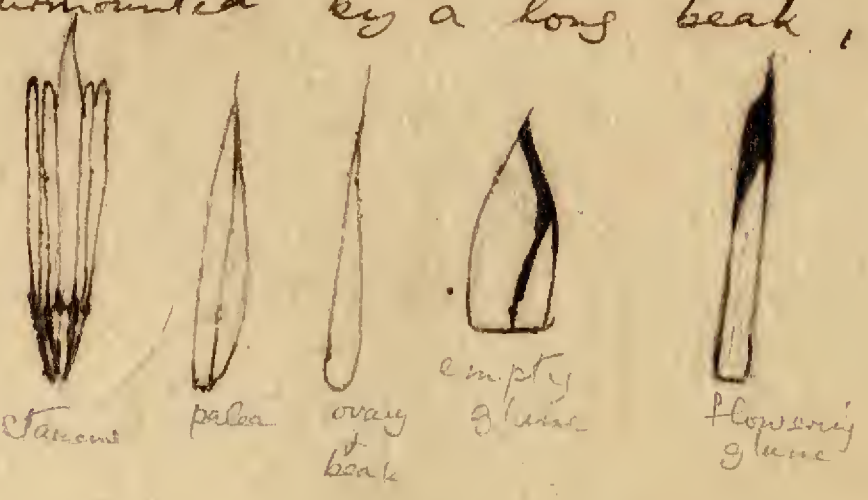
palea

ovary

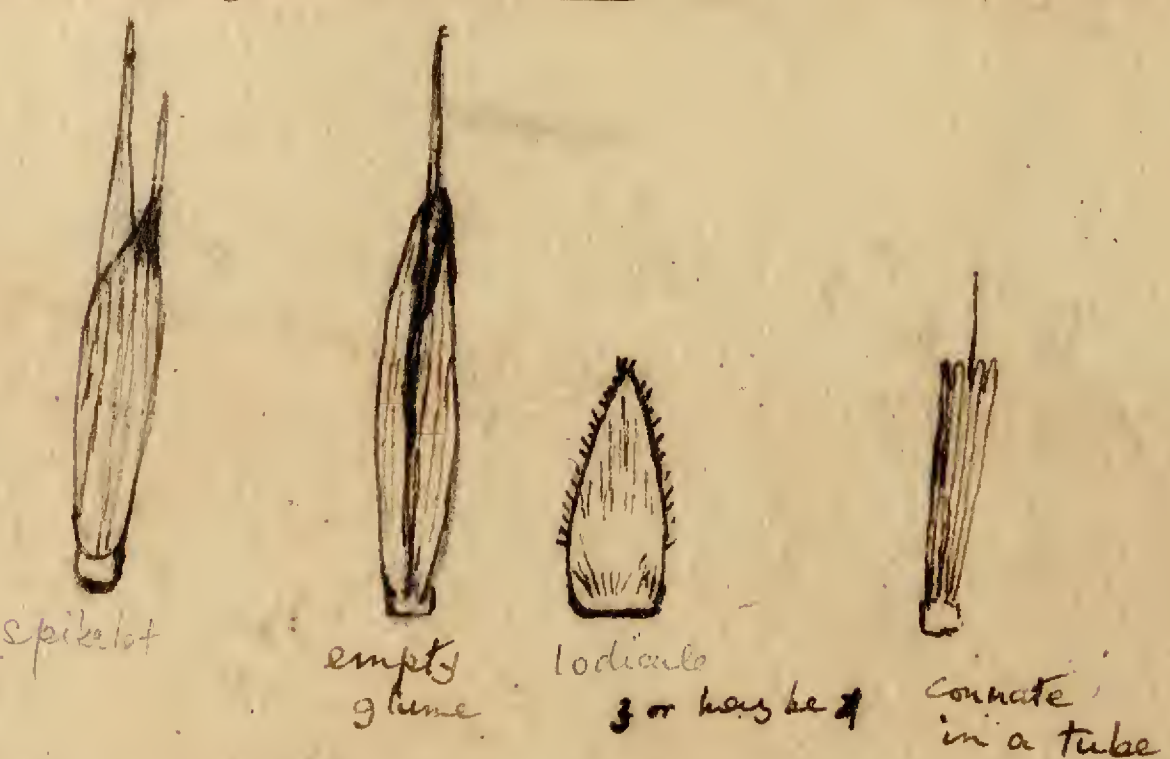
F3/37

Schizostachyum chilianthum. - stamens exserted, anthers long in comp. with filaments, which are free. ovary very small, oblong; lodicules three, stigmas 3, plumose; flowering glume many nerved, only above & furrowed, faintly convolute, the upper margin ciliate; palea not keeled convolute, ; sep. organs only ½ the length of palea.

Schizostachyum Blumei, Kurz ab Esenb. - margins of glumes purplish black spikelets ·6 to ·7' long, very narrow, cylindrical with 1 fertile flower, flowering glumes oblong, long, mucronate, striate; palaea 1 or 2, membranous, not keeled, convolute. lodicules none; stamens exserted; anthers elongate, blunt. Ovary narrow, ellipsoid, surmounted by a long beak, the style with 3 plumose stigmas.

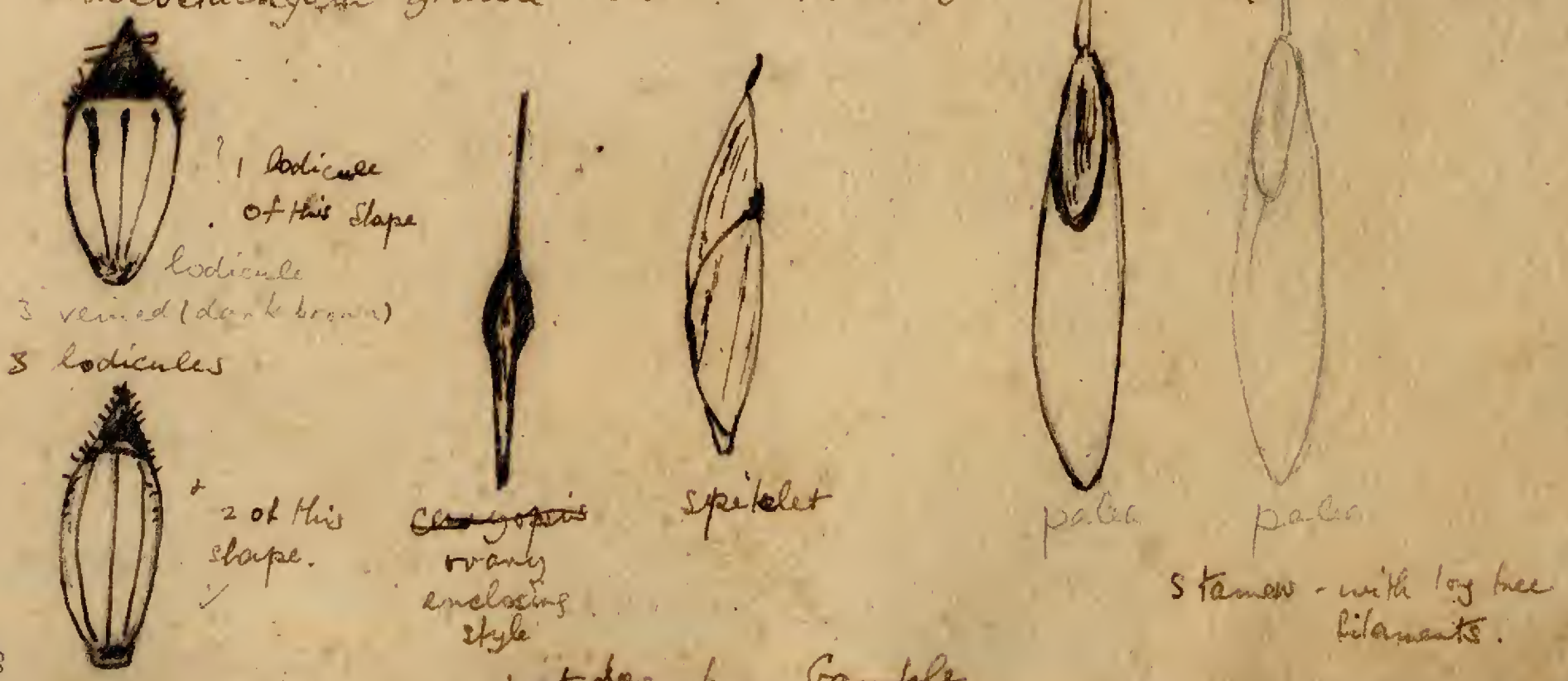


Schizostachyum insulare? (not descr. by Gamble) det. Gamble no. 8323 F. Dept.



Empty glumes 2, ovate, mucronate. Flowering glumes lanceolate, broad at the tip. Palea lanceolate, convolute. Stamens 4, connate. Ovary narrow, sub-cylindric. Lodicules oblong-rounded, light-brown pubescent.

Schizostachyum grande Ridl. No. 20162 F.M.S. det. I. H. Burkill



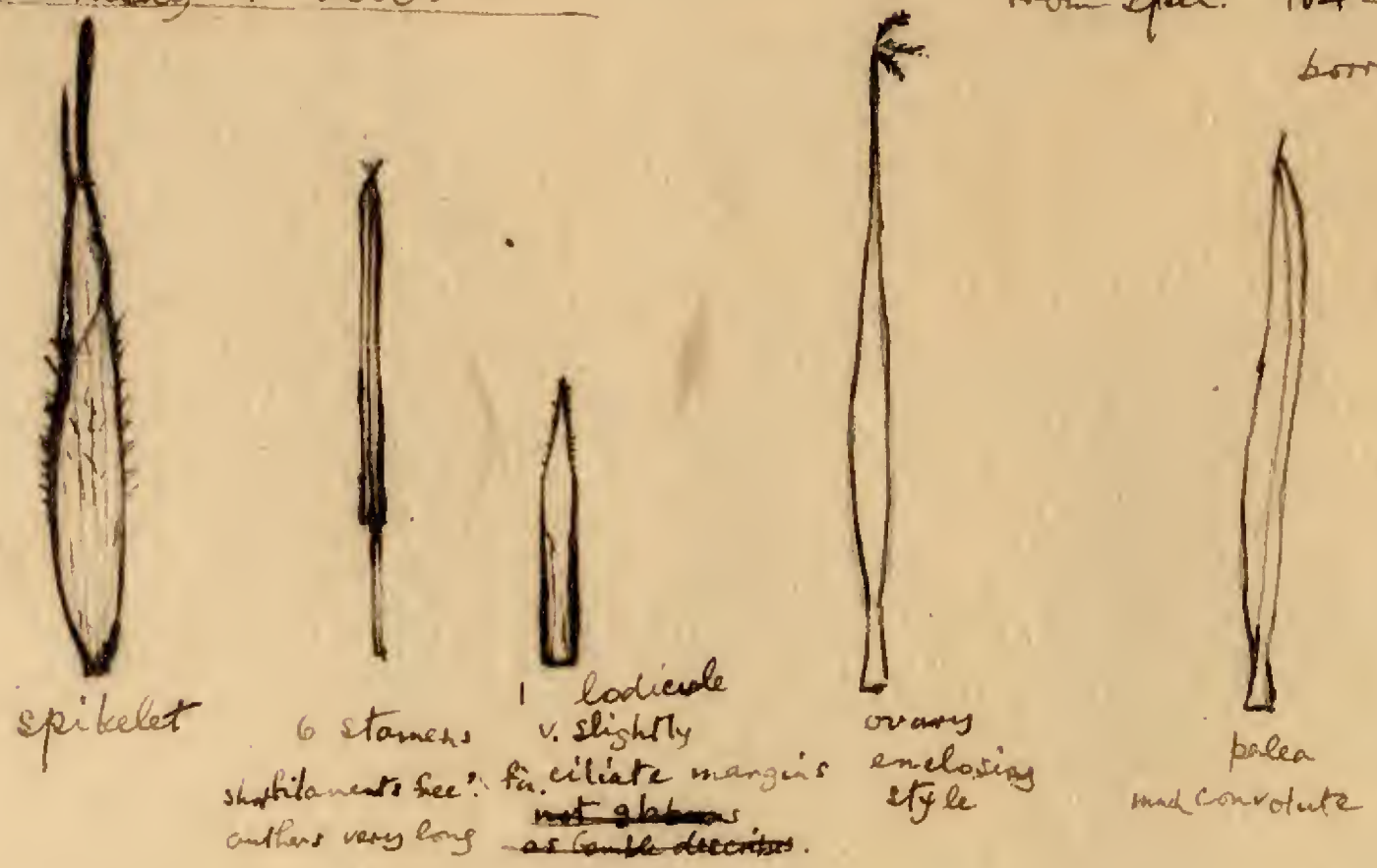
not descr. by Gamble

F3/38

Schizostachyum grande. Spikelets very slender. Glumes ribbed, shortly mucronate. - shorter than palea. Palea - lanceolate. acuminate - partly keeled, convolute. Stigma & anthers exserted, - filaments very long & free - ovoid - beaked, lodicules three - ovate - lanceolate, with 3 prominent dark veins.

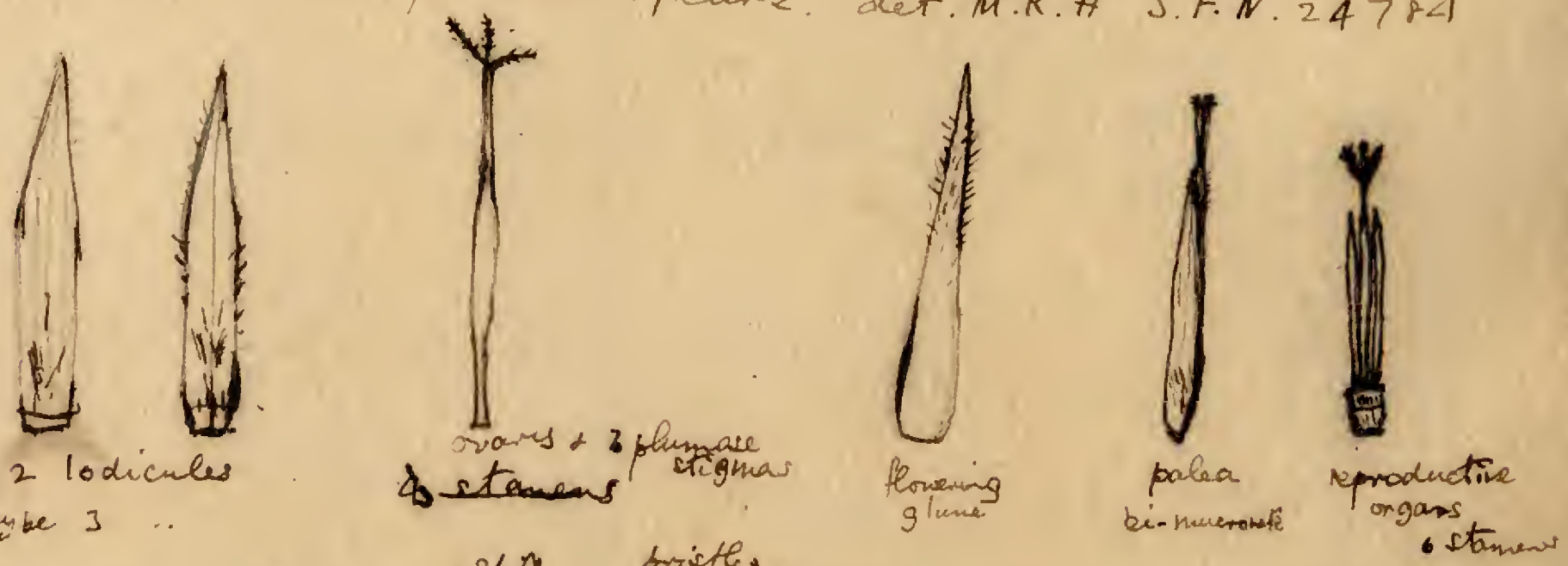
Schizostachyum aciculare :.

From spec. 16423 S.F.N.
borrowed from F. Dep.
det. I. H. Burkill



Spikelet ± 1·2 to 1·5" long, very narrow, needle-like; empty glumes 2, pubescent, oblong, mucronate; flowering glume linear, much convolute, thick, covered with appressed hairs, long-mucronate; palea also much convolute, glabrous, as long as flowering glume. Only one lodicule, narrow-lanceolate, glabrous, with finely ciliate margins. Stamens exserted; anthers very long, narrow, blunt, penicillate-apiculate. Ovary narrowly ovoid, glabrous surmounted by a long narrow beak enclosing the style, which bears 3 short plumose stigmas.

Schizostachyum longispiculatum, Kurz. det. M.R.H S.F.N. 24784



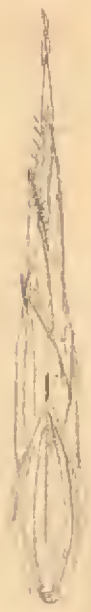
Flowering glume, with long ~~appressed~~ Stiff bristles, ~~at~~ 4 on glume. (may be due to boiling - originally ?appressed; lanceolate-acuminate. Convolute.

Anthers - linear - apiculate, with sharp sharp point. filaments short, connate in a very short tube; ovary narrowly-ovoid with 3 plumose stigmas. Glume & palea especially much convolute

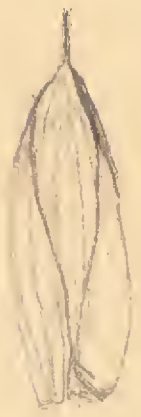
might be S. latifolium

F3/39

S. chilianthum



spikelet



empty glume 11-nerved

palea convoluta

lodicules 3

ovary

S. Zollingeri

(1)

2 lodicules

6 stamens

ovary

Spikelet

fl glume 16-nerved ciliate at the margins

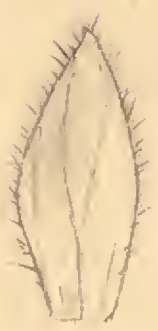
palea 2-keeled at the apex ciliate at the margins

(2)

1 lod of His shape

style enclosed in membrane

anthers pubescent
lodicules 3, ciliate at the margins.
Filaments fused?



(3)

1 lod. of His

1

Oxytenanthera nigrociliata

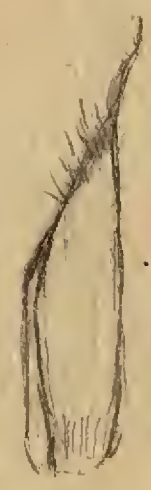
spikelet

palea
+ sexual organs

staminal tube when young
elongated when older

anther

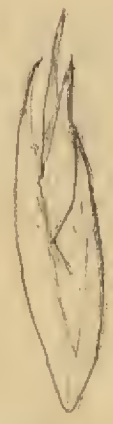
when older



flowering glume
with long black cilia at the apex.

Flowering glumes with transverse nervelets - $\frac{1}{6}$ of nervelets

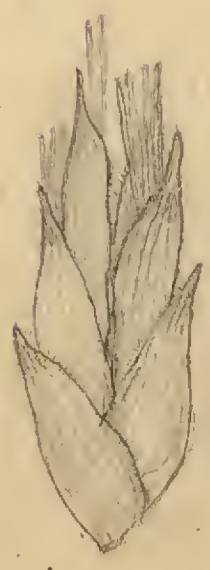
Bambusa Wrayi



Spikelet

terminal flower

B Wrayi ? det. Burkill ? Perak 23.11.21 S.F.N 6421



spikelet

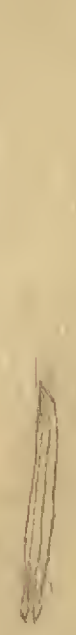
flowering glume
19-nerved
with transverse nervelets

anthers

palea
from older one ?

no lodicules

ovary +
sexual organs



anther

stigma is noticed to be plumed

anther stage before exsertion of stamens

F3/41

Gigantochloa latifolia

Long
Finely ciliate at the margins · flowering glume oblong lanceolate-acuminate

Only 2 lodicules seen ± 3

Six stamens

Transverse nervelets

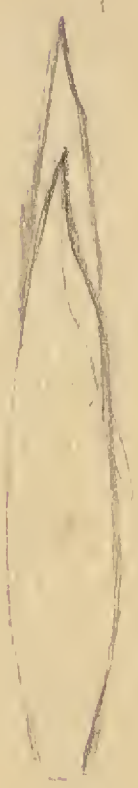
Spikelet

nerves flowering glume ± 12.

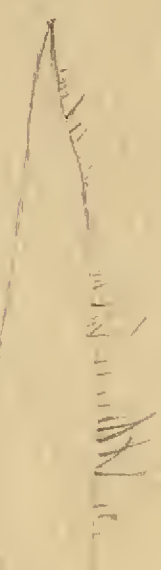
Reproductive or sexual organ shows plumose style with 6 stamens stamens connate to a short tube

lodicule tufted apex

anther with awn



Spikelet



flowering glume

palea > flowering glume

convolute, keeless, glabrous, ribbed, acute-acuminate finely ciliate

lodicule

F3/42

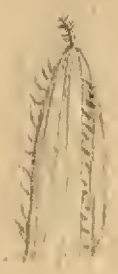
Oxytenanthera auriculata

From sp. det. Gamble

spikelet

empty glume

30-nerved with transverse nervelets.



7 nerved ciliate on keel

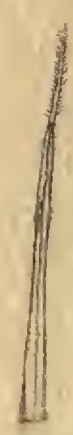
spikelet

palea, style, stigmas & stamens, which are connate in a flat filamentous tube

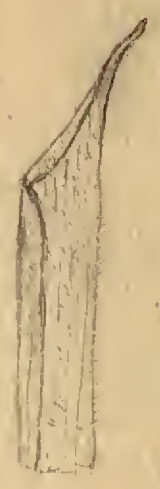
stamens, exserted

rep. organs

style, slender plumed.



anther

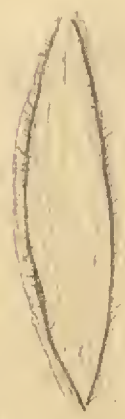


flowering glume

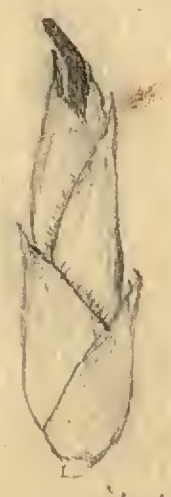
many nerved ± 18

± 3 flowered spikelet. somewhat paired. Empty glumes mucronate ribbed, scabrous edge with long pale hairs. Palea keeled, ciliate on keel. Stamens in 1 row towards monadelphous, pale, acute. Style slender plumed. No lodicules seen.

Oxytenanthera sp nov from sp 16845 S.F.N. from F.M.S. Museum det. I.H.B.



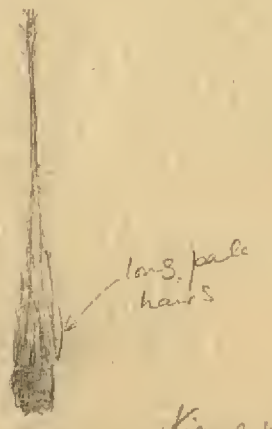
palea 2-keeled, ciliate on margins



spikelet

Flowering glume

± 27-nerved



long pale hairs

Ovary broadly ovoid, hairy stigma plumed.

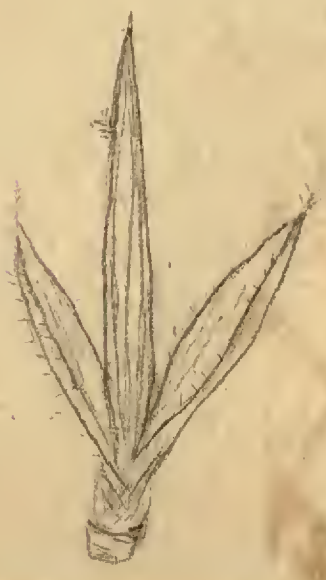
palea, showing relative positions of sexual organs in it

Flowering glume glabrous, keeled, mucronate, edge pale ciliate

empty glume transverse nervelets

Empty glumes 2 or 3, ovate, mucronate, edge pale ciliate Flowering glumes longer. Palea bluntly bifid, 2-keeled ciliate. Stamens ? exsert. Ovary broadly ovoid hairy. no lodicules seen

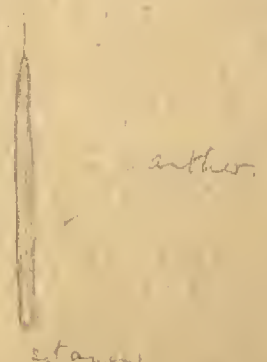
7 to 3. plumed.



2 paleae with fl. glume in centre.

long hairs

stamens & style of centre flower

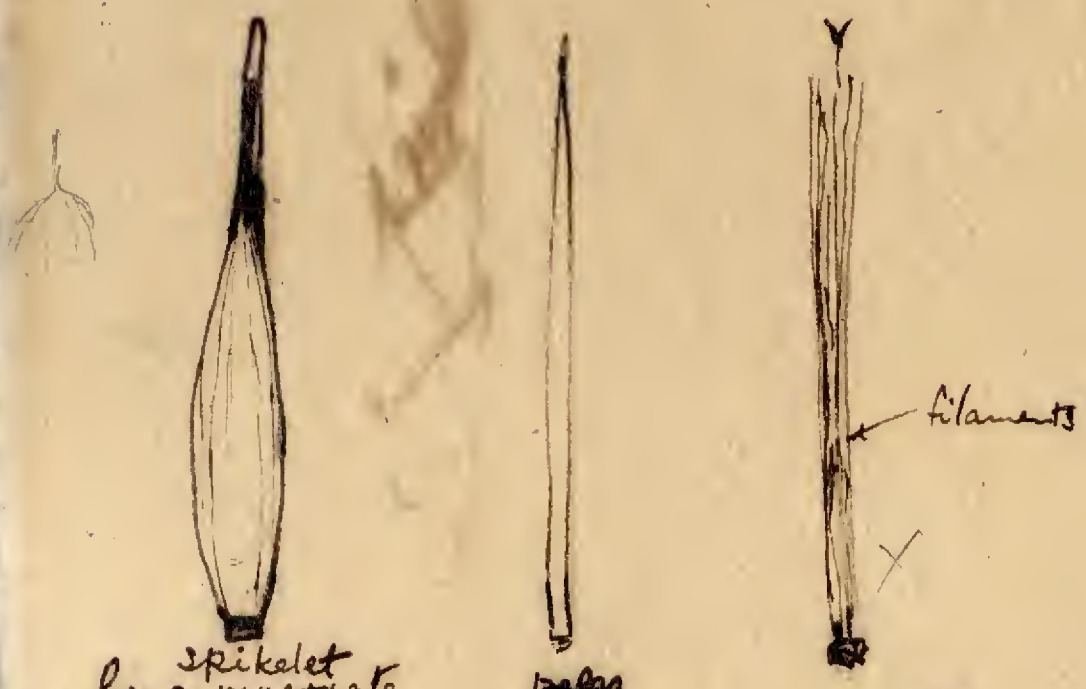


anther

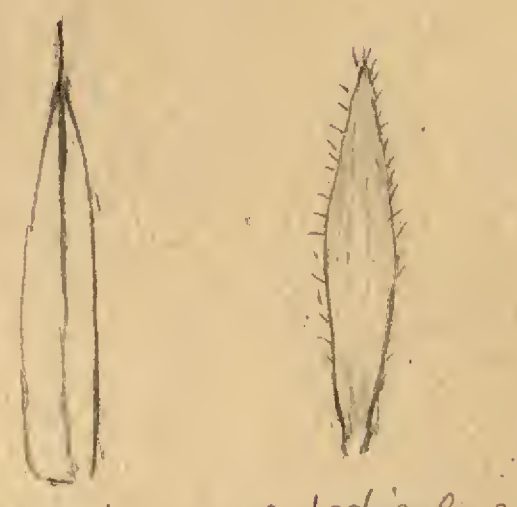
six stamens filament short, or short tube

F3/43

Schizostachyum brachycladum S.n. 24/9/15 - sheet from For. Dep. det. H. Burkill
Des. neither by Gamble nor Ridley

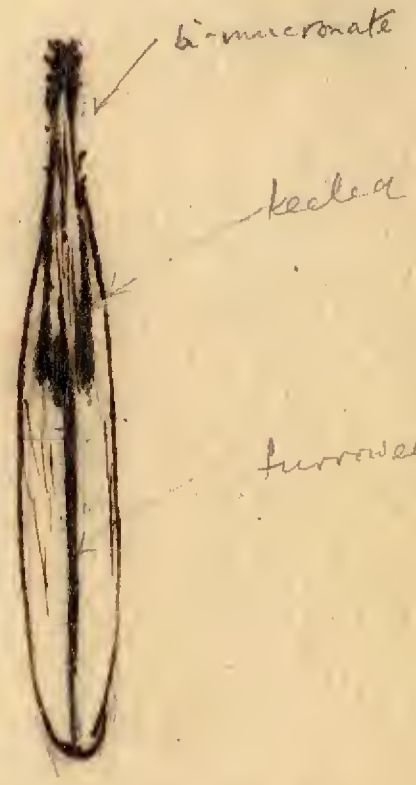


spikelet
long mucronate
linear. acuminate
with stamens
6 filaments
veins long.
- anthers not seen
± short



empty glume keeled mucronate
2 lodicules
lodicules
? absent

sp. old . ∴ some parts ? missing

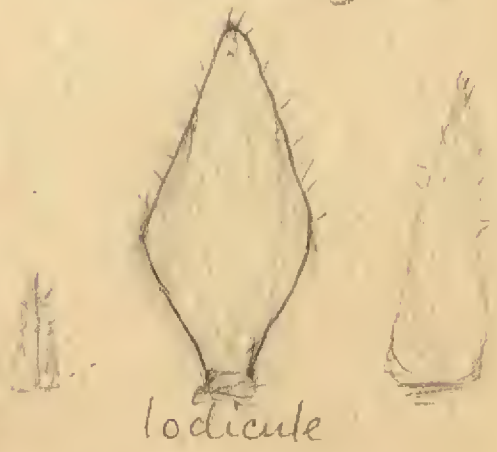


1 lodicules

3 lodicules 1 - ovate . lanceolate
2 lanceolate - linear
with base narrowed at the end

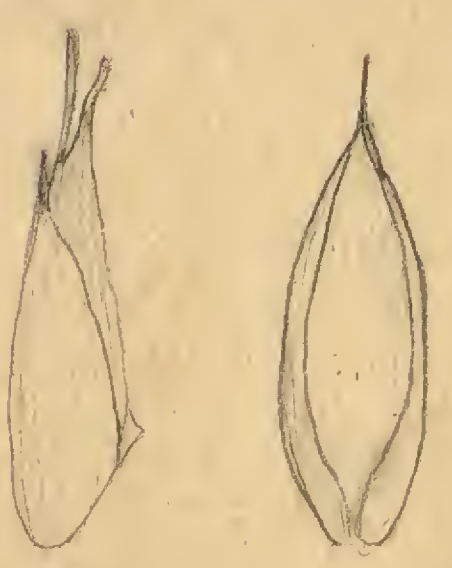
Glume many. nerved ± 18.

Schizostachyum brachycladum from Gardens, Japan.



lodicule
3 lodicules

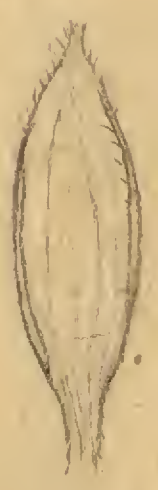
6 Stamens
style enveloped in membranous tube
- stigmas three



spikelet

empty glume 16 nerved ±17

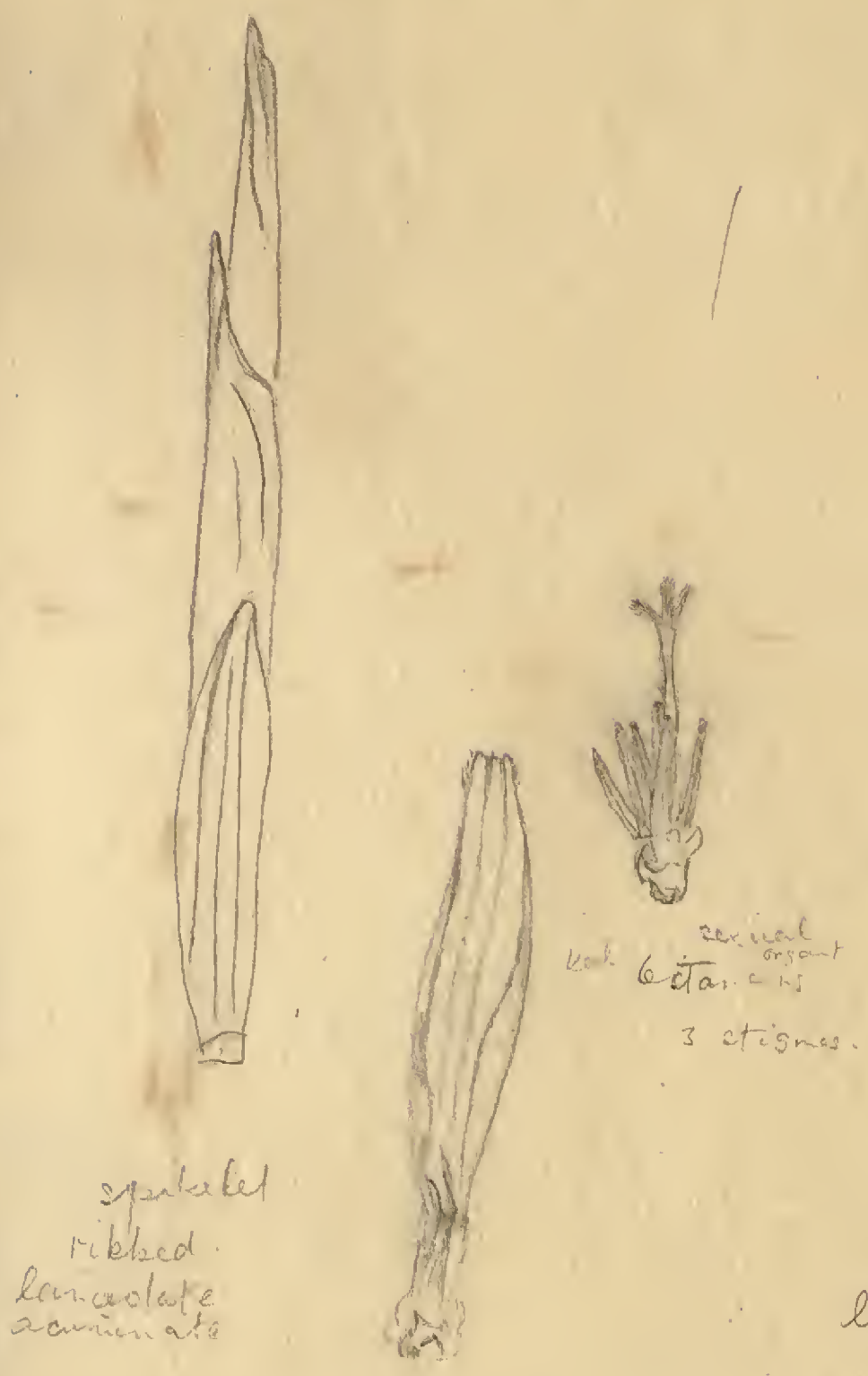
1 lodicule
2 of this shape



lodicule

F3/44

Gigantochloa ligulata 22585 det. Hitchcock 1931



G. ligulata 3186

? G. macrostachya

or G. Wrayi

F3/45

Andropogon elegans

spikelet .8' long, .16' wide. Rikly says .5'.

spikelet

lodicule

palea
2-keeled
glabrous

3 lodicules

9 nerveled

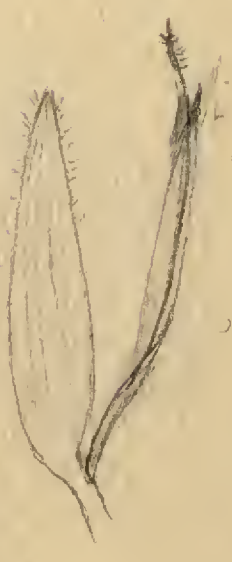
filament is free

ovary & stigma
1 stamen

stamen
with free filament

R. glume Riley ciliate at the margins.

C. Scortechinii. F.D 1160



Spikelet

16895 B Pahang Burkill Hort. Burkill

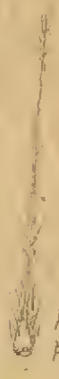
Oxytenanthera ciliata - Sp. swollen due to excessive boiling.
lt. + 10 mm br. + 2 mm

spikelet

upper palea
2-keeled
3-4 nerved
lodicules not seen
empty glume transversed veined

stamens connate

stamen



Ovary + stigma

reproductive organs
i.e stamens & ovary very dark in colour - dark chocolate

empty glume
± 22-nerved

3 flrs in 1 one spikelet

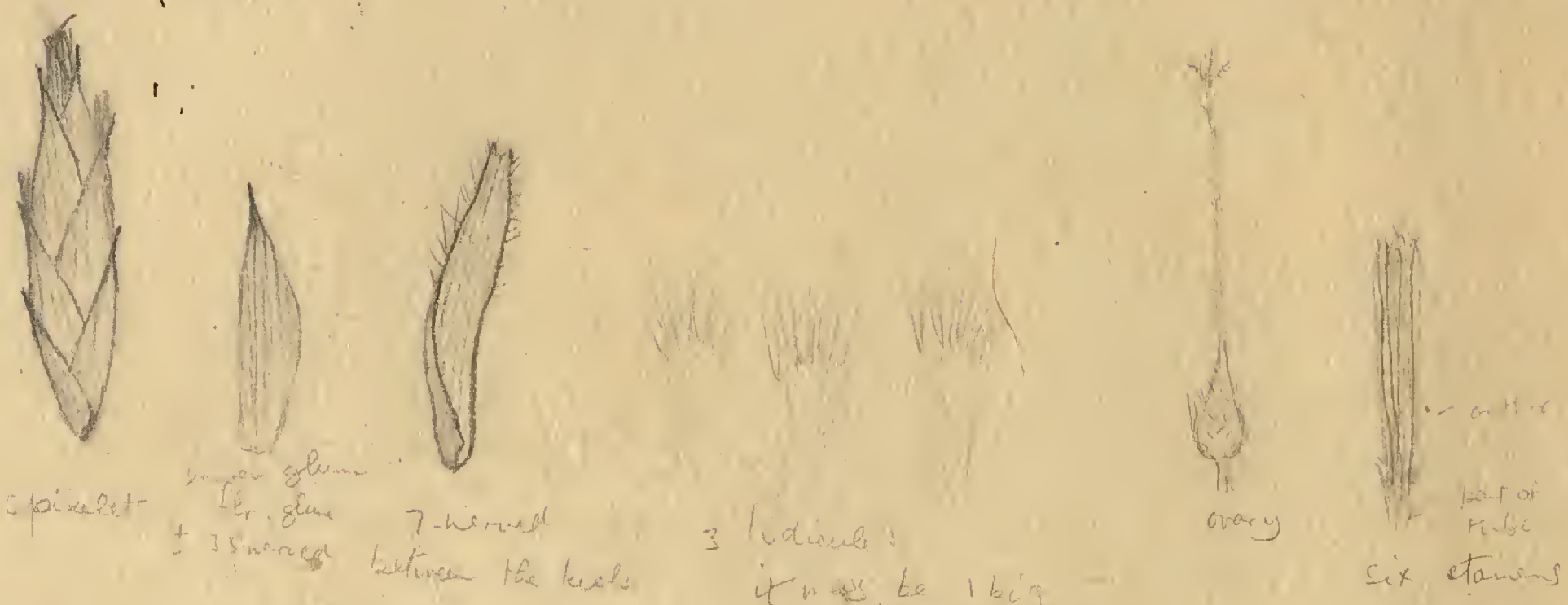
1st palea

3rd palea convolute not keeled

F3/47

Cryptochloa kelleyi Munro '71

Jan 16 1886



from upper palea

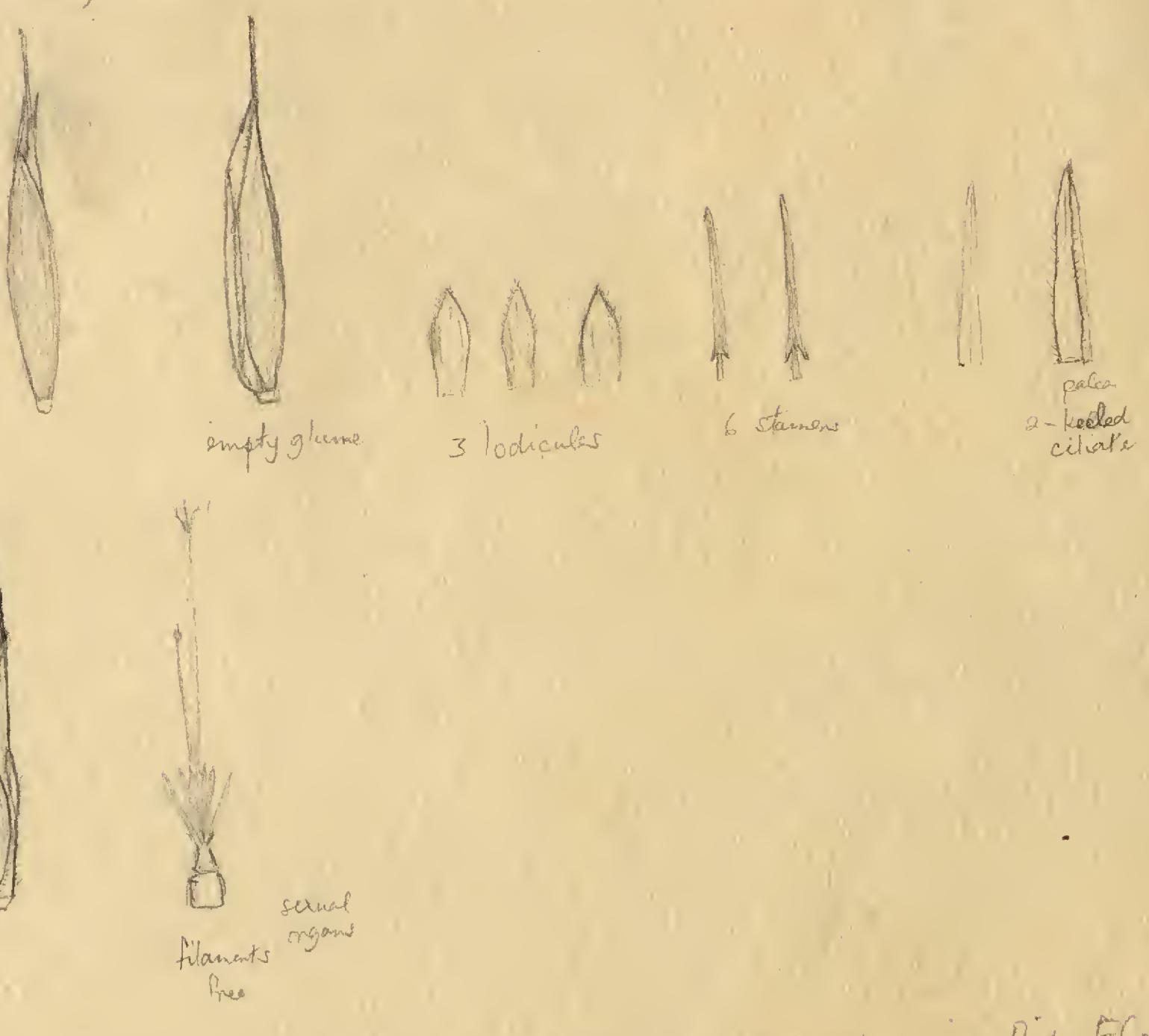
9 : 9 8
lodicules

2 lodicules

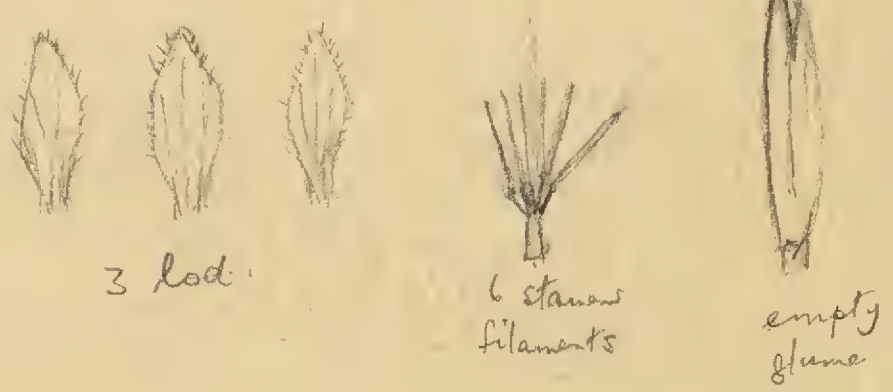
F3/48

Schizostachyum aciculare Coll. J.L.P. Loc: Bkt. Cher. Klang. 4/24

Schizostachyum Zollingeri ?



Schizostachyum Zollingeri from type sp. referred to in Rid. Flora Coll. Howe's



F.D 9597 = 9598

spikelets etc. agree with Gamble's illustrations of the sp. B. pallida

lodicules

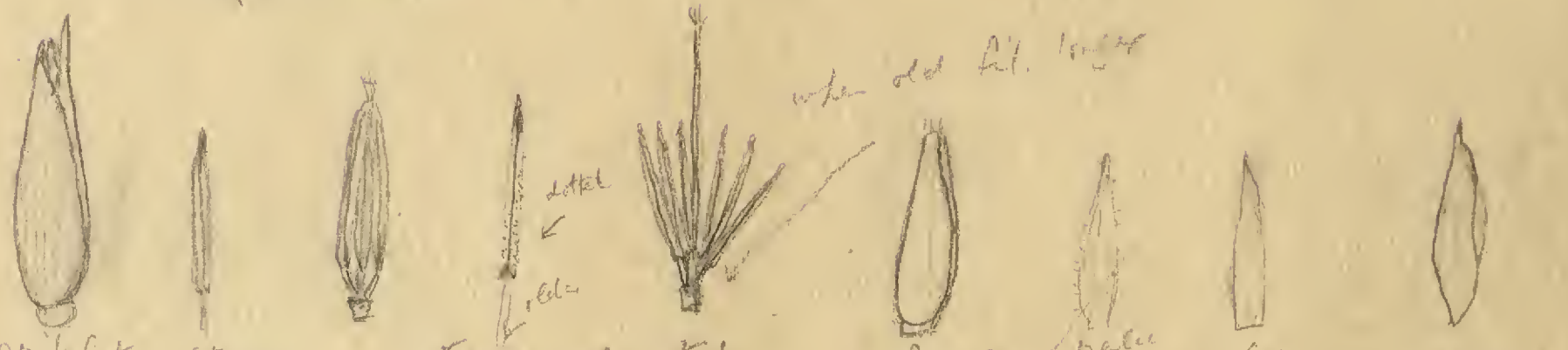
F.D 4061

spikelet

material had

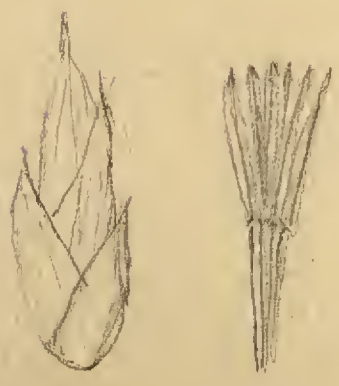
F.D 6926

S. elegans dunnosum



F D 9988

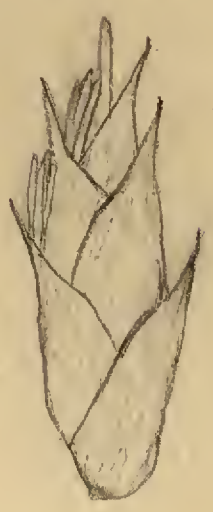
S. F. N 785 Ref. 1. 4B.



ovary glabrous
3 to 4 nerved
- 2 - keeled ciliate

F3/50

Gigantochloa ? ligulata 9598 F.M.S. Fl.



spikelet

palea
from older glume

young

F Dep 9990

Lch. Blume

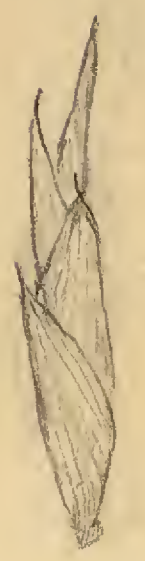
F.D 772

3 lodicules

fil. free

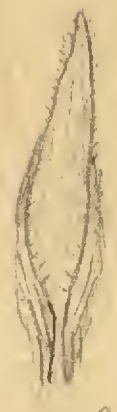
F3/51

F. D. 4061 Spikelet in tube



Spikelet

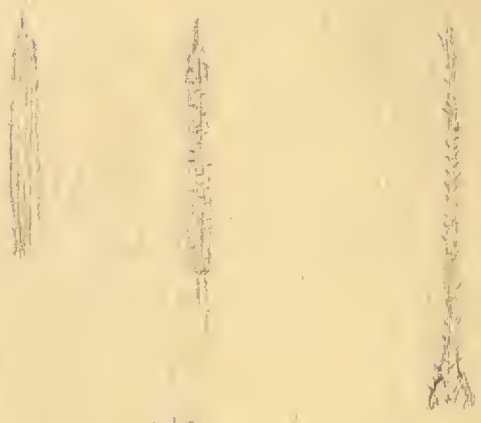
stamen



palea

sexual organs eaten up by insects

F.D. No 32264



Stamen
3
filaments
free

ovary
+ style
lodicules
absent

spikelet

2 empty glumes

F. D. 9989

Bambusa nana

empty glume

1 glume

3 lodicules

palea

stamen

lodicules

F. D. 10239 = 9598

B. pallida

spikelet

palea

stamen

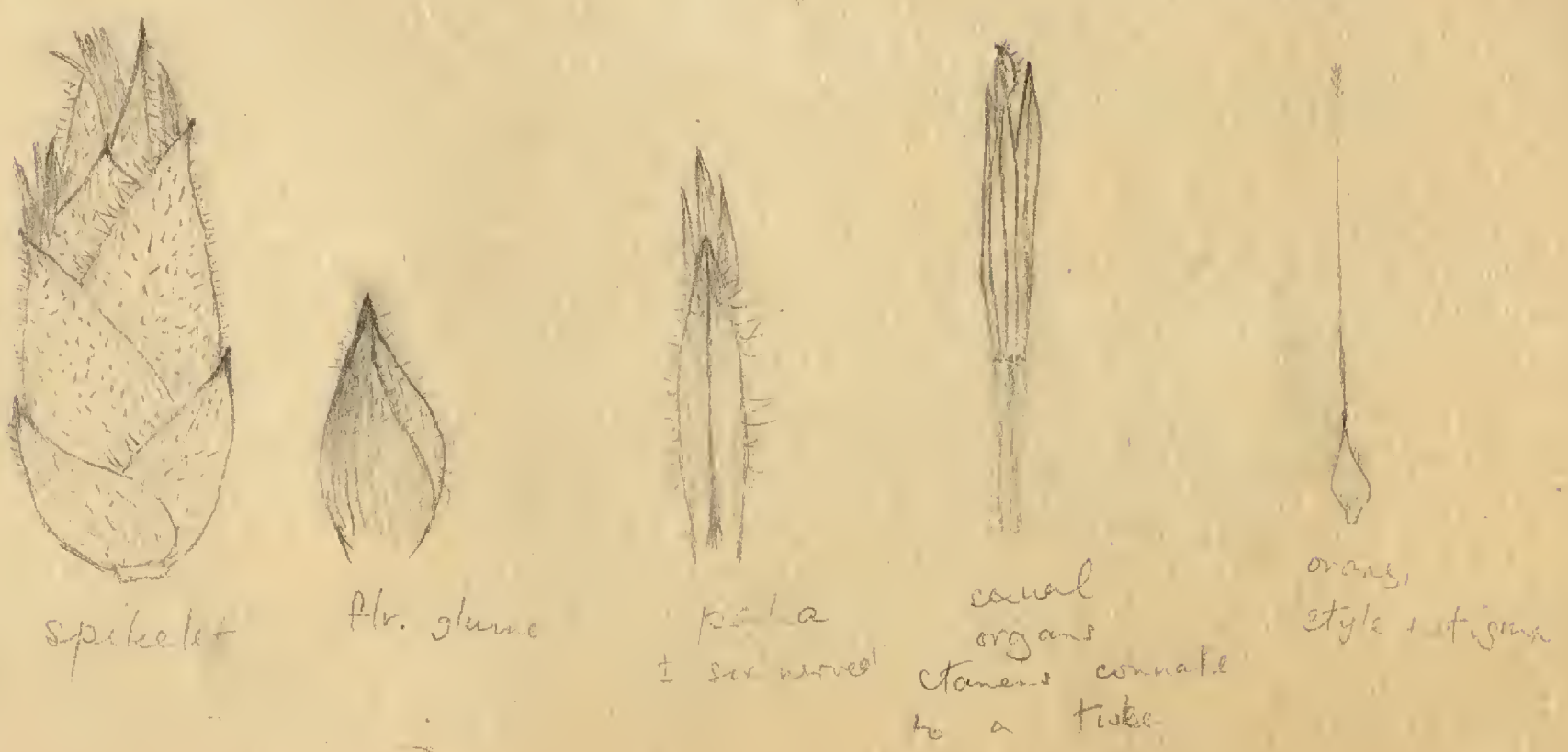
ovary
+ stigmas

2-keeled
ciliate at the
margins as well as the
apex.

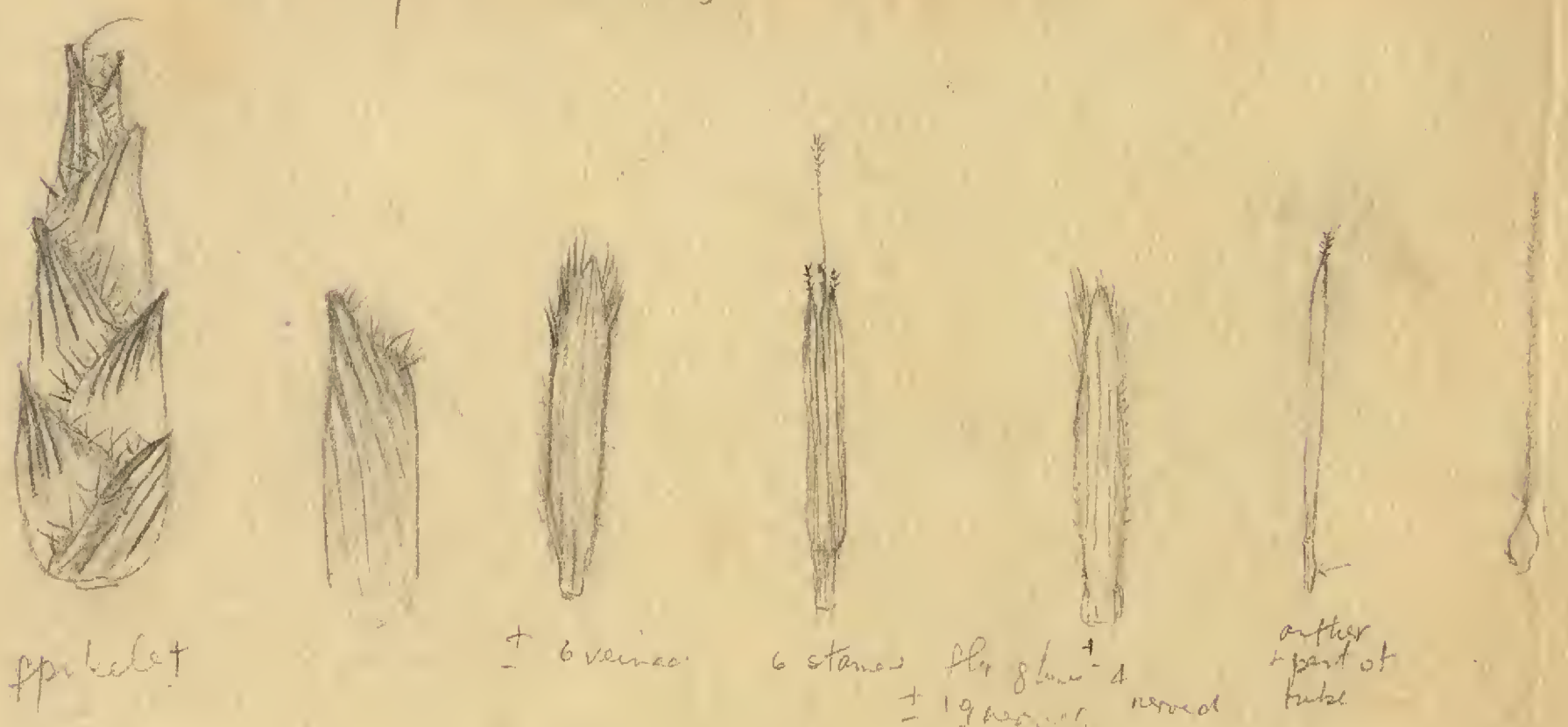
F3/52

S. dimosum

G. levis from the Philippines



Gigantochloa apus (Java)



F3/53

List of Bamboos in the Botanic Gardens, Singapore.

1. Schizostachyum brachycladum
2. " "
3. " "
4. Thrysostachys siamensis
5. Arundinaria
6. Schizostachys brachycladum
7. Melocanna bambusoides
8. Bambusa vulgaris
9. Cephalostachyum pergracile
10. Bambusa vulgaris
11. " "
12. Dendrocalamus pendulus
13. Schizostachyum brachycladum
14. Ochlandra sp.
15. Thrysostachys brachycladum
16. Bambusa vulgaris
17. " "
18. " "
19. " "
20. D.flagellifer
21. Bambusa vulgaris
22. " "
23. " "
24. " "
25. " "
26. " "
27. " "
28. Cephalostachyum sp.
29. B. vulgaris
30. Ochlandra sp.
31. Ochlandra setigera
32. B. vulgaris
33. " "
34. " "
35. B. vulgaris
36. " "
37. " "
38. " "
39. " "
40. Schizostachys brachycladum
41. Bambusa nana
42. Schizostachyum brachycladum
43. Dendrocalamus Hamiltoni
44. Schizostachyum brachycladum
45. " "
46. Gigantochloa sp.?
47. Taeniostachyum Dalloa
48. Dendrocalamus asper
49. Bambusa tulda
50. Dendrocalamus pendulus
51. Schizostachyum Zolligeri
52. Gigantochloa Scortechinii
53. " "
54. Dendrocalamus sp.
55. " "
56. Bambusa vulgaris
57. Gigantochloa sp.?
58. " "
59. " "
60. Bambusa vulgaris
61. Cephalostachyum sp.
62. Bambusa vulgaris
63. Bambusa Blumeana
64. " vulgaris
65. Dendrocalamus Hamiltonii
66. Taeniostachyum Dulloa
67. Bambusa spinosa
68. -

F3/54

69. Bambusa vulgaris

70. Bambusa spinosa

71. -

72. B. vulgaris

73. " "

74. " "

75. Ochlandra setigera?
to verify

76. Bambusa vulgaris

77. " "

78. Gigantochloa apus

69. Bambusa vulgaris

70. Bambusa spinosa

71. -

72. B. vulgaris

73. " "

74. " "

75. Ochlandra setigera?
to verify

76. Bambusa vulgaris

77. " "

78. Gigantochloa apus

List of Bamboos in the Botanic Gardens, S'pore.

1 Schizostachyum brachycladum
2 ..
3 ..
4 Thrysostachys siamensis
5 Arundinaria
6 Schizostachys brachcladum
7 Melocanna bambusoides
8 Bambusa vulgaris
9 Cephalostachyum pergracile
10 Bambusa vulgaris
11 ..
12 Dendrocalamus pendulus
13 Schizostachyum brachycladum
14 Ochlandra sp.
15 Thrysostachys brachcladum
16 Bambusa vulgaris
17 ..
18 ..
19 ..
20 ——— ? D. flagellifer
21 —— Bambusa vulgaris
22 ..
23 ..
24 ..
25 ..
26 ..
27 ..
28 Cephalostachyum sp.
29 B. vulgaris
30 Ochlandra sp.
31 Ochlandra setigera
32 B. vulgaris
33 "
34 ..
35 ..
36 ..
37 ..
38 ..
39 ..
40 Schizostachys brachycladum
41 Bambusa nana
42 Schizostachyum brachycladum
43 Dendrocalamus Hamiltoni
44 Schizostachyum brachycladum
45 ..
46 Gigantochloa sp.?
47 ~~Ochlandra sp.~~ Taeniostachyum Dallora
48 Dendrocalamus ~~(Hasskia~~ asper
49 ~~Bambusa tulda~~ Bambusa tulda
50 Dendrocalamus pendulus
51 Schizostachyum Zollingeri
52 Gigantochloa Scortechinii
53 ..
54 Dendrocalamus sp.
55 ..
56 Bambusa vulgaris
57 Gigantochloa sp.?
58 ..
59 ..
60 Bambusa vulgaris
61 Cephalostachyum sp.
62 Bambusa vulgaris
63 Bambusa Blumeana
64 .. vulgaris
65 Dendrocalamus Hamiltonii
66 ~~Ochlandra Ridleyi~~ Taeniostachyum Dallora
67 Bambusa spinosa
68 —
69 Bamena vulgaris
70 Bambusa spinosa
71 —
72 B. vulgaris ?
73 ..
74 ..
75 Ochlandra setigera ? to verify
76 Bambusa vulgaris
77 ..
78 Gigantochloa apus
79 ..

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1939

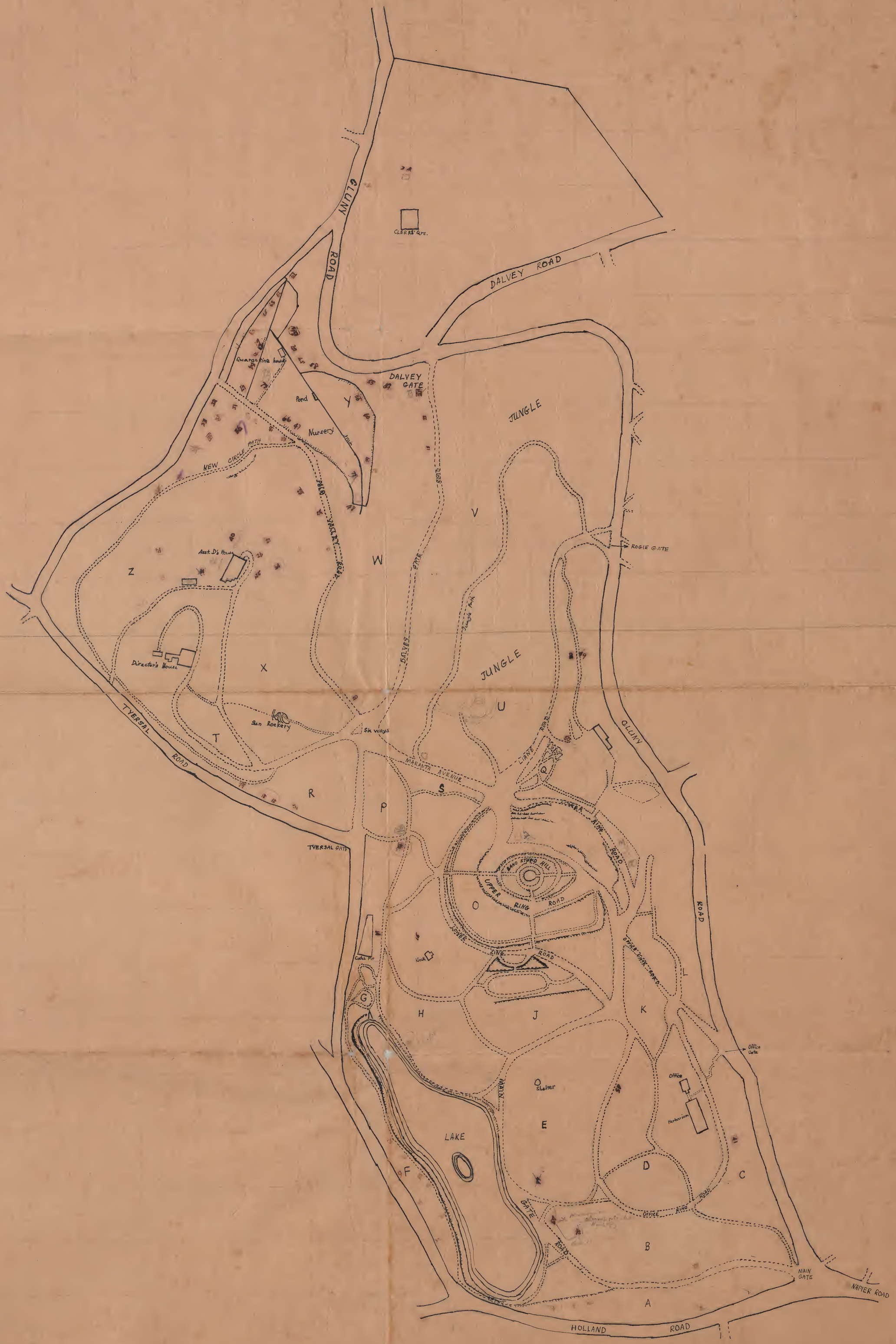
List of Bamboos in the Botanic Gardens, Singapore.

1. Schizostachyum brachycladum Kurz ✓
2. " " ✓ Kurz
3. " "
4. Thrysostachys siamensis ✓
5. ✓ Arundinaria ✗ 4 clumps no. 8 (Hort. Kew 1938)
6. Schizostachys brachycladum
7. Melocanna bambusoides ✓
8. Bambusa vulgaris ✓
9. Cephalostachyum pergracile ✓
10. Bambusa vulgaris Schizostachyum Zollingeri
11. Bambusa vulgaris
12. Dendrocalamus pendulus ✓
13. Schizostachyum brachycladum
14. Ochlandra sp. ✓
15. Thrysostachys ~~brachycladum~~ siamensis ✓
16. Bambusa vulgaris ✓
17. " " ✓
18. " " ✓
19. " " ✓
20. ~~D. flagellifer~~ " " ✓
21. ~~Bambusa vulgaris~~ ✓
22. " " ✓
23. " " ✓
24. " " ✓
25. " " ✓
26. " " ✓
27. " " ✓
28. Cephalostachyum sp. ✓
29. B. vulgaris ✓
30. Ochlandra sp.
31. Ochlandra setigera ✓
32. B. ~~vulgaris~~ stenostachya; Formosa 107/37
33. " " ✓
34. " " ✓
35. B. vulgaris
36. " " ✓
37. " "
38. " tuldoides ?
39. " vulgaris
40. Schizostachys brachycladum
41. Bambusa nana ? Grig. in Kew Nursery drawing
42. Schizostachyum brachycladum Nursery drawing
43. ✓ Dendrocalamus Hamiltoni - cult. in Botanic Gardens, Singapore 2/39
44. ~~Schizostachyum brachycladum~~ Bambusa vulgaris Nursery
45. " "
46. Gigantochloa sp.? ✓ to coll. sheet
47. Taeniostachyum Dulloa
48. ~~Dendrocalamus asper~~ Gigantochloa sp. (from Pahang fide Ahmad)
49. Bambusa tulda
50. Dendrocalamus pendulus ✓
51. Schizostachyum Zolligeri ✓
52. Gigantochloa Scortechinii ✓
53. Schizostachyum Zollingeri ?
54. Dendrocalamus sp. ✓
55. " "
56. Bambusa vulgaris
57. Gigantochloa sp.? ✓
58. Bambusa vulgaris "
59. Gigantochloa " ✓
60. Bambusa vulgaris ✓
61. ~~Cephalostachyum sp.~~ Dendrocalamus Hamiltoni (to get spp.)
62. Bambusa vulgaris ✗ Gigantochloa Scortechinii (Penang 1934)
63. Bambusa Blumeana ✗ Gigantochloa ligulata
64. " vulgaris ✗ Oxytenanthera nigrociliata
65. ~~Dendrocalamus Hamiltonii~~ ✗ " Dendrocalamus latispathus (Burma 45/34).
66. Taeniostachyum Dulloa Ochlandra ? Ridleyi
67. Bambusa ~~spinosa~~ apus Ochlandra
68. " Blumeana

F3/58

tuldoi

69. Bambusa ~~vulgaris~~ *Ridleyi*
70. *Oxytenanthera nigro-ciliata* ~~Bambusa spinosa~~
71. *Bambusa vulgaris* ✓
72. B. vulgaris ✓
73. " " ✓
74. " " ✓
75. *Ochlandra ?Ridleyi* Ochlandra ~~setigera~~? ✓
to verify
76. *S.h.* ~~Bambusa vulgaris~~
77. *Bambusa vulgaris*
78. Gigantochloa apus ✓ *n Ah. n*
79. *B.* ~~*Ridleyi*~~ *vulgaris*
80. *Gigantochloa Kurzii*
81. *Dendrocalamus calliflorus* 87/36
82. *Gigantochloa Kurzii* (Origin Queensld. 17.9.35.)
83. *Bambusa ? Ridleyi*
84. Bambusa 124/36 Holland Rd.
85. *Melocanna bambusoides*
86. *?Arundinaria*
87. *Bambusa dolichoclada*, Hayata *Formosa* 107/37
88. *Dendrocalamus latiflorus*, Formosa
89. *Semiarundinaria fastuosa*, Japan
90. *Dendrocalamus pendulus* *sp. neg.*
91. *Phyllostachys nigra*, 87/36.
92. *Arundinaria graminea*, 87/36.
93. *Phyllostachys edulis* 87/36.
94. *Phyllostachys nigra*, 87/36.
95. " *edulis*, 87/36.
96. *Pleioblastus gramineus*, Japan
97. *Pleioblastus Hindsii*, Japan
98. *Chimonobambusa quadrangularis*, Japan
99. *S.h.*
100. *S.h.*
101. *Phyllostachys reticulata var. castillonis*, Japan
102. *Pseudosasa japonica*, Japan
103. *s.n.*
104. = ?99.
106. *Saccharum senanensis*, Japan.
106. *Chimonobambusa marmorea*, Japan


CLUNY ROAD
CLERKS' Qrs.
DALVEY ROAD
Quarantine house
Pond
DALVEY GATE
JUNGLE
Nursery
KEW CIRCLE PATH
PALM VALLEY ROAD
DALVEY ROAD
ROGIE GATE
Asst. D's House
Director's House
Sun Rockery
Six ways
TYERSAL ROAD
JUNGLE
LIANE ROAD
CLUNY ROAD
MARANTA AVENUE
TYERSAL GATE
LOWER RING ROAD
BAND STAND HILL
UPPER RING ROAD
OFFICE GATE ROAD
Kiosk
Cattle Pit
LOWER RING ROAD
MAIN ROAD
Office Gate
Office
Herbarium
Shelter
LAKE
OFFICE RING ROAD
MAIN GATE
NAPIER ROAD
HOLLAND ROAD
A
B
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