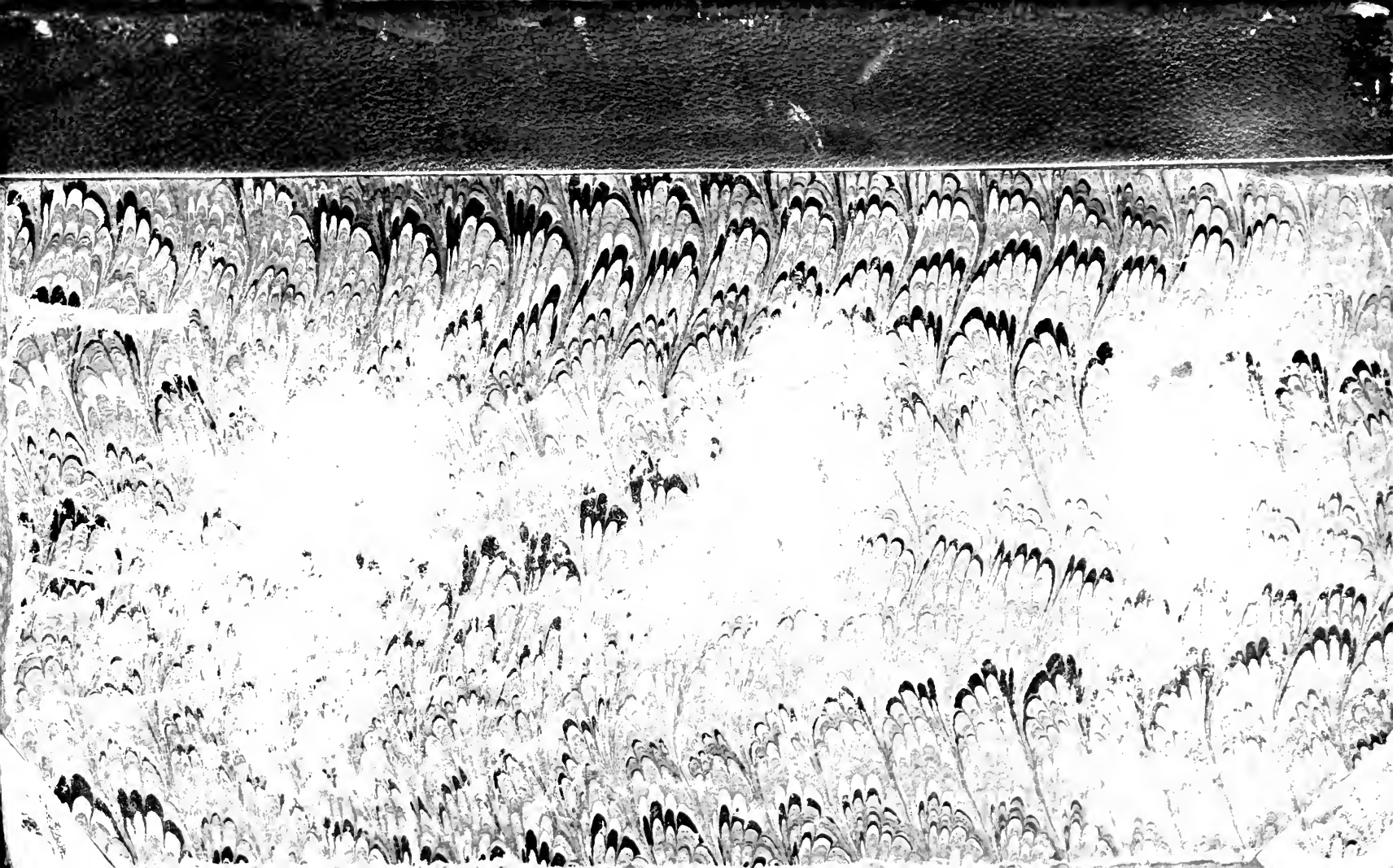

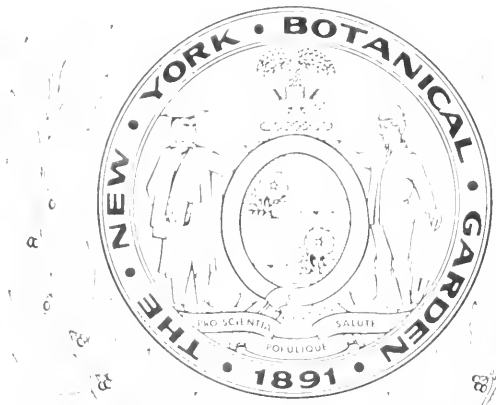

[Reprinted from TORREYA, Vol. 7, No. 9, September, 1907.]

THE DATES OF RAFINESQUE'S NEW FLORA AND FLORA TELLURIANA

BY JOHN HENDLEY BARNHART

As far as I am aware, no question has ever been raised concerning the reliability of the dates given on the title-pages of any of the works of Rafinesque. His Autikon Botanikon, to be sure, is dated 1815–1840, while no portion of the text was published until 1840; but this text was intended to illustrate an herbarium which the author had accumulated during the years 1815–1840, so that the meaning of the date he gives is manifest.

About a year ago I noticed in the Flora Telluriana (4: 27) a brief criticism of Gray's monograph of the Melanthaceae of North America, which was not published until November, 1837;* and this, of course, showed that Rafinesque's criticism could not have been published earlier than that date. A hurried examination revealed further internal evidence of the erroneous dating of the Flora Telluriana and its companion-work, the New Flora of North America, but the investigation of the subject was not carried very far at that time.

When the last number of the North American Flora was in press, it became necessary for Dr. Small to decide upon the relative priority of *Mesynium* Raf. ("1836") and *Cathartolinum* Reichenb. (1837), and this led to the study of which the results are here reported.

The New Flora of North America was undertaken by Rafinesque as a supplement to the works previously published by others upon the same topic; and as a result of his labors upon

* GRAY, A. Melanthacearum Americae Septentrionalis Revisio. Ann. Lyc. Nat. Hist. N. Y. 4: 105–140. N 1837.

it, he was led to undertake the preparation of its "sequel," the Flora Telluriana, dealing with the plants of the rest of the world. The pages of these two works contain many descriptions of "new genera" of plants, so that the dates of their appearance are of considerable importance. As the books themselves are quite scarce, a brief preliminary account of them may not be out of place.

Each was planned to consist of six "parts" or volumes, but was completed in four. Each of the eight parts is separately paged, and has a separate title-page and subtitle of its own; and each is dated "1836."

New Flora and Botany of North America

First part. Introduction, Lexicon, Monographs. 100 pages. 1836.
Second part. Neophyton. 96 pages. 1836.
Third part. New Sylva. 96 pages. 1836.
Fourth part. Neobotanon. 112 pages. 1836. (This contained also a general title-page for the entire work, dated 1836.)

Flora Telluriana

First part. Introduction and Classification. 103 pages. 1836.
Second part. Centuria I, II, III, IV. 112 pages. 1836.
Third part. Centuries V, VI, VII, VIII. 100 pages. 1836.
Fourth part. Centuries IX, X, XI, XII. 135 pages. 1836. (This contained also a general title-page for the entire work dated 1836.)

Of these eight parts, the first part of the New Flora was the first to appear. It contained a dedication dated at Philadelphia, September, 1836; and pages 73–80 are occupied by a monograph of the genus *Kuhnia*, dated October, 1836. These facts alone are sufficient to make one suspect that perhaps the eight parts were not all issued before the end of that year! There is not lacking other internal evidence on this subject, in addition to the citation of Gray's monograph (Fl. Tell. **4**: 27; also New Fl. **4**: 103, where the date of "Grey's" paper is distinctly stated as "1837"). Flora Telluriana, part 3 (which in turn is cited by

New Fl. **3**: 41, 51), on page 57 refers to Bot. Reg. *pl. 1906* (1 N 1836!); and on page 37 to Bot. Mag. *pl. 3540* (1 D 1836!), which could not well have reached Philadelphia before the end of the year 1836. Flora Telluriana, part 4 (which in turn is cited by New Fl. **4**: 56, 57, 63, 98), on page 124 cites Bot. Reg. *pl. 1958* (1 My 1837). But, in spite of these references, I know of no *internal* evidence that the two works were not completed before the end of the year 1837.

From internal evidence, too, it is possible to arrange the parts serially, in the order in which they were printed. This may be done by means of the exact citations, by page, of one work by the other; chiefly of the Flora Telluriana by the New Flora. The result is as follows: New Fl. I; Fl. Tell. I; Fl. Tell. II; New Fl. II; Fl. Tell. III; New Fl. III; Fl. Tell. IV; New Fl. IV.

In order to approximate more closely than might otherwise be possible the exact dates of issue of each of these parts, the series of letters written to Torrey by Rafinesque during the years 1836 to 1839, and preserved in the Torrey correspondence at the New York Botanical Garden, was searched, and the search was well rewarded, as is shown by the following quotations:

September 5, 1836.—"I having leisure have resolved to begin to print my New flora of North Amer. by alphabetical order. . . . When this Work is printed, my botanical labors from 1802 to 1836, in America, will be better known."

December 21, 1836.—"My flora proceeds very slowly & was even suspended awhile for lack of a compositor that could print Botanical terms! . . . I have concluded to close the Lexicon of monographs very abruptly, and give instead selected monographs & my N. Genera & species."

This shows that only ten days before the close of the year 1836 even the printing of the first part of the New Flora was not completed.

April 18, 1837.—"I wanted to surprise you with a great Botanical Work — my Flora telluriana . . . to which I was led by my New flora of N. Amer., but I could only print 2 parts or volumes. I. Classes & Orders. 2d. 400 N. Gen. my other engagts have compelled me to suspend for a while."

By the middle of April, 1837, then, had been printed one part of the New Flora and two of the Flora Telluriana.

October 24, 1837. — "I am still going on slowly with my New flora of N. America and Flora telluriana at once. . . . I have circulated but few copies of the numbers published, wishing to surprise you and all Botanists when the whole shall be out; but if you wish to see them earlier I may send you 5 numbers of 100 pages 8vo each very soon, and more next March."

From this it appears likely that a second number of the New Flora had appeared when this letter was written, and that a third number of the Flora Telluriana was nearly ready; or else that the two parts were nearly ready to be issued together.

January 10, 1838. — "My New flora or Mantissa begun to print in 1836 is still going on & altho' interrupted by my flora Telluriana & 2 works published this Spring (1. The Universe. — 2. Safe Banking) is proceeding as fast as correct exam. can allow. I wished to issue the whole work together; but I shall be compelled to issue when half is ready 3 numbers of 100 pages as in Flora tellur. My 3d N. on the Trees and Shrubs or a New sylva is not quite ready."

At the end of 1837, then, three numbers of the Flora Telluriana had been issued, and two of the New Flora, but on January 10, 1838, the third part of the New Flora was "not quite ready."

March 20, 1838. — "I have long ago concluded 600 pages of my Supplemental Flora & Flora Telluriana or 6 parts. If I had not undertaken these 2 works together, the first would have been completed ere now, but will be ere 1840."

The third part of the New Flora had evidently been published since the date of the January letter. It appears that Rafinesque still intended each work to consist of six parts, and for this reason allowed himself until 1840 to complete them.

February 1, 1839. — "My 4th part or Volume of New flora was completed so as to give you time to go on with your flora. I also completed my Flora telluriana in 4 Vol. or 1225 articles. But immed^{y} after begun & have concluded last Dec^{r} my Synopsis of N. G. & Sp. of Trees & Shrubs of N. Amer."

From this it appears that prior to December, 1838, both the

Flora Telluriana and the New Flora had been completed. The last sentence refers to Rafinesque's Alsographia Americana, which was dated 1838, and from his own statement above was probably issued in December of that year.

The extracts from Rafinesque's letters show that few, if indeed any, copies of either the Flora Telluriana or the New Flora had been actually distributed until three parts of each had been printed (in the spring of 1838); but, as he says in the letter of October 24, 1837, "I have circulated but few copies of the numbers published," we must give him the benefit of the doubt, and assume that he had distributed a few copies.

Rafinesque's Bulletin of the Historical and Natural Sciences was an advertising sheet issued by him at irregular intervals from 1834 to 1839. No. 7, dated "Spring of 1838," is devoted chiefly to the two works here under discussion. He says in part: "I had long contemplated to give a New Flora of North America. . . . I resolved . . . to add the improvements on Natural classification. These last, however, increased so much under my revision, as to become a work by itself, and a companion rather than addition to our Flora. Both works were begun in 1836, and our plants would all have been published by this time, if I had not thus been compelled to double these botanical labors. I once proposed to issue the whole at once when completed, but this delay and others arising from different pursuits and labors, have induced me to publish the parts as soon as printed, and now that 3 parts of each (being half a volume,) are published, I issue this Bulletin to acquaint the Botanists of Europe and America with" them. "Each work is to consist of 6 parts of 100 to 120 pages, thus forming a volume large octavo of 600 to 700 pages, which shall be completed in 1840 or sooner. . . . The 6 parts now printed, 3 of each work, will be sold together for $5."

The dates of the two works under discussion, as nearly as they can be determined from the evidence here submitted, may be summarized as follows:

New Flora	Part	I. 1836 (December).
		II. 1837 (second half).
		III. 1838 (first quarter).
		IV. 1838 (late in year).

FLORA TELLURIANA. Part I. 1837 (first quarter).
II. 1837 (first quarter).
III. 1837 (November or December).
IV. 1838 (near middle of year).

NEW YORK BOTANICAL GARDEN.

FLORA

TELLURIANA

BY PROF. RAFINESQUE.

FIRST PART.

PHILADELPHIA

1836.

FLORA TELLURIANA

PARS PRIMA.

INTROD. ET CLASSIFIC.

AD MANTISSA SYNOPTICA

2000

NOVA GENERA PLANTARUM

VEL NOV. ORD. ET SPEC.

IN ORBIS TELLURIANUM

Determ. coll. inv. obs. et descr. ad

C. S. RAFINESQUE, Bot. Prof. &c.

Ann. 1796 ad 1836.

PHILADELPHIA

1836.

FIRST PART

OF THE

SYNOPTICAL FLORA TELLURIANA,

INTRODUCTION & CLASSIFICATION,

With new Natural Classes, Orders and families: preamble of the 2000 New or revised Genera and Species of Trees, Palms, Shrubs, Vines, Plants, Lilies, Grasses, Ferns, Algas, Fungi &c. from North and South America, Polynesia, Australia, Asia, Europe and Africa, omitted or mistaken by the authors, that were observed or ascertained, described or revised, collected or figured, between 1796 and 1836,

BY C. S. RAFINESQUE, A. M.

Prof. of Botany, historical and natural sciences—member of many learned Societies in Paris, Vienna, Bruxelles, Bonn, Bordeaux, Zurich, Naples &c. Philadelphia, New York, Cincinnati, Lexington, &c.

To observe and compare, to correct or approve
By good names and new facts that convince and improve.

PHILADELPHIA :

PRINTED FOR THE AUTHOR

BY H. PROBASCO, NO. 119, NORTH FOURTH ST.

1836.

Les noms font les choses.

Names realize Entities.

Plus nos noms sont géneraux, plus non idées sont incompletes—Plus nous avons de noms, plus elles se completent. Lamark, Leach &c.

DEDICATION.

To Decandolle and Agardh worthy Improvers, and esteemed fellow laborers—and to all the Botanists aiming to improve the lovely Science of Botany by accuracy and discrimination, or who may wish to discard the Errors, Misnomers and Absurdities of former times or our own—These synoptical labors of accurate observations, proper distinctions, good denominations and correct analysis, the result of forty years of botanical researches and travels—
ARE INSCRIBED BY

THE AUTHOR.

NOTICE.

This whole work will comprize 6 similar parts, including 2000 new Genera and Species, with many new natural orders and families. This first part containing the Introduction and Classification.

Price of the whole work $5, each part one Dollar.

This work is a sequel to the NEW FLORA of NORTH AMERICA, and is the complement of the author's Botanical Works—The Genera of fossil plants and primitive types of our actual vegetation may be a subsequent sequel to this.

My FAUNA TELLURIANA or Synopsis of the new animals, living and fossil, Quadrupeds, Birds, Fishes, Reptiles, Crustacea, Shells, Polyps &c. which I have observed or ascertained between 1796 and 1836 will form the complement of my discoveries and researches on organized beings.

INTRODUCTION.

It is the duty of all the observers of natural productions to communicate their discoveries and researches. When a botanist has spent a long life in travelling over both hemispheres, collecting 100,000 botanical specimens, drawing 2000 plants, and discovering a multitude of new objects, as I have done: this duty becomes still more imperative. When to these exertions he may have added deep researches in the critical examination of many thousands specimens of plants from all parts of the Earth; and in consulting Books and Libraries, former authors and figures, Gardens and Herbals . . . as I have also done, this duty assumes the aspect of necessity; particularly if what he has ventured to publish heretofore in unconnected works, has not been widely spread nor duly appreciated or quoted, owing to the difficulty of times, circumstances, shipwrecks, or scattered tracts in remote places.

Such having been my case; I felt the need of revising and combining all my botanical labors, both published and unpublished, while I was engaged in printing my New Flora of North America, a kind of Mantissa or Supplement to all the previous Floras of that continent by Linneus, Clayton, Michaux, Muhlenberg, Pursh, Robin, Nuttal, Torrey, Beck, Bosc, Lamark, Hooker, Elliot, Eaton, Riddell, Bigelow, &c. Besides the numerous plants unnoticed by them, I found so many Species and Genera blended or in disorder, that it required a very extensive critical survey of those connected thereto elsewhere, to compare and ascertain the truth.

Thus I was induced to begin a complete revisal and critical examination of all doubtful or involved Genera chiefly; of which the number is incredible, owing to the absurd usual mode of forming Genera by a single sp. or a few only, to which others are referred *at random*, by mere habit, external appearance, or in spite of peculiar generic features or characters.

In fact when Linneus began a Century ago to reform Botany, he was compelled to go on by gradual steps; any other mode would have been too abrupt. He had the merit to fix Generic names, and to invent Specific names, adding to these a short diagnosis in imitation of the former phaseologic names.

It has been very well observed that the specific diagnosis or essential character of plants can only become fixed, when all the Species of a Genus are known; which will never happen until the whole Earth is explored thoroughly. Thus the epitomic characters applied to Sp. by Linneus, have been found totally inadequate and inacurate, always involving many distinct species. Botanists were compelled to change and swell them gradually to a kind of epitomical description, until they have lately run into the opposite extreme, and Hooker has even some of 75 words! or as long as a common minute description. It is our duty to seek the most conspicuous, constant or discriminating, and to reduce them to the most essential terms in the least compass.

Generic diagnosis were also too much condensed by Linneus and his school; they have been improved by making them essential in their respective tribes, and adding some important features of the habit, inflorescence &c. The

generic descriptions of Linneus in his Genera plantarum are totaly useless, since they were made upon one or a few sp. alone, which are not even mentioned . . .! and almost never apply to the whole Genus, when it has many species.

As to the sexual system, once so much insisted upon, I have lived to see it exploded, as such unnatural and indelicate system deserved. The beautiful natural method, the same pursued by Linneus for animals, has taken its place, in spite of sturdy opposition or delayed assent. But unfortunately often falling into reluctant hands the substitute has not yet reached its due perfection like Zoology. If my suggestions in 1814 in Principles of Somiology, and in 1815 in Analysis of Nature had been attended to, it might have been otherwise; but the best Botanists persist to this day in making classes, orders, families or tribes without available and distinguishing essential characters, common to all the refered Genera.

While Sir James Smith the friend of Linneus, and possessor of his Herbarium, corrected so many of his glaring mistakes in Rees Cyclopedia: he expressed his deep regret at the impending fall of his beautiful botanical fabric: which implied a wish to retain his erroneous system, Genera and Species. Such as the shameful and patched up Genera *Sophora*, *Geranium*, *Cactus*, *Mimosa*, *Lichen*, *Conferva*, *Acrostichum*, and 300 like them, that have been split and reformed even by the Linneists.

A number of less enlightened pupils or tenacious worshipers of the Linnean System, have insisted on preserving all its inconsistencies and blunders, bad Genera and Species. Others like Thunberg, Wildenow, Persoon, Smith, have

more or less corrected them: which was called a mutilation by some worshipers of his Errors. Most of them have still insisted on the perverted axiom that the *Genus gives the character!* which for them meant that the Linnean bundle of plants, called a Genus, was to afford a common loose generic definition, whatever might be the essential features peculiar to each Sp. wrongly put in the bundle. I was compelled to transpose this axiom, by maintaining that *the character makes the Genus*, or that no proper Genus can exist without a character applying to all the species it contains. This principle fully applies also to Tribes or families, Orders and Classes; altho' quite neglected by the actual Botanists, who do for them what Linneus did for genera.

My own improvements in finding discriminating characters for all generic and other groups extend chiefly to frame none but *positive* and exclusive characters of a permanent nature in contrast—and besides to shorten long descriptions by avoiding repetitions, or merely stating how a Genus may differ from another, which always implies that they agree in every thing else.

Every Genus ought to find a place in the natural method, when properly known: none but those partialy described can be doubtful. Hence Jussieu was wrong in having so many Genera *inserta sedis*, which no one could find by his method, with so many G. improperly added to families; while both were often types of new families since established. But Linneus, Adanson, Necker . . . did worse in forming many families of plants loosely connected by habit rather than the fructification.

Since Gaertner anatomy of seeds, too much stress has been laid upon this internal structure; which is unavailable for practical purposes, and only useful in botanical physiology. If every one was compelled to dissect a seed or an egg, before he could ascertain the Genus or family of a Plant or Bird, the sciences of Botany and Zoology would become unattainable.

The axiom of Lamark that prolific Genera ought to be divided, holds true for most of them, as much for *Carex*, *Euphorbia*, *Vaccinium*, *Solanum* &c. as for *Scirpus*, *Geranium*, *Amaryllis*, *Lichen*, and all the polymorphous G. For instance, in Grasses and Lilies, the number of Stamens and Stigmas is generic; so important as to divide Families: Jussieu has based thereon many of his families, and the sections of grasses.

A great advantage results from multiplying good Genera: since by it we lessen the constant repetitions of many common characters. But when Lamark said that small Genera might be conveniently united, he overlooked that Nature does not limit them in that way; but admits of many distinct Genera of one or few species, either as late deviated types, or remains of nearly extinct types of generic forms. Besides, most of the Linnean Genera of one Sp. have been found to have several, when the earth has been better explored; this was the case with *Kuhnia*, *Parnassia*, *Hydrastis*, *Fragaria*, *Dionea*, *Hippuris*, *Gaura*, *Samolus*, *Oryza*, &c. The type of a family may also be single at first, but soon becomes multiple, when we explore the Earth.

Meantime since the Linnean period, his own attempt at the enunciation of Natural Orders,

without characters! perhaps based on his own views of the transmutation of characters, has been much modified, amplified and improved; and even the transmutation of Species and Genera insisted on by some: yet the more rational opinion of Necker that Species alone could (at least in the actual state of our Globe) be multiplied as breeds of their peculiar Genera, has been little attended to, probably owing to his deviation of terms, since he insisted on considering the natural Orders as Genera, these as mere Species, and our Species as *Proles* or Breeds. The subject of specific varieties was much neglected by Linneus, and left to the Horticulturists, and yet he admitted of Pelorian Genera, Hybrid Species and permanent varieties.

If 40 years of botanical observations, with many herborizations in similar spots of North America at a distance of 32 years, may entitle me to state my impressions on this abstruse subject, and add my testimony thereto, I must declare my conviction that 1. Vegetation produces only individuals! whose permanence is limited by their life. Our Species, Genera, Families, and Orders are well known to be mere abstract terms of successive groups, formed by a Synthetic operation of our mind, in order to study more conveniently such collective groups of Individuals. Their permanence in continual succession of forms can only be temporary: since their permutation of forms takes place spontaneously in their natal soils, as well as our gardens where it is increased by art; while new varieties and species were often met by me at long intervals in wild places well explored be-

fore, grown from seeds of akin species. See my remarks and facts collected in my new Flora.

2. Plants vary gradualy, in features, aspeet, size, color &c. by a natural spontaneous deviation from seedlings. This may happen quicker in annuals, less quick in perennials, slower still in trees, except when the tendency has already become active. These deviations may gradualy form distinct varieties, next Breeds, at last becoming separate Species, when they assume a striking difference, and peculiar specific characters of a more permanent nature. The disparities in the descriptions and figures of old and modern botanists amply verify this.

3. Even perennials may vary slightly in annual shoots from the same root, and trees in different branches or annual growth. When a tendency to deviation by monstruosity, hybridity or variety is taken by an individual, the seeds produced will unfold them when growing, particularly if removed from the native place into gardens and new soils.

4. Pelorian Genera, or Generic Deviations in flowers and seeds, happen slower or more seldom; being often unnoticed, or the produced seed is not always fertile. When it is, the offspring may become the type of a New or distinct Genus. Many such perish before they reproduce the deviation by fertile seeds; but a few survive and are the types of akin Genera.

5. The periods of these deviations are doubtful, much fluctuating and various in length or existence. But we may assume as an average 30 to 100 years for the deviating or spliting range of specific deviation, and 500 to 1000 years for the Generic deviation; altho' their

real permanence is much longer. Specific and generic Lives have not yet been calculated.

6. Therefore many of our actual or newly described Genera and Species, may be of recent origine, and all may have once sprung at the last rinovation or cataclysm of this Globe, from a lesser number of original types, perhaps found in the fossil plants of our Earth, which are far from being all knowu as yet, and whose seeds were preserved in mountains, earth, mud or water tiil the catastrophe was over,

7. It is even possible to ascertain the relative ages and affinities of actual species and Genera, sometimes their very parents or connections in the Genus or the tribe. Those we call hybrids are not always such, they may arise from other deviations; but artificial hybrids are evidently such. All these deviations are still less permanent.

8. As a general rule the real Genera (not the false ones of blending Botanists) of single or few species are the newest in order of time, and the most prolific the oldest in the Series. The same for tribes perhaps. False Genera like *Erica*, *Carex*, *Aster*, *Allium*, *Lichen*, *Euphorbia*, *Mimosa*, *Geranium* &c. comprizing a crowd of generic distinctions, are as many collections of related Genera, springing from very early sources or types of forms. Extensive natural Genera prolific in Sp. like *Rosa*, *Iris*, *Quercus*, *Salix*, *Oxalis*. *Malva*, *Vitis*, *Lactuca* &c. had also a very old or primitive source. Species prolific in individuals and varieties are always the oldest, and rare Species probably the newest of all, unless they are fragments of extinct groups.

Such exposition of my principles, and expla-

nation of motives were perhaps needful, when I am going to increase the generic groups, perhaps beyond any thing ever done of the kind. Linneus had only 1444 Genera, in his last edition towards 1778; Persoon in 1807 had already 2300 phanegamous Genera. Jussieu in 1789 had nearly 2000; but Necker in 1790 only 1842. The 48 Cryptogamic Genera of Linneus have swollen to 400. Every year and every writer adds to the number. Ever since 1815 I had ascertained and classified nearly 3000, whereof 500 were my own. It is this labor, indicated in my analysis of Nature. that I now propose to enlarge, rectify and publish: whereby as many as Linneus ever had will be added or revised, and about 1000 will be totaly new, even now, as late as 1836, or not yet generally adopted.

Altho' this attempt may astonish or perplex some timid Botanists, my labors will be duly appreciated ere loug, and my unceasing efforts to improve the science meet with a kind reception from the new improving school. The axiom that a multiplication of names enlarges our ideas, holds true in all cases and sciences, since they are based on facts or mental entities. Some Linneists have vainly tried to to throw discredit on generic reform, and called us *Genera-mongers*. We may in return call them *Genera-Shufflers*, who want to squeeze plants into improper Genera, and delay iuprovements by opposing the corrections of botanical blunders. It is to them that we owe the superfluity of synonyms: they often shuffle plants into 3 or 4 Genera, as Linneus did for *Heliopsis*, until it must at last form a Genus of itself. It is a fact that almost all plants of doubtful Genera, are

types of peculiar ones; the chances of it increase, as they are shifted.

As to names, some botanists are very careless, and deem them of little consequence, forgetting the very rules of their Linneus, whose *philosophia botanica* they never read. I can boast at least of some accuracy and taste in my Nomenclature; I frame none but good or meaning Names, none of mine are bad, unless preocupied unknown to me, as my *Calistachya*, *Darwinia*, *Diplogon* . . . All previous names, anterior in dates, ought to prevail, and dates must be given in doubtful cases. If I have made use sometimes of native names, I have only followed Linneus, who in spite of his strict injunction had adopted *Coffea*, *Jasminum*, *Yucca*, *Pandamus*, *Piper*, *Tamarindus*, *Cocos*, *Canna*, *Cassia* &c. from Arabic, Celtic and foreign names. My Genera *Zaga*, *Lolanara*, *Ramotha*, *Jupica*, are as geod as these, and my *Tilcusta*, *Kozola* equal to *Vanilla* or as pretty.

I have often dedicated new Genera to Botanists, or to worthy men, philosophers and naturalists, eminent Horticulturists or promoters of knowledge &c. My Genera *Fenelonia*, *Empedoclia*, *Platonia*, *Thalesia*, *Adlumia* . . . are as good as *Aristotelia*, *Enpatorium*, *Euphorbia* &c.—If I have lost my G. *Pythagorea*, *Bivonia*, *Savia*, *Torreya* &c. by preocupation; Lindley has lost his *Clintonia*, mine being the first dating of 1817, 1819, 1825! So many Botanists, establish Genera at remote places that these clashing names must often occur: to prevent the loss of my names, I may sometimes give a double substitute in case of need, as I did for *Darwinia* or *Monoplectra*. I am never

at a loss for names, as Linneus was when he framed *Quisqualis;* I could readily supply 20-000, *all good*: and Adanson table of Synonyms is an unfailing mine of old Classical names. As I have not yet heard of a Genus dedicated to me, I shall perhaps have to imitate Roxburg, and choose one for myself, as a *Rafinesquia!*

Altho' Linneus gave strict rules of nomenclature, he has broken them himself in 100 instances. He would have no generic names derived from each other, nor made up by adding or substracting a letter or a syllable: and yet he has *Ambrosia*, *Ambrosinia—Pyrus*, *Pyrola —Zea*, *Zeus—Thea*, *Itea*, *Althea—Aster*, *Asterias—Apis*, *Apium*, *Sinapis—Capra*, *Capraria—Linum*, *Talinum*, *Selinum—Pinus*, *Carpinus*, *Lupinus—Delphinus*, *Delphinium —Canna*, *Cannabis*, *Canarina*, *Canarium*, *Melia*, *Bumelia*, *Bromelia. &c.*—The natural Botanists disregarding still more his tasteful principles, have added a crowd of similar bad names, *Portulaca-ria*, *Oryz-opsis*, *Aquila-ria*, *Actinella* &c. *Helianthemum* identic with *Helianthus*, which is my *Anthelis—Calamagrostis*! my *Amagris*, which have encumbered nomenclature. It appears that by the increase of names, Botanists begin to be at a loss for them, or cannot seek for good derivations.

Linneus objected also to names either too short or too long, under 2 or above 4 syllables; yet he has *Bos*, *Mus*, *Sus*, *Boa*, *Poa*, *Thea*, *Zea*, &c. which I changed for him into *Taurus*, *Musculus*, *Aper*, *Theaphyla*, *Mayzea*—He had also *Securidaca*, *Aeschynomene*, *Indigofera* &c. of 5, which may be tolerated; but *Tabernamontana* of 6 is intolerable, and must become *Tabernaria—Boa* and *Poa* are both too

alike and too short, why not say *Ophisboa* and *Poagris?* I have constantly insisted for the purity of tasteful nomenclature; but regret to see it oft neglected by the very best Botanists. Good names ought to be either classical or full of meaning; the best even to describe the main essential character.

Another source of mistakes arises from blunders in Orthography, or errors of the press, copied inadvertently. Thus it is now well ascertained that these gave rise to the *Prunella* read *Brunella*, *Befaria* read *Bejaria*, *Amsonia* read *Ansonia*, *Galardia* read *Gaillardia*, *Gualteria* read *Gaultiera*, *Pentstemon* read *Pentostemon*, *Sarracenia* read *Sarazinia*, *Scilla* read *Skilla*, *Diclytra* read *Dielytra*, *Marsileæ* read *Marsiglia*, &c.

A new general Pinax of Names, like that of Bauhin of old, is very much wanted; but who shall undertake the herculeun task? It might be done however for Genera at least, and the admirable table of old generic names collected by Adanson, might serve for model. The generic synonymy of Decandole and Sprengel are but incomplete attempts. This surabondance of names arises from the timid or unskilful Botanists, who are not able to refer Plants to their proper Genus, nor able to make New Genera of those that disagree. It will never cease till skilful Botanists alone meddle with Names.

The compilers, translators, editors and commentators of the Linnean School have for 60 years past, often tried to keep Botany nearly at a stand, or impeded its progress. They have often neglected to avail themselves of the works, researches and discoveries of those who were not strict Linneists. They neglected for a long

while Adanson, Necker, Richard, Lamark, and even Jussieu the fathers of natural Botany, whose labors are now superseding theirs. No wonder then they have also neglected mine of the same tendency.

Among the best Linnean writers must be reckoned Schreber, Richard, Murray, Smith, Salisbury, Vitman, Vahl, Wildenow, Persoon, Gmelin, Aiton, Romer, Shulze, Sprengel, Pallas, Fontenille, Lehman &c. whose works I have duly studied and used.

But I value above all the improving Botanists, such as Mench, Gaertner, Swartz, Desfontaines, Lamark, R. Brown, Decandole, Kunth, Esenbeck, Lindley, Agardh, Desvaux, &c. that have enlarged or continue to improve the Science. It is among them that I have aimed to deserve a place.

Some applying themselves to a single Class, Order or even Genus of plants have introduced admirable monographs, that become the bases of future stability. I may mention as models Persoon and Fries on Fungi, Acharius on Lichens, Agardh on Algas, Smith & Swartz on Ferns, Palissot on Grasses, Cassini and Lessing on Composite, Richard and Lindley on Orchidea, Bentham on Labiate . . Besides the many families already illustrated by Decandole. To him we chiefly owe the practice of dividing large and incongruous Genera, into Sub-Genera, which will surely become gradualy as many Generic groups, unless not based on the fructification.

The greatest botanical discoveries have been made since Linneus, by travellers to distant regions, and authors of local Floras. Australia, Polynesia and both Americas have doubled the number of recorded plants. Linneus only had

about 8000 sp. and only knew 3000 well, now we know about 5000 Genera and 100,000 species; yet we yearly increase their number. Those who have mainly enlarged our knowledge of Genera, were chiefly in North America, Michaux, Pursh, Nuttal, Elliot, Bosc, Hooker, Torrey, Beck, Kunth, Llave and Legarza.—In South America, Aublet, Mutis, Dombey, Ruiz, Humboldt and Bonpland, Poiteau, Swartz, Spix and Martens, Molina—In Oceania or Polynesia and Australia, Forster, Labillardiere, R. Brown, Commerson, Thouars, Cunningham, Thunberg —In Asia, Pallas, Clarke, Fischer, Ledebour, Hamilton, Walich, Roxburg, Forskahl, Loureiro—In Africa Desfontaines, Delille, Caillaud, Bruce, Schousboe, Palissot, Thunberg, Afzelius —and in Europe Waldstein, Jaquin, Sibthorp, Allioni, Viviani, Tenore, Brotero, Gilibert, Bivona, Gussone, &c.—These worthy laborers deserve our thankful gratitude: and it has been properly deemed that *every word they have set down in their writings is of real value;* such actual observers alone mainly increase the range of Science; Researches in Gardens, Herbals and Libraries only come next: I am at least one of them, if no more, and I belong to both hemispheres.

Another Class of Botanists by publishing collections of splendid botanical figures, have afforded many materials; but their costly works, whose figures and descriptions do not always agree, are often beyond common reach. Such are Jacquin, Ventenat, Delille, Labillardiere, Oeder, Sibthorp, Lheritier, Catesby, Redoute, Ruiz and Pavon, Curtis, Sims, Ker, Andrew, Lindley, Hooker, Cavanilles, Tenore, Humboldt, Delessert, Roxburg, &c.

Others have issued annals or journals of Botany, else vast compilations or Encyclopedias of Botany, where are found many useful accumulated materials; such were Lamark and Poiret, the dictionaries of Nat. history, Dumont-Courset, Miller and Martyn, Smith in Rees, Loudon &c. I have read and consulted them all: with many more here omitted, and even some authors of rare works seldom quoted; such as Petagni, Vitman, Scopoli, Gouan, Bartram, Llave, Legarza, Dumont, Fontenille, Cupani, Chabreus, Gilbert, Thouars, Loureiro, Lunan, Russel, Clarke, Robin . . . In all there was something to glean.

Yet the result of all my researches upon these former writers, has been merely with the view to rectify their mistakes and generic blunders, or add to their knowledge. This work is not to be a compilation of their labors; but rather a supplement to all theirs, and the complement to my own. The fields wherein I was led to seek for original knowledge, were Italy and the South of France from 1796 to 1802. North America 1802 to 1804. Italy and Sicily from 1805 to 1815. Spain and the Azores in 1815. North America again from Canada and Boston, to the Mississipi and Apalachian mts. during 1616 to 1836. My travels and researches may be seen in my *Life of Travels* published this year 1836.

I have chiefly studied and collected plants in their native wilds, from the Summit of Etna to the falls of Niagara: but I have also visited many botanical and private Gardens in Marseilles, Genoa, Pisa, Leghorn, Palermo, Messina, Philadelphia, New York, Boston, Albany, Cincinnati, Lexington, Washington, &c. where

I examined many exotic or rare Genera. My own library and Herbals of botanical specimens, with the public or private collections of books, figures and plants, have afforded me many materials. Every Genus which I venture to establish has usualy been examined alive or dried, or I have had a good figure or good description to depend upon, sometimes both, or even all those means combined.

A complete Catalogue of all my botanical works and tracts will be found in chronological order in my *Herbarium Rafinesquianum* 1833. Most of them are now collected in my Amenities of Nature. In 1808 by publishing my N. G. with 69 N. Sp. of North America—In 1810 my N. animals and plants of Sicily, 21 N. G. 80 N. Sp. of plants—my career of discoveries was begun.

In 1814 my chief works were Compendium of Discoveries, with 14 N. G. 78 N. Sp. of plants—22 N. G. and 30 N. Sp. of plants in my Cyclopedical Journal—besides the principles of Somiology wherein I gave the rules of natural classification for animals and plants: with principles of nomenclature. In 1815 my main work Analysis of Nature wherein I indicated 310 families of plants properly distributed into 66 Orders and 10 Classes. As Decandole had then only 150 families, 160 of mine were then new, altho' many have since been adopted without due credit for my previous sagacity and good names. Also my Chloris Etnensis published in Recupero history of Etna, classed naturaly.

My florula Ludoviciana of 1817 had 30 N. G. and over 160 N. Sp. admitted from Robin; I was blamed for having done for him what

Gronovius did for Clayton, and Wildenow for Loureiro!

My florula Mandanensis and Missurica based upon the plants and specimens of Bradbury, Lewis, Miller and Beck, written between 1817 and 1820, but never published. and a copy sent to England was lost. Other similar mpts. of mine, yet unpublished, I deem useless to enumerate.

Between 1816 and 1818 I rectified many errors of Pursh, Nuttal, Barton, Bigelow, Elliot &c. in reviews, and published 40 new plants. In 1819 my 50 N. G. of American plants were published in *Journal de physique* of Paris.

In 1820 my annals of nature had 25 N. G. and 124 N. Sp, of animals and plants, and my monographs of Rubiacea, Rosa, Houstonia, Lysimachia, Convolvulus &c. were published in the *Annales des Sciences physiques* of Bruxels.

In 1825 I proposed 66 American N. G. in my Neogenyton. In my Medical flora of the United States 1828 to 1830 I gave many N. Sp. and figures, with monographs of *Vitis*, *Gentiana*, *Heuchera*, *Trillium*, *Unisema*, &c.

In 1830 and 1831 I sent to Decandole at his request several mpts on 16 New families, and 175 New Genera of Plants chiefly North American, among which 60 N. G. of Composite besides 90 New Species of the same Order, and 45 N. Sp. of other orders, with 188 Specimens of rare, new or doubtful plants.

In my Atlantic Journal 1832 to 1833, I gave 150 N. G. or Sp. of Plants. In 1833 was begun my *Herbar. Raf.* with many new plants, Genera, and Catalogues of my discoveries, botanical collections &c.

Altho' I am a draftsman, and can draw my

New plants, I have seldom been able to publish my figures. My edition of Cupani, and the Amer. plants engraved before 1815, were lost plates and all in my Shipwreck of 1815 with my herbarium, only few copies have survived. I only gave 100 wooden cuts in my medical flora, and about 80 in my School of flora; 36 in American Florist, cheap popular works. Thus I resolved to publish my 500 ICONES RARIORUM in mpt. and also my AUTIKON BOTANIKON or Self figures by Specimens of 2500 new or rare plants, to be sold at the same rate as the actual usual printed figures.

At last in 1836 I began to print my New Flora of North America, Supplemental to all the others, with 1000 N. Sp. at least; which has led to the actual Synopsis or Mantissa, as a recapitulation of all my scattered works and observations, or their principal facts.

As to classical arrangement I have aimed at none at first, because my own natural improved families, now amounting to 375 would have still more staggered the reluctant Botanists. I divide this work in Centuries with numbers, keeping often together akin Genera.—This is the actual plan of many books of botanical novelties, Hooker, Lindley &c. The alphabetical order would have been useless where so many new Names occur, but Indexes shall be given, tables of Natural Orders at the outset, and a general classification at the end of the whole work. Those authors who admit only what they see, or upon trust of particular friends, would not probably pay more attention to my researches, if given under any other garb. Those who seek for truth and new materials, will easily find both here, and mould them into their own shape or

method. Whoever may wish for further proof in costly figures and specimens will find them in my ICONES and AUTIKON (and possess them by buying them), else in the N. Amer. plants of my Flora: meantime this work is perhaps the first ever published in America on General Classical Botany; and it will be a mine of botanical knowledge, to those willing to avail themselves of such help any where.

Such have been my labors and exertions in my favourite Science, the most amiable of all, and the earliest as it shall be the latest of my pursuits thro' life. Reader, kind or unkind . . ! do not disdain these results of long experience and criticism; dismiss bad names and groups; adopt or further improve my generic and tribal clusters. They are the natural evolution of spontaneous vegetable life exerted in wisdom thro' ages. Imitate my zeal, and be happy in the lovely study of flowers.

To seek the truth in floral gifts concealing,
Is pleasing task; to lofty minds revealing
Their secret beauties clad in bright array,
That wisdom teach and to the mind convey.

NATURAL CLASSIFICATION.

The fathers and improvers of the Natural method have not settled, which are to be the first and last Genera in the serial arrangement. Adanson in 1763 began with *Tremella*, ending with the Mosses, thus going in a circle. He was followed by Scopoli who began with Incompletes ending with Fungi, but Linneus from the Palms to Fungi. Jussieu in 1789 began with *Mucor* ending with *Abies*, from the most simple plant to the loftiest trees. Decandole in his flora gallica 1806 began with *Nostoch* ending with *Actea*. In his synopsis plantarum he has reversed this order in imitation of Zoology, beginning with *Clematis*. Necker in 1790 began with *Inula* in the Radiate, ending with the Confervas.

Therefore I thought in 1815 that I could improve thereon by beginning with *Rosa*, the queen of flowers, as *Homo* is the king of animals! ending with *Mucor*, but now I end with Spunges. The most perfect flower ought to open the descending Series of organization, and not the *Umbellifera* of Lindley series. Agardh has again taken the ascending series and begun with Fungi in 1822.

Thus they all differ in this, and do not agree better in their clusters of Classes, Orders and families. From Cesalpini who in 1583 made the first attempt at a natural method to our days, all the methods are variable; but begin to improve since Adanson or rather Jussieu, and have increased from his 58 families to nearly 400; which have been called Sub-Orders, Sub-

families, Sections, and even Cohorts and Legions by some drillers.

I have contended with Linneus and Jussieu, that we ought to have only natural Classes and Orders, but admit families as main Sections of Orders, and many other Sections, in all to help the analysis. The natural method may become strictly analytical, as much so as in Zoology; whence I perceived that Botany could be analyzed in a paralel number of Classes, if not of Orders with Animals; each as distinct of each other as are Birds, Fishes, Worms, &c.

Having read and studied whatever has been added or stated on natural Botany since 1815, I have not found needful to change materialy my proposed improvements matured between 1800 and 1815; as to Orders, but some new Classes and families must be added, or find a place in my method, which has the advantages of facility, universality and exclusiveness, or general application, and easy analysis by exclusive characters of all the groups, like the analytical tables of Lamark.

Having published nearly 200 such new families in my analysis of Nature 1815, fixing them by mentioning their generic types, I deem proper to lay claim to the following, dating as early. They are all exclusive and different from the 100 of Jussieu.

TABLE OF NEW NATURAL FAMILIES

And their TYPES in 1815.

I. Class, ELTROGINES, *Rosa* the first Genus, type of real Rosaceous plants.

1. SENTICOSIA, types Genera *Rubus, Fragaria, &c.*
2. POTERIDIA, types *Poterium, Agrimonia.*

3. Gonoligia, type *Alchemilla, Sibbaldia.*
4. Spireadia, type *Spirea.*
5. Thylaxia, type *Zanthoxylum.*
6. Achenopsia, types *Coriaria, Aylanthus.*
7. Thalictria, types, *Thalictrum, Tetracera*
8. Peonidia, types, *Peonia, Caltha.*
9. Hetralonia, types *Aconitum, Nigella.*
10. Axarcodia, types *Morus, Artocarpus.*
11. Endophoria, " *Ficus, Dorstenia.*
12. Mesophoria, " *Xanthium.*
13. Ulmidia, " *Ulmus, Celtis.*
14. Amyridia, " *Amyris.*
15. Rivinidia, " *Rivinia.*
16. Phylicia, " *Phylica, Ceanothus.*
17. Peplidia, " *Peplis, Ammania.*
18. Dionidia, " *Dionea, Monotropa?*
19. Violidia, " *Viola.*
20. Iberidia, " *Iberis.*
21. Isatidia, " *Isatis.*
22. Alyssinia, " *Alyssum.*
23. Hesperinia, " *Hesperis.*
24. Sinapidia, " *Sinapis.* These 5 from 20 form the Order of Cruciferous.
25. Acteasia, type *Actea.*
26. Glinidia, " *Glinus.*
27. Tragidia, " *Tragia.*
28. Phalarsia, " *Cluytia.*
29. Ricinidia, " *Ricinus, Acalypha.*
30. Droseria, " *Drosera, Parnassia.*
31. Empetridia, " *Empetrum.*
32. Alsinia, " *Arenaria, Cerastium.*
33. Linidia, " *Linum.*
34. Tamarixia, " *Tamarix.*
35. Passiflorea, " *Passiflora.*
36. Strigilidia, " *Strigilia.*
37. Gordonisia, " *Gordonia.*
38. Gossypidia. " *Gossypium.*

39. Malopidia, type *Malope, Palaria.*
40. Zeibania, type *Zeiba.*
41. Celosidia, " *Celosia.*
42. Loasinia, " *Loasa.*
43. Andirania, " *Andira.*
44. Arthrocytia, " *Hedysarum.*
45. Diadelphia, " *Lathyrus, Trifolium.*
46. Anthylidia, " *Ononis, Anthylis.*
47. Amorphinia, " *Amorphus.*
48. Bauhinidia, " *Bauhinia.*
49. Cassinia, " *Cassia, Mimosa.*
50. Prosopia, " *Moringa.*
51. Dalidia, " *Dalea.* The above from 43 to 51 are families or sections of the great Natural Order CYTEANTHIA or Leguminose
52. Rhodoracea, type *Rhodora.*

II. Class. MESOGINES.

53. Sarcoditia, type *Cotylaria.*
54. Contortia, " *Stapelia, Echites.*
55. Nolanidia, " *Nolana.*
56. Echidia. " *Echium.*
57. Monieridia, " *Monniera.*
58. Dichondrania, " *Dichondra.*
59. Staticidia, " *Statice.*
60. Cuscutaria, " *Cuscuta, Evolvulus.*
61. Cressaria, " *Cressa.*
62. Ilexia, " *Ilex, Cordia.*
63. Chironidia, " *Spigelia, Exacum.*
64. Gratiolidia, " *Gratiola.*
65. Clythrelia, " *Utricularia.* [*mus.*
66. Verbascidia, " *Verbascum, Hyoscia-*
67. Hallerinia, types *Halleria, Cyrtandra.*
68. Sesamidia, " *Sesamum.*
69. Psychanthia, " *Polygala.*
70. Veronicia, " *Veronica.*
71. Justicidia, " *Justicia,*

72. Petridia, type, *Petrea*, *Lippia*.
73. Pyrenaria, " *Callicarpa*.
74. Phrymaria, " *Phryma*.
75. Synarthia, " *Globularia*.
76. Stilbaria, " *Stilbe*.
77. Aegiphilia, " *Ehretia*,
78. Strychnidia, " *Strychnos*, *Capsicum*.
79. Epacridia, " *Phlox*, *Epacris*.
80. Azalidia, " *Azalea*, *Kalmia*.
81. Styraxia, " *Styrax*.
82. Symplocia, " *Hopea*.
83. Micranthia, " *Micranthus*.
84. Olaxia, " *Olax*, *Bassia*.
85. Hilospermia, " *Achras*.
86. Inocarpia, " *Ardisia*.

III. Class. Endogynes.

87. Loranthia, type *Viscum*.
88. Mangidia, " *Rhizophora*.
89. Samolia, " *Samolus*.
90. Cinchonaria, " *Cinchona*.
91. Geniparia, " *Gardenia*.
92. Hamellidia, " *Hamellia*.
93. Linnedia, " *Linnea*.
94. Diervillaria, " *Diervilla*.
95. Sambucia, " *Sambucus*.
96. Viburnidia, " *Viburnum*.
97. Gitonanthia, " *Valeriana*.
98. Triostinia, " *Triosteum*.
99. Ixorinia, " *Coffea*.
100. Andromia, " *Mathiola*.
101. Morindia, " *Morinda*.
102. Echinopsia, " *Echinops*.
103. Gundelinia, " *Gundelia*.
104. Centaurinia, " *Crupina*.
105. Carduacea, " *Cynara*, *Carlina*.
106. Eupatorinia, " *Conyza*.
107. Spilanthia, " *Grangea*.

108. Absynthia, type *Cotula.*
109. Ivaria, " *Iva.*
110. Parthenidia, " *Parthenium.*
111. Anthemidia, " *Achillea, Bellis.*
112. Helianthia, " *Silphium.*
113. Inulidia, " *Solidago, Arnica.*
114. Lactucaria, " *Lactuca, Seriola.*
115. Hieracidia, " *Prenanthes, Hieracium.*
116. Cichorinia, " *Cichorium, Hyoseris.*
117. Scolymia, " *Scolymus, Lapsana.*

All the above were blended in Rubiacea and Composite Orders. The tribes of Cassini in the latter were not known to me then.

IV. Class. Symphogines

118. Jasionidia, " *Jasione.*
119. Lobelidia, " *Lobelia.*
120. Scevolidia, " *Scevola.*
121. Vaccinidia, " *Vaccinium.*
122. Sicidia, " *Sicyos, Gronovia.*
123. Scleranthia, " *Scleranthus.*
124. Homalidia, " *Homalium.*
125. Ribesidia, " *Ribes, Cercodia.*
126. Gastonidia, " *Gastonia.*
127. Saniculea, " *Sanicula, Cussonia.*
128. Scadianthia, " *Anethum.*
129. Periactia, " *Seseli.*
130. Diplactia, " *Daucus, Tordylium.*

The 4 above were families of Ombeliferous Order.

131. Eryngidia, type *Eryngium.*
132. Begonidia, " *Begonia.*
133. Quercidia, " *Quercus, Fagus.*
134. Lecythidia, " *Lecythis.*
135. Melaleucia, " *Melaleuca.*
136. Eugenidia, " *Eugenia.*
137. Stravadia, " *Stravadium.*
138. Nyssidia, type *Nyssa, Elæagnus.*

139. Osyridia, type *Osyris, Santalum.*
140. Thesidia, " *Thesium.*
141. Trapacea. " *Trapa, Hippuris.*
142. Hederacea, " *Hedera, Cornus.*
143. Ophiracea, " *Fuchsia.*
144. Melastomea, " *Melastoma.*

V. Class. Angians.

145. Stratides, type *Stratiodes.*
146. Pistides, " *Pistia.*
147. Valisneridia, " *Valisneria.*
148. Phyllacnia. " *Phyllacne.*
149. Diplantheria, " *Cypripedium.*
150. Ananidia, " *Ananas.*
151. Gethylidia, " *Gethylis, Tamus.*
152. Hydnoridia, " *Hydnora s. Aphyteia.*
153. Galaxidia, " *Sisyrinchium.*
154. Aplimia, " *Burmania.*
155. Amaryllides, " *Hypoxis.*
156. Aechmidia, " *Aechmea.*
157. Ubidia, " *Rajania.*

VI. Class. Gymnians or Lilies.

158. Aloidea, type *Aletris, Crinum.*
159. Commelinea, " *Tradescantia.*
160. Aphylanthes, " *Tillandsia.*
161. Xuridia, " *Xuris.*
162. Helonidia, " *Helonias.*
163. Smilaxia, " *Smilax.*
164. Trillidia, " *Trillium.*
165. Unisemia, " *Unisema.*
166. Alismaria, " *Alisma.*
167. Potamidia, " *Potamogeton.*

VII. Class. Phanerians.

168. Coryphinia. type *Corypha, Lontarus.*
169. Arecaria. " *Areca.*
170. Phenixia, " *Phenix, Cocos.*
171. Calamia. " *Calamus, Sagus.*
172. Cycadia, " *Cycas, Zamia.*

These last 5 form the Palm tribe.

173. Julacia, type *Saururus.*
174. Dracontidia, type *Dracontium.*
175. Orontidia, " *Orontium, Acorus.*
176. Carexidia, " *Carex, Scuria*, Raf.
177. Pharidia, " *Pharus, Nastus.*
178. Olyracea, " *Olyra, Nardus.*
179. Agrostaria, " *Agrostis, Phleum.*
180. Frumentaria, " *Triticum, Arundo.*
181. Tripleia, " *Oryza, Luziola.*
182. Trimeia, " *Anthoxanthum, Cinna*

VIII. Class. Cryptians.

183. Tmesipteria, type *Pilularia.*
184. Stachyopteria, " *Ophioglossum.*
185. Poropteria, " *Marattia.*
186. Schizopteria, " *Schizea.*
187. Rhizospermia, " *Isoetes.*†

These are akin to Filixia, the Ferns.

188. Diplostomia, type *Hypnum.*
189. Aplostomia, " *Dicranum.*
190. Apogonia, " *Phascum.*
191. Carpodia, " *Marchantia.*
192. Phylomalia, " *Riccia, Blasia.*

And these form the Mosses.

IX. Class. Algians.

Of this Class and the next, I give all my families to show the whole connection, altho' some were not new.

193. Hypoxilia, type *Xyloma, Spheria.*†
194. Opegraphia, " *Hysterium.*
195. Lepraridia, " *Variolaria.*
196. Beomydia, " *Beomyces.*
197. Squamarinia, " *Psoroma.*
198. Lobarinia, " *Lobaria.*
199. Cladonaria, " *Cladonia.*
200. Usnearia, " *Usnea.* End of Lichens
201. Fucaria, " *Fucus, Virsoides.*

202. Deloxia, type *Dictyota, Phytelis.*
203. Ulvaria, " *Ulva, Caulerpa.*
204. Rivulinia, " *Rivularia.*
205. Physudria, " *Physudrium.*
206. Corallinia, " *Corallina.*
207. Spongidia, " *Spongia.*
208. Ectospermia, " *Vaucheria.*
209. Ceramia, " *Ceramium.*
210. Arthrinia, " *Conferva.*
211. Endonemia, " *Mesasperma.*

X. Class. FUNGIANS

212. Byssidia, types *Byssus, Hymantia.*
213. Conoplidia, " *Conoplea.*
214. Monilidia, " *Monilia.*
215. Clavaridia, " *Clavaria.*
216. Tremellaria, " *Helvella.*
217. Pezizaria, " *Peziza, Teleobolus.*
218. Lithecia, " *Clathrus, Phallus.*
219. Agaricia, " *Amanita, Merulius.*
220. Boletidia, " *Boletus, Phorima* Raf.
221. Hydnidia, " *Hydnum, Merisma.*
222. Cyathidia, " *Stictis, Nidularia.*
223. Tuberidia, " *Sclerotium, Granularia*
224. Trichidia, " *Diderma.*
225. Dermosporia, " *Geastrum, Batarea.*
226. Gymnosporia, " *Uredo, Mucor.*

†These few were adopted from Decandole flora gallica 1806. Some others were published by Brown in 1810, but I did not know his labor in 1815.

Many of these have been admitted and published by other Botanists between 1815 and 1835, without quoting my labors. As usage and equity requires in Botany that all previous labors and names should prevail or be acknowledged, I hope that future Botanists of a liberal mind or correct principles, will in future duly

refer to them in their works, as they do to other improvers in their synonymy.

They never can be at a loss to know what familes or groups I meant: as far as HETRALONIA I gave the proper exclusive characters, with Sub-families and all the Genera of each, as a general method. For the others I quoted from 2 to 10 Genera of each family: altho' I now still reduce the quotations to one or two genera as main primitive types, any sagacious Botanist may know at once my original families of 1815 by these types. *When the quoted Genus belongs to any newer family, that family was established by me in* 1815.

Why should I then admit or follow later labors and arrangements not so perfect nor complete as mine of 1815? Decandole's method is not yet complete, and is still obscure. Agardh's is rather better; but follows the ascending series: while we all know now, that the real Serial Order of organization is neither ascending nor descending, not even circular, but RETICULATE, or GEOGRAPHICAL, as in a Net, or rather a Map: where Classes represent Islands, Orders and Families, their regions and districts; while Genera and Species are the hills and mountains of this botanical geography.

The most proper Natural Series must then follow a geographical plan, wherein the mutual affinities are expressed by vicinity and drawn lines of Seas, Rivers &c. expressing or defining common characters: which can only be accuratly expressed in tables and maps; while in Serial books we must attempt to follow the plan as nearly as possible, as it is done in books of Geography.

My own peculiar improvements in natural

Classification, consist, therefore, 1. in finding the first Genus of the most perfect organization, ROSA, to begin the Serial Order, and Spunges to end it. 2d. Fixing the natural Classes and Orders on nearly a paralel plan with those of Animals. 3d. Giving them proper good names singular and plural so as to express as in Geography, Europe, Europeans. 4th. In increasing largely or triplicating the families of Jussieu, giving them similar good names. 5th. Fixing the characters of all these groups by good and essential characters, whereof some must always be exclusive. 6th. Applying the process of analysis in their formation, sub-divisions, and to acquire their knowledge. 7th. Improving the botanical maps by grouping according to mutual affinities, and separating my mutual disparities.

To evince how preferable and improved was my method in 1815 even above the clever general method of Agardh in 1822. I shall give here his families called *Orders* of his 2d Class called *Series*, while he called *Classes* our real Orders, thus transposing all the terms.

III. Series. Cryptocotyles.

I. Class. Macropodes.
- 27. Order, Nayades, Juss.
- 28. " Podostomea, Rich.
- 29. " Alismacea, DC.
- 30. " Hydrocharides, Rich.
- 31. " Nymphacea, Juss.

II. Class. Spadicinae.
- 32. Order, Pistiacea, Raf. 1815,
- 33. " Aroides, Jus.
- 34. " Acoroides, my Orontides 1815.
- 35. " Pandanea. Ag.
- 36. " Cycadea, Raf. 1815.

37. Order, Palma, J.

III. Class. Glumiflorae.

38. Order, Typhina, J.
39. " Cyperacea, J.
40. " Graminea, J.
41. " Juncacea, J.
42. " Xyridia, Raf. 1815.

IV. Class. Liliflora.

43. Order, Asparagoides, J.
44. " Asphodela, J.
45. " Coronaria, J.
46. " Veratrea, my Helonides 1815.
47. " Commelinea, Raf. 1815.
48. " Pontederea, Ag.
49. " Dioscorides. Ag.
50. " Hemodorea, Ag.
51. " Iridea, J.
52. " Narcissea, J.
53. " Bromelinea, my Ananidia 1815

V. Class. Gynandres.

54. Order, Musacea, J.
55. " Cannacea, Ag.
56. " Scitaminea, J.
57. " Orchidea, J.

These 31 families answer to my V, VI, VIII, Classes, wherein I had 48 new families, 7 years before Agardh; whereof he has several under same or akin names, without quoting me; as he had not seen my analysis of Nature. He had however the sagacity to perceive some of them, and the good sense to find exclusive characters for all, which Lindley could not do, nor imitate much later, prefering to return to the obscurity of Adanson: whereby he has impeded the general adoption of the natural System, as a general method.

It may be regretted that Botanists do not

even quite agree as yet on the terms to be given to Natural groups, and mix or transpose the terms of Series, Classes, Orders, Tribes, Families, Legions, Cohorts &c. as Necker did Genera, Species and Proles. I gave the rules for this in 1814 and I now give a table of the proper terms in Latin and English.

The vegetable or botanical World or Empire or Kingdom, may be gradualy divided by complete analytical process into 6 main or essential successive Sections of the whole, or into 12 lesser Sections, as follow.

First Series or Primary Classes, or Clusters of Classes—Series vel Classes Primordiales.

I. 2. CLASSES, the regular common Natural Classes—Classes Natur.

II. 3. Primary Orders or Sub-Classes—Ordines primaris vel Sub-Classis.

II. 4. Natural ORDERS—Ordines Naturalis.

5 Tribes or Sub-Orders; Tribu vel Sub-Ord.

III. 6. Natural FAMILIES—Familia Naturalis.

7. Sub-families—Sub-familia s. Genera primordialis.

IV. 8. GENERA, or Generic groups and types.

9. Sub-Genera, their Sections not based on fructification.

V, 10. SPECIES, Specific types of Individuals.

11. Breeds or Proles, Specific deviations.

VI. 12. Varieties of Individuals.

INDIVIDUALS alone have a separate physical existence, all the other clusters are useful botanical groups of ideal abstractions based on physical characters, by successive proportions of affinities; as political institutions collect men in successive clusters of families, clans, ranks or castes, communities, tribes and States.

Therefore, Individuals are the main object

and first aim of Botanical knowledge; the study of their clusters becomes the aim of systematic Botany: nomenclature and classification, which may be compared to a kind of Statistical Science, under a philosophical method, based on accurate principles.

Species are the collections of individuals perfectly alike in all their parts. *Varieties* are slight casual deviations. Breeds or *Proles* are permanent Varieties. Therefore Species are natural altho' variable.

Genera are the collective groups of Species, that agree in the characters of the fructification. No Species belongs to a Genus unless it agrees with all the others therein included. Sub-Genera are lesser groups or sections with some slight deviations chiefly in the habit, seldom in the floral organs. Therefore proper Genera are also natural.

Natural Families are groups of Genera having some striking characters in common, chiefly floral and organic.

Natural Orders are groups of families united by one or several important characters, chiefly floral and organic.

Natural Classes are groups of Orders, possessing some very peculiar floral characters, and common organization.

By attending to these successive groups, and never forcing into them any stranger by organic characters, we may hope to rectify them, improve and fix invariably.

If the natural Classes of Plants were as striking as those of Animals, and known at first sight like Birds, Snakes, Insects &c. we should not have had so many difficulties in seeking them. But even Reptiles, Insects &c. offer

many forms and difficulties, whence Lizards, Frogs, Snakes, Crabs, Spiders &c. are now becoming peculiar distinct Classes. This happens likewise in Botany, and the two organized series of Beings may be deemed almost parallel.

In the valuable but oft neglected work of Adanson on natural families, we find almost a Cyclopedia of botanical knowledge, history, classification, authors, names and genera until his time 1763. It begins now to be appreciated, and I refer to it for all ancient Botany, botanists, Classes and names. It may be often consulted with advantage by improvers.

We learn from him that botanical classifications are numberless, and have been based on all kinds of consideration of forms, organs and uses. To show the absurdity of contriving such artificial systems, he had himself contrived 65, and calculated their value; till at last the result was the combination of all into the Natural system.

Whatever has been done by Botanists since Zoroaster and Moses (deemed the first by Adanson) till Linneus, is now of little account, and belongs to historical Botany: wherefore I have began my researches at Linneus and Adanson. Yet many eminent Botanists flourished since the revival of letters, among which Cesalpini who in 1583 first contrived 15 natural Classes, and Zaluzianski in 1592 had 22 such, but only few very really natural—Magnol who was the first in 1689 to attempt 68 natural Orders. Tournefort who in 1694 was the first to fix definite Genera, and reduced 698 of them to 22 artificial Classes.

These Genera were increased to 1174 before Linneus and by him: Adanson increased them

to 1615, all deserving attention: this number was swelled to 1832 by Necker in 1790, and has been swelling ever since; until Genera are now nearly as numerous as known Species were a Century ago.

Adanson ventured to prophesy that botanists would at last be compelled to attend to Genera only, and neglect the Species, both for their number and natural spliting. He was like Linneus, Necker and myself (in fact like all acute observers) a strenuous supporter of the doctrine that Species were unlimited, and increasing by the natural process of semination, deviation, variation, hybridation &c. Whence he concluded that we could hardly ascertain the primitive types of species, that many known to ancient Botanists were lost or no longer found, while new ones were evolved in mountains, groves, fields and gardens.

The practice of uniting incongruous and unlike plants in the same Genus, has long prevailed and is yet followed by Hooker, Torrey and many eminent botanists, who do not perceive the fallacy of this plan: whereby their species are in fact often real types of overlooked Genera, and their Genera are artificial like the first made by Tournefort and Linneus.

Botany will never reach perfection till this arbitrary mode of naming and refering plants is discarded: and until all the species of a Genus offer similar characters; as in fact they naturally ought to do. The many polymorphous Genera are mere artificial and heterogenous combinations of unskilful or wavering Botanists, and not real genera!

In some instances these cautious botanists appear to be positively blind to disparities, and

unite in the same Genus, species with a capsule, a berry or one seed!—else with equal or unequal calix, petals, pistils, stamens &c.!—else with Ovary inferior and superior!—They might as well unite a Grass with a Rose, Men with Monkeys, and Bats with Birds.—They deplore the increase of Synonyms and overwhelm us with useless names; *since all theirs must be changed, and will be.*

The only plea ever given for artificial systems was their utility in the facility of finding plants by analysis; but this use utterly fails when the admitted aberrations are numberless. In the sexual system they abound, and I have often amused myself by defying a botanical Student to find out some plants by it; *Cleome dodecandra* for instance, my *Polanisia graveolens.* But by the natural method uniting the analytical process as I do, there is no difficulty to find out Genera: while for Species, all being reduced to their proper Genera, there is the same facility. Not so by the distorted Genera of many Botanists, one third of their Species not possessing the generic characters ascribed, can never be found out by beginners, while experienced botanists are directed by mere habit, aspect, affinities, or something which cannot be expressed, and is neither definite nor real nor natural nor true.

Nature in the spontaneous evolution of vegetation, baffles all our petty incongruities by making new Species out of varieties, and new Genera out of floral deviations! the process is not always so quick as to be perceived in a few years; but 'is very obvious to botanical observers who happen to study plants during 40 or 50 years. *This fact is then a truth*, whoever

doubts it is a mere tyro or beginner in the study. On this truth must be based our Genera and Species, instead of admiting improper clusters of individuals. We shall then be better able to ascertain the formations, deviations and filiations of plants, with all their connections, relations and affinities to each other.

Some botanists deem that in nomenclature and classification, the majority must rule: this may be true for artificial systems; but not in the natural method. There NATURE alone must rule, and her close observers who notice the botanical laws, phenomena, exceptions and forms. All other Botanists may be wrong, and are often so, when they wish to make these bend to their own petty views and absurd classes or Genera.

Names are also quite essential, because they fix and convey the knowledge thus acquired. Bad names can only be tolerated for awhile. Those of Aublet were changed by Necker and Schreber and we had 3 for one of his. *Rosa*, *Quercus* and *Labiates* for instance are good invariable names. If the philological absurdities of vulgar languages as to Grasses, Lilies &c. are admitted into the Scientific language of Botany, we should fall into confusion of ideas and applications. Names are not arbitrary! they impart ideas, and ought to be proper, clear and distinct, in order to suggest or convey such ideas to the mind, fix them in the memory, and be generaly applicable and practical.

Botanists have like other men their whims, preferences, systems, theories and hypotheses; but all must give way before observations, facts and realities: and thus by truth shall the Science progress.

In result 1. It is better to distinguish and insulate by good names, than to blend and conceal by wrong references and bad names. 2. All bad Genera must be reformed, revised and corrected, till they become unobjectionable and invariable. 3. All bad names must be changed for good Names. 4 The same for Natural Classes, Orders and families. 5 And also for Species or the Generic types.

It is this I propose partly to do in this work, as far as my observations avail and my researches extend. To my fellow Botanists I say—Do likewise or better still; but never neglect a botanical reform, based on nature, and proper discriminations.

NATURAL CLASSES AND ORDERS

Of C. S. Rafinesque, 1815.

The study of mutual affinities and disparaties, is the base and true path of methodical and natural Botany. Cesalpini in 1583 began modern Classification on a natural plan by 15 natural groups; most of the Botanists prefered since artificial systems, until Magnol in 1689 and Linneus who in 1751 produced 58 supposed natural Orders along with his artificial sexual Classes.

Adanson had also 58 families in 1763, and 45 were Natural, they were reduced to 36 by Scopoli in 1783, and to 54 by Necker in 1790. But Jussieu improving thereon had in 1789 as many as 100 natural families in 15 artificial Classes, which have been gradualy increased or improved by Lamark, Ventenat, Decandole,

Richard, Mirbel, Agardh, R. Brown, Lindley and others.

Meantime as early as 1802 I began to perceive the necessity of rectifying the presumed Orders of Jussieu, and after many observations in both hemispheres, I published my Natural Classes in 1814, and my 66 Natural Orders in 1815. Twenty years of additional researches have convinced me that they need but little additions, unless we change their Sections into Orders; but that altho' I had increased their families to 310, they may now become about 400.

I have only published my Chloris Etnensis 1815, Florula Ludoviciana supl. 1817, Annals of Nature 1820, according to this arrangement. But it is susceptible of general application any where: and every Genus finds its place in it, because it is both natural and analytical. Every one of the 2000 New genera or plants of this work, will easily be refered to my Orders, if not to my families, by any one acquainted with analytical Botany

Therefore I shall proceed to give tabular views of my Classes and Orders, with their essential analytical Characters, comparative and distinctive of each; the examples and types are both in my New families, and some quotations of Jussieu's.

Table of Natural Classes.

I. Primary Class. ENDOGENIA or DICOTYLIA or MESOTYLIA. The Endogenes or Dicotyles or Mesotyles—Trees, Shrubs, Vines or Plants; stems and roots vascular fibrose, vessels and fibres in concentric layers, around a central pith or cellalar hollow. Outward bark or epidermis, often woody beneath it. Leaves often articulated or opposite, nerves commonly reti-

culate, flowers conspicuous with perigone stamens and pistils. Germination commonly dicotyle or polycotyle, and central, growth by outward increment. *They correspond with the Vertebrate or Bony Animals*, and the binary or quinary numbers prevail, 2, 4, 8, or 5, 10, 20.

1st Section. *Eltranthia*, the Eltranthes. Flowers with one or more Pistils, quite free not coalescent with the perigone (superior Lin.) Flowers commonly free and separate from each other. Fruits free.

I. Class ELTROGIA, The Eltrogins. (meaning free pistils) Stamens free or only connected together, not coalescent with a corolla or inner perigone into a tube, unless the fruit may be a pod. *Equivalent of the Mammalia.*

II. Class MESOGIA, the Mesogins (mg, middle pistils). Stamens connected with a corolla or inner perigone, or inserted on it, and forming together a tube around the pistil. Fruit never a pod. *Equivalent of the Birds.*

2d. Section. *Synanthia*, the Synanthes. Flowers often united into a compound flower with only one pistil, united or coalescent with the base of the perigone (inferior L). Fruit always connected with it and often crowned by it.

III. Class GYNENDIA, the Gynendes (mg. inside pistils) Stamens always as in the 2d Class, more or less connected with a Corolla, or often connected together also, and both inserted on the pistil. *Equivalent of Reptiles*,

IV. Class SYNOGIA, the Synogins (mg. united pistils) Stamens free unconected with the corolla when it exists, and commonly inserted on the perigone, *Equivalent of Fishes.*

IId. Primary Class. Exogenia or Pleurotylia. The Exogenes or Pleurotyles—Palms,

Lilies, Grasses, Ferns and Mosses with stems and roots vascular fibrose, vessels and fibres fasciculated and intermixt, without a central pith, the pith scattered or lacking. No proper bark, nor wood, the epidermis only of closer texture. Leaves seldom articulated or opposite or whorled, nerves commonly parallel; flowers more or less conspicuous or anomalous, with or without perigone and stamens, but always a pistil or the equivalent, Germination lateral, commonly monocotyle or heterocotyle or cryptocotyle; growth by inward increment. *They correspond to the Anostians or unbony Animals*, and the ternary numbers prevail, 1, 3, 6, 9. 12.

1st Section. *Isanthia*, the Isanthes. Flowers always regular and conspicuous with a perigone, stamens and pistils, never glumaceous, nor spadiceous.

V. Class ANGINIA or STEGINIA, the Angines or Steginians. (Mg covered pistil) Pistil single inferior, coalescent with the base of a perigone, Stamens on either, fruit covered or crowned. *Equivalent of the Crustacea.*

VI. Class GYMNOSIA or LIRIDIA, the Gymnoses or Lirides, (mg uncovered or Lily-like) Pistils one or many free and central, with a perigone and stamens around. *Equivalent of the Insects.*

2d. Section. *Heteranthia*, the Heteranthes Flowers anomalous or inconspicuous, seldom with a perigone, commonly glumaceous, Spadiceous or without Stamens.

VII. Class PHANERIA, the Phaneres (mg conspicuous) Flowers conspicuous with spatha spadix or glumaceous bracts, or a perigone epispadix, stamens and pistils conspicuous. *Equivalent of the Worms or Annelides.*

VIII. Class CRYPTOSIA, the Cryptoses (mg hidden) Flowers anomalous without perigone, inconspicuous or concealed, commonly no stamens and hardly apistil, assuming various uncommon forms. *Equivalent the Mollusca.*

IIId. Primary Class. LARNAGENIA or ACOTYLIA, the Cellulars or Acotyles—Lichens, Algas and Fungi, or plants without stem nor roots nor leaves, nor flowers; neither vessels nor fibres; formed of cellular tissue variously expanded, Frŭctification concealed and granular or gemmular, germination acotyle growth by mere expansion. *They correspond to the Zopsians, or Animals without blood, nor nervous system,* and there is no prevailing numbers.

IX. Class ALGOSIA, the Algas. Commonly a frond or tallus, imitating leaves or threads or stems, fructification often evident producing gongyles or gemmules. Color often greenish and station aquatic. *Equivalent of the Polyps* or *Zoophytes.*

X. Class. MYCOSIA, the Fungi—Neither frond nor thalus, expansion variable often globular, fructification in spores or a powder often invisible. Color seldom green, station never aquatic, either terrestrial or parasite. *Answering to the lowest animal class of Porostomes* or *Animalcula.*

Table of the Natural Orders.

I. Class, ELTROGINES.

1st Section, *Polygynia.* Pistils multiple, or petals anomalous, fruit not a pod.

1. Order, RHODANTHIA, the Rhodanthes. (Rose-flower) stamens peristomic, anthers not adnate.—Types *Rosa, Spirea.*

2, Order, PERIMESIA, the Perimeses (around middle) stamens hypogyne or perigyne basilar, anthers not adnate—Type *Sedum.*

3, Order, ADNANTHERIA, the Adnanthers, stamens hypogyne, commonly many, anthers adnate.—Types *Anemone, Magnolia.*

2d, Section, *Eltrandria*, Pistil single, Stamens commonly free, petals never anomalous, nor united in a peripetalic form, fruit never a pod.

4, AXANTHIA, the Axanthes (fl. on axis) Flowers symphoric axanthic or amentaceous, apetalous, diclinous, often a lepigone instead of perigone, fruit often monosperm —Types *Pinus, Populus, Ficus.*

5, MONOSPERMIA, the Monospermous—Flowers neither symphoric nor axanthic often apetalous, fruit monosperm, stamens isarine not opposite—Types, *Urtica, Rumex, Ulmus, Laurus, Protea.*

6. PLYRONTIA, the Plyrontes (opposite) stamens opposed to petals or alternate to calix, isarine often several stigmas—Types, *Rhamnus, Berberis, Vitis.*

7, ISANDRIA, the Isandrous (eq. st.) Stamens alternate to petals or opposed to calix, stigma simple, fruit often polysperm—Types *Lythrum, Ruta, Viola.*

8, STYRIDIA, the Cruciferous—Stamens heterines commonly tetradynamic, fruit siliquose.—Types, *Iberis, Sinapis.*

9, MONOSTIMIA, the Monostimes (single stig,) Stamens many or not 4 dynamic, fruit seldom Siliquose, one stigma.—Types *Papaver, Cistus, Citrus.*

10, POLYMESIA, the Polymeses (many middle) Stamens heterines or many, commonly

epimesial, several stigmas, and seeds—Types *Sapindus. Portulaca*, *Hypericum*, *Euphorbia*.

11, Isostimia, the Isostimes (eq. stig.) Stamens isarine or regular, never epimesial, many stigmas and seeds—Types *Drosera*, *Saxifraga*, *Dianthus*.

3d. Section, *Symphandria*, stamens commonly united, or fruit a pod. or a peripetal corolla (monopet.)

12, Adelphidia, the Adelphides, Stamens isarine, regular, united, corolla regular, many stigmas and seeds, fruit not a pod—*Linum*, *Tamarix*, *Geranium*. *Passiflora*.

13, Omoplitia, the Omoplites (reg. union) Stamens heterine or many, well united, many stigmas and seeds, fruit not a pod—Types *Adansonia*, *Hibiscus*, *Malva*.

14, Perimonia, the Perimones (around single) Stamens isarine united, petals not papilionaceous nor united, one stigma, fruit not a pod—Types *Melia*, *Celosia*, *Fumaria*.

15, Cyteantiia, the Leguminose—Petals papilionaceous or various, stigma single, fruit a pod.—Types *Amorpha*, *Colutea*, *Bauhinia*.

16, Peritalia, the Peritales (around petal) corolla peripetalic, but not staminiferous, fruit never a pod.—Types *Ledum*, *Clethra*, *Plumbago*.

II. Class, the MESOGINES.

1. Section, *Polydia*, several pistils or a lobed ovary, one or several styles and stigmas, several fruits or seeds.

17, Polygia, the Polyges. Several pistils and fruits—Types *Echites*, *Asclepias*.

18, Lobogynia, the Lobogynes—Ovary lobed,

one style, several seeds—Types *Nolana*, *Borrago*, *Echium*, *Salvia*, *Moniera*.

19, Polymia, the Polymes. One ovary, several styles, fruit simple—Types *Statice*, *Cuscuta*, *Cressa*, *Cordia*, *Carica*.

20, Epiclia, the Epicles (on valv) fl. regular one ovary, one or several styles, fruit simple, valves seminiferous—Types *Gentiana*, *Orobanche*.

2d. Section *Heterolia*. One Ovary and style, fruit simple, valves not seminif. Corolla irregular.

21, Chasmanthia, the Personate. Fruit a capsule unilocular or bilocular with paralel septum, or multilocular partitions alternate to valves—Types *Gratiola*, *Gerardia*.

22, Plasyrgia, the Plasyrges. Fruit a capsule polysperm, with 2 or many cells, partitions opposed to valves—Types *Polygala*, *Veronica*, *Justicia*, *Sesamum*, *Mimulus*.

23, Olispermia, the Olispermes. Fruit monosperm, or with monosperm cells, often a drupe or berry—Types *Vitex*, *Phryma*, *Scabiosa*.

3d. Section *Isorolia*. One ovary and style, fruit simple, valves not seminif. Corolla regular.

24, Arcythia, the Arcythes. Stamens alternate, fruit monosperm or drupe or berry—Types *Ehretia*, *Solanum*, *Jasminum*.

25, Darynia, the Darynes, Stamens alternate, fruit a polysperm capsule—Types *Convolvulus*, *Phlox*, *Kalmia*.

26, Stemisia, the Stemises. Stamens opposed to the sepals of the corolla—Types *Primula*, *Plantago*, *Olax*, *Achras*, *Ardisia*.

III. Class, the GYNENDIANS.

1. Section, *Eltranthia*, Flowers separate, or

without a common perianthe, anthers free.

27, Nantiandria, the Nantiandres, Stamens opposed to the sepals of the corolla, or to staminiferous petals—Types *Viscum*, *Rhizophora*, *Samolus*.

28, Polyspia, the Polyspes. Stamens alternate. fruit bilocular or multilocular polysperm —Types *Cinchona*, *Gardenia*, *Hamellia*, *Linnea*, *Diervilla*.

29, Sphaniclia, the Sphanicles. Stamens alternate, fruit monosperm or monolocular, or with monosperm cells.—Types *Sambucus*, *Viburnum*, *Valeriana*, *Rubia*, *Coffea*, *Morinda*.

2d. Section *Symphanthia*, Flowers agregate on a common phoranthe. surrounded by a perianthe,fruit monosperme, anthers united.

30, Flosculia, the Floscular. Corollas uniform tubular or irregular, but none ligular—Types *Echinops*, *Centaurea*, *Carduus*, *Conyza*.

31, Actinanthia, the Radiate. Corollas of the radiusligular and radiating—Types *Bellis*, *Helianthus*, *Arnica*.

32, Glossanthia, the Glossanthes, all the corollas ligular—Types *Taraxacum*, *Cichorium*.

IV. Class the SYNOGIANS.

1. Section, *Sigollia*, Internal perigone or penpital corolla not stamindfewus.

33, Codanthia, the Codanthes (bell flow.) Fruit commonly capsular, never a berry, flowers sometimes agregated and irregular —Types *Jasione*, *Lobelia*, *Scaevola*, *Campanula*.

34, Idiogynia, the Idiogynes (separ. fem) Fruit a berry, flowers neither agregated

nor irregular—Types *Vacinium*, *Cucumis*.

2d. Section. *Polystylia*. Corolla not peripetal or wanting, styles and stigmas multiple.

35, Ascadia, the Ascadia (not umbel) Stamens isarine, fruit never 2 seeds —Types *Scleranthus*, *Adoxa*, *Ribes*, *Aralia*.

36, Ombelliferæ, the Ombelliferous. Stamens isarine, fruit 2 seeds or capsule 2 seeded flowers commonly umbellate.—Types *Sanicula*, *Buplevrum*, *Eryngium &c.*

37, Polyandria, the Polyandrians. Stamens heterine or many.—Types *Fagus*, *Juglans*, *Begonia*, *Pyrus*.

3d. Section, *Monostylia*, Corolla not peripetal nor wanting, a single style.

38. Dapsilitia, the Dapsilitians, stamens indefinite—Types *Myrtus*, *Eugenia*, *Cactus*.

39, Acascotia, the Acascotians. Stamens determinate, fruit monosperm—Types *Nyssa*, *Santalum*, *Thesium*, *Trapa*.

40, Coryphitia, the Coriphians. Stamens determinate, fruit polysperm—Types *Cornus*, *Escallonia? Melastoma*, *Ludwigia*, *Asarum*.

V. Class the STEGINIANS.

1 Section. *Gynandria*. Stamens epigyne inserted on the Ovary or style.

41. Cratodia, the Cratodians. Frnit multilocular—Types *Musa*, *Hydrocharis*, *Amomum*.

42. Orchidia, the Orchides. Fruit unilocular. —Types *Pistia*, *Vallisneria*, *Phyllacne*, *Cypripedium*, *Arethusa*.

2d. Section, *Gynosynia*. Stamens perigynes inserted upon the perigone.

43. Acinitia, the Acinitians. Fruit a berry,

stamens free—Types *Ananas*, *Gethylis*, *Tamus*.

44. Synemia, stamens monadelphous or united Types *Hydnora*, *Sisyrinchium*.

45. Iridisia, stamens free, less than 6, a capsule—Types *Crocus*, *Gladiolus*, *Burmannia*.

46. Ymnodia, six free stamens, a capsule—Types *Amaryllis*, *Narcissus*, *Pitcairnia*.

VI. Class the LIRIDIANS.

1. Section, *Carpiclia* fruit simple, capsular and commonly polysperm.

47. Lirianthia, capsule trilocular, partitions opposed to valves—Types *Lilium*, *Asphodelus*, *Crinum*.

48. Gonotidia, capsule unilocular, or trilocular with partitions formed by valves—Types *Tradescantia*, *Eriocaulon*, *Juncus*, *Helonias*.

2d. Section, *Achenacia*, fruit simple or multiple, berry or achena often monosperm.

49. Acanopsia, Fruit simple, commonly a berry—Types *Smilax*, *Trillium*, *Asparagus*, *Unisema*.

50. Polachiena, fruit multiple. commonly of several monosperm achenas—Types *Alisma*, *Potamogeton*.

VII. Class. PHANERIANS.

1. Section, *Spadicea*, flowers on a spadix and often a spatha, without glumes.

51. Pocilmia, the Palms. Spadix often ramose with spatha and perigone, stem cauliform, leaves polytome—Types *Phœnix*, *Calamus*, *Zamia*, *Pandanus*.

52. Emprotia, the Aroides. Spadix simple, often no spatha nor perigone, stem commonly annual and leaves entire—Types

Equisetum, *Saururus*, *Zostera*, *Pothos*, *Acorus*, *Typha*.

2d. Section *Glumacea*. No spadix, nor spatha flowers glumaceous, fruit achena.

53. Cortodia, the Culmiferous. Style single, stem commonly without articulations—Types *Carex*, *Cyperus*, *Pharus*, *Olyra*, *Nardus*.

54. Achirosia, the Grasses, Styles 2 or 3, stem articulated; Types *Agrostis*, *Avena*, *Oryza*, *Cinna*.

VIII. Class. the CRYPTIANS.

1st. Section. *Pteridia*, fructification sessile capsuliform, not calyptrate.

55. Diclipteria, the Diclipters. fructification bivalve or multivalve, commonly in spike or axillary—Types *Plananthus*, *Pilularia*, *Ophioglossum*.

59. Dorsiferia, vel Filices, The Ferns or Dorsifers. fructification globular opening by pores or splits, commonly behind a frond or on a root—Types *Marattia*, *Schizea*, *Asplenium*, *Salvinia*.

2d Section. *Phryganisia*, Fructif. pedunculate calyptrate, uniform or tubuliform.

57, Æthreogamia, the Mosses, Fructif. calyptrate, stem leafy—Types *Hypnum*, *Dicranum*, *Phascum*.

58. Hepatidia, the Hepatides. Fructif. uncovered not calyptrate, stem or expansion frondose—Types *Marchantia*. *Riccia*.

IX. Class, the ALGIDIANS.

1st. Section, *Lichenia*, the terrestrial algas or Lichens.

59. Tremaria, the Tremians. Fructif. opening by a pore or slit—Types *Hypoxylon*, *Xyloma*, *Verrucavia*.

60. PHYMARIA, the Phymians. Fructif. solid, tubercular, not opening; Types *Lepraria*, *Squamaria*, *Lobaria*, *Cladonia*, *Usnea*.

2d. Section, *Hydrophytia*, the aquatic Algas.

61. FUCIDIA, the Fucidians. Form variable, but never filamentose—Types *Fucus*, *Ulva*, *Rivularia*, *Physidrum*, *Spongia*.

62. HYDRONEMIA, the Confervians. Form filamentose, commonly tubular and with partitions; Types *Vaucheria*, *Ceramium*, *Characias* (chara L.) *Oscillaria*, *Stereonema*.

X. Class, the FUNGIDIANS.

1st. Section, *Exosporia*, fructification external, in spores or sporanges, form seldom filamentose

63. ADELISTEB, the Adelistians. Hysterium or receptacle hardly conspicuous; Types *Byssus*, *Conoplea*, *Monilia*, *Clavaria*, *Helvella*, *Peziza*, *Phallus*.

64. PHANERISTIA, the Phaneristians. Hysterium very conspicuous, in rays, veins, pores, tubes or tubercles—Types *Agaricus*, *Boletus*, *Hydnum*.

2d. Section, *Endosporia*, fructif. internal in spores or sporanges, form never filamentose.

65. SARCOSPORIA, the Sarcosporians, fructif. fleshy or gelatinose, not pulverulent; Types *Cyathella*, *Stictis*, *Granularia*.

66. CONIOSPORIA, the Coniosporians, fructif. pulverulent—Types *Diderma*, *Lycoperdon*, *Fuligo*, *Mucor*.

In these Orders every family and Genus admitted was to possess the essential character applied to all, except in very few instances;

when by natural anomalies (to be added and expressed) they might somewhat deviate: as happens in some Genera, *Trifolium* and *Saponaria* &c. But the great anomalies allowed by Jussieu in the Amentacea, Saxifragea, Rhamnoides, Bicornes &c. are by no means deemed to be such; since they arise from blending together different families, united by trivial characters of lesser importance. Such orders must therefore be divided by all means.

But besides such regular Orders based on the fructification, an essential but temporary part of organization, the vegetable world offers another series of permanent forms, which have been deemed essential and very easily distinguished at first sight. In fact they are the only ones available iu the study of fossil Botany, since few fossil flowers and fruits are found; and the three great Series of plants have been based thereon.

1. Exogenes or Concentric Vascular, types Trees,
2. Endogenes or fascicular Vascular, types Palms.
3. Larnagenes or Cellular, types Lichens.

Altho' these Series are subdivided by the organs of reproduction, their permanent organs of support and nutrition offer very important bodily forms susceptible of indicating natural Orders; and in fact we now always add them to the description of tribes and even Genera, since Adanson and Jussieu gave the example. See my new views on that score at the end of my rectified Classes.

THE NATURAL CLASSES, *Rectified* 1835.

During 20 years from 1815 to 1835, I have continued to rectify my Natural Classes. The later improvers differ yet widely on their number and serial Order. Many appear prone to acknowledge only 3, Exogenes, Endogenes and Acotyles. This is as preposterous as if we made only 3 classes of animals, Bony, Unbony and Anemates, uniting Mammalia, Birds, Reptiles and Fishes into the first; altho' others incline to separate even the Mammalia into 3, Primates, Quadrupeds and Cetacians, and also the Reptiles into 3, Saurians or Lizards and Turtles, Ophidians or Snakes, and Batracians or Frogs and Salamanders,

However Agardh in his later works wishes to amplify too much the Natural Classes of Plants, having made 25 of them, and increased the Orders or rather the families to about 200.

The rapid increase of botanical knowledge, and the immense materials yearly added, appear to require an addition of Classes which altho' necessarily taken off from others, become better distinguished by insulation or separation. My first Natural Class was so numerous in Orders, and with so many natural anomalies that it may very conveniently be divided. It answered nearly to the *Thalamiflores* of Lamark and Decandole, a bad name being mongrel half Greek and half Latin. The Leguminose are so anomalous and numerous as to deserve probably to become a peculiar Class, instead of an Order, or be united to Symphandria. The first Orders distinguished by a plurality of pistils would be a natural Class if the Genera *Consol-*

ida, and others with single pistils are removed, as I have already *Actea* and *Botrophis*, or this anomaly introduced as exceptions.

As early as 1820 I proposed to form a Natural Class, NANTIANDRIA (in Bory's annals) from all the scattered Orders that have, *Stamens opposed to petals, or to sepals of a corolla*, or *alternate to a calix*. This I conceive will be a very natural and definite Class; this reversed insertion and position being very essential and constant, as the Rhamnides with a different interposition form quite separate families. Most of the Gentianides belong to it.

The plants with a peripetalic corolla (monopet) surrounding the stamens, but not bearing them, as *Erica*, *Vaccinium*, *Campanula* appear to demand also the formation of a peculiar class, this mutual freedom of essential Organs, being quite striking. Thus 4 Classes might be taken from my Eltrogines chiefly.

In the next, HETEROLIA or all the Orders with irregular corolla or stamens, including the Labiate and Echides, might form a very natural Class. The same is true of the Synanthes or Compound flowers. Thus we have 6 additional Classes of Exogenes.

Among the Endogenes, the Gynandrous or Orchidea and akin Orders, are a very natural group, deserving now to become a Class by the vast number of new Genera lately ascertained. The Grasses and Ferns are both so distinct and peculiar as todeserve also that name. This gives 3 other natural Classes; another or tenth in the whole may be found in the Lichens or terrestrial Algas: whereby a linnean Genus became gradualy a family, next an Order, and now may be a Class! The labors of Acharius

and Agardh on the two divisions of Algas have led to this. Agardh in his excellent Systema Algarum 1824 has in fact divided the aquatic Algas into 6 orders and 101 Genera, altho' he has omitted my *Physidria* family, besides the Spunges that are real plants.

Thus we may double my 10 Classes into 20 equaly Natural, and this is the extent of Classification we may venture to admit. If we were to have more, or 40 and 50, they would be in fact mere Orders by a different name. If the Cactoides were more numerous they might perhaps form a Class also; but they are very akin to *Myrtus* and *Ribes*. Having thus revised and rectified my own Classes, I shall present their tabular analytical View in Latin.

Series I. EXOGENIA. *Rosa* prim. G.

Classis, 1. POLYGIA, Pistilis plurimis liberis, vel petalis staminisque anomalis, Stam plurima S. paucis alternantis, & libera. Ord. 1, 2, 3 ut supra. Rosacea, Sedoides, Ranunculacea, &c. auctoris.

2. ELTROGIA, Pistil, liberum unicum, petalis regularis vel nullis, perigono vel lepigono, stam. plurima s. paucis alternantis liberis, fructo vario non legumen &c.—Ord. 4, 5, 7, 8, 9, 10, 11, Crucifera, Caryophylea and alia Ord. auctoris.

3. SYNANDRIA, Pistil. plurimis s. unic. liberum. Stamina plerumque coalitis, vel fructo legumen, Corolla varia regularis s. papilionacea —Ord. 12, 13, 14 15, ut supra. Leguminosa dividenda inter Ord. Papilionaria, Lomentaria, Mimosaria? Genera *Fumaria*, *Melia*, *Malva*, *Geranium* &c. ad fructo solo distinguenda.

4. HETEROLIA, Stam. paucis ad corolla peripetala insertae adnatis, alternantis s. hete-

rolis. vel inequalis. Corolla inequalis s. labiata. Pistilum liber unicum vel lobatum plerumque stylo unico—Ord. 18, 21, 22, 23. Labiata, Personata, Verbenacea, Polygalea &c. auctoris. An *Orobanche* addenda? ut Convolvulacea et Verbascides

5. MESOGIA, diff. Heterolia, Corolla et stamina equalis, plerumque isarinis, alternans—Ord. 17, 19, 20, 24, 25. Borragines Asclepides Cuscutea, Solanea, Jasminea &c. auctoris.

6. ELTRANTHIA, Pistil. unic. coalitum vel infero. Stam. ad corolla peripetala adnata inserta, alternantia, paucis, antheris liberis, fructo vario, flores non agregata in periantho—Ord. 28, 29. Rubiacea, Valerianea &c. auctoris.

7. SYNANTHIA, vel Composita, diff. Eltranthia, antheris plerumque coalitis, fructo achenaceo monosp. flores agregata in periantho—Ord. 30, 31, 32, Corymbifera, Cichoracea &c. auct.

8. ENDOGIA, Pistil. unic. coal. interno. Stam. libera, plerumque periginis, plurima vel definita alternantia. Corolla polypetala vel nulla—Ord. 35, 36, 37, 38, 39, 40, includens Ombellif. Cactoides, Myrtides, Epilobia &c. auct.

9. NANTIANDRIA, Stam. determinata, isarina apposita, ad petalis s. lobis corolla opposita, vel ad calix sepalis alternantia (in omnia alia opp.) pistillum plerumque unicum—Ord. 6, 26, 27, Rhamnoides. Berberides, Sarmentosa, Menisperma, Primulacea, Plantaginea, Hilospermia, Loranthea, Samolides &c. auctoris, et plurima Gentianea, an omnis?

10. ANEPERIA (not upon around) Perigono duplex, interno corolla peripetala non staminifera (in omnis alia cor. peripest staminif.) Stam. centralis s. periginis. Pistil. unic. libero s.

coalito—Ord. 16, 33, 34 sed Bicornes, Nyctagynea, Jasionidia, Campanulea, Lobelides, Vaccinides, Cucurbitea &c. auctoris.

SERIES II. ENDOGENIA.

11. GYNANDRIA, Pistil. unicum coalitum, Stam epiginis s. epistylis—Ord. 41, 42. Scitaminea, Orchidea &c. auctoris,

12. STEGINIA, Pistil. unic. coal. Stam. periginis supra perigono inserta—Ord. 43, 44, 45, 46, Irides, Narcissides &c. auctoris.

13. LIRIDIA, Pistil. liber. unic. plurimis, stam. periginis vel. hypoginis, spadix et glumis nullis, perigono sepe corollato—Ord. 47, 48, 49, 50, Liliacea, Asphodelides, Juncides, Smilacina, Alismides &c Auctoris.

14. SPADIXIA, Diff. Liridia, spadix flor. ferens, minime corollatis seu apetalis non glumosis—Ord. 51, 52. Palmae, Cycades, Aroides, Acorides, Equisetides, Saururides, Typhides &c Auctoris.

15. GLUMOSIA. vel. Graminea, flores apetalis, bracteis glumosis vel. squamosis vestitis, stam. hypoginis, fruct. achenaceo—Ord. 53, 54, *C*arexides, Cyperides, Agrostides, Graminea, &c. auctoris.

16. PTERIDIA, flores anomalis, apetalis, stam. pistilisque cryptis vel. nullis, fructibus capsuliformis dorsiferis vel spicatis vel acalyptris —Ord. 55, 56, Lycopodia, Stachiopteris, Poropteria, Filices, Rhizosperma &c auctoris.

17. PHRYGANISIA, diff. Pteridia, fructib. urniformis calyptratis vel tubulatis vel explanatis, non capsuliformis.—Ord. 57, 58, Musci, Hepatica &c auctoris.

Series III. LARNAGENIA, Cellular.

18 LICHENIA, Terrestris vel parasitis sepe viridis, Frons vel thalus, squamosis, crus-

taceis vel varians, fructif. evidens, scutellis, tuberculis vel. gemmulis dehiscens—Ord. 59, 60, Hypoxilia, Lichenes, Thaliferis &c auctoris.

19. MYCOSIA, Terrestris vel parasitis, coloratis vix viridcs. Effusis, carnosis stuposis, fungosis, lignosis, gelatinosis. Forma varians. Fructif. sepe crypta vel inclusa, hysterium sporis ferens—Ord. 63, 64, 65, 66, omnia Fungi Auctoris.

20, ALGOSIA, Aquatiles sepe virides interdum terrestris vel parasitis. Effusis, frondosis, thalosis, filamentosis, herbaceis, vesiculosis. Fructif. crypta, gelatinosa, vel gongyles—Ord. 61, 62, Chara, Conferva, Ulvacea, Fucides, Spongides &c auctoris.

I admit in this Chara and Nostoc with Agardle, but with doubt. Perhaps all terrestrial algas are to be removed to the preceding classes, but all the Spunges belong here; since they are yet deemed animals by some Naturalists, they properly form the last link of vegetation, as Roses the first link.

The needful increase of natural families is evident as we proceed in discoveries; but the increase of orders much less needed. To change families into orders is not requisite to better their knowledge. My 375 families may yet be increased to about 400; but my 66 Natural Orders require very little improvement, and only admit of Sub-Orders. If such are to be deemed peculiar distinct Orders I venture to indicate those I ascertained and established since 1815.

ADDITIONAL ORDERS.

1. Senticosia, differing from Rhodanthia by pistils definite, types Agrimonia, Sibbaldia, Spirea, &c.

2. Isotoria, diff. from Perimesia, by Stam. indefinite, types Annona, Magnolia, Aconitum.

3. Gynopolia, diff. from Adnantheria by pistils and fruits indefinite on a gynophore, types Clematis, Anemone, Magnolia.

4. Axepia, diff. from Axanthia by flowers on a phoranthe or flat or hollow receptacle, types Ficus, Gnetum, Ambrosia.

5. Sarcodia, diff. from Monospermia by a fleshy fruit, berry or drupe, types Amyris, Rivinia, Laurus, Daphne.

6. Calycanthia, diff. from Isandria by stam. perigine summigere, types Lythrum, Rhexia.

7. Polarxia, diff. from Monostimia by fruit multilocular, types Cistus, Citrus.

8. Epimesia, diff. from Polymesia by flowers dicline stamens inserted in the middle, fruit cocular, types Euphorbia, Ricinus, Begonia.

9. Lomentaria, diff. Cyteanthia by corolla not papilionaceous, and stamens often free; all the regular leguminose plants.—All these are from my first class.

10. Carythia, the true Labiate plants with 2 or 4 unequal stamens.

11. Monorimia, diff. Chasmanthia by capsule unilocular, types Gratiola, Utricularia.

12. Pliopsantiia, diff. Plasyrgia by stam. not didynamic, types Polygala, Veronica, Justicia.

13. Distemia, the regular monopetalous with 2 stamens, types Olea, Lilas, Nyctanthes.

14. Anisandria, the regular monopetalous with 5 or 10 unequal stamens. types Convolvulus, Vesbascum, Celsia.

15. Plaxarpia, diff. Stemisia by a capsule, types Primula, Plantago.

16. Osaritia, diff. Sphanidia or Rubiacea by fruit unilocular or monosperm, types Sambucus, Viburnum, Valeriana.

17. Cynaridia, diff. Flosculia by style articulated, flowers often irregular, types Cynara, Echinops, Gundelia.

18. Synodia, diff. Codanthia by flowers aggregated with a phoranthe and perianthe, types Jasione, Opercularia.

19. Cactidia, The Cactus family and akin genera Mesembryanthus, Tetragonia, hardly distinguished except by fleshy substance, many petals, ovary adherent, fruit polysperm. But Ribesides and Myrtides, *Begonia* and *Escalonia*, are very near with a different habit.

20. Vaccinidia, this small family of mine may become an order also, being very distinct from the next orders Campanulea and Cucurbitacea: by far more akin to Ribesides and Cactides only differing by the single style and corolla peripetal not staminiferous.

EXOGENIA.

21. Calicinia, diff. from Emprotia by a true perigone, types Dracontium, Orontium, Typha.

LARNAGENEA.

22. Thalaria, diff. from Lichenia, by having a real stem called thallus, types Cladonia, Stereocaulon, Usnea.

23. Byssidia, the filamentose Fungides, types Byssus, Conoplea, Monilia.

24. Ceramidia, diff. from Confervides, fructification external, types *Ceramium*, *Ectosperma*, *Chara*.

25. Stereopsia, diff. from Fucidia and the Ulvinia division by having nothing like stem nor frond, types Rivularia, Physidrum, Spongia.

These 25 new orders added to my 66 of 1815

would make about 90, and perhaps the whole may be stretched again to 100 very soon by insulating as orders rather, than families, the Spunges, Oaks, Laurines, Menispermes, Proteides, Hypericines, Coniferes, Gentianea, &c. which will render the Natural Orders equal to those of Jussieu, but by far better disposed in a series, well distinguished and fixed by comparative characters.

I conclude by a complete tabular view of my serial Classes and Natural Orders.

I. EXOGENIA.

1. Polygia,
   1. Rhodanthia, type *Rosa*.
   2. Senticosia, *Spirea*.
   3. Perimesia, *Sedum*.
   4. Isoteria, *Annona*.
   5. Adnantheria, *Peonia*.
   6. Gynopolia, *Ranunculus*.
   7. Axanthia, *Populus*, (*Pinus?*
   8. Axepia, *Ficus*.
   9. Monospermia, *Rumex*, (*Protea?*
   10. Sarcodia, *Amyris* (*Laurus*.
   11. Isandria, *Ruta*.
   12. Calicandria, *Lythrum*.
   13. Styridia, *Draba*.
   14. Monostimia, *Papaver*.
   15. Polarxia, *Citrus*,
   16. Polymesia, *Portulaca*, *Reseda*, *Hypericum?*
   17. Epimesia, *Euphorbia*, *Begonia*.
   18. Isostimia, *Dianthus*.

2. Synandria,
   19. Adelphidia, *Geranium*.
   20. Omoplitia, *Malva*.
   21. Perimonia, *Melia*, (*Tamarix?*

22. Cyteanthia, *Pisum.*
23. Lomentaria, *Cassia.*

3 HETEROLLIA,
24. Chasmanthia, *Gerardia.*
25. Monorimia, *Gratiola.*
26. Plasyrgia, *Rhinanthus.*
27. Pliopsanthia, *Veronica.*
28. Olispermia, *Verbena.*
29. Carythia, *Mentha.*
30. Anisandria, *Convolvulus.*
31. Asclepidia, *Asclepias.*

5. MESOGIA,
32. Lobogynia, *Borrago.*
33. Polymia, *Cuscuta,* *Carica?*
34. Darynia, *Polemonium.*
35. Arcythia, *Solanum.*
36. Distemia, *Olea.*

6 ELTRANTHIA
37. Osaritia, *Valeriana.*
38. Sphanidia, *Rubia.*
39. Polyspia, *Cinchona.*

7. SYNANTHIA,
40. Cynaridia, *Cynara.*
41. Flosculia, *Cacalia.*
42. Actinanthia, *Helianthus.*
43. Glossanthia, *Lactuca.*

8. ENDOGIA,
44. Ascadia, *Aralia.*
45. Ombellifera, *Daucus.*
46. Polyandria, *Pyrus,* (*Quercus?*
47. Dapsilitia, *Myrtus.*
48. Cactides, *Cactus.*
49. Acascotia, *Nyssa.*
50. Coryphitia, *Asarum.*

9. NANTIANDRIA,
51. Plyrontia, *Vitis, Berberis?* *Cocculus?*
52. Viscoidia, *Viscum.*
53. Plaxarpia, *Primula,* (*Gentiana?*
54. Stemisia, *Achras.*

10. Aneperia, 55. Peritalia, *Erica.*
56. Vaccinium, *Vaccinium.*
57. Synodia, *Jasione.*
58. Codanthia, *Campanula,*
59. Idiogynia, *Cucurbita.*

II. ENDOGENIA.

11. Gynandria, 60. Cratodia, *Musa.*
61. Orchidia, *Orchis,* (*Pistia?*
12. Steginia, 62. Acinitia, *Gethylis.*
63. Synemia, *Sisyrinchium.*
64. Iridisia, *Iridis.*
65. Ymnodia, *Narcissus.*
13. Liridia, 66, Liriantha, *Lilium.*
57. Gonotidia, *Helonias.*
68. Acinopsia, *Trillium.*
69. Polachenia, *Alisma.*
14. Spadixia. 70. Pocilmia, *Phœnix* (*Pandanus?*
71. Calicinia, *Acorus.*
72. Emprotia, *Caladium.*
15. Glumosia. 73. Cortodia, *Scirpus* (*Carex?*
74. Achirosia, *Panicum.*
16. Pteridia, 75. Diclipteria, *Ophioglossum.*
76. Dorsiferia, *Adianthum*
17 Phryganisia, 77. Aethogamia, *Hypnum.*
78. Hepatidia, *Riccia.*

III. LARNAGENIA,

18. Lichenia, 79. Tremaria, *Xyloma.*
80. Phymaria, *Lepraria.*
81. Thallaria, *Usnea.*
19. Mycosia, 82. Byssidia, *Byssus.*
83. Adelistia, *Clavaria.*
84. Phaneristia, *Boletus.*
85. Sarcosporia, *Stictis.*
86. Coniosporia, *Mucor.*
20. Algosia, 87. Hydronemia, *Conferva.*

88. Ceramidia. *Ceramium*, *Chara*.
89. Fucidia, *Ulva*.
90. Stereopsia, *Spongia*.

Such then are now the Natural Orders to the best of our actual knowledge; but each includes from 1 to 10 families or secondary groups quite as natural; each family from 1 to 50 genera; each Genus from 1 to 50 species, seldom more: those of 100 or 200 species are small natural families. Such are Carex, Erica, Euphorbia, Vaccinium, Salix, Aster, Polygonum &c. long ago properly divided by myself or others: like Conferva, Lichen, Agaricus, Cactus &c. now become families, orders or even classes!

But this Serial Order interrupts or conceals many mutual affinities, since they are not akin to the two Orders only, before and after in the series; but also to many removed in the series. Thus the following are closely allied altho' far removed, as Nations may have colonies or be allied altho' distant on the Earth.

The Gynopolia 6 and Polachenia 70.
Cactides 48 with Idiogyna 59.
Gynaridia 40 with Synodia 57.
Dapsilitia 47 with Vaccinidia 56.
Darinia 34 with Peritalia or Bicornes 55.
Isandria 11 with Adelphidia 19.
Axanthia 7 with Emprotia 72 &c.—And whenever a natural table or map or the whole will be given, they must be approximated or connected by some means.

Various modes may be devised to elucidate these affinities.

1. A botanical map on a graphical plan would best represent them by contiguity; a second mode would be by a kind of net work, 3d by a

kind of genealogical tree, 4th by a triple concentric cercle, divided in rays, the inner circle being the cellular plants, the outer or largest the Exogenous plants and trees, 5th by a triple series or 3 columns one for each great series, with lines accross to connect affinities.

Few of these excellent modes of elucidation have been employed as yet, the best in use are the Analytical and Synthetical tables; but all the serial modes whether circular or linear or triple, are all inadequate and imperfect. This explanation was needful as an apology for having used this vulgar mode even here; but I had made a complete Botanical map as early as 1815. Such botanical illustrations may exercise the ingenuity of Botanists well skilled in botanical affinities; which are the highest results of phytographical knowledge, as stated by Jussieu —Their relative value, importance and permanency, must equaly be ascertained, and thereby we invariably fix the botanical groups, whatever be the names we may apply to them, or place we may allow them.

The general aspect and organs of plants must also be studied and attended to, more than usual at least; and experienced botanists can often detect or conjecture the natural Classes and Orders of many plants without flowers by such means, called the habit or general form. But as this indication is liable to many exceptions and anomalies, it must always give way to the floral certitude.

Meantime I venture to propose the following arrangement, which I have devised, and found very useful in practice; as it will be indispensable in the study of fossil Botany, or the primitive forms of vegetable organization.

I. Series—EXOGENES.

I. Class. Driopses or Trees. Woody concentric leafy and branched, roots similar. Wood hard. *Shrubs* are only small trees, and branches of trees are shrubs. 3 *Vines* are climbing trees or shrubs. 4 *Bushes* are the smallest or weak shrubs commonly cespitose or with many stems The orders may be.

1. Polomes, (many frame) Branches, leaves and often flowers assuming a compound form either vertical or horizontal,—*Synophyles*, leaves compound with articulated folioles. *Polytomes* leaves united with folioles not articulated. These are again divided in bipinnate, pinnate, decompound &c.

2. Trochomes, (wheeled) Branches, leaves and often flowers verticillate around an axis, or terminal—*Rotules* around stem or axis. *Umbellites* terminal wheel or umbel.

3. Diplomes, (doubled) Br. leaves and fl. opposite to each other often jointed—*Disticates*, in two rows, *Decussates* in four rows crosswise.

4. Spiromes, (Spiraly) Br. leaves and fl. in a spiral position around the stem or axis—*Disticales*, spiral by 3. *Alternates*, spiral by 4, *Pentales* spiral by 5. *Densales* spiral by more than 5 and usually crowded imbricate. These are seldom jointed.

II. Class. Malaxyles or Anomalous Trees. Wood hardly concentric, with few branches, often articulate or no leaves: wood soft and cellular; roots similar—Very singular arboreal form hardly noticed as yet offered by *Carica*, *Ephedra*, *Ficus*, *Piper*, and other tropical trees,

5. Sicomes, Trees, with leaves and branches,

sometimes simple stem, wood often spongy, *Ficus*, *Carica*, *Adansonia?* *Pavia?*

6. Piperomes, Leafy vines, or jointed stem, leaves alternate, *Piper.*

7. Viscomes, Stem articulated, opposite leaves, *Viscum.*

8. Ephedromes, Stem articulate, no leaves, *Ephedra*, *Casuarina.*

III. Class. Sarcomes. Perennial fleshy plants not woody, but thick or juicy, seldom hardened to soft wood (like *Opuntia*) but permanent anomalous forms, seldom a stem and leaves, vessels hardly concentric. Roots fleshy, dissimilar scanty.

9. Phorbomes, Massive unbranched not articulated, *Euphorbia.*

10. Stapelomes. Massive branched articulate *Stapelia*, *Salicornia.*

11. Cactomes, Jointed, branching or with fleshy leaves, *Cactoides.*

IV. Cass. Perennials or true plants. Root and Stem dissimilar, Root perennial woody or tuberose or fleshy concentric. Stems annual, concentric or hollow, with leaves or scales. In fact here the roots are subterranean small trees or sarcomes, and the stems mere annual shoots or branches; thus they may be subdivided like Trees into

12 *Polomes* with compound foliage, *Lathyrus.*

13 *Trochomes* with verticillate foliage, often joints, *Rubia*, *Frasera.*

14 *Diplomes* with opposite foliage, often joints, *Silene*, *Salvia.*

15 *Spiromes* with spiral foliage, *Borrago*, *Hesperis.*

V. Class. Scapigeres or Scapose perennials,

They differ from true stemy or caulescent plants by the roots being crowned by radical leaves and sending forth a leafless stem called scape, which is merely a peduncle bearing the flowers. They blend often with them, and with annuals.

16. *Cladomes*, with branched or umbellate Scape, *Primula*, *Statice*.

17. *Scapomes*, with a simple scape, *Plantago*, *Dionea*.

VI. Class, BOTANES or Herbs, Annuals. Root dissimilar, but slender, fibrose, annual or biennial; sending forth only once a stem, bearing flowers, with or without leaves—In fact Plants and Herbs are hardly distinguished by usage, yet easily known by their small roots: they blend by biennial roots, and have sometimes scapose stems. Hence the Orders must be different, since here ends the woody or hard stems or roots.

18. *Dinomes*, commonly biennial root, radical leaves, and stem leaves different, *Verbascum*.

19. *Stemilomes*, Stem leafy, *Papaver*.

20. *Rhizilomes*, Root leafy or crowned, scape leafless, *Erophila*.

21. *Aphilomes*, No leaves, *Cuscuta*, &c.

2d Series, ENDOGENES.

VII. STELMIANS or crowned Trees. Stem cylindrical seldom branched, with spungy wood, crowned with leaves on the top; roots dissimilar.

22. *Palms*, Leaves flabellate or pinnate, flowers central.

23. *Aplostelmians*, Crown of simple leaves, flowers central, *Yuca*, *Dracena*. The Lily trees.

24. *Pterostelmians*, the Fern trees, Crown of leaves bearing the fructification.

25. *Spathelmians*, Crown of leaves, and corols or spathas bearing the fructification, Aroid-trees, *Pandanus*.

VIII. Class Rhizomians, Stem concealed under ground, assuming the shape of a root often horizontal, sending forth annual shoots, leaves and flowers; roots fibrose dissimilar.

26. *Aloidians*, Roots crowned with leaves, stem often leafless, *Aloes*,—*Iridians* with few lateral leaves.

27. *Paridians*. Roots not crowned, a leafy stem crowned or wheeled with leaves. *Paris*.

IX. Class, Bulbosians, the Bulbose plants and Lilies, with a thick perennial bulbose stem under ground, formed of concentric scales or coats, increasing from within, sending annual shoots, leaves and flowers from the centre. Roots fibrose dissimilar.

28. *Lirians*, a leafy stem. *Lilium*.

29. *Crinians*, radical crown, scape leafless, *Crinum*, *Skilla*.

X. Class Orchidians, Fleshy roots or stems under ground or above ground, simple or divided, perennial; sending yearly lateral shoots, stems or scapes sometimes articulated.

30. *Satyrians*, roots double or tuberose, under ground.

31. *Cladorians*, roots branched thick under ground.

32. *Georhizians*, roots simple or agregate above ground.

XI. Class, Culmidians, roots or stems jointed hollow, either perennial or annual, with leaves or scales, roots slender.

33. *Equisetians*, stems jointed, with verticillate leaves or scales. *Equisetum*.

34. *Graminiams*, stems jointed with alter-

nate sheathing, leaves or scales. The true Grasses.

35. *Alismians*, stems jointed, leafless, or leaves radical. *Alisma.*

XII. Class, PIAROMIANS, stems not jointed, solid or thick, but of various forms, roots perennial dissimilar.

36. *Smilacians*, stems hard perennial, leafy by expansions, often bearing flowers, *Ruscus*, *Smilax.*

37. *Helonians*, stems soft annual, roots perennial, thick or tuberose; leaves expansive, *Dioscorea*, *Helonias*, *Asphodelus.*

38. *Hydnorians*, Leafless, stemless only roots and flowers. *Aphyteia*, *Rafflesia.*

XIII. Class, FILIXIANS, stem rhizomian, under or above ground, leaves crowning this radical stem bearing fruits. The Ferns.

39. *Dorsiferians*, true Ferns, leaves bearing fruits on the back.

40. *Radiciferians*, roots bearing fruits between the leaves, or on pedundes.

XIV. Class, MUSCIDIANS, the Mosses, roots small creeping, stem bearing leaves or scales persistent, or membranose frondose.

41. *Phylosians*, leaves or scales, Mosses, Lycopodians.

42. *Frondulians*, no real leaves, a winged or expanded membranose stem. *Hepaticans.*

III. Series LARNAGENES.

XV. Class, LICHENS. Expanded crust with scutelas or tubercles.

43. *Scutellites*—Scutellas.

44. *Phymites*—Tubercles.

XVI. Class, NEMITES, Filamentose bodies.

45. *Usnites*, Scutellas, no joints, solid.

46. *Ceramites*, joints, and grains outside, as in Chara.

47. *Confervites*, joints, and grains inside, tubular.

48. *Byssites*, no joints, nor scutellas, solid.

XVII. Class, Fungites, form variable, fungiform, fleshy or fungose or suberose, colored, with or without a stipes or support.

49. *Monilites*, strings of grains, or granular clusters.

50. *Endosporites*, grains inside or in the substance.

51. *Clavites*, no grains nor extraneous appendages.

52. *Hydnites*, with points, bristles or warts.

53. *Boletides*, with pores or tubes.

54. *Agarites*, with gills, rays or veins.

XVIII. Class, Algites. Green bodies, frondose or tubular, simple or ramose, with or without a stem.

55. *Pilites*, with a stem and head or bulb.

56. *Stemites*, with a stem and leaves.

57. *Fucites*, Leafless, various, solid or tubular.

58. *Ulvites*, membranose or frondose, complanate.

59. *Physidrites*, Vesicles full of water, closed.

60. *Spungites*, spungy celular, or open vesicles.

These Orders might be divided into Genera by the inflorescence, and be greatly increased if more minute forms are taken into account. They coincide very nearly with the Natural Orders in the lower series, and afford in the upper series a very striking additional mean of knowing Orders and Genera; by far more useful in practice than the hidden modes of germination, and embryonic forms.

But I am fully aware that any methodical division of the Habit of Plants is liable at present to many objections. Some Botanists may perhaps deem foliage more important than stems or roots. Inflorescence is no doubt more important than either; but belongs to floral Classification, or may afford the generic groups in fossil botany. The study of Roots is just beginning, they had long been overlooked, and have not yet found a Gaertner; but it is now admitted that many presumed roots are real stems.

Some of my views and suggestions on the subject are nearly new; my Classes of Sarcomes, Rhizomians and Nemites are quite so, with many of my Orders. My Malaxyles and Piaromians deserve attention and to be better studied. The soft texture of many trees, and the expansive floriferous leaves of *Ruscus*, *Phyllanthus* &c. appear to connect with the Cactoides, and to indicate another great organic Series of Vegetation, different from the 3 admitted; to be called perhaps SARCOGENES, wherein *vessels* and *fibres are drownded in a fleshy tissue.* These are susceptible of becoming lignose by induration or dessication, as it happens in *Opuntia* and thus to form trees.

The joints and knots of stems indicate also a peculiar organization or process of evolution; all the opposite leaves appear to indicate it even when not conspicuous. Many leaves and flowers are evidently articulated to their support, as are all the buds of our northern trees. It is so in the Coniferes, Polygones, Caryophyles, Ombelliferes, Leguminoses, Sedoides, for stems or leaves, and all the florets of composite flowers. While all the spiral leaves, or drying on the stem, appear to be mere continuous appendages

of it, grown by expansion and not super-addition.

This view of physiological Botany might suggest again another arrangement based thereon; and is perhaps susceptible of being improved and made available. At present I merely throw these hints, and invite the attention of Botanists to the study of these forms of growth. To fix them still better, I will give a short table of such supposed modifications of growth, in 4 Organic Series.

EXOGENES—1. Trees or plants with joints or articulations, growing by addition of parts. Tomogenes, foliose, aphyle.

2, Trees or plants of a simple continuous form, growing by expansion of parts. Aplogenes foliose, aphyle.

SARCOGENES—Fleshy trees or plants. 3 Tomogenes, foliose, aphyle.

4. Aplogenes. foliose, aphyle.

ENDOGENES—5 Tomogenes, Equisetians Orchidians, Culmidians.

6. Stelmogenes, Stelmians, Rhizomians, Bulbosians, Filixians. All Aplogenes, growth foliose, terminal crowning.

7. Synogenes, Very simple aplogenes, growth by shoots with false leaves or frondose expansions quite persistent. Muscidians, Frondulians.

LARNAGENES.—Siphiogenes, growth by tubular partitions, or agregated grains, vesicles &c. Confervites, Ceramites, Monilites, Physidrites.

9. Condrogenes, with fronde or membrane or crust expanded and lobed, Lichens, Ulvites, Fucites, Usnites, Podospermes?

10. Mycogenes, with pileus or head distinct

often with rays or pores or papillas. Pilites, Agarites, Boletides, Hydnites.

11. Unigenes, simple solid bodies, Byssites, Clavites.

12. Coilogenes, simple hollow bodies, with cavities, Endosporites, Spungites.

The difficulties or exceptions to this general arrangement are very few, chiefly arising from some plants not yet well observed or quite anomalous: *Carica*, for instance which has the wood and habit of Palms, with the floral organs nearly like *Solanum!* and which is probably a *Scarcogene* tree. Stated by Hooker to bear fertile seeds without fecundation, as does *Morus*, and *Vitis* sometimes, and to afford *Fibrine* like Animal Flesh, and some Mushrooms. Also *Podostemon* with the structure and habit of *Fucus*, but floral organs like *Hippuris* and *Ruppia*, is it also a Scarcogene plant? These and the Cactides, Euphorbias, Stapelias &c. evidently indicate one or even two New Series of vegetable evolutions, distinct from those admitted since the discovery of Desfontaine. I claim therefore the merit of having first noticed and indicated those new vegetable forms which I believe had been overlooked by all Botanists as an organic Series, altho' long noticed as anomalies.

I invite Botanists to watch their germination and evolution, so as to ascertain their mode of increment. My own observations lead me to believe that it is expansive in *Podostemon*, *Carica*, &c. but partly peripheric in *Euphorbia* and some Cactides, while in *Opuntia* and *Stapelia* it is evidently articulated and gemmular as in *Ephedra* and budding trees. But their wood is totally unlike that of Oaks or concen-

tric trees, nearer to the fascicular wood of Palms, and yet different. In *Carica* it has been called fungose by Jussieu; it is rather suberose like cork, and cellular like a spunge, without rings. In *Opuntia* the fleshy articulations change gradualy in a woody mass of fasciculate fibres as in Palms, but softer still, more cellular and never hard nor concentric.

All the trees with soft wood, often as light as cork, and unfit to burn! deserve also to be examined again, such as *Ficus*, *Aesculus*, *Pavia*, *Adansonia*, *Rhizophora*, &c. in order to trace their analogies of evolution and increment in a soft state. Their anatomical structure requires a new examination. They are deemed Dicotyle, as well as *Carica* and *Cactus;* but this seminal character is fallacious, and not so important as stated by Jussieu; since *Cycas* and *Juncus* are said to be dicotyle also, and the Coniferes are polycotyle: while *Nelumbium* is anisocotyle or nearly monocotyle, altho' united with Nymphea-cea or Ranunculacea. Perhaps it is, as well as *Nymphea*, of the Rhizomian Class; since their roots are evidently rhizomes, and the structure is hardly concentric. The aquatic ferns and some other aquatic Genera appear to have for seeds mere Embryos or radicles called Somo-rhizes by Nuttal in *Ruppia*. They are evidently acotyle therefore. Some plants deemed Vascular, hardly show any vessels but cells, *Monotropa* and *Orobanche* have such annual fleshy stems. These and other anomalous plants will offer a fine scope for observations, dissections, and careful investigations.

THE FIFTY RULES OF GENERIC NOMENCLATURE,

By Linneus and Rafinesque, 1814.

These rules were chiefly established by Linneus in his philosophia botanica. In 1814 I gave their principles with additions and remarks, applying them also to Animals, and to Classes, Orders and Species. I shall now add here their main features and applications, recomending them to the attention of the accurate botanists: the Linneists ought at least to deem them peremptory, yet they often violate them.

1. All the species united by some essential definite characters must form a Genus. Lin. phil. bot. 210.

2. Each Genus must have a name, Lin. 218. Anonymous Genera like those of Walter are deficient and inadmissible.

3. None but skilful Botanists ought to form and name Genera.

4. All the plants possessing similar characters must form a Genus, and bear the same name. Lin. 215, 216.

5. All the Species with generic disparities must form different Genera and bear different names. Lin. 214.

6. Therefore when one or several species differ essentialy from their typical Genus, they must be separated and bear other names. This applies to the Genera *Valeriana*, *Justicia*, *Convolvulus*, *Polygala*, *&c.* and similar anomalous groups.

7. If a Genus has been made upon erroneous characters, it must be annulled, and united to the Genus that bears the real character. Ex-

amples *Sheffielda* which is a *Samolus*, *Hecatonia* is *Adonis*, &c.

8. As soon as a good name is given to a Genus, it must never be changed. Lin. 219.

9. Not even for a better one, or another more convenient. Lin. 245.

10. Names must not be transfered from a Genus to another on any account of convenience, becoming a double change. Lin. 245.

11, If similar names are given to two or several Genera; this name must be left to the first in date, and the later must be changed. Lin. 217. Apply this to *Aubletia*, *Persoonia*, *Heritiera*, &c.

12. If several good names are given to a Genus, the first in date must prevail, and the others be dismissed. Example. *Artocarpus* of Forster which has prevailed over *Sitodium*, *Polyphema* and *Rademachera*.

13. But when of two names, the first is improper, the second in date if good must prevail. Example *Pyrularia* Mx. dismissed for *Hamiltonia* W.

14. If two names are given the same year, the best must prevail, even if later by some months. Ex. *Polypogon* Desf. prefered to *Santia* of Savi.

15. Generic names must have a meaning or derivation, even if obscure. L. 220. But names must not be changed on that mere score, and thus Linneus kept *Bryonia*, *Acalypha*, &c.

16. Generic names contrasting or at variance with some Species of the Genus, must be avoided. Lin. 232. Ex. *Gratiola*, *Cyanella*.

17. Synonymic names in greek and latin must be avoided, but not changed. Ex. *Stellaria* and *Asterias;* but *Aster* is worse.

18. If a new Genus to be established has a convenient specific Synonyme, it must be adopted for the Genus.

19. If a Genus is to be divided, the old name must be left to the majority or best known species.

20. Generic names must always be substantive and never adjective. Lin. 221. Thus *Gloriosa* and *Mirabilis* were changed by Jussieu to *Methonica* and *Nyctago*.

21. Generic names must always be simple, never double nor triple. Lin. 222.

22. They must be singular, never plural, but may be masculine, feminine or neutral.

23. A specific name changed to generic name becomes substantive. Ex. A*grimonia eupatorium* and *Eupatorium*.

24. The name of a Class, Order or family must never become Generic, unless properly modified. Lin. 212, 233. P*teris* which means Fern must be changed to P*eripteris* or P*terilis*.

25. The generic names of animals must not be applied to Plants, nor viceversa. Lin. 230. *Taxus* animal must be *Melesius*. *Leucosia* plant *Leucipus*, being posterior to *Leucosia* animal.

26. Names of minerals must be avoided in Botany, but a few adopted may be tolerated. Ex. *Hyacinthus*, P*lumbago*, *Heliotropium*.

27. Names derived from arts and sciences, or religious ideas, can only be admitted when properly modified. Ex. *Jacobea*, *Angelica*, *Vulneraria*, *Ternatea*, &c. are tolerable names; but *Cotyledon*, *Baca*, *Baltimora*, ought to be changed in C*otylaria*, C*leterus*, *Baltimorea*.

28. The best names are derived from the greek and from striking habit and characters or

generic peculiarities. Lin. 222. Ex. *Cephalanthus*, *Rhizophora*. *Eriophorum*, &c.

29. Those derived from the latin in the same way are next; but the mongrel names derived from the two mixt languages are inadmissable. Lin. 223. *Cornucopia*, *Cimicifuga*, *Baccaurea* are wholy latin; but *Vincetoxicum*, *Scyphofilix* are mongrel, and must be changed to *Gonolobus*, *Scyphopteris*.

30. Generic names may be made by abreviations, contractions, elongations or blending one, two or three words; but never from a single word without alteration. Therefore *Chelone* L meaning turtle must be changed in *Chlonanthus*, and *Chelone* Latr. in *Chelonias*. *Chlora* L in *Chlorita*, and *Chloris* W. in *Chlorostis* &c. but *Crassula*, *Salsola*, *Clypeola* are good.

31. Blended names must not be formed from two other Genera united L. 224. *Malvaviscus* and *Calamagrostis* are absurd, and must be changed to *Achania* and *Amagris*.

32. Doubtful or equivocal names must be excluded, particularly when made by adding one or two syllables before or behind another name. Lin. 225. *Homalo-cenchrus*, *Hippo-crepis*, *Calam-agrostis*, &c. are bad, *Leersia*, *Hippocris*, *Amagris* have been substituted.

33. The same for names made from others by substracting one or more syllables before or behind. Linneus fell in this error sometimes, Ex. *Bromelia*, *Bumelia*, *Melia*, *Bromus*—*Sinapis*, *Apis*. Of these the shortest are the worst.

34. But names casualy with one or more added letters in the middle, may be tolerated.

35. And also when the termination changes as

well as the first letters, Ex. *Chimaris, Marica, Narica, Mariscus.*

36. Generic names made by a mere modification of terminations, are inadmissible, and all those made by adding *oides, ella, ola, ilus, ia, ium, aria, ea, ata, ita, astrum, ago, formis, opsis, emum*, &c. must be changed. Lin. 226, 227. This useful linnean rule has been often neglected, producing a crowd of equivocal names to be rejected: such as *Polygonella, Centaurella, Cicutaria, Portulacaria, Linaria, Helianthemum, Oryzopsis*, &c.

37. Equivocal names pronounced nearly alike must be avoided; but need not be changed, unless the difference is only in termination. Lin. 228. Ex. *Mitella, Mitchella, Michelia*, are bad names on that account, but the following still worse. 1 *Apis* L, 2 *Apus* Cuvier, 3 *Apios*, Pursh, 4 *Apium* 5 *Apion*, Herbst, might be changed to 1 *Apicula*, 2 *Apodium*, 3 *Gonancylis*, 4 *Apium*, 5 *Apionus.—Zea* same as *Zeus* I make *Mayzea.—Scolopendra, Scolopendrium* this last must become *Glossopteris* or *Phyllitis —Delphinus* and *Delphinium* or rather *Plothirium &c.*

38. We must avoid to give barbarous names to Genera, Lin. 229, but we may sometimes admit Arabic, Celtic, Indian, African or American names, when not too harsh, and easily latinized. Linneus did so for *Yucca, Datura, Ribes* &c. *—Pacurina, Palovea* are much better than *Messerschmidia, Schwenkfelda.*

39. Foreign names must be latinized, softened or receive a proper termination. Lin. 248. Thus we must write *Calesia, Areca, Cupuya*, instead of *Calesjam, Arec, Coupoui* &c.

40. Names too long must be abreviated, and

when too short, must be lengthened, even when personal. Lin. 249. The best names ought to have 2 to 5 syllables, those of one or six are objectionable. Thus *Krascheninikofia* and *Mesembryanthemum*, must be changed to *Kranikovia* and *Mesenbryanthus*.—While *Lea*, *Neea*, *Zea* must become *Leania*, *Neeania*, *Mayzea*. Linneus changed *Anapodophyllum* into *Podophylum*.

41. Harsh and uncouth names must be softened and modified, upon the same plan. Tournefort changed *Gundelsheimera* into *Gundelia*. *Tabernamontana* and *Lightfootia* must become *Tabernaria* and *Lifutia*.

42. Some of the best botanical names are patronymic, or dedicated to botanists. But instead of being the reward of merit, this practice has been too much extended, by dedicating them to mere Amateurs and Catalogue makers.

43. These patronymic names must not be formed of two names; *Gomortega* and *Carludovica* are become *Adenostemum*, *Ludovia*.

44. We may dedicate Genera also to eminent Naturalists or Philosophers, great Travellers, Horticulturalists and Protectors of Botany; but never to mere friends or by flattery. Ex. *Furcroya*, *Virgilia*, *Comptonia*, *Solomonia*, *Cliffortia &c.*

45. Names may also be borrowed from mythology or ancient poetry, dedicated to Nymphs or Legislators, Heros &c. Ex. *Arethusa*, *Chironia*, *Artemisia*, *Euphorbia*, *Calypso* &c.

46. Ancient names of plants may be applied to New Genera, nearly alike or related. Ex. *Datisca*, *Adike*, *Selepsion*, *Verbena &c.*

47. Genera must not bear the names of their organs; but flowers and fruits may bear the

same name. *Bacca*, *Cotyledon* were bad; *Rosa*, *Tulipa*, *Prunus* are good, Necker erred in changing them to *Rhodophora*, *Prunophora*.

48. The pronunciation of Genera must be as in latin, the Greek or Foreign names must be pronounced as in latin or italian. This applies to the vowels A, E, I, O, U, which are distorted by english botanists. *Ph* is meant for F, and CH commonly for K. *Acacia* which is pronounced *Acasia* like *Cassia* must be spelt *Acakia* as in Greek.

49. Names must be changed if they disagree with one of these rules, unless it be of little Consequence; but when they disagree with several they must be altered by all means.

50. As soon as a Generic name is changed or modified according to these essential rules, so as to be correct; this correction must be adopted, and no longer liable to changes.

Such are the correct principles and rules of generic nomenclature, not yet generaly known nor attended to by all the Botanists. Those who neglect them evince a deficiency of taste, learning and acuracy. They will be the test of correct and accurate Botanists. Those who follow them will thereby evince that they know and admit the necessity of fixed principles in Names as well as Genera.

It is to be regreted that Decandole himself, in the hurry of his great labors on Species, has given sanction to admit some very improper names; but no doubt either he or his future continuators will see the propriety to dismiss them.

At present the greatest source of generic perplexity arises from the great number of improvers, laboring and writing unknown to each other,

and in remote places; where they happen occasionally to clash by applying similar names to distinct Genera, either discovered or reformed: While they may also give different names to a single Genus.

Else we may have double and triple names for similar Genera, as was the case with those of Aublet, changed by Necker and Schreber. It is not yet perfectly settled which are to prevail, many of Aublet were barbarous; but others quite good and easily latinized. This difficulty will always occur, unless we stand by the rule of always admiting the previous name, if good or even tolerable.

The names of some Botanists happen sometimes to be given to several Genera, because many wish to reward their labors: while others are left unrequitted for years. I was very prone to dedicate such Genera; but now always add a second name as a substitute in case of previous application.

There have been for instance, 4 Genera called *Scopolia*, the first in time of Jaquin was found to be a *Hyosciamus*. The second of Linneus jun. has since been united to *Daphne*, altho' it has capitate flowers with a perianthe or involucre, and must at least form a subgenus. Forster made the 3d, but deeming since the 2d good, he changed his to *Griselinia*. The 4th was made by Smith, by changing the good name *Todalia* of Jussieu; a very improper change, yet imitated by Schreber who made it *Crantzia*, but there was a previous *Crantzia* of Swartz! *Todalia* is better than *Coffea* of Linneus and must be preserved as previous. Thus *Scopolia* has been multiplied and made doubtful, unless we restore it to the 2d as a genus or subgenus.

This is an instance of the difficulties occurring in generic nomenclature: similar cases abound, and become complicated by the different views taken of the matter by the various botanists. Thus *Centaurella* a bad name of Michaux, made worse still by Persoon *Centaurium*, both derived from *Centaurea*, was changed to *Bartonia* by Wildenow; but some botanists dissented and made another *Bartonia*, while *Andrewsia* was proposed for the first *Bartonia*; but there was another *Andrewsia*? then *Nuttalia* was soon after proposed; which is not deemed a genus, but a mere subgenus of *Sida*, yet it has been called *Calirhoe* also, which is a name already applied to a genus of animals, and the 2d *Bartonia* was made a *Torreya!* while there are two other *Torreyas!* What a heap of ambiguities! yet they could be avoided by attending to the generic rules confirming the first *Bartonia* of Wild. and my *Nuttallia* of 1817 for the second Bartonia.

Therefore it is obvious that correct Nomenclature is an art based in scientific principles, and that all dubious or deffective names arise from neglect of such rules of this branch of Botany. Thence we may distinguish 3 series of generic names—

1. Good Names, including excellent names, Defining Names, Appropriate—Dedicated—Accurate—Early greek—Ancient—Compounded—Easy Names &c.

2. Indifferent Names including unmeaning Names, Anomalous—Contradictory—Transferred—Equivocal—Latinized----Synonymic—-Mineralogical—Anagramic—Religious—Geographical—Mythological Names &c.

3. Bad Names including Erroneous Names,

Anonymous—Barbarous—Harsh—Sesquipedal Syllabic—Double—Multiple—Adjective—*Zoo*logical—Organic—Blended—Doubtful—preoccupied—Modified—Relative names &c.

If the 2nd series may be tolerated, these bad Names cannot; they must be abolished and changed.

Many of these erroneous Genera and Names, are not only deffective, but absurd; yet to these some incorrect Botanists appear to cling with tenacity.

They will form a test of accuracy: whoever admits them, declares himself a friend of Erroneous Botany and Nomenclature.

As to names neither good nor bad of the second Series, some latitude and disparity of opinions may exist. Most of them when once established may be tolerated; but ought never to be imitated.

CONCLUSION & NATURAL GENERA.

The object of these preliminary remarks was not to enter any further into generic, anatomical or physiological researches. My main object is to reform and improve Genera: in the course of my hints and elucidations of all the natural clusters, I have been led to convey the result of my observations, both on their floral and organic structure. To enter into explanations and details would swell these remarks beyond my proposed limits; but I hope to have thrown the seeds of some future discoveries, and further improvements.

I chiefly insist upon the practical rectification of Genera. I blush for the science and my fellow botanists, when I see yet a crowd of arbitrary and perplexing Genera, quite as loose and

incorrect as those of Tournefort or *Lichen* of Linneus, not only in use, but insisted upon as correct, by Botanists neither blind nor unskilful; but who shut their eyes and ears, so as to discard the use of their senses—For instance in *Euphorbia*, *Veronica*, *Saxifraga*, *Vaccinium*, *Andromeda*, and 200 such linnean Genera, which are strange medleys of blunders, ambiguities, and absurdities.

If they admit the mistaken and absurd rule that a wrong Genus must give the character, they ought at least to take it from all the strange plants they mix together, and the character of SAXIFRAGA should be C*alix inferior or Superior, equal or unequal, with* 5 *to* 10 *parts, Petals* 5 *equal or unequal, with glands or no glands, with claws and nerves or none. Stamens* 5 *or* 10 *or* 20, *equal or unequal, flat or filiform, fertile or sterile, Ovary inferior or superior with glands or no glands,* 2 *Styles or* 3 *to* 6 *or no Styles,* C*apsule bifid or bicorne or* 2, 3, 4, 5, 6, C*apsules, naked or crowned or covered . . . !* At which rate and with many . . OR . . OR - we can make a single Genus of Roses and Cabbages! and without any OR, a single Genus of all the Cruciferes.

The fact is they are ashamed to give the real characters of such Genera, and discarding the linnean rule, give us instead a paltry unmeaning character that does not apply to all the Sp.

Linneus did the same, and that is their apology. And so did the old Botanists before Linneus. He himself has broken occasionaly every one of his own rules, either by oversight or by the difficulty of discarding all errors at once. Even his golden rule of two names only for each plant; since he had some with three—A*spleni-*

um ruta muraria and P*edicularis Sceptrum carolinum*, for instance!—All kinds of barbarous names C*offea*, P*iper*, P*aretta*, *Yucca* &c—Many derived names as P*asserina* from P*asser*—*Galium* and A*llium*—A*rum*, A*sarum* and C*omarum* &c. altho' he had abolished all such.

I do not mean by this to imply that C*offea* and *Yucca* are bad names. They are quite as good as some harsh greek names. And many greek and latin names came from the Celtic and Oriental Languages. *Kraschenikofia*, *Lightfoatia*, *Mesembryanthenum* are certainly much worse, and must be softened or latinized into *Krasnikovia*, *Lifutia*, *Mesembrianthus*.

But I mean to say that his oversights are not to mislead us, and that mistaken Genera, whether in fact or names, either of Linneus, Jussieu or even Decandole, (since he has some also) or of Hooker, Lindley &c are not to be adopted; but must be corrected; even now, if so long overlooked by neglect.

All such arbitrary and absurd Genera must then be revised and reformed—Such is my aim—Any one who may disapprove of this plan, must be blinded by prejudice or inveterate love of errors.

Decandole has done much, but only reached one fourth of Vegetation, and overlooked many forms, or slightly noticed them, owing to the immense labor he undertook on all the species.

A fair example of blunders by a Linneist, may be seen in Loureiro flora Cochinchinensis, where he has referred a crowd of new plants and new genera, to linnean objects, quite different; yet he was commended and reprinted by Wildenow, and has been quoted by Smith, Lamark &c, without detecting his blunders.

Another instance, more recent still, is met in the labors of Hooker, a clever botanist, once a Linneist, but now trying to adopt the natural method; wherein he brings the defects and absurdities of Linneus. I have detected a crowd of generic and specific mistakes in his Flora Boreali Americana, and in the new series of the Botanical Magazine written by him, he falls into the most palpable errors as to genera and Species. In his 8th volume alone there are 30 plants out of 90 reduced to wrong genera.

If such is yet the actual course of eminent Botanists, the copists and compilers follow the same tract; even my old friend Torrey in America, deems that to follow or creep on their steps is quite needful, whatever be the glaring blunders they may commit; the fear of innovation, and of improving the Science too quickly is the prevailing feeling.

For my part I entertain no such fear, and should wish to see Botany reaching a greater perfection in my days; but if it is a hopeless wish, I will at least do something towards it.

Whoever will imitate my zeal, must attend with care to the intrinsic value of organic characters, and their relative importance, in Orders, Genera and Species. This is the test of a real follower of natural affinities, bases of the Natural system of Botany. Their neglect is the sure evidence of arbitrary Botany.

This knowledge teaches us that the importance of floral organs stands in the following order, in Phenogamous plants.

1. Pistil and fruit—whether free or coalescent, simple or multiple, definite or indefinite, with one or several stigmas, with or without style, &c.

2. Stamens—where inserted, if free or coalescent with a corolla, a calyx, alterne or opposite to them, or united together, with filaments or none, with anthers with 1, 2, 3 or 4 cells—as to number, if definite or indefinite, isarine or equal to perigone, heterine with less or more, equal or unequal between themselves, &c.

3. Perigone or floral covering—If simple or double or multiple, free or coalescent with the pistil, if equal or unequal, with or without corolla or inner perigone, whether simple and lateral, or with many pericentric petals in one or two rows; or if with a peripetalic corolla, its shape, lobes, persistence, &c.

4. The fruits and seeds—Their nature, form, number and structure, cells, partitions, placentas, seeds, arillas, embryos.

5. Accessory parts--Glands, nectaries, scales, appendages, crowns, spurs, and other auxiliary additions to the flowers; lastly bracts, in all their forms and names of Involucre, spatha, perianthe, pericline, glume, palea, lepigone, anthophyle, &c. besides the various receptacles or supports, phoranthe, gynophore, spadix, column, &c.

It is very important neither to invert this Order of values, nor to ascribe more power to any than realy can be ascertained. If Botanists would attend to this, they should never join together in the same Genus or family, the plants that offer a difference in the most essential characters. Such as Pistils single or many, free or coalescent, superior and inferior of Linneus—Stamens free or united, equal or unequal, few or many, &c.

They should know that Bracts stand at the very end of the floral series, and altho' useful to

distinguish Genera when assuming the shapes of Perianthe or common calix, phoranthe or common receptacle, involucres of Ombellifera, Glumes of Grasses, &c. they never ought to be employed alone to fix families and Orders.

They ought to know that when there are no other essential Organs than Pistils and Stamens as in Grasses, except the mere bracts called Glumes, these must give way to the first; and their number becomes then of paramount importance, in defect of additional organs. Therefore Jussieu was very right to divide the grasses in first instance by the numbers of Styles and Stamens: while the modern Botanists who unite in the same Genus Grasses, with 1, 2, 3 or many stamens, are utterly in the wrong. They even sin against Linneus who divided *Cinna*, *Anthoxanthum*, *Oryza*, &c. To unite in the single Genus, C*arex*, plants with 2 or 3 stigmas or styles is still worse; and not to perceive that such a Genus of 300 Species is a fine Nat. family with many Genera distinguished by this and the seminal covering, proves that the absurd linnean principles evinced in the Genus *Lichen* now a Class! prevail as yet among us. Whoever preserves C*arex* entire ought to keep *Lichen* and A*garicus* entire, and make a single Genus of Ombellifera.

I conclude by asserting that GENERA ARE NATURAL, and that every actual Genus that is unnatural, arbitrary or polymorphous, IS NOT A GENUS, but an incorrect and artificial aggregation of aliens! Wherefore all Genera must be reformed till we reach these natural clusters of species quite alike in floral organs.

When in the course of time this truth shall be acknowledged, and it shall be wondered how

we could have put together in a single Genus all the Lichens, all the Bats, all the Monkeys, all the Heaths, &c. let it be remembered that I had duly rectified 500 such preposterous or artificial Genera between 1800 and 1815, and now write this synopsis to evince the fact, and propose or complete the needful reform of all such perplexing and obsolete Genera. They are for instance:

Euphorbia,	Erigeron,	Saxifraga,
Veronica,	Inula,	Orobanche,
Salvia,	Lythrum,	Aristolochia,
Gentiana,	Passiflora,	Erica,
Vaccinium,	Allium,	Conferva,
Pontederia,	Scilla,	Solidago,
Polygonum,	Prunus,	Habenaria,
Tradescantia,	Andromeda,	Carex,
Commelina,	Helianthus,	Cyperus,
Lysimachia,	Urtica,	Scirpus.
Rhamnus,	Cistus,	Hypericum,
Scabiosa,	Serratula,	Silene,
Phlomis,	Verbena,	Xyris,
Convallaria,	Rudbeckia,	Lotus,
Centaurea,	Reseda,	Rumex,
Neottia,	Rubus,	Spirea, etc.

With 200 more, equally bad and artificial.

If examples of real natural Genera are asked, I might offer the following Linnean Genera as models.

Rosa,	Calceolaria,	Scutellaria,
Oxalis,	Asarum,	Magnolia,
Dianthus,	Malva,	Tormentilla,
Asphodelus,	Biscutella,	Amorpha,
Parnassia,	Papaver,	Aralia,
Lactuca,	Iris,	Vitis,
Jasione,	Sarazinia,	Quercus, etc.

In all such and the like, the generic charac-

ters are ample, conclusive, essential, exclusive and general, applying to all the species: this makes them natural and proper. Therefore all Natural Genera ought to be like them, and all artificial Genera divided or rectified till they reach this perfection or rather correct form, by revising and amplifying their single or confined generic character: while anomalous and polymorphous Genera must of course be reduced to their natural limits.

The rectification of Genera is important above all in Botany, as in Zoology; since they afford the generic names, and a wrong Genus multiplies the wrong names of Species, overloading them with useless artificial synonymy. Improper names will therefore be never exploded until bad Genera are forgotten, as were gradualy the unmeaning and indefinite Genera of old.

Names and Genera are thus intimately connected; they stand and fall together. The necessity of both being proper and definite, natural and perspicuous, is therefore quite evident. A bad name given to a good Genus annuls it in the eyes of many, until rectified or changed.

In this sense Natural Genera shall really afford the natural character and name: while actual Genera have often a false character and improper name, or else they appear nearly as bad as the vulgar names in modern languages: quite loose and incorrect in import or application.

Species altho' less important since they are variable, must however be attended to in the same way; they ought to bear a good name that applies, if not exclusively, at least properly. We ought to be guided for them by a due knowledge of their fixed forms, and those that may

vary to produce breeds or *proles*, until these assume the specific rank by important features, united to permanency, multiplicity of individuals or insulation in distinct climes.

Many of our admitted Species are in fact such new breeds or productions of a genus, that had perhaps once a single type on the Earth—as it has happened to our knowledge with **MANKIND** or the Genus **HOMO**, once a single **TYPE**, that has produced during many ages, so many natural varieties and breeds, gradualy become permanent, divided and multiplied, that they now form 3 or 4 great Races or Breeds, deemed Species by some philosophers: and even others admit 10 or 15 Species of **MEN**. Thus the natural spliting of **MANKIND** has realy produced many divisions of the type. If however we acknowledge that they all come from a **SINGLE GENERIC TYPE**, it is immaterial whether we call them Species or Races, Breeds, or Proles, Varieties . . , But if deemed real natural new Species as in Plants, Oaks, Vines, Roses &c. they obtain a name and better Entity.

MEN form both a Genus, a family the **HUMAN** tribe, and an Order the **BIMANES**: which are both very striking and obvious groups . . . Roses do the same, and the botanists do not agree on their species and varieties; altho' so numerous now, they probably came like **MEN** from a single generic Type? Let us then study species in that point of view; both as distinct, and connected by the common Generic tie.

GENERA therefore are mainly essential; they give form, existence, characters and names to Species. The generic types are either in-

variable or slightly and slowly transforming; but specific types may and do eventualy vary in all their frame and parts, except the essential floral organs of the Genus . . . as MEN have varied in color, size, features, hair, &c. but preserved the great generic characters of limbs and teeth, and are BIMANES or with two hands, forming an Order distinct from the Quadrumanes or four handed Monkeys.

Rosa and *Rubus* were once united in the same Order and family, but they are as unlike as Men and Monkeys, *Rosa* has a calix berry like enclosing the germs or pistils, while *Rubus* bears them on a central gynophore or fructal receptacle. These are characters perfectly essential and exclusive, like 2 hands or 4 hands. All good characters ought to be such; when they vary they lose their importance; but when we merely suppose they do, because we unite alien plants, the mistake is ours, not a natural consequence nor real fact.

This view of natural Botany opens a wide field to us: the aggregation or segregation of individuals in various successive real Clusters, ruled and led by several physical laws of opposite tendencies, may gradualy unrol before us the mysteries of Vegetable organization and frames, with their mutual contending aims.

These great laws that rule living bodies and vegetation, are, SYMETRY that gives the bodily forms to Genera, casting the moulds of typical frames—PERPETUITY that by reproduction, perpetuates these original primitive forms—DIVERSITY that bids and compels all living bodies to assume gradualy a variety of slight changes when reproduced, and never evolves individuals perfectly alike, nor *two leaves*

quite similar in all points on the very same tree.

Lastly INSTABILITY that does not allow any forms nor frames to be perpetual nor ever the same, giving to plants as to animals *birth*, *growth*, *decay* and *death!* in succession, within a term of a few hours, a day, a month, a year, or 1000 years.

By these contending laws, always balancing each other, Vegetation is regulated like the Worlds and Skies by Gravitation and Repulsion.

Symetry and Diversity are ever moulding or changing the Vegetable forms: while Perpetuity and Instability are ever controling their existence by successive reproductions, or vital evolutions.

Let us study these laws, let us ascertain their effects, let us contemplate and admire the innumerable forms they evolve, sustain and improve upon our EARTH—This is the study of natural Botany, of floral beauties, and of GOD working wonders there as elsewhere.

HE rules the skies and in his hands upholds
The solar Worlds: while from his breath di-
[vine
Spring living souls, that men and beings move.
By him alone the trees and shrubs are set,
And with the lesser plants, the spark of life
Receive, imbibing solar heat and light.
Then to the Sun their leafy limbs eqpand,
And nuptial buds with dazzling beauties bloom
Of thousand shapes and hues, or sweet per-
[fumes;
The Earth adorning with a verdant dress,
Sprinkled with floral gems like lucid stars,

Sparkling throughout the skies, adorned all
By gilding light, with colors of the prism:
Thus they delight the human senses, showing
The deeds of GOD in floral wonders growing.

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FLORA TELLURIANA

CENTUR. I.—XII.

MANTISSA SYNOPTICA.

2000

N. ORD.—N. GEN.—N. SP.

PLANTARUM

IN ORBIS TELLURIANUM.

Determ. coll. inv. obs. et. descr.
Ann. 1796—1836.

Auctore C. S. RAFINESQUE, Bot. Prof.

PHILADELPHIA.

1836.

Les noms font les choses.

Names realize Entities.

Plus nos noms sont generaux, plus non idees sont incompletes.—Plus nous avons de noms, plus elles se completent. Lamark, Leach, &c.

FLORA TELLURIANA

PARS IV ET ULT.

FOURTH AND LAST PART

OF THE

SYNOPTICAL FLORA TELLURIANA,

CENTURIES IX, X, XI, XII.

With new Natural Classes, Orders and Families: containing the 2000 new or revised Genera and Species of Trees, Palms, Shrubs, Vines, Plants, Lilies, Grasses, Ferns, Algas, Fungi, &c, from North and South America, Polynesia, Australia, Asia, Europe and Africa, omitted or mistaken by the Authors, that were observed or ascertained, described or revised, collected or figured, between 1796 and 1836.

BY C. S. RAFINESQUE, A. M.

Prof. of Botany, historical and natural sciences—member of many learned Societies in Paris, Vienna, Bruxelles, Bonn, Bordeaux, Zurich, Naples, &c. Philadelphia, New York, Cincinnati, Lexington, &c.

To observe and compare, to correct or approve
By good names and new facts that convince and improve.

PHILADELPHIA.
PRINTED FOR THE AUTHOR
By H. Probasco, No. 119, *N. Fourth St.*
1836.

NOTICE.

This fourth part of the Flora Telluriana will conclude the work. It had been intended to divide it into 6 parts; but even these could not contain all what I have to add or correct on the Orders, Genera and Species of the whole world and all the classes of Vegetation: therefore it is better to limit this Work to Plants and Lilies chiefly; while I mean to publish separate Works additional to this on the Trees and Shrubs or a SYLVA TELLURIANA, on the Ferns and Grasses, Fungi and Algas, with perhaps Monographs of some peculiar Families of great interest, and probably a complete account of my New Class of the NANTIANDRES, having stamens alternate to calix or opposite to corollas, contrary to the usual order.

The price of this work will still be $5 or $40 for 10 copies, only 160 copies were printed, which makes it high, as but few copies can be sold in America, where Botanists cannot duly appreciate it, and they must be sent to Europe, to be often exchanged instead of sold.

PREAMBLE.

TO THE FOURTH AND LAST PART.

In the process of this work I have met with many interruptions and disappointments. It is neither easy nor agreeable to stem the current of botanical errors and blunders, and whoever swims against the streams of scientific prejudice may reckon on difficulties. I have met such in all my attempts to increase and correct knowledge; but I persevere nevertheless, and write for posterity rather than the actual Schools. I feel that my weary labors are not now appreciated except by a few, but am confident that in 50 years hence they will be more valued. Of this I have received already some assurances, when young and skilful Botanists have partly approved and adopted my views.

Meantime I must again repeat that whatever I now state or correct, had been mostly done by me between 1806 and 1815 chiefly, when I had matnred my botanical reforms as stated in my Analysis of nature 1815. I then possessed the ample materials of all the works of Wildenow, the great dictionary and illustrations of Lamark and Poiret, Martyn's large edition of Millers in 4 volumes Folio, and the New Dictionary of Natural History in 24 vol. 8vo . . . besides many rare and valuable works . . . which were lost with my Mpts. in my Shipwreck of 1815. Having thereby been thrown back upon the world and entered new paths of life, I could only gradualy collect again my materials, and restore my labors imperfectly. Yet I have since then consulted and studied many other

modern labors similar to mine, without finding the same accuracy and perspicuity of Generic reform. While it is with the utmost difficulty I can obtain *even for money* some late works of similar tendency, although I try to correspond direct with the Authors.

Therefore I distinctly state here again, that my feelings being of the most liberal and friendly kind for all Botanists and Naturalists, all over the Earth, if my labors ever interfere with theirs it must be accidentaly and unknowingly, either because my Genera were those established by me between 1806 and 1815, or because I have not obtained yet their works, although willing to buy them or exchange them with mine, unless they be too costly like Audubon or Jacquin—I hereby call publicly upon all synoptical and improving Botanists (and even Zoologists and Oryctologists) such as Agardh, Decandole, Endlicker, Schreber, Sprengel, Fries, R. Brown, Lindley, Hooker, Don, Sweet, Arnott, Bentham, Nees, Fischer, Link, Tenore, Ledebour, Blume, Martius, St. Hilaire, Bory, &c . . . with others unknowu to me by name as yet, to send me their works in exchange of mine and also to exchange specimens. I have been permanently established in Philadelphia again since 1826, and shall probably ever continue here, although I may become connected with various literary institutions, particularly the Central University of Illinois of which I am one of the founders. Books sent me for the University will be free of duties, and equaly received in exchange.

When I have accumulated all the latest Materials or Genera, and the great work of Decandole is completed, I may then revise the

whole, connect naturaly the scattered Genera, and add the needful corrections. I have been called already a Veteran in Natural Sciences even by my foes, I hope to become the Nestor of Botany like Adanson was, and if my zeal does not abate, to publish in 1850, a real Mantissa of all Botanical Genera till then.

Meantime I proceed with my *New Flora* and *New Sylva of North America*, and am now preparing a peculiar work on the Ferns of North America and other parts. I am going to reprint all my early essays on Botany and Zoology, as my Amenities of Nature. I have begun my *Mantissa of Zoology*, or new or revised Genera of all classes, many also framed previous to 1815.

My Historical and Philosophical Works are also proceeding, I shall publish my *Celestial Philosophy*, and my *Genius or Spirit of the Hebrew Bible*, preparing afterwards my *good Book of Knowledge and Wisdom* to be probably issued periodicaly, and including the restoration or increase of much knowledge on all Sciences whatever. These vast labors, besides those of private life, in order to obtain the means to produce my works, at my own expense chiefly (since they are too good and too learned for the vitiated scale of our publishers) have partly induced me to curtail the actual work, and conclude it here; but to continue it in another form or reproduce the additions as a *Sylva Telluriana* and otherwise.

Althongh the articles are now only 1200, yet they include with the species and subgenera, orders &c, 2000 or more added or revised objects and groups.

FLORA TELLURIANA.

CENTURIA IX MONOCOT.

Number 801. Otosma Raf. (ear scented) diff. from 679, spatha lato cuculata basis convoluta, spadix clavato, apice nudo, pistillis inf. subrot. stylosis, antheris truncatis sup. baccis 1 loc. 6-12 sp. sem. teret. oculatis. *Scaposa, fol indiv. spathis amplis albis odoratis.*—I continue here the Aroides, Lilies, and other monocotyles. This Genus blended with *Colla of L.* is totaly unlike, see my *Provenzalia* 679, and New Flora N. A. 481 to 485.—Type *O. ethiopica* R. Calla do. L. auct. fol. cord. sagit. cuspidatis, lobis obt. well known plant of Africa, often cult. seen alive since 1806.

802. Spirospatha R. Spatha spiralis clausa, spadix obl. pistillis mixtis trilobis, stigma sessile concavo trifido, antheris ad bas, mixt. ad ap. solit. baccis 3lobis 3locul-polysp.—Still more unlike *Calla* with flat spatha, no style, berries yellow uniloc, Type *Sp. occulta* R. Calla do Loar. Sm. fol. ovat. cord. petiolis canaliculatis. —From Anam. Perhaps the *Arum Spirale* of Retz Vitm. Sm. is a 2d sp. with lanceol leaves and sessile flowers.

803. Pleurospa R. diff. from *Caladium* and *Colocasia* by the flowers unilateral on one side of the spadix, and *stem frutescent.*—The singular structure of spadix requires attention, perhaps several Genera and Species blended as *Arum arborescens* L. Types 1. *Pl. reticulata* R. fol. sagittatis, spadix reticul. the linnean sp. of South America, stem 6pedal, leaves pedal, flowers white inside green outside, base dark

FLORA

TELLURIANA

BY PROF. RAFINESQUE.

SECOND PART.

PHILADELPHIA

1836.

FLORA TELLURIANA

PARS SECUNDA.

SECOND PART

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EXPLANATIONS

OF SOME BOTANICAL TERMS.

We are indebted to Linneus for a beautiful glossology or language, whereby we are able to express by words every form of vegetable organization, and to paint by words as it were, every plant, fixing in the mind the Genera and Species.

These botanical terms ought to be well known to Botanists. The language of Botany is to be learned at the outset by every student, and there are many grammars of it. Several gradual additions and improvements have been made since Linneus . . . chiefly by Richard, Necker. Jussieu, Mirbel, Agardh, Persoon, Decandole, &c.—I have ventured to add but few, following or adopting mainly those of Richard and Decandole.

It is unfortunate that all the Botanists do not quite agree even on this: and use sometimes various terms for the same organs.—For instance, the *Common Calix* of Linneus, an improper double word, had been very properly changed to Perianthe by Richard, a good single word derived from *around the flowers*. But other Botanists have proposed the synonyms of *Anthodium*, *Periclinium*, *Involucre*, *Perigynande*, &c., which are both later and worse. It is true that *Perianthe* had been applied by Linneus to the floral coverings, but the name was wrong. since these coverings, *the calix and corolla*, form the flowers and are not around it; they have since been collectively named *Perigone* (around the sexes) by Jussieu. and this name has been adopted by all the Natural Botanists.

I therefore adopt and use the terms *Perianthe* and *Perigone;* also, *Phoranthe* (bearing flowers) of Richard, instead of *common receptacle* of Linneus, or *Clinanthe* of later Botanists.

It would be useless to discuss in this way the merits of the different terms: it will be sufficient to designate those which I will employ throughout this Work, wherein I shall venture upon very few innovations.

Sepalis—Sepals, the folioles of the Calix or perigone.

Petalis, Petals, those of the Corolla.

Receptacle.—Only the centre of a flower bean.

Placenta.—The receptacles of the seeds in a fruit.

Gynophoro.—The receptacle of the pistils or seeds, commonly swelled or protruded.

Androphoro.—The disk or pillar bearing the stamens.

Columna.—The Androphore of the Orchideous flowers united to the pistil.

Phorantho.—The receptacle of compound flowers.

Diclinis.—Dicline, Separated beds or Stamens and pistils.

Pistillis.—Pistils, the whole female organs, Ovary, style and stigma.

Ovarium.—Ovary, the germen of Linneus, this name is now restricted to the real germen of the seeds.

Ovarium adherens vel liberum.—Ovary adherent to the perigone or free, as called by Jussieu, &c., answering to Germ inferior and superior of Linneus.

Peristomic, around the mouth of the perigone,

Peripetalic.—Corolla monopetal of Linneus, which is not of one petal, but a circular petal around the stamens or pistils.

Lepigono.—Lepigone or bract bearing the sexes.

Isarinis.—Isarine, stamens of equal number to the perigonal parts, or Diplarine when double.

Heterinis.—Heterine or in unequal number compared to perigone.

Epimesis.—Epimesical, stamens standing in the centre of the flowers, where the pistils generally are.

Sporulis.—Sporules, the minute seeds of Fungi and Lichens.

Sporangis.—Their Capsules.

Gongyles.—The seeds of Algas and Aquatic acotyle plants.

Heterolis.—Heterolic Corollas, irregular, and not equal in number of parts with stamens.

Achena.—Achene, a dry fruit that does not open, commonly with only one seed.

Glumis.—The scaly valves or bracts of Grasses and Cyperacea, wrongly called calix and corolla by the Linneists.

Corolla.—The inner colored floral covering, when there are two, when only one colored, it is called perigone.

Involucris.—The bracts surrounding umbels. The minor ones or secondary called *Involucelis.*

Galea.—Helmet like appendages or parts of Corollas.

I have given the descriptions or essential characters of the Genera and Species in the usual Botanical Latin Language; but the roots of every word are similar to the proper English Botanical Glossology, and may be understood by any English Botanist. who knows the usual terms of the Science; besides being available to all other Botanists. The remarks, explanations, researches, &c., will be given in English: this double mode of expression is now often employed, and has many advantages; while the use of abbreviations is well understood.

G.	for	Genus.
Sp.	. . .	Species.
do.	. . .	Ditto.
Cal.	. . .	Calix.
Cor.	. . .	Corolla.
Stam.	. . .	Stamina.
Pist.	. . .	Pistilis.
Per.	. . .	Perianthus.
Perig.	. . .	Perigone.
Pet.	. . .	Petalis.
Sep.	. . .	Sepalis.
Phor.	. , .	Phorantho.
Col.	. . .	Columna Sexualis.
Gynoph.	. .	Gynophoro.
Nect.	. . .	Nectarium.
Fil.	. . . .	Filamentis.
Anth.	. . .	Antheris.
Styl.	. . .	Stylis.
Stig.	. . .	Stigma.
Gland.	. .	Glandulis.
Ov. Ovar.	.	Ovarium.
Caps.	. . .	Capsula.
Sem.	. . .	Semina.
Recept.	. .	Receptacle.
Sq.	. . . .	Squamis, osis.
Bract.	. . .	Bracteis.
Fl. flor.	. .	Floribus.
Spic.	. . .	Spicis, atis.
Panic.	. . .	Paniculis, atis.
Corymb.	. .	Corymbis, osis.
Umb.	. . .	Umbellis, atis.
Sess.	. . .	Sessilis.
Petiol.	. .	Petiolatis.
Ped.	. . .	Pedunculis.
Lob.	. . .	Lobis.
Segm.	. . .	Segmentis.
Fol.	. . .	Foliis, *leaf.*

Lab. . . for	Labio, labelum, *lip.*
Int. . . .	Internis.
Ext. . . .	Externis.
Nerv. . . .	Nervis, osis.
Lin. . . .	Linearis.
Rad. . . .	Radiis, atis.
Flos. . . .	Flosculis.
Eq. . . .	Equalis.
Ineq. . . .	Inequalis.
Adn. . . .	Adnatus.
4loc. . . .	quadrilocularis.
4valv. . . .	quadrivalvis.
Obt. . . .	Obtusus.
Ac.	Acutus.
Obl. . . .	Oblongus.
Ov. ovat. . .	Ovatus.
acum. . . .	acuminatis.
Ic.	Icones.
filif. . . .	filiformis.
polysp. . .	polysperma.
multil. . . .	multilocularis.
tubul. . . .	tubulatis.
infund. . .	infundibuliformis.
hypocr. . .	hypocrateriformis.
unifl. . . .	uniflora.
valv. . . .	valvis.
cord. . . .	cordatis.
dent. . . .	dentatus.
monad. . .	monadelphis.
diad. . . .	diadelphis.
didyn. . . .	didynamis.
diff. . . .	different.
fid.	fidus, *cleft.*
opp. . . .	oppositis.
alt.	alternis.
vertic. . . .	verticilatis.
char. . . .	characteris.

obov. . . for obovatis.
ellipt. . . . ellipticis.
lanc. . . . lanceolatis.
renif. . . . reniformis.
deh. . . . dehiscens.
coal. . . . coalitis.
compr. . . . compressis.
ang. . . . angustis.
canal. . . . canaliculatis.

ABBREVIATIONS OF SOME AUTHORS.

L. Lin.—for	Linneus.	N. Nek. for	Necker.
Ad.	Adanson.	Mx.	Michaux.
J. Jus.	Jnssieu.	Nut.	Nuttall.
Dec. DC.	Decandole.	Hook.	Hooker.
W. Wild,	Wildenow.	Lind.	Lindley.
R. Raf.	Rafinesque.	Tor.	Torrey.
Sm.	Sir James Smith.	Cat.	Catesby.
Sw.	Swartz.	Big.	Rigelow.
Ag.	Agardh.	Roxb.	Roxburg.
P. Pers.	Persoon.	Humb.	Humboldt.
R. P.	Ruiz and Pavon.	El.	Elliot.
Br.	Robert Brown.	Leg.	Legarza and Lave
b. m.	botanical magazine.	Th.	Thunberg.
		Lour.	Loureiro.
b. reg.	botanical register.	Forsk.	Forskahl.
Jaq.	Jacquin.	Forst.	Forster.
Lab.	Labillardiere.	Vitm.	Vitman.
Cav.	Cavanilles.	Scop.	Scopoli.
L'her.	L'heritier.	Del.	Delille.
Ach.	Acharius.	Spr.	Sprengel, &c
Lod.	Lodiges.		

FLORA TELLURIANA,

CENTURIA PRIMA.

SYNOPSIS PLANTARUM SELECT—This Synopsis will contain nearly 2000 new or revised Genera, with some new or corrected Families and species of Plants, from North and South America, Oceania, Asia, Africa and Europe; which having been neglected or mistaken by the Botanical writers, were by myself ascertained, and even several published, between 1805 and 1835. It forms the complement to my New Flora of North America, AUTIKON BOTANIKON (of 2500 New or rare Gen. and Sp.) and all my Botanical works since 1805.

Number 1. NYCTOSMA Raf. (*sweet smelling by night*) G. Orchid. ad. *Epidendrum distincto.* Sepalis 5 eq. angust. elongatis, labellum columna adn. ineq. 3partito, 2 auriculif. 1 calcarifore basi biglandul. columna 3 appendices dentatis, anthera 4loc. 4loba, alata, intus clausa. *N. nocturna.* Epid. do. L. & omnis auctoris, Lind. Hooker bot. m 3298. fol distichis ellipt. retusis. caule compresso unifl—flos magno citrino, Antillis, an Florida?

2. KADAKIA R. (*Nomen indicum*) 1815. *Calcarunia* R. 1830. *Pentederia* Sp. Sepalis 6 sessilib. carinatis ineq. 3 ext. lanc. ac. patens, 3 int· obov. obt. supero erecto. Stam. 6 ineq. subul. sep. insertis, 5 fertiles adscendens antheris lin. bisulc. apice dehiscens, 1 stam. major erecta appendicul. Ovar. 3gonum superum, stylo. filif. incurvus, stigma obt. Caps. ov· acum. 1loc. 3 valvis, tecta basi sepalis marcescens contortis. Semina

plurima, recept. centrale affixa. Habitus *Ponted. spatha monophyla multifl. fol. oppos*—Plurima Sp. *Ponted.* G. maxim. mal. ordin. Typus C. *acuminata* Raf. P. *dilatata* Buch. Sym. Ava, Ic . . Andr. rep. 490, Sm. Caule unifolio fol. cord. acumin. petiolata fl. corymbosis ceruleis ad petiolo erumpens—Ava. certainly as distinct a G. as my *Unisema*. the capsule is uniloc. by Buchanan figure, but triloc. in his descr. to make it agree with P. as our Botanists do with *Unisema* (*P. cordata*) that has only one seed. *P. hastata* and *P. vaginalis* perhaps belong here as Sub Gen. The G. is in utter confusion and shall be partly revised here.

3. Carigola R. (nom. ind) *hastata. Ponted. hastata* L. Auct. Cor. regularis sepalis 6 eq. ceteris ut preced? fol. hastatis, florib. umbellatis.

4. Gomphima R. (club stigma) *vaginalis, Ponted. do. L. auct.* Stigma clavato, florib. racemosis, fol. cordatis.

5. Pontederia vere ch. Cor. 6 fida bilabiata, stam. 6 ineq. caps. carnosa 3 locul. fl. *spathaceis spadiceis capit. s. spicatis*—Typis *P. rotundifolia, P. ovata* (S. G. Narukila florib. cap.) *P. azurea? &c.*

6. Unisema (*one seed*) Raf. 1808, med. fl. 1830. Cor. 6fida bilabiata, Stam. 6 ineq. ovar. obl. stylo filif. stigma simplex. *Fructus Semen nudum ut in Gramineis! unicum*, corolla marcescens 6costata obsito. Perisperm. farinos. Embryo centrali tereto. *Spadix spicato, erumpens, caulib. unifoliatis*—This fine N. G. of mine has been doubted by many, yet Nuttall and Torrey have verified the singular fruit, but deemed it the proper one of *Pontederia!* and our Botanists continue to admit the blunder. We have 9 Sp. or more in N. Amer. well indi-

cated by me in my Med. flora, and *U. deltifolia* figured tab. 93, yet all blended in 2 or 3 Sp. by them. ***How slow are Botanists to admit improvements and even accurate observations!*** This G. is the type of a new family UNISEMEA, nearer to Aroides, Piperacea, &c. than Pontederacea, indicated in my Analysis Nat. 1815, but put then near Asparagides in order ACINOPSIA.

7. LUNANIA R. 1830 m. fl. (*Lunan bot.*) cor. tubul. 6fida ineq. Stam. 3 in tubo, stylo 1, stigma 3-6. Caps. 3 loc. 3 valv. polysp—*L. uniflora*, fol. ovat. cordatis, scapis unifloris; Antillis, Mexico. ***Pontederia limosa*** Sw. & plur. auct. Another distinct Genus forming with *Schollera*, *Leptanthus*, *Heterandra* . . . a subfamily of Pontederacea, with 3 Stamens instead of 6. *Mnasium*, *Pollia* and others of same family have 6. The inequality of Corolla or Stamens or both, forms the essential character of the whole natural family, with the regular fruit.

8. APEMON R (*Solan. Diosk*) ***Datura*** auct. Cal. tubul. tereto apice fisso integro ut spatha latere dehiscens. cor. tubo angulato, limbo plano plicato 10 dent. 5 alt. minor. Stam. exserta subeq. anth. 4gon. 4loc. stigma obt. Caps. 4locul. levis—*A. crassicaule*. Caule crasso dichotomo, foliis oblongis sinuato-repandis, subtus glaucis tomentosis, fructo globoso pendulo—Cuba Antillis, fl. magnis albo-ceruleis, estivatio spiralis—*D. ceratocaula* Ortega & omnia auctoris! *D. macrocaulis* Roth, plurima ic. bot. reg. 1031. bot. mag. 3352. How could Hooker and Lindley leave this in *Datura?* which has cal. ang. 5 dent. cor. 5 dent . . . . It is nearer *Solandra* by calix, but has not a berry. v. v.

9. ASKOLAME R (*Asphodel. antiq.*) ***Milla*** auct.

nomen inclusum in *Camomila!* ch. ref. Cor. infund. 6fida. sep. alt. major. anth. 6 eq. ad fauces sep. Ovar ped. stylo fil. stigm. 3 Caps. 3loc. polysp. *A. biflora* R. scapo bifloro, fol. lin. laxa, fl. albis magnis—Mexico. *Milla biflora* Cav. t. 196 and omn. auct.

10. Ipheion R (*Asphodel. antiq.*) *Milla uniflora* Hooker bot. m. 3327. cor. infund. 6 fida, sepalis eq. Stam. 6 in tubo, stam alt. brevior, ovar. sessile, stylo fil. stigma 1 capit. caps. clavata 3 loc. polysp—I. *uniflorum R.* Scapo unifl. compr. medio vaginato spatha bifida, apice unifl. sepalis ovatis acum. fol. lin. obt. scapo eq—B. Ayres, fl. albis. *Milla sp.* auctoris G. duplex, ad stam. ovar. stigma conspic. diversis: ambi ad *Asphodelides* pertinent. v. v.

11. Stomadena R. (*glandular mouth*) *Ipomea aitoni* Lindl. b. reg. 1794. Aff. *Convolv.* cal. ineq. cor. tubo brevi crasso, camp. intus ad insertio stam. multiglandul. Stam. ad fauce 5 ineq. 2 major, stigma bilobo, caps 2loc. 4sp.—*St. violacea* volub. villos. fol. cord. 3lob. acutis brevis, pedic, multift. bract. lanc. acum—Florida, fl. viol. med. v. v. The *Convolvulacea* are yet in utter confusion, Choisy has made the matter worse by conversion of characters, the real *Ipomea* has caps. 3loc. but 20 fine N. G. are blended in these 2, and the ineq. of calix and stam. is not attended to, as the next evinces.

12. Coiladena R (*hollow gland*) *Ipomea horsfalia* Hook. 6. m. 3315. Cal. sepalis 5 eq. imbric. Cor infund 5loba, lobis emarg. Stam 5 *equalis* filam. basi glandulis. 5 cavis insertis, ad disco hypogyno ferens. stigma bilobo. capsula 2locul—C. hyemalis volub. glabra, fol. quinatis lanc. acum. undul. pedunc. multifl. cymosis, cal. sepalis obt—Africa? fl. purpur. hyemalis. This

G. is not even a *Convolvulacea*, but by the equal stam, rather a *Polemoniacea*, I have shown since 1820 that this is the true essential distinction; but by the insertion of stamens on disk instead of corolla, it may be akin to *Nyctagynea*. Perhaps other plants belong to this N. G. compare *Ipomea 5phylla* Jaq. with hairy leaves; but *Ip. 5phylla* Cav. is a different sp. *Ip. paniculata* Br. or *Convolv. do* L. is akin, but has palmate leaves, and forms my G. *Modeca*.

13. Skilla L. mispelt *Scilla*. char vere. Petalis 6 sessilis planis, patulis caducis, Stam. 6 oppos. *filiformis*. stylo filif. stigma simplex. caps. 3 loc. polysp—Type *Sk. maritima* and all the sp. with filiform filaments as stated by L. but many sp. united that lack this good character.

14. Oncostema R. (*swelled stamens*) *Scilla* auct. Diff. Pet. 6 apice villosis, Stam. 6 basi petalis adnatis, medio inflatis cum fovea nectarifera, stylo conico 6 sulcato, stigma obt. villoso. caps 3loc. polysp. extus 6sulcata intus dissep. duplex, receptac. centrale—Typ. *O. villosa*, fol. cuneatis villosis acutis, scapo glabro, fl. corymb. bract. lanceol. petalis ovatobl. obt. alboceruleis—Barbaria, Sicilia, v. v.—*Scilla villosa* Def. t. 85. bot. mag. 3211, omn. auct. Probably other sp. belong here.

15. Hexonix R. (6 *claws*) *Scilla* L. diff. Petalis unguiculatis et alia char. aliena—*H. japonica* Raf. *Scilla do* Thunb, L. flores umbell. ut in *Allium* cum spatha.

16. Epimenidion R. (*nom. antiq*) *Scilla* L. diff. Petalis 6 campanulatis basi coalitis. *fl. racemosis ut in Skilla.* 1 *E. hyacinthoides*

Raf. *Scilla. do* Jaq. *Sc. campanul* L—2 *E. undulatum* Raf. *Scilla do* Desf. Persoon &c.

17. XURIDIA Raf. A. N. 1815. The XURIDES. Stamina terna libera. Ovarium liberum. capsula polysp. Perigonum 3-6 part. This tribe of monocotyle plants is certainly distinct from the RESTIDIA, type G. *Restio*, which has single seeds, nuts or fruit, like UNISEMIA. It differs from IRIDES chiefly by free Pistil, from GALAXIDES (the monadelphous Irides) besides by free stamens. *Xuris* is the typical G. *Eriocaulon*, *Xiphidium*, *Mayaca*, *Wachendorfia*, &c. belong to it, as well as the following: 19 to 21.

18. XURIS mispelt *Xyris* by L. too near *Iris*. vere char. cal. persistens squamis 3 ineq. 2 minor carinatis internis. cor. evanescens petalis 3 unguicul. Stam 3 anth. subsess. ad ung. adn. anther obt. ovarium obov. 3 lobo. stylo 3fido, 3 stigma, caps. 3 valvis uniloc. seu ad basis sub 3locul. valvis septiferis set placentiferis polysp—*Scaposis*, *fol. gracilis*, *fl. capitatis*, *bract. squamosis imbricatis*—Linneus had only one sp. *X. indica*, R. Brown alone added 15, and now we know 35 species! but some have peculiar characters, and form the 3 next Genera. The following 25 sp. belong here; but several are yet united by mere habit, the fructif.. not being properly known. *X. pubescens* Desf. *platycaulis* Poiret, *capensis* Thunb. *macrocephala* Vahl, *anceps* Lam. t. 132, *pusilla*, *denticulata*, *paludosa*, *scabra*, *levis*, *bracteosa*, *juncea*, *gracilis*, *filifolia*, *flexifolia*, *brevifolia*, *lacera*, *vivipara*, *lanata*, &c. of Brown and others; besides 6 N. Amer. sp. *brevifolia* Mx, *caroliniana* W. *fimbriata* Elliot, *fistulosa* Raf. (*juncea* Baldw, not Br.) *obovata* Raf. *retusa* Raf. see my monogr. in New flora N. Amer.

19. SYNOLIGA R (united few) Diff. 18, Capsula unilocul. valvis non placentiferis, receptac, centrale. Important characters perhaps united to others omitted, habit also different, a stem with distichal leaves, head with 2 or 3 flowers only: the *X. subulata* of Ruiz, X. *pauciflora* W. and perhaps others.

20. RAMOTHA R (nom. ind) Diff. 18. Nectaris seu appendices 3 fimbriatis interjectis inter petalis. Stylo simplex, stigma capitatis plumosus. This includes several sp. blended as *X. indica* by authors, thus the original G. of Lin. also X. *operculata* and others. The following sp. were all X. *indica* once! 1. *R. vera*. Scapo sulcato spiralis, fol. latis, capit. ovatis, squamis subrot. glabris. Asia—2 R. *Africana*. Scapo sulcato basi spiralis, fol. angustis striatis, capit, globos, squamis subrot. fuscis ad medio pilosis. Africa—3 *R. pubescens*, Scapo tereto, vagina foliosa pubescens, fol. latis, basi dilatatis, capit. squamisque ovatis. obtusis; Antillis. *Xyris pubesc* Desf. anct—4 *R. floridana*. Scapo contorto compresso, apice 4gono, fol. tenuis, striatis contortis, capit. globosis, sq. subrot. emarginatis, Florida. *X. indica* Pursh, an *Xuris?* aff. *X. retusa* Raf.

21. JUPICA R (nom. amer.) Diff. 18. Stam. filamentis villosis, antheris 4 gonis, stylo trifido, stigma 9—The type or perhaps only sp. is J. *cerulea* Raf. *Xyris americana* Aubl. auct. with blue flowers, all others are yellow.

22. TRADESCANTIA L. vere ch. Cal. 3part eq. pers. Cor. 3 petala plana, tenuiss. evanescens equalis. Stam 6 subeq. filam. hirsutis. stylus filif. stig. simplex caps. 3 loc. oligosp. fl. *umb. 2 spathis.* To this G. belong *virginica*, *rosea*, *subaspera*, *hirsuta*, *discolor*, *malabarica? ge-*

niculata, *crassifolia*, *undata*, and many more, with my 8 N. sp. from N. America.

23. Sarcoperis R. *Zannonia* Cramer, Persoon. non aliis Diff. Corolla crassa persistens baccata. S. *bibracteata* Raf. *Commelina* and *Tradesc. Zanonia* auct. is very different.

24. Tonningia Necker. Diff. 22 Cor. 3partita, 3fidisque, basi tubulosa, coalita, ovar. lanat. *fl. axill—T. axillaris*, T. *speciosa* & aliae. *Tradesc auct.*

25. Siphostima R (*tubular stigma*) Diff. 22. Stylus clavatus, stigma tubulosum crenatum. *S. cristata* Raf. *Tradesc. do* Jaq. auct.

26. Gibasis R (*gibbose base*) Diff. 22. Cal. triang. basi trigibbosus, stigma bilobo, caps. 2loc. 2 sp.Sem obl—*G. pulchella* Raf. Caule procumbens, fol. ovat. acut. glabr. serrulatis—*Trad. do* Kunth mexico, compare *Callisia* L.

27. Ethreosanthes R. 1825 (*Evanescent flowers*) Diff. 22. Cal. ineq. cor. 3 pet. ineq. 1 pet. major concavo, Stam 6 ineq. 3 major incurvis. *Fl. racemosis—E. ciliata* R. Neog 42. Caule erecto dichot. ol. ovat. acum. undul. ciliatis, racemis secundis—Louisianna, Texas 3pedal, fl. blue, lasting only one hour. Is *Eothinanthes* better?

28. Tripogandra R (3 *bearded st*) Diff. 22. Stam 6, 3 brevis glabris, 3 longis apice barbatis, *fl. cymosis—Tr. multiflora* R. procumbens, fol. ovatis basi ciliatis, cymis pedunculatis; Caracas. *Tradesc. multifl.* Jaq. ic 355. *procumbens* Wild. Auct.

29. Phyodina R. (*growing by twin*) Diff. 22. Stam 3, fil. antheris binis divaricatis gerens, stylo basi barbato; *Ph. gracilis* Sm. Auct. *Trad. do.* near to *Callisia* L. *Hapalanthus* Jaq. which has same Stamens, but capsule bilecular.

30. LEIANDRA R. (*smooth st.*) Diff. 22. Stam. levis non barbatis ped. multifl. 1 L. *cordifolia*, repens, filif. fol. cord. ped. term. multifl. *Trad. do* Swartz. 2 L. *divaricata*. Dichotoma, fol ovlanc. glabris, vag. vill. pedunculis paniculatis. *Commelina hexandra* Aublet. *Tradesc.* auct. amb. amer. sp.

31. HEMINEMA R (*half filam*) Diff. 22 Stam. 3 glabris, ut in *Commelina* sed Cor. ut in 22—*H. multiflora* Raf. *Tradesc. do* Sw. and auctoris, fol. cord. ciliat. ped. axill. multifl—Antillis.

32. APLOLEIA R (*single smooth*) Diff. 22. Stam. unica levis.—A. *diffusa*, fol. ov. cord. glabr. ped. axill. multifl.—Hayti. Trad. monandra Sw. auct.—These 3 last Genera lack the very essential character of bearded Stam. that once was the only distinction of *Tradescantia* from *Commelina*, but these 2 Genera are in utter confusion, as the above proves. Compare also my genera of *Commelina*. It is deplorable to see Botanists forcing sp. into genera, in spite of characters. There is not a single generic character common to all the above G. 22 to 32! my reform and revision were indispensable, and begun in 1815. The *Tr. malabarica* is probably also a peculiar genus, to be called TALIPULIA, petalis cuspidatis, ped. longis unifloris. But the *Tradescantia! nervosa* Lin. is an Orchideous N. G. called *Thelypogon angustifol.* by Kunth, what a blunder! this whole Genus is a mass of linnean errors.

33. AGLITHEIS R. v^{er}. nom. anticus, *Allium* L. et auct. pessimum aff. *Galium*, *Homalium*, *Allionia* &c. Sir James Smith says of this G. the whole requires to be reformed as to names,

characters and species alike. *Allimn* has no meaning and clashes with many genera. Several ancient Genera, Onion, Leek and Garlick, were blended by L. without just cause; they must be kept apart, having all good essential characters. The sp. are in utter confusion, altho' very easy to distinguish; I shall here chiefly attempt a generic reform—The real G. ALLIUM or rather AGLITHEIS has, Petalis 6 subequalis dorso carinatis s. nervosis, sessilis patulis. Stam. 6 sub equalis ad basis, filamentis planis subulatis simpl. Ovar. sessile, Styl. simplex, stigma acutum. Caps, 3loc. 3valvis oligos perma, sem. angulata. *Flores umbell. spatha* 1-2*valvis gerens*—To this G. belong all those not enumerated in the following, but not the A. *sativum !* There are yet 40 sp. in it; the types being A *tatarica*, *carinata*, *ursina*, &c. I have added many N. Sp. from N. Amer. *triflora*, *5flora*, *stenia*, *geminata*, *petiolata*, *latifolia*, *triphyla* &c. see Monograph, Herb. Raf. and New flora.

34. GYNODON R (pistil toothed) Diff. 33. Petalis connivens. Ovar. 3dent. coronans, stigma obtus. Caps. globosa dentata 3 sperma—many 3 seeded sp. belong here, A. *tricocum ? mutabile*, *cernuum*, *Ellioti*, *rupestre* Raf. The types are these 3 last sp. 1. *G. cernuum* (A. Roth, Curtis 1824. Sm. W.) Caule 2ang. fol. lin. canal. umb. cernua, petalis ovatis, stam. inclusis, caps. tricornis. Mts. Caucasus. 2. *G. Ellioti* (A. cernuum mg. E.) scapo compresso 2ang. fol. lin. planis striatis, umb. nutans petalis lanc. Stam. exertis, caps. glob. 3dentata. mts. Alleghany. 3. *G. rupestre* Raf. Scapo tereto 2ang. fol. lin. brevis obtusis, levis, umb. nutans, laxa pancifl. petalis

lanc. Stam. eq. Caps. obtuse 3dentatis. ad rupes Kentucky, v. v.

35. STELMESUS R (Crown middle) Diff. 33. Petalis ineq. 3 ext. minor carinatis, Ovar. 3gono apice 6dent. Caps. turbinata 3gona, 6dentata, 6sp. loculis 2spermis—Type *St. stellatus* Raf. *Allium do* Sims b. mag. 1579. Scapo 3gon. fol. canal. carin. umbella multifl. N. America.

36. GEBOSCON R (nom. grec.) Diff. 33. Petalis erectis concavis, alterni latiora. Filamentis *filiformis longissimis*. Caps. globosa 6sp.—*G. obliquum*. Allium Gm. Sib-t-9. Lin. et Auctoris.

37. KALABOTIS R (*Cepa gr.*) Diff. 33. Cor. campanulata, petalis 6 erectis concavis obov. 3 ext. major, stylo conico, brevis Caps. polysperma? many sp. *Allium pallens, clusianum, flavum, nigrum, molly, canadensis, paniculatum* auctons, et alsa sp.

38. MALIGIA R (nom. lat.) Diff. 33. Cor. campanul. basi tubulosa 6fida, petalis basi unguic. connivens, cum. Stam 6 basi monadelpha. Ovarium depressum 3gonum. Caps 6sp.—3 sp. blended as *A. angulosum* &c. 1 *M. laxa* Raf. Caule anceps 2angul apice recurvo, fol. lin. carinatis, umbella laxa. North America. *A. angul.* Pursh 2 var. fl. incarnatis, fl. albis—*M. fastigiata*. Scapo 2. 4angul. compresso striato recto, fol. lin. canalic. vix carinatis, umbella fastigiata globosa. Europ. Sibiria, fl. purpureis—3 *M. gracilis*. Scapo tereto, fol. lin. canal. Jamaica. *Al. gracile* Ait. auct. *striatum* Redoute, Curtis. All these are fragrant, and form a very natural genus. The *A. striatum* Jaq. is a true *Aglitheis* not *Maligia*, from Africa, but *A striatum* of Pursh and N. America is *A. Ornithogaloides* of Walter that has received 7 names.

39. KEPA Tourn. Ad. Necker &c. Diff. 33.

Petalis crassis persistens, filam. crassis conicis planis basi dilatatis—The true G. Onion, *Kepa esculenta* (*al. cepa L.*) and *K. fistulosa* are the types; but other sp. may yet be blended with *Aglitheis*.

40. Porrum Tournef 1700, Adans. 1763. optim. G. Diff. 33. 6 Stam. alt. 3cuspidatis, filam. dilatatis, petaliformis ad apice 3fidis, anthera ad dente medio—500 Genera are based on less important characters. This includes all our Leeks, the Garlick itself, *Allium sativum*, *porrum*, *ampeloprasum*, *lineare*, *rotundum*, *Scorodoprasum*, *arenarium*, *spherocephalon*, *nutans*, *escalonicum* &c.

41. Getuonis R (nom. gr.) Diff. 33. Stam. 3. alternis subulatis, 3 alt. bifurcatis cuneatis petaloideis, antheris medialis.—Perhaps only a Sub. G. of the last. This includes *Al. vineale*, and perhaps others.

42. Plexistena R (*segment narrow*) Diff. 33. Petalis nervosis, obovatis concavis, Stam. 3 alt. linearis planis angustis trifidis, segm. lat. divaric. medialis brevior antherifero. Ovar. turbin. Caps. 6gona, 6sperma, *umbella cum Involucro polyphilo—Pl. margaritea* (*A. do* Sm. fl. greca) Caule tereto, fol. canalicul. Grecia, pulchra sp. fl. albopurp. nervis viridis.

43. Stemodoxis R (Stam. dent. apex) Diff. 33. Stam. 3 alt. subul. 3 alt. cuneatis antheris medialis. Ovar. 3sulc. Caps. oblonga 3sulcata, 3sperma—*St. juncea* Raf. (*A. do* Sm. fl. gr.) Scapo tereto, fol. 2. fistulosis, umb. globosa, spathis 2 ovatis, petalis ellipticis acutis purpureis. Grecia.

43. Panstenum R (all narrow) Diff. 33. Petalis linearib. angustis, planis enervis reflexis. Stam. filiformis erectis. equalis, Caps. 3sp ?—

P. monspessulanum. Al. do Gouan t. 16, Vitm. Scapo tereto, fol. lanceolatis, umbella globosa.

45. Endotis R (*inside ears*) Diff. 33. Petalis internis basi biauriculatis, alia char. examinanda—*E. pyrenaica* Caulescens, fol. ang. lin. subcarin. *A. appendiculatum* Ram. Pers.

46. Kromon R (*nom gr.*) Diff. 33. Petalis ineq. planis, 3 ext. latior brevior, 3 internis lanc. duplo longior, Stam. Styloque longissimis filiformis,—*Kr. parviflorum.* Al. do L. an aff. Geboscon?

47. Loncostemon R (*lance stam*) Diff. 33. Petalis eq. scariosis vix patulis, Stam. eq. exserta, filam. lanceolatis s. medio latior, apice filif. Caps. 3cocca, 3sperma?—type L. *victoriale*, Allium do. auct, and akin sp.—Thus the single G. *Allium* of authors, offers 15 generic groups; altho' some may be deemed mere sub. genera, it will be hard to refer them properly. By better and closer researches in the view of correct distinctions, some of these will surely be further improved. At present the Linnean G. is only kept together by pure mistake, and mere habit of flowers in umbels, yet some sp. have only 2, 3, 4, or 5 flowers.

48. Melomphis R. 1815, (*black knavel*) *Melenomphale* Renealm. *Ornithogalum arabicum* L. et. auctoris. Petalis 6 equalis concavis deciduis. Stam. 6 equalis hypogynis, basi vix coalitis, late subulatis planis. Disco hypogyno 3gono, Ovar. globos. 6sulc. stylo 3gono, stigma 3lobo. Caps. globosa 3loc. 3valv. polysperma, semina obl. induplice series *Scapis teretis, fl. corymbosis, suaveolens, alb, bract. amplectens, Disco, Ovar. et Caps. nigris vernicatis*—A very natural and beautiful Genus, merely indi-

cated long ago by Rencalm, overlooked by Linneus, and containing 3 sp. blended in one!

49. *Melomphis arabica* Raf. Scapo multifloro, fol. canalic. corol. camp. petalis externis obsolete 3dentatis—Arabia, Egypt, Madeira, Cape. often figured and the usual sp. of nearly all authors.

50. *Melomphis sicula* Raf. Scapo paucifloro 3-6, fol. subcarin. pedicellis abreviatis bracteis subequante cor. subglobosis, petalis obovatis retusis integris.—Sicily near Segesta, where I found it in 1807, in Corsica says DC. never figured, it is *O. arabicum* of DC. fl. gallica: 15 inches high, flowers large, shaped like those of *Yuca*. Estival.

51. *Melomphis peruviana* Raf. Scapo multifloro, fol. planis marg. involutis, pedunculis elonglatis ad bract. longior, corollis subpatentib. petalis ellipt. obt. subintegris, stigma pubescens. In Chili, Peru. Scape 2 or 3 feet with 11-15 flowers. Vernal. It is the *O. corymbosum* R. P. fl. per. t. 300, Lindley bot. reg. 806. Hooker bot. mag. 3179. who calls it also *O. umbellatum*! and is at a loss to distinguish it from *O. arabicum!*

52. Syncodium R (*union bell*) Petalis 6 patulis ad basi coalitis cum Stam. 6 monadelphis campanul. (ut in *Narcissus*) 6fidis, 3 fil. longior emarg. bicornis antheris erectis. Stylo, stig. simpl. Caps. 3loc.—Very distinct Genus, overlooked by all; *Ornithogalum nutans* of L. and all authors! Type *S. nutans*. Scaposo fol. lin. carin. obt. fl. 5-20 racemosis secundis pendulls, bracteis fucis—In Europe, flowers greenish white, often figured.

53. Ornithogalon Diosk. L. omn. auct. Ver. Char. Perig. 6part. corolliformis persistens, ba-

si connivens, superne patens, equalis. Stam. 3 lib. filam. subeq. subul. 3 alt. vix dilatatis. petalis ext. insertis. styl. stig. simpl. Caps. 3loc. 3valv. sem. plurima. *Scapis; fl. racem. seu. corymb, bracteatis.*—All the botanists had been puzzled to distinguish this G. from *Skilla*, with filiform Stamens, because the sp. had been blended, and thrown into such a medley, that at last the *blue color* of some *Skillas* became their only distinction! The type of this ancient G. is *O. umbellatum*, and contains many corymbose sp. with *lacteum*, *namum*, Sm. *revolutum*, *conicum*, and all those with equal subulate stamens. Besides many *Scilla* of authors, *unifolia* L. *anthericoides* Desf. &c. and my next N. sp.

54. *Ornithogalon ceruleum* Raf. Car. 204. Fol. lanceol. scapo fistuloso, fl. corymbosis, bract. lin. lanc. pedicellis elongatis—Discovered in Sicily in 1808, published 1810, not a *Skilla*, filaments subulate equal. Fig. Cup. t. 201.

55. Gagea Salisb. Diff. 53. Petalis 6 deciduis, filam. equalis angust. subul. ad basi petal. adn. liberis. Styl. clavatus, sem. parva subrot. *Plantae graminea facies Hypoxis, fl. paucis s. corymb. bracteatis, luteis extus viridis.*—Salisbury mentions 7 sp. in his monogr. once all deemed *Ornithog.* 1 *fasciculanis* S. *luteum* sm. 2 *bracteolaris* S. *luteum* L. 3 *stellaris* S. *minium* L. 4 *spathacea*, 5 *pygmea*, 6 *bulbifera*, 7 *reticularis* S. *circinnat.* L.

56. Fenelonia R (*Fenelon. phil*) Diff. 53. Petalis ext. 3 trinervis latior, Stam. 6 eq. filam. lin. subul. angustis. Ovar. obl. sub. 3gon. stylo, clavato 3gono, stigm. capitato 3lobo. *Scapis bracteatis unifloris.*—*F. bracteata* Raf. atl.

Journ. pag. 145. *Ornithog. do.* Torrey. Oregon mts. see my Flora. This G. is nearer *Gagea.*

57. Loncomelos R (*lanc. membr*) diff. 53. Petalis uninervis, 3 internis brevior latior. Stam. subeq. membranaceis lanceolatis liberi Stylus. brevis. *fl. racemosis.* Nearly all the racemose sp. of *Ornithog.* belong here, *pyrenaicum*, *narbonense*, *japonicum*, *latifolium*, *secundum*, *pyramidale*, *suaveolens*, &c.; but many of the African sp. require to be revised. I can already detect the 3 next Genera.

58. Eliokarmos R (Nom. grec.) Diff. 52, 53, 57. Stam. ineq. 3 fil. alt. major cuneatis emarg. s. furcatis, liberis. *fl. corymb s. racemosis* chiefly different from *Syncodium* by free Stamens, 4 sp. all *Ornithog* of authors. *E. thyrsoides*, *aureum*, *coarctatum*, *caudatum*, and probably other blended sp.

59. Trimelopter R (3 memb. wings) Diff. 53. Stam. ineq. 3 filam. alt. major lanceolatis, 3 minor subulatis, Ovar. Capsul. trigona, trialata. *Fl. racemosis*—Typ. *Tr. fuscatum. Orn. do.* Jaq. W.

60. Loncodilis R (*lanc. bell*) Diff. 57. Corollæ campanulata, pet. basi connivens, filam, 6 lanceolatis in tubo adnata. *Fl. racemosis*—Typ. L. *scapigera* Raf. *Ornithog. paradoxum* Jaq. W. P.

61. Eriospermum Wild. Diff. 53. Petalis 6 persistens in corolla campanul. connivens. Filam. 6 basi dilatatis (monadelphis in cylindro L.) Semina lana involuta—Wildenow has 3 sp. *latifolium*, *lancifolium*, *parvifolium.* The first was *Ornithog. capense* of Lin. who assert it to be monadelphous as *Syncodium.*

62. Lagocodes R (Hare bell) Cor. camp. petalis 6 basi connivens (ut *Hyacinthus*) Stam.

6 equalis *filiformis* glabra ad petalis adnatis. Styl. simpl. Caps 3loc. 3valv. sem. plura rotunda. *Fl. racemosis—Scilla* and *Hyacinthus* L. but a striking peculiar G.- the English Harebell. Several sp. the type was put by Lin. in both Genera! and made 3 sp! It is 1 *Lag. nutans* Raf. *S. do Sm. DC. S. cernua* L. *Hyacinthus cernuus* et H. *nonscriptus* L. 2. L. *cernua*, S. do Sm. 3 L. *hyacinthoides. S. do* Jaq. 65. 4. L. *patula*. S. do DC. fl. gal. &c.

63. Kozola Raf. (nom. Jap.) Petalis 6 unguiculatis patulis. Stam. 6. filiform? Stylo 3gono, Stigma capitat. 3lobo, fructus ut *Skilla?—Scilla japonica* Th. L. auct. my *Kozola japonica*, flor. umbellat. fastigiatis. Petals as in *Melanthium* purple white.

64. Quamasia 1827 (nom. am.) Petalis 6 sessilis persistens equalis, Stam. 6 libera, glabra, filiformis equalis. Ov. 3gon. Stylo filif. trifidus, stigma 3 remotis acutis. Capsula 3loc. 3valv. Sem. panca. *Scapo, fl. racemosis, cerul. s. albis.* I shall conclude this long series of revised correct Genera akin to *Skilla* and *Ornithog.* by the *S. esculenta* of N. America and two akin sp. each the type of another Genus. Since the best Botanists have admitted such a mass of blunders on those 2 G. which they could not distinguish and reform, our Amer. botanists are partly excusable for similar mistakes on my 4 N. Amer. G. *Fenelonia*, *Quamasia*, *Oxytria*. and *Amblostima*. The type of *Quamasia* is *Phalangium quamash* Pursh, *P. esculentum* of others, *Scilla escul.* bot. mag. 1596, spread from Kentucky to Oregon, perfectly distinguished from *Skilla* and *Phalangium* by the trifid style. If any Phal. have that character they belong here. If *Quamasia* is deemed a

name too barbarous, I offer two substitutes, *Lemotris* and *Bulbedulis*! I call it *Q. esculenta.*

65. Oxytria R (sharp 3) Diff. 64. Stam. subulatis, stylo conicus trifid. stigma 3 connivens. *fl. racemose yellow—O crocea* Raf. *Ph. alangium croceum* Nut. (not Mx.) fol. gramineis, racemo paucifl. bract. obtusis, petalis ovatoblongis. N. amer. fl. croceis.

66. Amblostima R (obtuse stig) Diff. 64. Stam. subulatis planis, Stylo conico simplex, stigma obtuso unico. Sem. globosis nigris. *fl. racem. albis s. luteis*—1 *A. albiflora* Raf. (Ornithogalum croceum Elliot) fol. planis nervosis, scapo tereto, racemo laxo, bract. ovatis, brevis, petalis ovatis obtusis. In Georgia, florida, fl. white—2. *A. crocea* (Phalangium croceum. Mx. P.) fol. gramineis, scapo brevis, racemo pyramidal. bract. obtus. brevis. In Georgia, fl. safron color. Elliot has best described the flowers, Michaux the seeds. All the above Genera akin to *Allium*, *Scilla*, &c. belong to the natural tribe of Asphodelia.

67. Anthericum L. another absurd linnean G. whose essential character was merely *Cor. 6petala potens* Caps. ovata! which might include *Allium*, *Scilla* and 20 other genera. Some botanists ashamed of this blunder, confined it to the Sp. with bearded stamens, taking out of it *Phalangium*, *Narthecium*, *Tofielda*, *Abama*, &c. But even all these require correction, including many distinct Genera. The true *Anthericum* has Petalis 6 sessilis patens deciduis, filam. 6 lanatis filiformis equalis, anther. versatiles, stylus filif. rectus, stig. integr. papillosus. Caps. glob. 3loc. 3val. Sp. having different characters are to be separated. Types *A. frutescens* and akin African sp.

68. NEMOPOGON R (*fil. barb*) Diff. 67. Stam. declinatis inæq. filam. filif. ad medio barbatis. Ovar. 3lobo. Stylo declinato flexuoso, stigma acutum, *Rad. fibrosis*—Type *N. glaucum Raf.* glauc. fol. canalic. scapo teretis, fl. racemosis, pedic. adpressis, petalis ovat. obtusis. Tasmania *Anthericum semibarbatum* R. Br. Lod. bot. cab. 330, Hooker bot. mag. 3129.

69. FUSIFILUM R. (spindle fil) Diff. 67. Stam. glabris fusiformis ad medio dilatatis. 3 sp. *Phalangium physodes*, *pusillum* Jaq. W. *coarctatum* RP. Pers, &c.

70. OBSITILA R (drest fil) Diff. 67. Stam. non barbatis sed vestitis muricatis, s. pubescens. Perhaps several G. or at least Sub. G.—1. PUBILARIA *bicolor*, filam. pubesc. *Phalangium bicolor* DC. 2. TRACHINEMA *vespertina*, filam. muricatis. *Phal. do anct.* 3. *Tr. hispida* Raf. ditto. *Antheric. hisp.* L. W. auct.

71. LEPICAULON R. (sq. caule) Diff. 67. Corolla infundibul. campanulata 6partita. Stam. glabris—L. Squameum. Anther. do W. &c.

72. HESPEROSCORDUM Lindley. Petalis 6 carinatis Stam. 6 filam. dilat. subcoronatis membr. Ovar. ad apice 3glanduloso (ut Hyacinthus) stig. simplex, valvis septif, sem. angulatis; Genus akin to *Syncodium*, *Hyacinthus* &c. according to mere habit, it ought to be *Allium! H. lactcum* bot. reg. 1639. Scapo teres, fol. canalic. umbella multiflora, bracteis linearib. sepalis ovatis acutis, 3 int. emarg. ad California.

73. HEMIERIUM R (*half wooly*) Diff. 67. Filamentis ad basis lanatis, apice glabris, *Rad. crassa*, *caule ramoso*, *fl. purp. albisq.*—Typ. *H. planifolium* Raf. 2. *grecum*, *et alia.* sp. *Antheric* auct.

74. ENDOGONA R (*inside angular*) Vere

Phalangium T. Juss. P. nomen G. arachnides similis! Diff. Stam. glabris filiformis. This G. hardly differs from *Skilla*, except by the angular seeds: the type is *End. ramosa*—Antheric. Phalang. of authors, and the akin sp. *E. adenanthera* (Forster) with the anthers on a gland must form a Sub. Genus at least.

75. Bulbine L. Shult. Liliago Lob. T. Diff. 67. Stam. glabris filiformis ineq. Stylo declinato, *fl. racem. albis*—Type B. or *Antheric. liliago* L. Phal. do W. DC.

76. Pleisolirion R (near Lilly) *Liliastrum* T. Diff. 67. Stam. glabris filiformis declinatis, Stylo recto, Cor. campanul. petalis connivens. *Scapo fl. racem. secund. albis, liliformis*—Typ. *P. liliastrum.* auct. *A. Ph. do.*

77. Coilonox R (hollow tip) Diff. 67. Petalis vix patulis apice fornicatis, dorso carinatis; Type C. *albucoides* Raf. *Phal. do* Pers. *Albuca* Ait.

78. Cronyxium R(colored claw) Diff. 67. Petalis unguiculatis, stam. glabris, *Subcaulescens, unifl. flos magn. albo variegato—Cr. serotinum* Raf. auct. sub. A. Phal. enum.

79. Tofielda Hudson. *Abama* Ad. *Rydbeckia* Neck. *Heritiera* Sternb. *Iridrogalvia* RP. *Antheric. calycul.* L . . . Diff. 67. Calix trifid. subt. corolla, stam. glabris. Stylis 3—what a linnean blunder! just like those daily made by his worshipers. many akin sp. now united require a further division, see my New fl. N. amer. True *Tofielda.* Petalis equalis, filam. subul. caps 3cocca, intus dehiscens, sem. paucis angulatis, 4 Species.

80. Abama Raf. Diff. 79. Petalis alt. longior, Stam. filif. Caps. 3 gonis, loculis apice bivalvis 2sperm—Type *A. scabra* R. Tofielda pubens E.

3 other sp. each with some peculiar characters, the *Narthecium* of Mx. his *N. pubens*, Sub. G. *Triantha*, has petalis angust. caps. globosis, loculis polysp. sem. teretis caudatis.

81. Narthecium Sm. *Antheric. ossifragum* L. Diff. 67. Petalis persistens, filam. hirsutis, Caps 3gona, sem. appendiculatis. Thus no cal. like many of the above Genera. Botanists must be blind to blend such disparities. When all these G. will be properly noticed and studied, the stigma and seeds will offer other additional features. From 67 to 81 the Genera belong to ASPHODELIA.

82. Melanthium Gron. L. auct. another G. requiring a radical reform. The very name meaning *black flower* does not apply, and the authors have united thereto many plants quite unlike, *Helonias*, *Tulipa*, *Wurmbea!* The following G. 83 to 100, are chiefly reformed out of this heterogeneous mass, all belonging to HELONIDIA.

83. Evonyxis R (*well clawed*) Melanthium Gron. Petalis 6 equalis persistens, rotatis, basis unguic. elongatis staminiferis, s. pustulatis, 2 glandulosis. stam. eq. filif. antheris. globosis stylis 3. caps. 3 basi coalit. intus deh. Sem. plura alata. *Caulescens*, *ramosis*, *fl. albescens paniculi*—Fine natural G. many Sp. in N. Amer. not yet well distinguished. *E. virginica*, *glauca*, *monoica*, *hybrida*, all Melanthium of authors, with several N. Sp. see my New Flora. I add one.

84. *Evonyxis* (*Melanthium*) *undulata* Raf. Caule elatior, fol. glabris striatis, panicula multifl. puberula, pedic. elong. petalis reniformib. undulatis—Alabama, fl. large, white with 2 red spots above the claws.

85. *Zigadenus* Mx. Diff. 83. petalis sessilis erectis glandulis binis ferens. Ov. 3gon. Stylis 3 obt. contiguis (in fig. Mx. Stylus trifido acuto) Caps 3gona 3loc. Sem. angulatis—I give this G. to contrast it with the next. Several sp. in my new Flora.

86. Gomphostylis R. n. fl. (club styles) petalis 6 patulis persistens, sessilib, subcoalitis, bigландulis. Stam. 6 basi dilatatis ovar. adpressis, apice deflexa filif. Styli 3 clavatis, Caps. ut in 85. *Caulescens*, fl. *subspicatis*, *bracteis obsitis.*

87. Gomph. *bracteata* Raf. Caule flexuoso, fol. lin. lanc. acum. brevis, spicis oblongis, fl. subsessilis, bracteis petalisque ovatis acum. involutis. Virginia. *Helonias bracteata* Brereton mpt. Is the *Veratrum Virginicum* Ait. bot. mag. 865 a second sp. of this Genus? or a *Zigadenus? 2. Gomphostylis? paniculata* R. racemis paniculatis, pedicelis bracteis longior, petalis bigland. ut. in Genus. and another sp. is perhaps the *Veratrum Virginicum* of Sm. who says it is the real *Melanth. Virgin.* of Lin ! and also *Helonias Virginica* Curtis bot. mag. 983! 3 *Gomph?* or *Z. fuscatus* Raf. fol. nervosis plicatis, fl. panicul. petalis ellipticis sessilib. extus pubescens, intus viridis, basi pustulis 2 fuscatis.

88. Veratrum L. this differs from the last by having no glands. on the sessile petals. Petalis 6 sessilis egland. Stam. subhypogynis. Caps. 3 polyspermis. *Caulescens, fol. latis, fl. panic. V. nigrum*, *V. album*, *V. viride* of N. amer. *V. luteum* is Abalon *albiflorum* Raf. fl. white. V. *sabadilla* is probably a peculiar G. as the habit is different; *Sabad. offic*, fol. lin. lanc. nervosis, fl. racem. secundis, pet. ovatis atropurp. Mexico. akin to next Genus.

89. ANEPSA R (*Veratr. grec*) Cor. campanul. 6 part. eglandula, sepalis eq. angustis. Stam. 6 breviss. ad bas. sepalis. insert. filam filif. antheris subrot. Ov. 3fid. stylis 3, caps. 3 coalitis oligosp. *Caulescens, fol. angustis, fl. panicul. sepe diclinis.* 4 Sp. at least. v. v.

90. *Anepsa spicata* Raf. fol. longiss. filif. canalic. spica basi ramosa, fl. subsess. bract. subul. brevissim. sepalis lanc. acutis. mts. Apalach pedal, fl. purplish dioical.

91. *Anepsa graminifolia* Raf. Caule angulato, fol. gramineis planis, striatis, panicula racemosa, bract. setaceis fl. longior, pedic. 1-3 floris, sepalis lanc. acum—West Kentucky, pedal, fl. incarnate.

92. *Anepsa carinata* R (V. angustif. Mx. auct) fol. longis lin. carinatis panic racemosa, sepalis linearib—mts. Apalach. fl. dioicis viridoluteis.

93. *Anepsa latifolia* R (V. parvifl. Mx. auct) fol. ov. lanc. planis, panic. racem. gracilis, pedic. brevis, sepalis lanc. acutis—mts. Apalach. fl. polyg. viridis.

94. *Epionix* R. (on claws) Petalis 6 unguicul. eglandulis, lanceol. Stam 6. adnatis ad ung. apex. Ovar. tereto 3sulcato, Stylis 3 recurvis. Caps. 3locul. *Caulescens, paucifl. grandifl*— Fine African Genus made 2 G. by Linneus! *Tulipa breyniana, Melanthium ethiopicum!* Sir J. Smith who corrected this, calls it *M. flavum*, but there are 2 sp. M. unifl. Jaq. W. is the 2d. others copy these blunders as usual— 1. *Epionix rubra* R. Caule 3-4 floro, fol. lin. lanc. fl. rubris. 2. *E. flava*, Caule, unifl. fol. lin. lanc. fl. flavo.

95. APHOMA R (*no pustule*) Petalis 6 sessiis. pustulis nullis. Ovar. ad basis 6glandul.

Caps. 3gona 3locul. Cetera ut *Zigadenus. Rad. bulb. Caulesc. paucifl*—Typ. *Melanthium indicum* L. auct. plurima sp. confusa. 1. *A. angustiflora* R. fol. lin. petalis linearib. acutis. 2. *cuneata*, fol. lin. lanc. petalis cuneatis obtusis. Both in India.

96. Onixotis R (*claw eared*) Diff. 83. unguiculis pet. sepe canalic. basi vel apice bidentatis s. biauriculatis, eglandulosis. Caps. 3loc? *fl. spic. s. racem*—Several sp. from Africa, called *Melanthium* by authors. 1. *O. ciliata*, *O. secunda*, &c. have auricles at base of claw. 2 a Sub. Genus *Zigotila*, auric. ad apice ung. fl. racemosis. *viridis* Raf. fol. ovatobl. scapo 2-3fl. fl. viridis. *Mel. racemoides* Jaq. 450. Curtis 641. Sm. &c.

97. Ornithogloson Salisb. Diff. 83. Petalis sessilis reflexis basi nectariferis, Stam. 6 hypogynes. Type *O. s. Melanth. viride* L.

98. Skizima R (*split stig.*) Diff. 83. Petalis 6 sessilis cuculatis egland. stylis nullis, stigma 3 bifidis, Caps. 3loc. 6 Sp. *Scapis paucifl—S. pumila* R. Scapo brevis 3-4fl. fol. cespit. lanc. rigid. canal. basi barbatis—Fuegoland, fl. albis. *Melanth. pum.* Forst. W. P.

99. Plexinium R (segm. union) Diff. 83, Corolla 6partita, s. 6fida, sepalis basi coalitis, sessilib. ad basis poriferis staminiferis. Stam. glabris? Type *Pl. punctatum* which is *Melanth. capense* L. and M. *monopetalum!* L. 2 sp. are only one. *Mel. sibiricum* probably belongs here also, having united sepals.

100. Crosperma Raf. 1825 neog. (colored seed) *Melanthium*, *Helonias*, auct. Corolla persistens, rotata, 6part. sepalis sessil. glandulis o. Stam. 6 filif. Stylis 3. Capsulis 3 vix coalitis monosp. sem. arillatis, arillis coloratis, *Caules-*

cens fol. ang. fl. racemosis—This G. includes several sp. that have been united to 5 or 6 Genera! now commonly blended in *Helonias* but with different fruit. Chiefly from N. Amer. and in great confusion. See my New flora. The following are the types, 1. *Crosperma loeta* Raf. *M. loetum, erythrosp. Helonias do* auct. 2. *Cr. phalangioides* R. *Mel. do* W. P. *antheric. subtrigynum* Jaq. &c. 3. *Cr. angustif.* R. not *M. do* Mx. and several new species.

FLORA TELLURIANA

CENTUNIA SECUNDA.

101. Zaga R (nom. ind.) Cal. persistens 5part. eq. Petalis 5 subeq. Stam. 10 libera. Stylo curvo. Legum. ovato compr. crasso duro apex uncinato, intus monoloc. 2-8 sperm. Sem. angul. rubris. *Arbor. fol. imp. pinnatis, fl. panicul*—1. *Z. latifolia.* Foliolis 7 oppos. petiol. ovato lanc. leg. rectis uncinatis dispermis—2 *Z. parvifolia* foliolis alt. sessilib. ellipt. leg. falcatis 7-8spermis. Both trees called Zaga by Rumphius, grow in Molucas. The G. is near *Cesalpina*, and also *Xylocarpa* by the fruit.

102. Alagophyla R. diff. *Gesneria*, Cor. tubulosa, limbo 5lobo equalis, glandulis 2 hypog. posticis ad ovar—*A. dasyanthes* Raf. *Gesn. alagophyla*, Martens, Lindley bot. reg. 1767. Villosa, fol. obl. obt. crenatis, fl. spicatis luteis, villosis, limbo flavo. In Brazil. The true *Gesneria* has the Cor. camp. bilabiate! another *Gesneria* with unilabiate! corolla, is my *Megapleilis bnlbosa* 201.

103. Calacinum R (Cal. bacca) Diff. *Polygonum*, *Fagopyrum*, *Helxine*, Cal. 5part. eq.

conc. persistens baccans Stam 8. Ovar ovat. Stylis 3 dilatatis foliaceis, stig. acutis. Sem. ovato incluso in bacca globosa calycina. *Frutex volubil. fl. racemosis polygamis* G. intermed. betw. *Polygon.* and *Cocolaba*, another added to the 10 good Genera blended with the first by authors—1. *C. adpressum* Raf. (Pol. do Lab. 127. Hook. bot. m. 3145) ramis teretis, fol. cord. sag. marg. scabris. Australia edulis. 2. *C. australis* R (Cocol. do Forst) fol. cord. ovatis. N. Zeland.

104. Cocoloba L. differs from last by, Cal. basi carnoso, ovar. immerso. Stam. basi coalitis in annulo. stylis 3 simpl. stig. obt.—Typ. *C. uvifera* L. fol. cord. baccis nutans pyriformis, spicatis. Tree, Florida Antilles &c. often figured. many Sp. united thereto must be examined again.

105. Naucorephes R (nut covered) *Cocoloba* auct. diff. styli dilatatis cuneatis dentatis, Ovar. lobat. Nux. 3-6loba, 1-6sperma in cal. baccans inclusa—Typ. 1. C. *pubescens* L. 2. *punctata* auct. et alia sp.

106. Lolanara R (nom ind) Cal. bisquamosus, Petalis 6, duplice series, 3 int. major. Stam. plurima hypogyna. Drupo ovato, nucleo bivalvis intus pulposo polysp?—*L. odorata*, fol. ovatis sparsis scabris. Oceanic tree, Lolanwara of Rumphius. Family Hesperidia.

107. Tulipa L. Cor. camp. petalis 6 decid. glabris subeq. nectaris nullis, Stam. 6. subeq. filam. glabris, antheris erectis. Stigma sessile magno 3 lobo trigono. *Florib. erectis*—Genus very near *Fritillaria*, *Erythronium* &c. many sp. not well described. *T. gesneriana*, *clusiana*, *suaveolens*, *oculus-solis*, and several N. Sp. all seen alive. Type of tribe Tulipides.

108. *Tulipa unguiculata* R. unifl. fol. ov. lanc. corolla ovata, petalis flavis apice unguiculatis. Caucasus.

109. *Tulipa laciniata* R. unifl. fol. ov. lanc. undulatis, corolla dilatata camp. petalis obovatis undulatis laciniatis versicolor. In Hortis.

110. *Tulipa bicolor* Raf. atl. J. 1833. Caule flex. unifl. fol. ov. lanc. planis acum. petalis acuminatis, 3 int. obov. albis, 3 ext. ovat. incarnatis. Arkanzas.

111. *Tulipa aurea* Raf. A. J. 1833. unifl. fol. ang. canal. apice falcatis, petalis acum. luteis, 3 ext. lanc. 3 int. ovatis. In Gardens from Texas.

112. *Tulipa montana* R. A. J. 1833. Caule unifol. unifl. fol. rad. angustis planis, petalis lanceol. acutis croceis. Alleghany mountains.

113. Liriopogon Raf. (Lily bearded) *Tulipa* auct. Diff. Petalis apice barbatis, Stam. barbatis ad basis vel. apice—Types L. *celsianum*, *sylvestre*, *biflornm* &c. all *Tulipa* of authors; but the first was made *Melanthium nniflorum* by Curtis b. m. 717!

114. Amblirion Raf. 1817. Diff. 107. Filamentis toto hirsutis, Stylo clavato piloso, stigma 3gono. *floribus nutans ut in Fritillaria*—Typ. *A. grecum* Raf. *Tulipa sibthorpiana* Sm. unifl. fol. 2 ovatis, petalis obtusis—The doubtful *Lilium pudicum* of Pursh, since united to *Fritillaria*, *Tulipa*, appears to belong here by habit, and a clavate style; but it is perhaps smooth. *Ambl. pndicum* Raf. 1816 unifl. fol. lin. lanc. petalis obovatis retusis flavis. Oregon.

115. Varronia L. Cal. tubul. persist. 5dent. Cor. tubul. limbo parvo patulo 5fido, equalis. Stam. 5 eq. in tubo, Stylo 4 fida, Stigma 4.

Drupa nux 4locul. sepe 4sperma.—Typ. *V. lineata, bullata, globosa, alba, geniculata*, alia sp. Order ARCYTHIA, tribe AGIPHILIA Raf. 1815.

116. CATONIA Raf. (Cato agr.) Diff. Cor. campan. subintegra crenata. stylo dichot. Drupa monosp—Typ. C. *lantanoides* Raf. Varronia monosperma auct. spicis globosis, fol. ov. lanc. Carracas.

117. HABENARIA W. Br. auct. Whoever deems the numbers of Stamina unimportant in Grasses, Lilies &c. must regret that this G. and many other ORCHIDES are based on their double number, altho' a most essential character: 1 and 2, 3 and 6, 5 and 10 stamina, always distinguish very distinct Genera, and whoever unites *Azalea* to *Rhododendron* sins against Linneus and Nature! meantime notwithstanding the learned labors of Swartz, Brown, Richard, Lindley . . . on ORCHIDES, they have left *Habenaria, Orchis, Epidendron* and other G. in utter perplexity. The last char. of *Habenaria* is merely a Cor. ringens, labellum calcaratum, antheris nudis binis—while other Genera have elaborate definite characters of 50 or 60 words. *Habenaria* thus includes many blended G. and requires complete reform. I shall now begin it, and give a new essential character of *Habenaria* Raf. Cor. ringens, lab. ad basi calcarato, glandulis nullis, col. simplex, antheris 2 divisis nudis anticis vertical. Caulescens. fl. racemosis—Types the Amer. Sp. having those char. *H. fimbriata, O. habenaria*, and akin Sp.

118. PLATANTHERA Richard. Diff. Cor. patula, columna dilatata, antheris 2 terminalis lateralis nudis. remotis. *Scaposis, fol. binis*

rad. amplis.—Type the various sp. blended as *Orchis* or *Haben. bifolia*, now 7 or 8 Sp. many new in the Alleghany mts. I do not know the sub-genus *Mecosa* of Lindley, is it my next Genus?

119. Tylotis R. (wart ear) Diff. 117. Label. ad basis supra uniglanduloso, ad latere 2 auricul. s. bidentato. Col. brevis dilatata biloba, antheris ut *Platanthera*, habitus ut *Habenaria*, *floribus fragrans.* Types 4 Sp. described 1832 in my Herb. Raf. *H. herbiola, fuscescens* &c. of authors. See my Flora N. Amer.

120. Digomphotis R. (2 club ears) Diff. 117. Sepalis connivens subeq. Label. cuculato, basi calcar saccato. colum. ad latere appendiculata, auriculis clavatis, (an antheris ster?)—Types the 2 following sp. and others.

121. *Digomphotis cordata* Raf. Foliis binis alt. cordatis acum. 5nervis, fl. viridis bracteis equante, lab. trilobo, calcar breviss. obt.—Portugal, Madera. *Habenaria cordata* Br. Hook. misc. t. 55. b. mag. 3164. *Satyrium diphylum* Link.

122. *Digomphotis undulata* Raf. Fol. pluris ellipticis obtusis undulatis, spica densa, bract. fl. longior, sepalis 3 ovat. obt. ext. viridis, petalis int. albis. obov. lab. integro ovato, calcar globoso—India, Nepal. *Haben. goodyeroides* (n. barb) Don. Spreng. Hook. b. m. 3397.

123. Pectelis R. (comb. lip) Diff. 117. Corolla patula ineq. sepalis 2 int. minimis, label. amplissimo 3part. med. minor integro, lobis later. amplis flabellatis. pectinatis. Col. elongata, antice bidentata. antheris lateralis, apice annexis. basi auriculatis. *Florib. amplis, paucis, fragrans.* a beautiful G. near Bartholinia of Lindley

Types 3 Sp. which roots are tuberose, Ovary terete, Spur long, and fragrant flowers.

124. *Pecteilis gigantea* R. fol. ovatis, florib. 4-5, bract. lanc. ovar. tereto subeq. petalis albis, 3 ext. obov. obt. 2 int. lin. falcatis—India, Nepal. Stem 4 feet, flowers 5 inches. *Habenaria gigantea* Sm. Ex. bot. 100. Hook. b. m. 3374.

125. *Pecteilis susanna* R. Fol. ensif. canalic. florib. sub 3 petalis albis, 3 ext. subrot. lab. lobis ciliatis—Amboyna, Stem pedal, fl. 2 inches. *Orchis susanna* L. & auctoris.

126. *Pecteilis radiata* Raf. Diff. 125. Petalis 2 ext. ovatis acuminatis.—Japan. *Orchis radiata* Pers. *O. susanna.* Thunberg.

127. Blephariglotis Raf. (ciliate glotis) Ovar. desinens in appendice tereto subtus fl. Petalis 3 ext. in galea connivens, label. ligulato fimbriato; Col. dilatata, utrinque latere glandula magna, antheris lateralis remotis clausis inter cella bialata bivalvis—striking G. of North Amer. Types the 5 next Sp. Similar habit, stem-leafy angular spike short, fl. handsome inodorous, leaves few carinate lanc. pollen caudate, only one in each cell or anther. All seen alive.

128. *Blephar. albiflora* Raf. Elatior, fol. acutis spica oblonga, petalis albis, 2 internis obl. apice laceris, calcar elongato, label. convexo margine reflexo, apice acuto paulo ciliato—N. Amer. paludis, *Orchis et Haben. blephariglotis* auctoris, *O. ciliaris alba* Mx. oft. figured.

129. *Blephar. longicornis* Raf. Elatior, fol. obtusiusc. nervosis, spica oblonga, petalis albis, 2 internis apice ciliatis, calcar longissimo divaricato, labello lineari, basi ciliis brevis, apice lacero fimbriato—Alabama, Louisiana. fig. autikon bot. as all the sp.

130. *Blephar. bicolor* Raf. Caule biped. fol. venosis obtusiusculis, spica ovata, petalis fulvescens 2 int. subintegris calcar elongato albo, label. albo plano pinnato fimbriato, apice truncato lacero—Nova Cesarea, in aquosis: apparently a hybrid of 128 and 131, yet Orchides cannot produce hybrids, the fecundation being so intimate: it is rather a deviated N. Sp. beautiful, the yellow is pale, nearly buff color.

131. *Blephar. flaviflora* R. Caule 1-2ped. fol. subnervosis obtusiusc. Spica ovato, petalis flavis croceis, 2 int. subintegris, calcar elongato label. plano pinnato. fimbriato, apice truncato longe fimbriato—N. Amer. ad pratis. The most common sp. in mts. and plains. *Orchis s. Haben. ciliaris* auct. fl. smaller than in the others.

132. *Blephar. cristata* Raf. Humilior, fol. acutis subnervosis, spica oblonga, petalis croceis, 2 internis subrotundis cristatis, calcar brevis ad ovar. dimidio, labello obl. pennatim lacero—Virg. ad Florida. Flowers smaller still. *Orchis cristata* Mx. et auctoris.

133. Mesicera R. neog. 1825 (middle horns) Diff. Orchis. Petalis internis bipart. Lab. tripart, lobis lateralis setaceis. anthera unica 2pollen, ad basis bicornuta. capsula trigona—Types 2 Sp. 1 *Mes. Michauxi* R. O. 5seta Mx. and 2 *Mes. repens* R. Habenaria do Nut. El. see Herb. Raf. and new flora.

134. Galearis R. h. 1833 (helmet like) Diff. Orchis. Petalis 3 supernis coalitis in unico galeaformis concavo fornicato, labello indiviso anthera bipollen. *Radix ramosa, scapo paucifolio pauciflora*—Striking peculiar habit, types 2 sp. *G. spectabilis* and *G. biflora* Raf. herb. Raf. both blended as *Orchis spectabilis* by authors. fig. autikon bot.

135. Plectrurus Raf. 1819, neog. 1825 (spur tail) Tipularia discolor Nut. nom. absurd. ad *Tipula-ria*, et nonnulis auct. *Orchis* et *Limodorum* alia auct.—Diff. *Orchis* Petalis patulis spatulatis, lab. integ. Col. aptera porrecta libera, anthera opercül. articul. bivalvis 4 pollen. *Rad. monilif. fol. rad. unica, scapis, fl. racem. nutans cbract*—Habit quite different from Orchis, the spur and anther only akin. nearest to *O. abortiva*, another N. G. *Epipactis.*

136. Orchis L. Br. auct. Corolla ringens, lab. basi calcaratum, diviso, sine glandulis, anthera unica 1-2glandulosa, cuculata. *Caulescens foliosis*, fl. *spicatis*—Such are the characters of the true *Orchis*. But many Sp. offer yet disparities that deserve to form sub. genera at least. 1. *Tephrosanthos* R. petalis connivens, calcar incurvo. 2. *Pomoplis* R. petalis connivens, calcar recto. 3. *Rhizarina* R. petalis patulis s. reflexis: which may offer other subdivisions.

137. Larnandra R. neog. 1825 (cell st) Diff. *Epidendron* ovar. filif. Lab. lobato adnato supra biglanduloso. Col. elongata cuculata fornicata anthera unica; inclusa operculata 4locul. globosa. *Rad. vermicularis, Caulib. paucifol, paucifloris*—Type L. *conopsea* Raf. *Epid. do* Br. et auct. Hook. bot. m. 3457. This and the next G. are no more real *Epidendr.* than my *Nyctosma.* Many G. are yet blended under the absurd characters of, lab. libero vel adnat. calloso, costato, vel tuberculato nunc. calcarato! The only common char. being petalis patens, col. erecta, anthera carnosa 2-4loc!

138. Caularturon R (Stem jointed) Diff. *Epidendron.* Label. libero, ad basi alato s.

glanduloso. Col. libera bialata dentata, anthera terminalis 4 pollen. *Caul. articulato, vaginato, bifolio, pauciflоro*—Habit very singular. Types 2 Sp. 1. *Caul. bicornutum.* Epid. do. Hook. b. m. 3332. Bulbo cauliformis, fol. rad. ligul. retusis, scapo paucifl. label. trilobo, medio lanc. ac. basi bicorne, petalis ellipt. acutis albis. Trinidad—2 *Caul. umbellatum* R. Epid. stenopetalum Hook. b. m. 3410. Bulbo ramoso, caule scaposo, fol. terminalis lin. obl. obt. fl. umbellatis purpureis, labello integro obovato obt. basi glandula magna quadrata, petalis ovatis acum, 3 ext. angustior, col. alis dentatis. Jamaica.

139 Telesia R (Telesio phil) Periantho oligophylo imbric. ext. major. Phorantho paleis carinatis, fl. radiatis, radiis paucis fem. 3 dent. achenis trigonis tridentatis, in disco triaristatis. *Fol. oppos. habitus* Helianth.—*Telesia aurea* Raf. *Wedelia? aurea* Don, Hook. b. m. 3384. Scabra ramosa, fol opp. sess. ov. lanc. serratis acutis, ramis trifloris, per. sepalis ovatis acutis. Mexico. very near *Helianthus*, merely diff. by few leaved perianthe, and trigone seeds. *Wedelia* with rays or no rays! seeds urceolate or uniaristate, is far more remote, and a confused Genus.

140. Solidago L. auct. This G. with *Erigeron*, *Inula* and *Aster* were in utter confusion, the determination of Sp. hardly attainable, altho' offering many excellent permanent characters for N. Genera. I began in 1807 to reform them; since then my labor has been partly anticipated by Cassini, Esenbeck, Nuttal and Lessing, but they have left the others nearly untouched. I now mean to revise them, leaving most of the Asters for further enquiries. For the N. Sp. see my Flora.

141. Solidago Raf. Car. ref.—Perianthus obl. imbricat. clausus. Radiis 3-10 ineq. integris, flosculis paucis, phoranthus nudus, Semina obl. pubesc. pappus caliculatis, levis pilosus. *Caul. erectis, fol. sparsis fl. racemosis parvis bracteolatis, plerumque flavis*—many sub-genera. 1. Triactis. Rad. 3-4 brevis cuneatis, flosculis 3-5. Typ. 1. *S. retrorsa* Mx. 2 *tortifolia* E— 2 Brachyactis, Rad. 5 cuneatis brevissimis in periantho inclusis. Typ. 3. *S. juncea* L. 4 *canadensis* L. 5 *procera* Ait. 6 *aspera* Ait. et. alia. sp.—3. Albigula, Rad. 5-10 albis elongatis cuneatis deinde reflexis. Typ. 7. *S. bicolor* L. et. Sp. affinis—Pleiactila, Rad. 5-10 lanceolatis brevissimis, plurima Sp. *S. flexicaulis, villosa, ulmifolia, cinerascens*, &c.—5. Stenactila, rad. 5-10 linearib. elongatis, plur. sp. S. *sempervirens, augustifolia, pubescens, elliptica, Virgaurea?* &c. *Doria* Adanson, *Virgaurea* Tourn. are the same Genus as *Solidago.*

142. Leioligo R (smooth few) Diff. 141. Radiis 5-10, Semina glabra, pappus non caliculatus, *fiorib. nonnulis corymbosis*—3 sub. G.—1. Brevigula, Rad. 5. brevissimis cuneatis. Type. L. *cæsia* L. 2 *pyramidata* P— 2 Lininque, Rad. 5 linearib mediocris. 4 *L. speciosa* Nut. 5 *salicina* E. &c.—3. Doria, Rad. 6-10 elongatis lin. lanceol. plurima sp. *L. petiolaris* Ait. *erecta* P. *corymbosa* E. *pulverulenta.* N. *rigida* L. *elata* P. *lithospermif.* &c. all *Solidago* of authors: and several N. Sp.

143. Aplactis R (simple ray) Diff. 141, Radio unico, flosculis 5, Sem. glabra, *fl. paniculatis*—Type *Aplactis paniculata* Raf. *Solid. paucifloscul osa* Mx. et auct. near to Sub. G. Triactis.

144. LEPIACTIS R (scaly rays) Diff. 141, Perianth. ovato, rad. 5-7 ineq. squama ad tubis radiis, flosculis 7-8, Sem. striatis villosis, pappus calicul. piloso, scabro. *Racemis virgatis*—Type *Lepiactis virgata* R. *Solid do* Mx. et auct.

145. DASIORIMA R (hairy pits) Diff. 141, Perianth. globoso, phorantho alveolato, marg. ciliatis. Rad. 7-10 elongatis, disco multifloro, Sem. pubescens. *Racemis paniculatis*—Types several sp. blended as *Solid. mexicana* auct. 1. *D. mexicana* Raf. Caule corymboso, fol. lanc. sessilis, pedunculis nudis uniflorus. Probably the original *Sol. mexicana* L. Dod. t. 219. Loud. 12099—2 *D. limonifolia* (*Sol. do Pers*) Glabra paniculata, fol. lanceol. infimis ellipt. pedicellis 1-3fl. squamosis. N. Am.—3. *D. ellioti* Raf. *Sol. lim.* E) Glabra panicul. fol. angusto lanceol. marg. scabro, imis amplex. pedicellis sq. 1-3floris. Carolina.

146. EUTHAMIA Nuttal diff. 141, Periantho tereto, phorantho setoso, rad. brevissimis, *fl. corymbosis*—*Chrysocoma* of Amer. authors.

147. ACTIPSIS Raf. (Rays false) Diff. 141, Periantho turgido campanul—sepalis laxis s. reflexis, Rad. 10 brevissim. obov. disco multifl. Sem. glabris, pappus scabro.—Types *A. glomerata* Raf. (Solid. do Mx.) fl. glom. per. lax. 2. *A. squamosa* auct. fl. racemosis periantho reflexo. This quite akin to Asters.

148. DECTIS R. (nom. antic) Diff. 141, Periantho sepalis carinatis, ext. laxis internis connivens. Rad. 7-10 ovatis. Sem. glabra. Fruticosis, *fl. corymb.* s. *thyrsoideis*—Types *Dectis* (Solid. auct.) *arborescens*, *leucad*, *rugosa* (*spuria*)—*decurrens* Lour. Rad, 7-8, fl. thyrsoideis. These are Asiatic or African shrubs.

149. Oligactis Raf. 1804! (few rays) *Aster auct. Conyza asteroides* L. et Sp. affinis. Perianth. tereto imbricato, sepalis scariosis coloratis, phorantho punctato, Rad. sub 5 ineq. bidentatis. Sem. angulata pubescens pappus pilosus scaber. *Fl. corymb. albis*—G. as near the *Solidago* group as to Asters, Types *O. linifolia, conyzoides, tortifolia*, and several N. Sp. in my Flora.

150. Mesoligus R (middle few) Diff. 149. Per. sepalis adpressis subul. nonscariosis, rad. 25-30 brevissimis, ineq. 3dent. disco paucifloro 6-10fl. Sem. glabris teretis striatis *fl. panic. rad. purpureis*—Type *M. subulatus* Raf. Aster do Mx. auct. et alia sp. G. near *Erigeron, Cenotus*, &c.

151. Galatella Cassini auct. Diff. 149. Rad. integris abortivis, phorantho alveolaris, marg. lacero. *fl. purp.* Types *Aster acris, hyssopifol. punctata* &c. auct. mod.

152. Anactis R (no rays) *Aster discoideus* Elliot. Periantho hemisph. imbricat. sepalis subul. squarros. laxis. Phorantho parvo nudo. Rad. nullis, flosculis 12-15, omnis herm. Sem. oblongis glabris, pappus simplex scabro *fl. panicul. purpureis.*—1. *A. pilosa*, Caule erecto villoso, fol. spathul. ovatis pilosis. Carolina—2. *A. glabra*. Glabra, fol. lanceol. spatulatis. Alabama. Near *Eupatorium* and discoidal Erigerons.

153. Aglotoma R (uncut lig) Diff. 149. Per. sepalis squarrosis ciliatis non scariosis, Rad. paucis 3-8 integris oblongis. *fl. panic, ceruleis*; Type. *Aster multiflorus* M. alia sp.

154. Asteriscus Tourn. *Aster* L. auct. *Pinardia* Necker *Aplopappus* Cassini. This vast G. is now greatly reduced and confined to the

sp. with Per. hemispher. ineq. ext. laxus imbricatus, Radiis 10-20 simpl. series ang. vix. dentatis, sem. ang. pubescens, pappus scabro pilis caliculatis—The name *Aster* root of *Asterias* and others must be lengthened as did T. I refer to Esenbeck &c. for Sub. G. and akin Genera; but some of his are falacious, *Symphotrichum* for instance says Hooker, in fact many Asters have annular pappus at base. Meantime I add the indication of my own Genera settled between 1815 and 1825.

155. Leiachenis Raf. (smooth ach) Diff. 154, Sem. levis, pappus simplex non caliculato; Several Sub. G. 1. Psukelis. Per. foliaceus, radiis 15-25. *A. paludosus* L.—2. Merisis. Per. laxis, Rad. paucis 10-12. *A. cordifolius*, *paniculatus* &c.—3. Dodecalis Per. sep. adpressis, rad. 10-12. *A. corymbosus*, *dumosus* &c.—4. Fimbramis. Per. sep. adpr. fimbriatis, rad. 15-25, *A. foliolosus*, *sparsiflorus* &c. auctoris. The shrubby Asters are akin to this Genus. *A. sericeus* of America has 10 rays, lanc. acute, entire, *A. argophylus* of Australia has only 3 rays, *A. angustif.* of Africa has many oblong rays nearly biserial. They probably form as many Sub-Genera. My *Venatris* is another perhaps, see 163.

156. Diplactis R (double rays.) The Asters with crowded long rays in double or triple series, narrow linear subentire, pappus simplex. Such are A. *alpinus*, *caucasicus*, *novanglia*, *cyaneus*, *blandus* &c. Akin to *Leiachenis*, seeds commonly smooth.

157. Stenactis Cass. auct. Differs from *Diplactis* by Per. subequal. phoranth verrucose, pappus duplex, ex. brevis paleaceis—Aster chinensis type and many Sp. to be distinguished

from the last. The name means *narrow rays*, and not *to sigh* as stated by Lindley.

158. KALIMARES R. (nom. diosk) Diff. 155. Periantho sep. ext. reflexis, internis erectis scariosis coloratis. Rad. duplice series—Type *A. amellus* L. Genus *Amellus* T. Ad. but Linneus has given that name to another Genus.

159. TRIPOLION R (nom. diosk) Diff. 155. Per. sep. subequalis duplice series adpressis membranaceis. Radiis unica series—Types *Tripolion maritimum* Raf. *Aster tripolium* L. auct. obs. v. 1801—2. *A. tenellus* L. 3 A. *tataricus* L.

160. FIMBRISTIMA R Diff. 154. Per. laxis. Rad. 16-20 lin. lanc. apice 3dentatis, stigmata fimbriatis, Sem. et pap. ut 154—*Aster squamosus* L. *sparsifl.* P. *flexuosus* N. *maritimus* Raf. et alia.

161. DIPLOPAPUS Cassini. *Diplostephion* Kunth. *Chrysopsis* Nut. *Diplogon* Raf. 1817 not R. Brown, name preocupied. How many names! this shows that many did perceive the striking characters of the double pappus. Meantime this G. must now be restricted to those nearest *Asteriscus* 154. differing by, Ovarium tereto hirsuto, pappus, biserialis conformis scabris, ext. minor.—It may be divided in many Sub. genera and has some blended G. yet—1. *Chrysopsis* fl. yellow terminal. 2. *Leucalis* fl. white corymbose. 3. *Cerulinis* fl. blue terminal. *Aster aurantius* and *pinnatns* of Mexico with pinnate leaves and yellow flowers are probably a peculiar G. *Diplostephion?*

162. VIRGULUS R (small rod) Diff. 161. Periantho sep. adpressis. Rad. paucis integris, Sem. obovata villosis, pappus duplex. ext. brevissimo villoso ut caliculo, interno aristis color-

atis ineq. levis, *florib. racemosis purp.*—Type *Aster concolor* L. and akin sp. habit of *Liatris.*

163. VENATRIS R (3 veins) Per. campan. sepalis laxis imbric. subeq. Phorantho punctato. Rad. 10-12 linear. integris trivenis. Sem. teretis tenuis glabris. Pappus simplex brevis coloratis equalis levis—Types *A. paucifloras N. linifolius, tenuifolius, salicifolius?* &c. and the next N. Sp. best type of the G.

164. *Venatris falcata* Raf. glabra, caule subangul. 3-5floro, fol. erectis sessilib. falcatis lin. lanceol. acutis uninervis, subintegris, pedunc. pubescens squamosis, sepalis oblongis, fl. purpureis—East Kentucky, falls of Cumberland, pedal.

165. CROPTILON R (col. feather) Diff. 154. et. 61. Pet. Rad. paucis integris, Sem. obl. teretis hispidis, pappus coloratus scabr. simplex ad pilis caliculatis, *fl. paniculatis flavis.*—This G. would be near *Inula* of L. but now this is restricted to *I. helenium* and the bisetose sp. The G. *Pulicaria, Lioydia* Necker, *Limbarda* Ad. are badly distinguished; but having the perianthe variable are different from this—Type *Cropt. divaricatum* R. Chrysopsis do N. E. fol. lin. lanc. hispidis serratis ciliat. panicula divaricata. Florida, anthers mutic.

166. STELMANIS R (cor. diff.) Perianth. tereto 100phylus imbricatus phorantho favoso, Rad. 20 lanc. nervosis. anther muticis Sem. hispidis ad radi cupula integra membr. coronans, sem. disci pappo duplex, externo membr. polyph. interno piloso scabro. fl. *panic. flavis*—a very distinct G. *Chrysopsis scabra* Elliot, who sugested *Calycium* for a name, but it is bad. *Stelm. scabra* fol. scabris punct. rad. petiol. ovatis, caulinis cord. sessilibus. Carolina—I add the

various Genera of *Inula* 167 to 172 to show the contrast.

167. Inula L. auct. Per. squamosus foliosus globosus, rad. plurimis, antheris bisetosis, pappus simplex scabro &c. Type *I. helenium*, *I. squarrosa*, *hirta*, *salicina*, *hirsuta!* &c. fl. yellow in all.

168. Lioydia Necker, diff. 167, Per. subeq. sepalis 10-15. Types doubtful.

169. Pulicaria Raf. diff. 167, Per. imbric. adpresso, rad. paucis brevissimis 3dent. pappus caliculatis &c. Types *P. vulgaris* (*Inula pulic*) 2. I. *indica*. 3. I. *dysenterica*, 4. *fetida* etc.

170. Limbarda Ad. diff. 167. Per. tereto s. ovato adpresso &c. Types *Inula crithmifolia*, *arabica*, *japonica*, *pinifolia* &c.

171. Astropterus Vaill. Ad. diff. 167. Phorantho reticulat. foveolaris. Pappus duplex, extern. membrana ciliata. *Frutic.* fl. *ceruleis*—Typ. *Inula cerulea* L.

172. Orestion R. (n. gr. Inula) *Olearia* Mench, nom. mal. ad *Olea!*—Diff. ad omnis *Aster*, *Inula*, Pappus plumosus, basi connatus. *Frutex*—Type *O. dentata* of Australia. *Aster do* Andr. t. 61. *tomentosus* W. 6.

173. Pappochroma R. Periantho tereto imbricato. Rad. 20 cuneatis 5dentatis, stigmata 2 clavata, Sem. ang. Pappus simplex coloratus—*P. uniflora* Raf. *Erigeron pappochroma* Lab. nearer Asters.

174. Erigeron L. auct. *Panios* Ad. In Linneus only differs from *Aster* by having many narrow rays as *Stenactis* and *Diplactis!* and containing a crowd of Generas or deviations: I restrict the G. as follow and separate the Genera 175 to 182—Erigeron Raf. Per. hemispher. imbric. sepalis lin. subeq. deinde reflexis.

Rad. multiplis sepe duplice series, linearis integris elongatis. Phorantho nud. punct. antheris muticis. Sem. obl. hispidis, pappus duplex, ext. brevi, interno 15-25 aristis. fl. *sepe corymb. albis*—Types *E. philadelphicum*, *asperum*, *pumilum*, *strigosum*, *gramineum*, &c.

175. Paniopsis Raf. (Erig. grec) diff. 174, Per. obl. laxis seu squarrosis ineq. Rad. brevis unica series sepe 2-3dent. antheris bisetosis ut in *Inula* Pappus subsimplex. fl. *sepe panicul. rad. luteis*—Near to Inula, only difference short rays, per. hemisph. 2. Sub. G.—1. Graveolaria types E. *graveolens*, *glutinosum fetidum*, &c. 2. Squareolaria, *E. viscosum*, &c.

176. Deinosmos R (Conyza diosk) diff. 174. Per. obl. sepalis ext. laxis elongatis, Radiis nullis, flosculis. ad rad. femineis, antheris bisetosis pappus simplex. fl. *axill. luteis*—Type *D. siculus* Raf. *Erigeron do* L. W. *Inula*, *Solidago Chrysocoma!* of other authors, thus shuffled iuto 4 genera, till it will rest in its own! fol. lin. lanc. scabris marg. revol. subintegro. Sicilia. v. v.

177. Edemias R (Conyza gr.) diff. 174. Per. globosis. Radiis minutis inclusis brevissimis vagineformis, flosculis paucis, pappus simplex. fl. *corymbos. albis*—Types *Conyza egyptiaca* and *gouani* L.

178. Brephiocton R (Conyza gr.) Diff. 174. Per. lenticularis, florib. discoideis, rad. nullis flosculis ad ambitu plurimis femineis apetalis, stylis nudis. flosc. centralis paucis. *Frutic. fl. axill*—Typ. *Br. cuneatum* Raf. Erig. do. L. fol. cuneatis trilobis. Mexico. Near to *Baccharis*, *Gynmostylis* and *Leptogyna* Elliot. The 3 Genera 176 to 178 are nearer *Conyza* than Erigeron; but the female floscules are outside

and unmixed. The *Erig. camphoratum* is a *Leptogyna*.

179. Fragmosa R (Conyza gr.) Diff. 174. Rad. simpl. series 20-30. Sem. glabris. Pappus duplex, ambi subeq. aristis brevis 10-12, vel. simplex duplice series definita. *fl. unicus s. paucis term. albis*—Types *Erigeron alpinum*, *uniflorum*, *pumilum*, *asperum. nudicaule*, *glabellum?* &c.

180. Musteron R (Conyza gr.) Diff. 174. Per. vere hemisph. equalis, sepalis dupl. series, Rad. longis unica series lin. bident. Phorantho convexo punct. Stigm. clavat. integ. Sem. glabra, compr. marg. 2alato. Pappus simplex aristis unica series 25-40 scabris. *fl. paucis term, ceruleis*—Type *Musteron bellidifolium* Raf. Erig. do auct. v. v. nearer Asters, habit of Daisies and 179. Several blended Sp. M. *pulchellum*, *uniflorum*, *glabrum* Raf. see Flora.

181. Caenotus Nut. &c. diff. 174. Per. tereto obl. s. ovato, radiis brevissimis minutis vix exsertis, flosculis sepe 4fidis, stigma clavato integ. Sem. obl. compr. biangul. levis. Pappus simplex, aristis paucis 10-15. *fl. sepe paniculatis flavulis*—Types *Erig. canadense*, *pusillum* &c. *longifolium* auct. with my N. Sp. C. *altissimus*, *maritimus*, *uniflorus*, *diffusus* &c. see my Flora.

182. Diplemium R (double half) diff. 174. Phorantho convexo. Rad. dupl. series multiplex 100-200 apice 2-3dent. Pappus radii simplex, pappus disci duplex. *fl. corymbosis albidis*—Types E. *Erig. carolinianum* L. and *quercifolium* Lam.—2d Sub-G. Leptilium, diff. pappus radii brevis squamatus, pappus disci ext. ut radiis. fl. *panic*—Types 3 *Erig. nervosum* P. not W. 4. *Erig. strigosum* E. not W. Diplem.

s. Lept. paniculat. Raf. Does *Erig. bahamense* Scop. t. 7. Vitm. belong here? a Shrub with per. round, many rays 3dent. Perhaps a peculiar G. Tanaxion *tomentosum* Raf. fol. pet. lanc. toment. fl. corymb.

183. Olgasis R (nympha) Orchidea diff. *Oncidium* et *Cymbidium*, Sepalis 5 ut Cypripedium, 2 ext. calicinis oppos. inferum bidentatum, subtus lab. planum. Columna basi cum glandula et labello confluens apice latere bialata, anthera unica antica in fovea, pollen bilobo pedicellato. *Scaposa, fl. spicatis—Olgasis triquetra* Raf. fol. triquetris. scapo subnudo, spica multifl. laxa, petalis ovatis, labello subtrilobo. Jamaica, pretty flowers variegated white and red. It was *Cymbidium do* Sw. *Oncidium do* Br. Hook. b. m. 3393: but very distinct from both Genera, nearer *Pterostylis* Br.

184. Deppia R (bot) *Maxillaria deppi* Lod. b. c. 1612 Hook. b. m. 3395. diff. Maxil. Sepalis 6. ext. 3. calicinis nervosis patens, binis subcalcaratis ad basi coalescens. Labello cucul. basi glanduloso. Col. pet. adnata, anthera term. subrot. pollen bilobo. *Bulbis terrestris, fol. et Scapis unifl. ferens—Deppia mexicana* Raf. fol. ellipt. undul. Scapis brevis squamosis, sepalis 3 ellipt. viridis, petalis albis obovatis, labello bigulato undulato. Mexico large flowers. Totaly different from *Maxillaria*.

185. Eltroplectris R (free spur) diff. *Neottia* et *Stenorynchus*, petalis 3 sup. ringens, 2 patulis acum. lab. basi cucul. calcar elongato libero basi coalit. cum ovar. Columna bilabiata, anthera lanc. ad lab. sup. *Scap. vagin. paucifl. fol. inferis*—E. *acuminata* Raf. fol. petiol. ellipt. acum. undul. Spica 5-6fl. calcar incurvo ovar eq. petalis lanc. acum. lab. conforme den-

ticulato. Antillis. fl. viridescens. *Neottia calcarata* Sw. Hooker b. m. 3403. *Sten. calcaratum* Rich. Sprengel. &c.

186. Endeisa R. (Nympha) diff. *Dendrobium*. Petalis patulis, 2 inf. basi connatis saccatis, lab. lobato basi cucul. apice reflexo, Col. quadrata decurrens, anth. term 2loc. 4poll. globosa. *Caule artic. fl. spicatis*—Type *Endeisa flava* Raf. Caule sulcato, fol. term. lanceol. spica lateralis laxa multifl. petalis ovatis acutis flavis, labello croceo, trilobo serrulato, lobis subrotundis. Nepal. *Dendrob. densiflorum!* Wallich, Lindley, Hooker b. m. 3418, totaly unlike the Amer. sp. of G. *Dendrobium* which is yet a very loose incorrect Genus.

187. Vindicta R (Epim. lat.) Cal. 4 ph. eq. color. Petalis 4 planis oppositis. Stam 4 oppositis subsess. anth. linearis biloc. Ovar obl. Stylo lateralis, tereto, stigma truncat. Caps. uniloc. polysp. sem. unica series dorso insertis. *Caulescens, fol. paucis obliquis, fl. racemosis—Vindicta begonifolia* Raf. filiformis foliis 2-4 foliolis petiol. ellipt. obtus. integris, basi oblique cordatis, racemis secundis paucifl. fl. cernuis albis, petalis obovatis cal. obl. superans. Japan. *Epimedium diphylum* Lod. 1858. Hooker b. m. 3448. Quite a distinct Genus like the next.

188. Sculeria R (Scooler bot) Cal. sepalis 8 ineq. reflexis. Petalis 6 cuculatis reflexis. Stam 6 opposita. Stigma capit. Caps. polysp. *Scaposis, fol. comp.* fl. *racemosis—Sculeria geminata*, Raf. foliis. bi-triternatis, foliolis petiol. cord. 3-5lobis. fl. racemos. luteis, geminatis. Ad. Oregon—*Epimedium hexandrum* Hook. fl. bor. Am. I add the real G. *Epimedium* to show the striking contrast.

189. EPIMEDIUM L. auct. Cal. sepalis 8 ineq. 4 opp. internis. Petalis 4. cyathiformis. Stam 4. Capsula acum. monoloc. bivalv. polysp. *Caulesc. fol. tritern.* fl. *panicul—Ep. alpinum.* foliolis cordatis dentatis, fl. panic. purpure-flavis, sepalis emarg. Alpis. Thus these 3 G. altho' all belonging to BERBERIDES, agree in nothing but the fruit; the opposite stamens with rolling valves of the anthers are common to the whole tribe.

190. GYPSOPHILA L. auct. *Lanaria* Ad. Cal. camp. 5dent. 5ang. nudum, petalis 5 obovatis subsessilis non unguicul. Stam. 10 subeq. hypogynis. Ovar. sessile ovato, Styli 2. Caps. monoloc. semi 4 valvis, polysperma. Sem. centralis non alatis—This is the strict essential character, which applies to many Sp. in 3 sub-G. VACCARIA petalis emarg. G. *vaccaria, repens, cretica graminea* &c. 2. GYPSARIA petalis crenatis reticul. G. *muralis* &c.—3 APLOMA petalis integris. G. *struthium, fastigiata, perfoliata* &c. Auctoris. Sir J. Smith has united to this G. *Saponaria vaccaria, cretica, illyrica*, wondering how L. could put them elsewhere, their calix is 5angular, but they must be examined again as to stamens, capsule, seeds, &c.

191. ARROSTIA (Arrosto bot) Raf. car. G. 53 in 1810. Diff. Cal. camp. prof. 5fidus, non angulatus. Stam. 10 eq. Caps. globosa bivalvis oligosp. Sem. obl. alatis—I justly separated this G. long ago: the *Gypsoph paniculata* and *altissima* may belong to it; but the type was my next N. Sp.

192. *Arrostia dichotoma* Raf. car. 189. Caule erecto dichot panic. fol. lanceol. glabris univervis acutis crassiusculis, fl. pedic. ad dichot—Mts. of Sicily, Nebrodes, 3 to 4 feet,

much branched, fl. white not dioical petals obovate entire. To show how the 2 akin Sp. differ, I add them here.

193. *Arrostia? paniculata.* Caule humifuso panicul. basi villoso, fol. lin. lanceol. uninervis margine scabris, fl. panic. dioicis, petalis revolutis —Austria, Sibiria. *Gyps. panicul.* L. Jaq. Aust. t. l. et auctorib.

194. *Arrostia? altissima.* Caule giganteo panicul. erectis, fol. caul. obl. obtusis glabris trinervis subtus glaucis, ad ramulis longo lanceol. acutis. fl. corymbosis exiguis—Sibiria. *Gyps. altiss.* L. auct. Gm. 4. t. 60. The figure of Bocconi t. 5. f. 3 refered here belongs rather to 192; but no doubt these 3 plants have often been mistaken for each other by authors.

195. Tunica Raf. (old name) Diff. 190. Cal. basi caliculatis ut *Dianthus*, petalis subunguic. Stam. ineq. 5 alternis ad unguis ut *Dianthus*. Caps. subsessilis obl. teretis 4dentata—Types *Gypsoph. rigida.* 2. G. *saxifraga* once his *Dianthus do*, both have notched petals: 3. G. *dianthoides* Sm. fl. gr, Fl. capit. bract. pet. integris, fol. lin. has the habit of *Dianthus armeria*. This G. is nearer Dianthus than Gypsophila. Is the calix angular in all? It is the old G. *Tunica* of Dalechamp, but that of Dillen and Adanson was the real *Dianthus* of L. The G. *Asophila* of Necker, dicline with 5 sterile stamens, is unknown to me: did he mean *Gyps. paniculata?* or *saxifraga* stated to have 8 or less stamens sometimes?

196. Endopogon R (inside beard) Cal. super. 4 dent. Cor. tubulosa campanul. 4fida, intus barbata, antheris 4 sessilis, capsula 4 dentata 2sperma. *Fol. opp. imbric. fl. axill*—G. of Rubiacea, near to *Hedyotis*, *Spermacoce*, *Diodia*, *Hous-*

tonia, differing from all by the bearded corolla inside, concealing the anthers and stigma—Type *E. pumilum*. Caule pumilo erecto basi nudo, fol. imis imbricatis, linearib. acutis marg. revolutis, capsulis obov. pubescens—Mts. Apalaches, in Wasioto hills of East Kentucky. annual, biuncial, fl. axill. solitary, sessile, rather large, whitish, capsule large. I can find no synonym to this plant, and it is probably quite new, discovered in 1823. Autik. bot. and Ic. rar

197. Comarum L. *Pancovia* Heist. Ad. Some late botanists have rejected this linnean G. and made it a mere section of *Potentilla;* yet it is as distinct as *Tormentilla* and *Fragaria;* it comes nearest this last; but has a larger foliaceous colored cadix 10-14 parted, petals shorter. 5 to 7 and red; receptacle and fruit ovate similar thick, but fungose instead of fleshy, besides the pinnate leaves. I can increase it to 3 Species; all in my Autikon. Only one was known. If *Arum* is retained *Com-arum* is a bad compound name, *Pancovia* is better.

198. *Comarum* (or Pancovia or Potentilla) *palustre* L. fol. pinnatis, petiolis vaginatis nudis, foliolis 5-7 ellipt. grosse serratis subtus pallidis, fl. corymbosis petalis ovatis acuminatis—In Europe and Sibiria; it has even 2 varieties or deviations. 1 *stipulatum* stipulis parvis lanceol. petalis ovatis ligulatis obtusis—2 *villosum*, foliis villosis. Pluk. t.. 212. Pers. Probably several Sp. blended yet, as the two next were.

199. *Comarum* (Panc. Pot.) *digitatum* Raf. Caule hirsuto, fol. glabris, digitatis 3-5nis, stipulis ovatis, foliolis 3-5 ellipt. basi integris, apice argute serratis, subtus glaucis; fl. corymbosis, petalis ovato lanceol. acuminatis—North America, Canada &c.: this is C. *palustre* of all the

American botanists! flowers much larger than in last, purplish as in all the Sp. Folioles from nearly the same point not properly pinnate.

200. *Comarum* (Panc. Pot.) *angustifolium* Raf. Caule glabro, fol. pinnatis, petiolis vaginatis nudis, foliolis 5 cuneatis angustis, pectinato serratis, subtus pallidis; florib. term. 2-3 parvis, petalis ovatis acuminatis—Oregon or N. W. Amer. Semipedal, flowers half size—The above 3 species now distinct, appear to have a common origine as deviations of a type; by calling them varieties we should overlook their characters and this formation of Species. They are a fair example of this phenomenon: or of local deviations in remote clines.

Whenever plants have long been removed in different continents or botanical regions widely apart, they assume in general a different shape and virtually becomes new species. Therefore Decandole has properly stated that all plants deemed alike in remote regions must be examined again. None of the North American trees and plants are exactly alike to their Asiatic or European types, except among Grasses and Cryptogams, a fact as yet unexplained for these. The boreal plants of both continents have however mostly identic Genera, and many identic species, but South of Canada, the Species and Genera gradually become different or unlike.

FLORA TELLURIANA.

CENTURIA TERTIA.

201. EUSYNETRA R (well unit. 4) Cal. 5fid. folios. dent. subeq. Cor. tubul. recta bilabiata, lab. sup. trifido, med. major bif. lab. inf. integro. Stam. 4 didyn. antheris coalitis in singula quadrata. Glandula biloba supra basi Ovar. stylo declinato, stig. obt. Capsula baccata uniloc. bivalv. polysp placenta 2. *Frutex fol. opp. fl. axill*—Very distinct G. totaly unlike *Columnea* and *Achimenes* by lips, &c., not Family Gesnerides but GRATIOLIDES by fruit onecelled.

202. *Eusynetra bicolor* Raf. Columnea hirsuta Sw. Auct. Hooker b. m. 3081. Achimenes major Br. t. 30—Scandens fol. pet. ovatis acutis vix serratis, superne hirtis, fl. solit. s. geminatis, Cal. lanc. Cor. villosis coccineis intus flavis—Jamaica, on rocks and mts.

203. CUPULISSA Raf (cup split) Diff. from Bignonia, cal. cupularis integro latere fisso, Cor. tubulosa campanul. limbo undulato subeq. 5 lobo, lob. inf. fisso. filam. basi glandul. hirsutis, didyn. quinto ster. ovar. supra disco glanduloso, stigma bilamel. *Scandens, fol. conjug. fl. racemosis*—Type *C. grandifolia*, foliolis 2 ovatis undul. cirrhosis verrucosis, racemis multifl, pedic. bibract. flexuosis.—Carracas, large yellow flowers. *Bignonia grandif.* Jaq. hort. 287, Bot. reg. 418, Bot. mag. 3011, auctoris, Probably several Bignonias belong here, the real have cal. dent. cor. bilabiate &c.

204. MEGAPLEILIS, R. (big single lip) Cal. 5 fidus ineq. Cor. tubulosa, unilab. basi 5gibbosa, apex dilat. labio superne amplo emarg. lab. inf. subnullus. Stam. exserta, antheris

didyn. coalitis. Stylus clavat. Caps. 2loc. 2valv. placentis parietalis. *Tuberos. fol. opp. fl. term. racem.—M. tuberosa.* Raf. fol. cord. ovatis serratis villosis, subpetiol. bract. sessil. cord, integris, racemo paucifl. fl. oppositis coccineis. In Brazil, large singular flowers, base yellow with 5 inflate lobes. *Gesneria bulbosa.* Ker. bot. reg. 343. Hook. bot. m. 3041. How could they unite to *Gesneria*, such conspicuous N. Genus? not even of same family.

205. Endocoma R. (ins. hairy) Perig. 6 partit. ineq. patens pers. 3 internis minor fimbriato comosis. Stam. 6 eq. subul. glabris ad basi sepalis, Ovav. 3gon. stylo brevi, stig. 3, Caps. 3loc. 3v. polysp. sem. subr. *Rad. tub. fascic. Caulesc. fol. ung. fl. term. paucis.*—Fine N. G. near *Quamasia* and no *Anthericum*! two sp. both called *Antheric. plumosum*, the first by Ruiz t. 309, the second by Hooker bot. m. 3084.

206. *Endocoma peruviana* Raf. (Ruiz) fol. linear. Caule subnudo 3-5fl. albis.—Peru, large white flowers.

207. *Endocoma parviflora* Raf. (Hooker) fol. linear canal. Caule bifolio bifloro.—Chili, small green flowers, margin white, larger plant. Is not this a deviated species?

208. Calliprora Lindl. Cor. subcamp. 6part eq. stam. 6 fertilia, 3 breviora, filam, petaloideis bifidis, antheris sessilis intra lobis. Ovar, stipit. stig. 3 lobo, Caps. triptera. *Scap. fl. umb. bipathis, luteis.*—G. of tribe Asphodelidia like the last, near to *Porrum*, *Getuonis* and *Brodiea.*—Type. C. *lutea* bot. reg. 1590. Scapo teres, fol. canalic. longissimis, umbella multifl. From California.

209. Tractema R. (spindle fil.) Cor. patula rotata eq. 6 partita, sepalis subunguic, uninervis,

Stam. 6 eq. filam. glabris basi dilatatis sub fusiformis. Ovar. trilobum, stylo sulcato, stigm. obtuso. *Bulbosa*, *unifolia*, *scapo racemoso*. Altbo' I had nearly exhausted the reform of *Skilla*, and akin *Genera*, this which was a *Skilla*, proves that many distinct G. are yet blended. It is as near *Fusifilum* 69; but the habit is peculiar. It is at least a distinct Sub-Genus.

210. *Tractema pumila* Raf. Skilla pumila Brotero fl. lusit. Hook bot. m. 3023. Folia lanceolata undulata involuta, acum. carin. Scapo subeq, paucifloro, fl. cernuis, bracteis breviss. sepalis ellipt. obt.—In Portugal, 3 to 4 inches, fl. blue or lilac or white about 5, the fig. and descr. of Hooker do not agree.

211. Blephanthera R. (cil. anth) Cor. patula equal. 6partita, Stam. vel stylo declinatis, Stam. subeq. filam. subulatis ciliatis villosis, antheris ciliatis. Ovar. globos. glabrum, stylo flexuoso declinato filif. stigma acut. *Bulbosa*, *fol. fascicul. canal. scapo racemoso.*—Another fine G. blended with *Anthericum* african G. nearer Nemopogon 68, australian like it, but the bulb and stamens separate them: the English authors have even blended two species of it into one as *Anthericum bulbosum*.

212. *Blephanthera depressa* Raf. Antheric. bulb. Brown, Bulbine Australis Sprengel. Bulbo depresso, filamentis declinatis. Australia, not a *Bulbine* having smooth unequal filaments.

213. *Blephanthera hookeri* Raf. Bulbo ovato, filam. non declinatis, *Antheric. bulb.* Hooker bot. m. 3017, who himself suspected it was a new sp. Yet gave no new name to it. Australia. Leaves long narrow thick semiterete canal. Raceme long multifl, yellow.

214. Dothilis Raf. (papilar lip) Orchideæ. Sepalis ringens ineq. 3 internis undulatis papillosis, labello subeq, basi cuculato, lamellis 6 longit. obsito. Ovar. clavat. Columna semiteres, erecta basi dilat. bident. stigma bilabiato, anthera dorsalis ad apex, ovata biloc. 4 pollen. *Terrestris. caule folioso, fl. term. amplis.*—Beautiful N. G. quite peculiar, not a *Neottia*, as Hooker even presumed, and has since called it Ulanthia; but our geueric characters are different.

215. *Dothilis grandiflora* Raf. Neottia? grand, fl. Hook. bot. m. 2956. not 2730! another plant of same name! Fol. imbric. glaucis oblongis acutis planis nervosis, florib. paucis, magnis undulatis, albo viridis, striatis, labello obovato crispo.—Large flowers 3 inches. Native place not stated, probably S. America.

216. Anisanthera Raf. (uneq. anth.) Leguminosa. Calix 5part ineq. Vexillum reflexo cuculato, alis obov. Carina eq. Stam. monadelphis, vagina tota fissa, apice filam. pectinatis reflexis. Antheris ineq. alternis 5 linearis, 5 alt. subrot. Ovar. sessile. obl. villosum, Stylo clavato glabro. reflexo, stigma obt. Legumen turgidum villos. polysp, *Annua. fol. simplices stipulatis*, fl. *racemosis*.—Very distinct G. blended with *Crotalaria* by all: yet nearer *Lupinus*, anthers quite peculiar.

217. *Anisanthera Versicolor* Raf. Caule flexuoso 4gono. fol. glabris ovatis obovatisque, obtusis, stipulis lunulatis, racemis terminalis.—Beautiful flowers variegated of white, blue and purple. Said to grow in the tropics of both hemispheres. Often figured. It is the *Crotalaria verrucosa* of W. and D. C. but there is nothing warty about it. Andr rep. 308, bot. reg.

1137, bot. mag. 3034. *Crot. cerulea* Jaq. Ic rar. 144 an Sp. diversa? *Crot. angulosa* Lam. Cav. 321. Probably several sp. blended. the Asiatic and Antillian plants must be again compared, and perhaps other *Crotal.* belong here, like the next.

218. *Anisanthera hastata* Raf. diff. fol. hastato lanceol. acutiss, deemed a Var. of last by Lam. Persoon. &c, Certainly distinct. From Mauritius and Bourbon Ids.

219. Isorium R. (Equal lobes) diff. from Echium.—Cor. longo tubulosa, limbo 5lobo equalis, Cal. 5part. ineq. Stam. 5 ineq. stigma capit. Nucibus 4 stylo adnatis.—Very distinct G. of nat. family Echidia, that differs from Borraginea by unequal cal. cor. or stam. Type *Isorium formosum* Raf. Ech. do Persoon. Ech. grandiflorum Andr. t. 20. African shrub, leaves lanceol. hispid, fine large red flowers.

220. Nemuranthes R. (fil. caud. fl.) Orchidea. Ad Habenaria et Blephariglotis diff. Cor. bilabiata, pet. ext. supero concavo trinervo cuculato, 2 ext. reflexis, petalis 2 internis bipartitis, labello tripartito segm. linearis, medio brevior, Calcar longissimo filiformis (pedalis.) Ovar. pedic. clavato sulcato, columna trifida brevis, antice glandulis 2 appendiculatis. Anthera Unica! terminalis 2 loc. antice cornuta. *Caule folioso racemoso non spicato!*—Wonderful Genus, no *Habenaria* since unic anther! floral structure quite peculiar, really racemose. Types the real *Orchis habenaria L. or Habenaria macrocera* of W. and the following fine species.

221. *Nemuranthes longicauda* Raf. fol. lanceol. acutis striatis, bract. lanc ad ovar. brevior, fl. racemosis pedic. laxis, petalis ext. ovatis acum. pet. int. et label. segmentis linearibus.—

In Demerara, fl. greenish white very large, ovary and pedicel 5 or 6 inches, spur 10 to 12 inches! long. *Habenaria longicauda* Hook. bot. mag. 2957.—The *Hab. macrocera* Hook. 1. 2947 belongs here also and merely differs by leaves obt. bracts longer, spur shorter, fl. subspicate, it is my *N. Habenaria.*

222. Uloma R. (crisp border) diff. Bignonia, cal. camp. 5dent nervosus persistens, cor. campanul. lobis 5 subeq. margine plicatis sulcatis crenatis, filam. incurvis. Bacca teres carnosa edulis uniloc. bipartibilis, dissep. spongioso, sem. circumalatis. *Arbor.* fol. *opp. imp. pinnatis, panic trichotoma.*—How different from 203! yet both made Bignonias! altho' both types of New Genera. This has a true berry and not a dry siliqua.

223. *Uloma telfairia* Raf. foliolis 13-19 ovatobl. integris. oppos. petiol. panicula laxa.—Elegant and useful tree of Madagascar, beautiful large pink flowers, fruit excellent flavor, called Vuakidzi, cultivated.—*Bignonia telfairia* Bojer in bot. mag. 2976, dedicated to a lady botanist.

224. Xeilyathum (lip fiddle) diff. from *Oncidium.* Petalis 5 rotatis eq. undulatis liberis, labello plano pandurato emarginato basi papilloso cristato, columna brevis antice biloba, apice bident, anthera supera bipollen. *Parasita, bulbo terrestris costato basi involucrato, apice unifolio, Scapo lateral. ramoso paniculato.*—One of the finest new Orchidean G. shuffled into 3 Genera, habit striking, nearer Renanthera which I add for contrast.

225. *Xeilyathum Altissimum* Raf. Folia et invol. carnosis carinatis elong. acutis. panic. flexuosa divaric. petalis obl. undulatis—Antillis,

leaf 2 or 3 feet, Scape 4 to 6 feet, fl. rather large, lip bicolor base fulvous and yellow. *Oncidium Altiss.* Sw. W. auct. Hook. b. m. 2990, *Epidendrum Altiss.* Jaq. am. t. 141. Swartz put it in 3 Genera by turns those 2 and *Cymbidium* besides!

226. *Renanthera coccinea* Lour. bot. reg. 1131, bot. mag. 2997. This only diff. from Xeilyathum by—Petalis 2 inf. major, magis undul. labello integro basi saccato, col. abov. anthera operculata. *Caule folioso, Panicula lateralis extra axill.*—fol. ligulatis obt. distichis, petalis cuneatis coccineis, labello ovato acuto.

227. Exophya R. (outer growth) Orchidea, cor. rotata pet 5 subeq labello 3 lobo, col. semiteres bident. Anth. term. semispher. 3 loc. 4 pollen, *Bulbo terrestris sulcato, caule later, ad basis bifolia, fl racemosis.*—Very near also to 221. chief difference the anther; yet Hooker would force it into his new G. *Encyclia* by spoiling its character, bot. mag. 2831 of petals connivent &c.

228. *Exophya fuscata* Raf. Encyclia patens Hook. b. m. 3013. Bulbo ovato, fol. lin. lanceol. planis acutis, racemo paucifl. petalis obl. 2 int. spatul. acutis, labello lobo medio ovato acuto—From Brazil, small, but fl. large dusky and fragrant.

229. Kuritis R. (Verbena gr.) diff. Selago, Cal. ineq. tripartitus, Cor. tubulosa, limbo ineq. 5fidus. Stam. 4 didyn. fil. clavatis, antheris unilocul. Stylo filif. Stigma acut. Caps. biloc. bipartibilis dispermis, *Arbusc. fol. sparsis. integris, fl. bracteatis term.*—The G. *Selago* includes many Genera, with cor. 4 or 5 lobed, cal. camp. 5dent.. The family Selaginea of

Choisy, hardly differs from Verbenacea. This G. is peculiar by calix, and includes 2 Sp.

230. *Kuritis gilii* Raf. Selago do H. b. m. 3028. Caule teres pub. fol sparsis lin. obl. glabris fl. glomeratis—South Africa, small shrub, flowers lilac, lobes of corolla obl. obtuse.

231. *Kuritis ciliata* Raf. Selago do Choisy. Fol. ovatis ciliatis imbricatis, fl. spicatis elongatis, bracteis ciliatis—South Africa, The *Selago ciliata* of Thunberg with ovate spikes, is a real Selago, and different from this.

232. SAXIFRAGA, L. auct. This pretty group of plants has been made a single Genus by nearly all the Linneists, being however united by no common character, as I have shown in the first part of this work. They had nothing in common, not even habit! It was a shameful artificial Genus; since the united plants belong even to 3 different Natural Orders and Families, of two different Natural Classes.

Order ASCADIA, nat. fam. DICERACEA, all those with coalescent calix and ovary.

Order ISOSTIMIA nat. fam. SAXIFRAGEA, all those with free calix and ovary, only one Capsule.

Order PERIMESIA nat. fam. SARCOPHYLLIA, near *Sedum*, all those with free pistils and several capsules, now the Genera *Eriogyna* and *Leptarhena* 261, 263.

Many Botanists have published monographs of this Genus, but overlooking this capital blunder. Smith has only illustrated 50 Sp. Hooker has 42 from North Amer. alone, others have 80 Sp. divided in Subgenera, Tausch monograph I never saw, but has no generic reform. I shall propose 12 new Genera quite as good as *Eriogyna* and *Leptarhena* of Hooker, and present

here a complete reform of the whole Genus, from 233 to 263.

233. SAXIFRAGA Raf. Calix libero camp. 5 fido persistens, staminif. petalis 5 sessilis, equalis, Stam. 10 eq. Ovar. liber, in Stylis 2 desinens. Caps. libera, monoloc. bifida, inter fissura dehiscens, polysperma, bivalvis, valvis seminiferis. *Habitus Varius*, fol. *sepe crassis*.—The free pistil Sp. are the types of the G. and family SAXIFRAGEA, along with *Mitella*, *Tiarella* &c. the Sub-Gen. *Hirculus*, *Hydatica*, *Arabidia*, *Mieranthes* Tausch, chiefly belong here, and only apply to the habit. Necker called *Hydatica* all these true Saxifragas; but I shall confine it to the next Genus. The Sp. belonging here are *Sax. aspera, bryoides, media, cernua, sibirica rotundifolia, spicata. arguta, nelsoniana, nudicaulis, nivalis, vernalis, virginiensis, integrif, dahurica, flagellaris* &c. but many must be examined again. *Sax. orientalis* Jaq. Vitm. or *Sax mollis* b. m. only differs by petals trinerve, perhaps type of a subgenus *Malagea* Raf. it is the *Geum orientale* Tourn it. 2 ic 148. Caule procumb, stolonif. fol. lobatis, pet. obov.

234. HYDATICA Raf. diff. 233, Cal. 5 partito reflexo, petalis unguiculatis, biglandulosis, glandulis pustuliformis.—Types *Saxifr. umbrosa, hirsuta, cuneifolia, Stellaris, foliolosa, Geum*,

235. APHOMONIX Raf. diff. 233, Cal. semi adherens, concavo, quinque fido, petalis unguicul. subrot. enervis glandulis vel pustulis nullis—Type *Saxifraga hederacea*, but others may perhaps belong here also. This G. must go into nat. fam. Diceracea, with the next.

236. PONISTA Raf. (ad Pona) Cal. adherens 5fidus, Petalis 5 trinervis eq. Stam. 10 alt. 5

brevior, fil. subul. antheris bilobis. Ovar. adh. globos. supra planiusc. Stylis 2 brevis, Stigma obt. *Caule ramoso, fol. divisis, fl. term.*—Annuals; several of the Saxifragas with trinerve petals belong here probably, such as *Sax. hypnoides, moschata, platipetala, cotyledon, tridactylis, aquatica, elongela*, &c. but the real Types are—

237. *Ponista petrea* Raf. Saxifr. do L. Jaq. 181. auct. fol. pet. palmatis tripartitis, lac. trifidis, caule decumb. ramosisimo, pedunc longiss. unifl. petalis emarg.—Alps of Europe, *Sax. rupestris, adscendens* and *pona* said to be the same must be compared again.

238. *Ponista oregonensis* Raf. Saxifr. petrea Hooker fl. and bot. mag. 3026. Glanduloso pilosa, caule erecto, fol. trilobis, lobis integris trifidisque, radic. petiol, caulinis sessil. cuneatis pedic. brevis cal. obl. obt. petalis cuneatis retusis —Mts. Oregon of North America, certainly a widely deviated species, not a mere variety, sometimes abortive flowers.

239. Hexaphoma Raf. (6 pustules) Cal. libero 5partit. reflexo, petalis 5 ineq. 3 unguic. major bipustulatis, 2 minor sessilis nonpustulatis. Stam. 10. alterna 5 brevissima, filam. filif. Ovar. liberum bifidum. *Subacaulis scapo paniculato* —How can a sensible botanist deem this of same Genus as Ponista for instance? The types are the *Saxifraga leucanthemifolia* of North America, 2 Sp. blended in one, and a third is the pyrenaic Sp. even hardly of this Genus! this is an instance of utter confusion of ideas, principles, characters and species, by not attending to the original descriptions.

240. *Hexaphoma ferruginea*, Raf. Saxifr. do. Graham. Sax. leucanth. Hooker flora. bot.

mag. 2959 ! fol. sessil. obov. grosse serratis acutis glabris. scapis ferrug. glandul. panic. laxa dichot. petalis 3 ovatis, 2 oblongis minor.—Mts. Oregon of North Amer. fl. white, with 6 yellow pustules, Hooker Synonymy is quite wrong since he blends the 3 Sp. into one! This has several scapes uncial.

241. *Hexaphoma petiolaris* Raf. Saxifr. leucanth. Mx. Elliot Pers. and all the Amer. bot. not Hooker nor Europ. botanists! fol petiolatis spatulatis elongatis ovatis grosse serratis scapo hirsuto, panic diffusa,—Apalachian Mts. a single bipedal scape, leaves 3 or 4 inches long. fl. small variegated with yellow and pink, probably by the pustules and red pistils.

242. *Hexaphoma? pyrenaica* Raf. Sax. leucanth. Lap. t. 25. et europ. auct. Sax. clusi? Gouan non Clusius, Bauhin ic 708 monente Smith—Fol. cuneatis petiolo brevi alato hirsutis lato dentatis, scapo bracteisq levis. vestito panicul. petalis pustulatis?—Mts. Pyrenees and Alps of Europe, flowers large white stated without spots by some, perhaps 2 Sp. blended as in America. Smith distinguished this plant from that of Michaux, refering that to *Rupifraga*, did he mean that in this the petals are equal? then this would be a real *Hydatica* like *Saxifr. Stellaris*. The *S. clusi* of Gouan and Vitman has a foliose viscid Stem, leaves spatulate cuneate viscid, racemes axillary dichotome, petals white. It must be a peculiar Sp. *Hexaphoma viscida* Raf.

243. Rupifraga L. Mpt. Adenogyna Raf. Cal. basi coalito, 5fidus subinteq. Petalis 5 inequalis, 3 superis brevis, 2 inferis elongatis, stam. 10 subeq. Ovario sub liberum, glandula magna carnosa ad dorso supera, stylis 2, capsula bivalvis.

Stolonifera, fol. radic. petiol. fl. paniculatis. —Certainly a beautiful distinct Genus, with habit of *Hexaphoma*, which Smith tells us Linneus meant to establish: I did the same before knowing of this. The type is *Rupifraga Sarmentosa* L. herb. of China and Japan, well known in our gardens with round lobate leaves. It is *Saxifraga Sarmentosa* L. et Auct. Curtis b. m. 92. *S. stolonifera* Jaq. Meers t. 23. &c. It is as different from *Saxifraga* as *Iberis* is from *Alyssum*.

244. Piarophyla, R. (thick leaf) diff. *Saxifraga*, Cal. campanul. 5-8fidus. petalis obovatis 5-8 campanularis, Stam. 10-16 ineq. alternis latior, ovario libero, stylis 2-3, Caps. 2-3 valvis. *Fol. rad. binis. crassis amplis, scapo nudo, florib. cymosis.*—Habit quite peculiar indicating a Genus, 3 types blended as *Saxifraga crassifolia* of authors.

245. *Piarophyla sibirica* Raf. Fol. petiol. ovato subrotundis retusis serratis, fl. densis purpureis—Mts. of Sibiria. Gmel. t. 66. Curtis bot. mag. t. 196. Sm. W. DC.

246. *Piarophyla cordifolia*, Raf. Fol. petiol. cordatis ovatis serratis, fl. glomeratis. Sibiria. *Saxifr. cordifolia*, Haworth, Aiton. Var. of crassifolia Smith.

247. *Piarophyla elliptica* Raf. Fol. subsessilib. ellipticis obtusis subintegris vel vix serratis, cyma glomerata pedata, florib. nutans—In Sibiria and N. W. America. This is the real *Sax. crassifolia* of Lin. dec. t. 14. Buchoz dec. t. 1 and my American specimen hardly differs.

248. Steiranisia, R. (sterile uneq.) Cal. 5 partitus, petalis 5 equalis, sessiles, Stam. 10 planis subeq. nonnulis sterilis ineq. petaloideis vel clavatis—Very distinct anomalous Genus

with Stamens mostly sterile. Types *Saxifr. punctata, reflexa, heterantha &c.*

249. *Steiranisia punctata*, Raf. (Sax. do L.) Fol. subrotundis dentatis longe petiolatis, scapo nudo, petalis punctatis. Sibiria.

250. *Steiranisia reflexa* Raf. (Sax. do. Hook. fl. bor. t,85) Cano pubescens, fi. corymbosis, petalis bimaculatis, staminibus lanceolatis. In Oregon.

258, *Steiranisia heterantha* Raf. (Sax, do. Hook, fi. bor. t. 78) Staminib. sterilis plurimis varians clavatis et petaloideis, fertilis filiformis, Boreal America. Is it another G. *Heterisia ?* having more than 10 Stam,

252. Telesonix, R. (perfect claws) Cal. 5 partitus petalis 5 equalis orbiculatis longe unguiculatis, Stam. 10 eq. filam. brevis. Ovar. liberis stylis 2, caps. ut Saxifraga. Caulescens *pauciflora*. Type. *Telesonix jamesi !* Raf. (Sax. do Torrey, Hooker, Eaton) Fol. renif. crenato dentatis, papillosis, caule brevi paucifi. petalis integris purpureis—Mts. Oregon. near to G. *Aphomonix*.

253. Tulorima, R. (wart pits) diff. Saxifr. and Hydatica by Cal. reflexo 5partito, petalis unguicul. ad ung. fossulis binis ferens verrucis centralis annulatis.--Type *Tul. cymbalaria* Raf. Sax. do Auct. Caule procumb. fol. cordatis trilobis vel integris, petalis ovatis flavis. Oriental plant.

254. Hirculus, Raf. Cal. 5part. reflexo, petalis sessilib, nervosis ad basis bituberculatis vel verrucis 2 sine fossula, ovario ovato libero, *Caulescens* 1-2 fl. *fol. simpl.*—Type *Hirculus punctatus* Raf. (Saxifr. hirculus L.) Fol. lanceol. petalis ellipt. flavis, nigro punctatis.---Alps,

Sibiria, and boreal Amer. Perhaps several blended species.

255. Hemieva, Raf. (half well) Cal. adherens patens 5fido, petalis 5 eq. Stam. 5 petalis alternis, Ovar. coalito infero, supradisco annularis cincto petalis et stam. ferens. Capsula cal. coronata, apice bivalvis. *Caulescens, fol. lobatis, fl. Spicis corymbosis.*—Fine G. mixt with *Saxifraga* by Hooker. 5 Stamens and the disk are very essential characters, nearer to *Tellima* and *Heuchera*. 2 types.

256. *Hemieva ranunculifolia* Raf. (Sax. do Hook. fl. t. 83) Pubera, fol. renif. 3part. infimis longe petiol. segmentis lato cuneatis inciso lobatis, fl. corymbosis, petalis obovatis ad cal. duplex.—Falls of the R. Oregon or Columbia.

257. *Hemieva richardsoni* Raf. (Sax. do. Hooker fl.) Fol. orbic. cordatis crenato lobatis, spicis corymbosis, bract. lanceol—Arctic Sea of boreal America.

258. Evaiezoa, R. (well everlasting) *Aizoon* et *Aizoum* of old botanists, *Saxifraga* Tourn L. auct—Diff. *Saxifraga* 233. Cal. adherens 5fido, pet. 5 eq. sessilis, Stam. 10 eq. Ovar. adherens infero vel semi inf. Stylis 2, Capsula coronata, semi-bivalvis.—This comprizes all the Saxifragas with coalescent Ovary and calix, that do not belong to *Ponista*, *Aphomonix*, *Rupifraga*, *Hemieva* &c. They are numerous and of dissimilar habit indicating several Subgenera, such as *Antiphyla* Haworth with opposite leaves, *Aizonia*, *Porphyrion*, *Dactyloides &c* of authors. Here belong the *Saxifraga oppositifolia*, *retusa*, *biflora*, *aizoides*, *punctato*, *granulata*, *bulbifera*, *cuneata*, *palmata*, *cespitosa*, *hirta*, *cesia*, *ajugifolia*, *ladanifera*, *trifurcata*, *pedatifida*, *geranoides*, *ri-*

vularis, *callosa*, *mutata*, *pensylv*, *erosa*, *androsacea*, *hieracifolia*, *diapensoides*, *burseriana*, *esholtzi*, *serpylifolia*, *venosa*, *exarata*, *sileniſl. laurentiana*, *exilis*, *nutans*, &c.; but they are yet in great confusion of synonymy, and many Sp. are blended, of which I give two instances.

259. *Evaiezoa trichodes* Raf. Cespitosa, caulescens fol. lanceol. acutis glaucis, pedunc. uniſl, petalis cal. brevior.—In the Alps. *Sax. trichodes* Scopoli fl. carn. t. 15. Vitm. S. alpina Seg. ver. t. 9. S. muscoides Allioni t. 61 ?

260. *Evaiezoa pungens* Raf. Caule viscido paucifloro, fol. crassis pungens subul. imbricatis ciliatis, fl. 5-7 fastig. petalis undulatis.—In the Alps and Pyrenees. *Sax. burseriana* Lap. t. 17. Sm. Var. *Spinosa* Pers.—Both these are different from *Sax. burseriana* with which they have often been blended.

261. Eriogyna Hooker, diff. *Saxifraga* 233 by, Stam. 20 basi coalitis, cal. turbinato 5fido, pistilis et capsulis 4-6 liberis lanatis bivalvis, stylis 5. *Caulescens, fol. divisis, fl. racemosis.* It is a wonder Hooker ventured in this innovation, while he left *Hemieva. Steiranisia*, &c. in Saxifraga; but the blunder of Pursh, copied by Nuttal, Eaton and all our blunderers on Genera, was too glaring: even Smith had declared it was no Saxifraga; I had done the same in 1817. It does not belong even to the same natural order where Hooker leaves it; but near *Sedum*, *Sempervivum* and *Penthorum* in PERIMESIA, and natural family Sarcophylia.

262. *Eriogyna pectinata* Hook. fl. t. 88. Saxifraga do. Pursh, Nut. Eat., &c. Cespitosa, fol. trifidis pectinatis linearibus.—Oregon Mts.

263. Leptarhena Br. Hook. diff. Saxifraga.

Cal. camp. 5fid. petalis 5 linearib. Stam. 10, pistilis 2 liberis, capsulis 2 intus dehiscens.—*Acaulis, Scapo paniculato.*—Another distinct genus separated by Brown, but of same family as *Sedum*, altho' near *Spirea* by the dehiscence of Capsules, the definite Stamens unite it to *Sedum*. Several Sp. called *Saxifragas* by Don, *pyrolif. amplexif. micrantha*, &c. Type *L, pyrolifolia* Hooker fl. t. 89. Fol. ellipt. serratis, racemis paniculatis. Boreal America.

264. PECTIANTIA R. (comb oppos) *Drumondia* D. C. Cal. coalito turbinato, Segm. 5 refl. Petalis 5 pectinatis subepigynis staminiferis persistens.—Stam. 5 ad pet. oppos. et basi insertis, antheris bilobis subsessilis. Ovario coalito, apice plano, stigma 2 sessilis bilobis. Capsula cal. et pet. connata, uniloc. apex fissus subbivalv. polysp. placenta 2 parietalis. *Acaulis, fl. spicatis.*—Another striking new Genus overlooked by Hooker, and mixt with *Mitella;* all the akin Genera *Tiarella, Heuchera*, are in equal confusion. This is not even of the same Natural Class, since the opposite stamens remove it to NANTIANDRIA and near *Phylica, Ceanothus*, &c.; but forming even a new family as will be seen below—Meantime the type is —

265. *Pectiantia mitelloides* Raf. Drumondia do. Dec. Mitella pentandra Hook. b. mag. 2933. fl. bor. there was a previous G. of Mosses Drumondia.—Pubera scabra, fol. petiol. cord. lobat. crenatis, fl. parvis spicatis, petalis rigidis lutescens.—Oregon Mts.

266. EVANTEPIA Raf. New Natural Order of Class Nantiandria. The *Evantepians*, meaning *well opposite over.*—Differing from PLYRONTIA by Cal. and ovary coalescent.

Petals various, one or several stigmas.—This will contain like *Plyrontia* several Natural families, such as—

267. PECTANTIDIA, the Pectantides Raf. Petals persistent, several stigmas, capsule uniloc. seeds parietal. Type *Pectantia*, above.

268. GUANIDIA, the Gouanides Raf. Petals squamiform, one style, several stigmas, capsule multiloc, cells monosperm,. Type *Gouania*.

269. LORANTHIA, the Loranthians Raf. 1815, types *Loranthus*, *Viscum*, &c. Berry monosperm. one stigma.

270. MANGIDIA, the Mangidians Raf. 1815, types *Rhizophora*, *Bruguiera*, *Mangium* Raf. *Aegiceras*. Capsule monosperm, several stigmas.

271. Ozomelis Raf. Cal. campanul. basi coalescens 5fido, petalis 5 trifidis, vel nullis, Stam. 5 ad petalis alternis. Ovario semi infero stigma capitatis (cetera ut *Mitella*) *Acaulis, fl. spicatis polygamis*. Very distinct G. also blended with *Mitella* by Hooker. Type *Ozom. varians* Raf. Mitella trifida Hooker fl. bor. t. 82. Fol. cord. obtusis lobatis crenatis, fl. spicatis, nonnulis apetalis vel masculis.—From Oregon. It belongs to Diceracea, but *Mitella* to Saxifragea.

272. Pleurendotria R. (side inside 3) Lithofragma Nuttal. (bad mongrel name) Cal. cyathiformis 5dentatus liberus. Petalis 5 unguicul. trifidis. Stam. 10. antheris sessilis, Ovario libero, basi vix coalito, Stylis 3, caps. unilocul. placentas 3, valvis 3. *Caulescens fol. divisis, fl. racemosis*.—Another distinct Genus, which Nuttal would lately unite with the last, 2 types.

273. *Pleurendotria parviflora* Raf. (Tellima do Hook. fl. t. 77) Hirsuta Scabra, fol. ternis inciso pinnatif. racemo brevis.—Oregon.

274. *Pleurendotria reniformis* Raf. Lithofragma do Nuttall. excl. Syn. Hooker. Annua, pubescens, fol. renif. trilobis incisis, racemo cymoso.—Oregon Mts. flowers pale rosate, Nuttal blends it with the last, but says it has sometimes 8 stamens only, and 2 styles. Both very different from *Mitella grandiflora* type of G. *Tellima*, which has 5 Stamens.

275. Petalosteira R. (pet. sterile) diff. *Tiarella* by no petals, but 12 to 20 stamens whereof 3 to 10 are sterile and petaloid, all in a row.—Types 1. P. *unifolia* Raf. Tiarella do Retz, Vitm. Hooker fl. bor. t. 81.—2 P. *laciniata* Raf. Tiar. do Hook. t. 76. both from boreal America.

276. Tiarella L. auct. This G. properly differs from *Mitella* by Capsule of two unequal valves and petals entire, it is therefore less natural than many of the above. The type is *Tiarella cordifolia*, with calix 5parted; all the other sp. are doubtful, each appearing the type of a subgenus at least, while *T. Bracteata* and *biternata* lack the 10 Stamens or unequal valves, and must form the two next Genera.

277. Oreotrys (Mt. cluster.) Raf. atl. journ. p. 145. in 1832. Diff. *Tiarella*, calix campanul. 5fido, petalis 5 linearis parvis, Stam. 5, petalis, alt. subul. Stylis 2, capsula semi-infera birostrata, valvis equalis staminiferis. *Acaulis fl. racemosis bractcatis.*—Nearer *Heuchera* to which Dec. unites it than to *Tiarella*. One type.

278. *Oreotrys bracteata* Raf. Fol. rad. cespitosis subrot. cordatis, inciso serratis glabris petiolis pubescens: racemo simplex, bracteis lanceolatis.—Mts. Oregon. *Tiarella bracteata*, Torrey, Eaton, *Heuchera do* Dec. Peronnial, calix obovate segments.

279. Blondia (Necker) diff. *Tiarella*, Cal. conc. campan. 5fido, Petalis 5 linearis elongatis, Stam. 10 elongatis, ovario birostro, Stylis 2. Stig. obtusis. Capsula uniloc. birostra equalis, inter stylis dehiscens. *Caulescens, fol. compositis alt. fl. paniculatis.*—The description is from Elliot, who properly says it is nearer *Saxifraga* than *Tiarella;* but habit quite peculiar, similar to *Aruncus*, where Michaux once united it.

280. *Blondia biternata* Raf. Tiarella do Vent. Pursh. Nat. Elliot, Eaton, *Spirea aruncus Var.* Mx. Fol. bitern. foliolis ovato cord. obliquis, inciso lobatis dentatis, panicula racemi flora divaricata pubescens bracteis linearibus.—Saluda Mts. of Carolina, perennial, styles inflexed, segments of calix deep and ovate.

281. *Blondia trifoliata* Raf. Tiarella do L. et auct. Fol. trifoliatis, foliolis rhombeis angulatis serratis pilosis, panicula corymbis racemosis stylis rectis.—In E. Sibiria and Oregon. Cal. realy campan. This was the type of Necker's *Blondia*, who ascribes to it a double capsule, as *Leptarhena*, which comes still nearer to *Aruncus*. In Bl. *biternata* the 2 capsules are coalescent and the calix deeper more open: is it a Subgenus *Saluda* Raf? the definite Stamens remove them however from *Spirea* and *Aruncus*, while the habit is also near *Alchemilla*.—Yet the G. probably belongs to Saxifragea.

282. Yamala R. (nom. Amer.) diff. *Heuchera*, cal. turbinato ineq. 5lobo, petalis nullis, Stam. 5 inclusis. *Acaulis, fl. racemo Simplex.*—Type, *Yamala cylindrica* Raf. Heuchera do Dec. Hook. fl. fol. cordatis truncatis lobato crenatis, racemo tereto spicato. In Oregon.

283. Leptaxis Raf. diff. Heuchera et Tiarella, Cal. infundib. 5fido, petalis 5 linear. Stam.

5 ineq. 3 exsertis longior, stylis 2, capsula omnino libera, *Acaulis, racemo simplex.*—Type *Leptaxis menziesi* Raf. Heuchera do Hook. fl. t. 80. Tiarella do of some authors; but not of Pursh, his being a real Tiarella with 10 stamens, caulescent and spicate.

284. Diamonon R. (Solanum diosk) diff. *Solanum.* Cal. ineq. bilabiato, 4partito, lab. inf. emarginato. Corolla rotata, subineq 5 loba, Stam. 5 eq. libera, filam. brevis, anth. magnis ellipt. apice biporosis. *Frutex fl. term. solit.*—Type. *Diamonon coriaceum* Raf. Solanum do. Hook. b. m. 2708. Glabrum, inerme, fol. petiol. oblongis coriaceis nitidis integris subvenosis, pedunculis subunifl. corollis plicatis undulatis mucronatis cerulescens.—A pretty Sp. from Mexico with large bluish flowers.

285. Evotrochis R, (well wheeled) diff. Primula, Cal. campan. 5fido, lac. serratis, Cor. hypocrat. tubo angulato, limbo 5lobo; antheris 5 sessilis, Stylo filif. stigma concavo, Caps. globosa uniloc. polysp. sem. ad placenta glob. magno centrale inserta. *Caulescens fol. et fl. verticillatis.*—It is astonishing how the botanists could unite this fine distinct Genus with Primula: probably several Sp. blended as P*r. verticillata.*

286. *Evotrochis involucrata* Raf. fol. radic. spatulatis inciso serratis, acutis nervosis bullatis, subtus farinosis flavo maculatis, fol. caulinis sess. ovatis trinervis 5-7rotatis, fl. axill. rotatis 5-12. corollis crenatis.—In Egypt, fl. pale yellow hardly odorous. This is P*r. vertic.* of some authors Grah. Hook. b. m. 2842, not of Forskal.

287. *Evotrochis odorata* Raf. fol. ovato-lanc. serratis subtus farinosis, radicalis petiolatis, pe-

tiolis alatis basi dilatatis, florib. verticillatis, corollis lobis integris.—In Arabia, Mts. of Kuman, flowers sweet scented like a primrose.—This is the real *Prim. vertic.* of Forsk, Vahl t. 5. and all the authors.

288. Codiphus R. (bell tubular) Ovario infero adherens elongato 4gono, cal. 5partito, corolla tubulosa 5fida, Stam. 5, antheris coalitis Stylo filif. Stigma bifidum, Caps, 4ang. 4valvis siliquosa, 2locul. sem. plurimis biserialis ad dissepimento libero inserta, *Frutex, fol. sess. fl. axill sess.*—Blended with *Campanula* and *Prismatocarpa*, different by corolla, anthers, capsule; same natural family, yet near *Lobelia* by the anthers connected.

289. *Codiphus nitidus* Raf. Prismatoc. nitidus L'her. t. 3. *Campanula prismatoc.* Ait. W. auct. Hook. b. m. 2733. Glaber assurgens, fol. lanceol. rigidis laxe serratis spinulosis, bractea unica linearis.—South Africa, small white flowers. The *Campan. plicata?* and *tomentosa?* probably belong here also; but the Genera *Prismocarpus*, *Apenula* or *Legouzia*, &c. of which *Polemonium ruelloides* and *Campan. Speculum are the types*, appear quite distinct. *Camp. biflora* and *amplexic*, are also types of peculiar Genera, see my Flora.

290. Benaurea, Raf. (well gilt) diff. *Campanula*, Cal. campan. 5fido 5angulato. Cor. camp. stellata 5fida, ad basi cal. adnata, Stam. 5 ad basi corolla adnatis vel insertis, stylo 1, stigma 5 linearis undul. Caps. 5gona 5locularis. *Frutex carnosus, fol. alt fl. paniculatis.*—This G. and the 3 next differ from the real *Campanula*, *Prismocarpus*, *Legouzia* having a tribocular capsule, by capsules with 5 cells and often angular: but this G. deviates besides

from the essential character of free stamens not inserted on corolla, and probably belongs rather to the family of DIERVILLARIA; but it has leaves alternating?

291. *Benaurea sempervirens* Raf. Campanula *aurea* L. auct. Dumont. Foliis ovato lanceol, glabris serratis, fl. panic. cal. coloratis. —Madera, flowers golden, shrub with fleshy stem—Dumont has well described the flowers.

292. CONCILIUM, R. (Campanula lat.) diff. from Campanula, by—Capsula cylindrica, 5locularis, stigmas 5, corolla subrotata. *Frutex ericoideus.*—This G. like the 2 last has a shrubby habit, the type is, *Concilium pedunculare* Raf. the Camp. fruticosa L. auct. of South Africa.—Fol. lineari subulatis, fl. longissime pedunculatis.

293. DECAPRISMA, R. (10 ang.) diff. Campanula. Stigma 5. Caps. decagona 5locularis, valvis angularis.—Type *Decaprisma cespitosa* Raf. Camp. do. Scop. fl. carn. t. 4 et auct. Caulib. cespit. angulat. fol. sess. imbricatis lanceol. ovatisque, serratis glabris, subtus punctatis, bracteis lin. integris, fl. nutantes—Alps of Carniolia, flowers blue.

294. MINDIUM Ad. non Jus. diff. Campanula. Cal. 10-12 partitus alt. reflexis Cor. camp. 5-6fida, Stam. 5-6, basi valvatis distans, apex patens, antheris pendulis, Stylo clavato, stigma 5-6fido. Capsula 5-6gona, 5-6 locularis. *Rad. tuberosa, caule nodoso, rames et fol. ternis, fl. ad dichotomia.*—Habit totaly unlike Campanula, similar to Rubiacea, perhaps of family Diervillaria like 290 if stamens inserted on corolla. The G. *Forgesia* and *Ceratostema* of Jussieu appear to be akin, and of same family;

but *Chupalon* is nearer *Vaccinium* and Rubiacea.

295. *Mindium canariense?* Raf. Fol. petiolatis hastatis dentatis, levis, caulinis ternis, rameis oppositis, fl. solit. cernuis.—Fine plant of the Canaries, root fusiform, stem erect tripedal, flowers large rufous, branches dichotome. Of this plant Linneus made 2 Sp. and 2 Genera! *Campanula canariensis* and *Canarina campanula!* And was imitated by his disciples: the generic name Canarina is inadmissible being formed from Canna and Canarium! The Mindium of Jussieu was a different G. now called Michauxia.

296. Petalostima, Raf. diff. Campanula, Corolla infundib. tubo brevis intus villoso, limbo 5fido. Stigma 5 petaloideis obovatis subtus hispidis, capsula 5locul. 5valvis, sub 10gonus. *Fol. oppositis, pedunc, axill. ramosis.*—Another out of the 20 Genera blended in Campanula. Habit peculiar, and strange form of stigmas.

297. *Petalostima capensis* Raf. Camp. do L. auct. Commel. t. 35, Curtis, b. m. 785. Caulescens, fol. lanc. dent. hispidis mucronatis, pedunc, longissimis, cal. et caps. hirsutis.—South Africa, flowers blue.

298. Hecale, R. (Nympha) diff. Campanula, Cal. 3-5 fidus, Cor. infundib, 3-5fida, Stam, 3-5, Stigma bilobo, Capsula oblonga bilocul. *Caulescens, fol. alt. fl. panicul. secundis.*—This G. is nearer *Codiphus* by capsule, but it is not angular, nor corolla tubular. Type, *Hecale lobelioides* Raf. Campan. do. L. auct. Glabra, ramosiss, fol. lanc. serrat. sessilibus—In Madera, many small flowers, whitish purple in terminal secund panicles.

299. Pilorea Raf. (head hill) diff. Campanula, Stigma bifidum, Capsula bilocul. *flores capitatis.*—Near the last, but Corolla campanulate 5fid, perhaps a sub genus of it. Type *Pilorea graminif.* Raf. Campan. do L. auct. Cespitosa, fol. lin. subul. basi ciliatis, caulinis subamplex, bract. ovatis acuminatis.—Mts. of Italy and Sicily, flowers violet blue in terminal heads on short stems. Seen alive.

300. Pentropis Raf. (5 keels) diff. Campanula, Calix 10fidus, 5 alt. reflexis, Corolla 5fida campan. stigma 5fidum, Capsula globosa, 5locul. 5carinata.—*Fol. alt. fl. alt.*—Another G. of this fine tribe with 5 cells, Type *Pentropis Saxatilis* Raf. Camp. do L. auct. Barr. 813. Boc. 64. Fol. obov. crenatis, fl. nutantibus.—In Creta, large blue flowers.

I shall resume the New Genera of Campanula with those of Vaccinium. Enough has been stated to show that the G. Campanula was absurd and unnatural, since it had Cal. with 3 to 15 parts, Corollas of all shapes with 3 to 6 parts, 3 to 6 Stamens, free or united, on calix or corolla, 3 to 6 styles or stigmas. 5 to 6 cells to Capsule, opening by valves or pores, &c. The true Campanulas will be confined to those with Cal. 5fid, Cor. camp. 5fid, 5 Stamens; 3 stigmas, 3 cells and no angles to the capsule opening by pores. Those with angles and valves from the G. *Prismocarpa*, *Apenula*, *Legouzia*, *Stephalea*, *Blepheuria*, *Pleurima*, *Palaeno*, &c.

FLORA TELLURIANA.

CENTURIA QUARTA.

301. Piaropus R. (thick feet) *Pontederia azurea et crassipes* auct. When I refered these plants with doubt to my reformed Pontederia 5, I had not before me Hooker's figure, which proves that they hardly belong there, and confirms my opinion that the whole wants reform, and to be examined again. These form the type of a beautiful N. G., probably with many overlooked, sp in S. America.—Corolla tubo incurvo, limbo amplo ineq. nonbilabiato, 6partito. segm. obovatis, uno supero major. Stam. 6 ineq. 3 intubo, 3 longior exsertis, omnis curvis. Ovar. ovato, Stylo longo flexuoso, Stigm. capit. papilloso. Capsula 3locular polysperm, sem. central. *Plant. natans, radic. fibris fimbriatis, fol. radic. petiolis inflatis fusiformis celulosis, fl. amplis spicatis, rachis triangularis non spadix.* What a striking G. by habit and characters! 3 Types at least.

302. *Piaropus tricolor* Raf. Fol. cordatis ovatisque, acutis, corollis purpurascens, petalo major tricolor, stam. piloso. glandulosis, pistilis viridis. From Guyana to Guayaquil, probably several sp. that of Swartz and Antilles has azure flowers, this has them pale purple, the upper petal blue in the middle with a yellow spot, fl. 3 inches.—*Pont. azurea* Hook, b. m. 2932 Synon. dub. ad Kunth, Hoenk, confer.

303. *Piaropus mesomelas* Raf. Ponted. crassipes Mart. braz. ic. Fol. rhombeis, corollis

azureis, stam. glabris, pistillis nigris.—Brazil and B. Ayres.

204. *Piaropus azureus* Raf. Ponted. Azurea Sw. Wild Pers. fol. subrot. ellipticis, corollis azureis.—Antillis. Hooker in order to obscure the subject has blended these 3 into one—it is thus that Botany is made to retrograde, and distinctions are overlooked. These plants are as different from my *Unisemas* G. 6, as may be Roses and Geraniums.

305. Kunda R. (nom. Sanscr) Aroid. Spatha coriacea campanulata dimidiata dilatata undulata plicata, Spadix fungiformis basi columnaris tereto florifero, apex capitato dilatato undulato. Pistilis inferis, globosis stylosis, stigma trilobo. (bacca 3sp.) Stam. superis 4locul. poris 4 apice dehiscens. *Acaule, rad. tuberosa fibris comata flos subsess., fol. radic. divisa.*—Most extraordinary Indian Genus, near *Arum* by habit; but quite distinct by spatha, spadix, styles and anthers. The flower and leaf appear at different times. The huge root is esculent and cultivated for food. I have given to it the old sanscrit name. Perhaps several blended species, but the type is

306. *Kunda verrucosa* Raf. Tuber depresso zonato gemmulato fibrillato: folia decomp. trifida, deinde bifida pinnatifida aspera foliolis obl. acutis; flos. verrucosus intus leve luteo, margine rubro, spadix capitulo equante magno atropurpureo mesenterico.—India, Ceylon, Molucas. Root brown 4 to 8 lb. weight crowned by white fibres, flower 1 or 2 feet wide, on a short thick warty peduncle with some uneq. spreading sheaths. It is *Arum campanulatum* Roxb. cor. t. 272, Hook. b. m. 2812, *Arum zeylanicum*

Com. t. 53. *Tacca phalifera* Rumph t. 112. *Schena* Rheed 11 t. 19. Not in Linneus.

307. Spatulima Raf. Legum. diff. *Orobus*, Cal. urceolatus, 5nervis 5dent. eq. Vexillum elong. emarg. Stylo reflexo *Spatulato* marginato plano subtus pubescens, stigma margine obtuso. *Foliolis binis ternatisque sessilib. pedicellis elongatis multifloris.* The style or stigma of this G. is quite peculiar. Probably several sp. blended as *Orobus sessilifolius*, *ensifolius*, *digitatus*, *pyrenaicus*, &c.,—all refered here by Hooker.—Type.

308. *Spatulima angustifolia* Raf. Caule flex. striato, foliolis 2-3 mucronatis lin. angustis acutis, stipulis subul. semisagitt. pedic. 3-4floris, fl. pendulis. Crimea, Greece, Sicily. fl. purplish, vexillum darker. *Orobus sessilif.* Sm. DC. Hook. b. m. 2796. *Or. digitatus?* Bieb. Spreng.

309. Petaloxis Raf. (pet. sharp) Commelinea, Cal. 3phyl. Cor. petalis 3 acutis persistens, eq. Stam. 6. subsess. subeq. glabris 3 ext. 3 int. Antheris lin. 2loc. apice 2porosis. Stylo filif. stigma obt. Caps. globosa corolla baccata, 3locul. polysp. *Fol. vaginans, fl. racemosis.*—Wrongly united to *Dichorisandra* of Mikan by Hooker, which has 5 Stamens only, in 2 unequal phalanges, anthers not porose, petals not acute.—It is near my G. *Eothinanthes*, having same habit.

310. *Petaloxis purpurea* Raf. Dichorisandra oxypetala Hook. b. m. 2721. Caule tereto striato basi squamoso apice folioso, fol. ellipt. acum. striatis, undul. racemo flexuoso, pedicellis biftoris, petalis ovatis acutis purpureis.—South America, stem simple or forked, raceme terminal, pretty purple flowers.

311. Dimanisa, (Twin uneq.) Raf. Cal.

5part. bibract. Cor. tubul. bilab. lab. sup. erecto emarg. lab. inf. eq. 3fido. Stam. didyn. Antheris biloc. loculis ineq. Capsula ut *Justicia*. F*rutex artic. nodosis, fol. opp. fl. axill.*—How could Hooker unite to *Justicia* a plant with 4 Stamens! 2 types if Link has made same blunder for another.

312. *Dimanisa latifolia*, Raf. Justicia nodosa Hook. b. m. 2914. Fol. ovatis acutis subintegris, bracteis linearib. cal. longior—Beautiful shrub with scarlet flowers, locality unknown.

313. *Dimanisa ? oblongata*, Raf. Justicia do Link H. ber. t. 9. fol. oblongis lanceolatis, bracteis foliosis lanceol. cal. duplo longior. If this is a brazilian plant, the former may be such also, has this really 4 stamens like the last ?

314. Faulia, R. (Olea. gr.) Cal. 4fidus, caliculatus bracteis 4. Cor. rotata plana 4fida, Stam. 2 opp. divaric. longis. Ovar. ovat. stig. globoso subsess. Bacca 2loc. 4sp. *Fol. opp. fl. Spicatis panic.* Very distinct from *Ligustrum* by cal. cor. &c. nearer *Olea*. The *Lig. japonicum, Sinense, lucidum* of Asia may belong to it; but the types are the two next Sp.

315. *Faulia verrucosa*, Raf. Ramis teretis verrucosis, fol. petiol. lato oblongis acum. glabris undul. panicula trichotoma glabra. cal. scabris. In Nepal. fl. white inodorous? *Ligustrum nepalense var. glabrum* Wallich, Hook. b. m. 2921.

316. *Faulia Odorata*, Raf. fol. ovatobl. acum. subtus villosis, panicula villosa densa, racemulis spicatis, cal. villosis—In Nepal, flowers white sweet smelling, berries oval blue. *Ligustrum Spicatum* Don. fl. nep. or *Nepalense*

Wallich.—The authors appear to have blended 2 species, and thus not well marked the mutual distinctions.

317. Egena, R. (nympha) Cal. glob. 5dent. Cor. tubulosa incurva, limbo 5lobo eq. Stam. 4 didyn. exserta, stylo filif. stig. acuto. Bacca in calice 4 sperma. *Frutex fol. opp. fl. corymbosis*—Pretty G. blended with *Clerodendron* with Cal. 5fid. drupo 4pyreno. Type *E. erminensis* fol. opp. ternisque ovatis petiol. integris vel apice serratis, corymbis term. *Clerodendron do.* Hook. b. m. 2925. fl. yellowish or incarnate white Madagascar.

318. Colax, Sprengel. Orchideous G. properly distinguished from *Maxillaria* altho' blended by Hooker and Lindley. Petalis non resup. basi coalitis, 2 infimis in cuculo calcariforme adnatis. labello basi cucul. Col. apice glandula bifida ferens, Pollen 4 supra glandula ineq. 2 minor. *Scapo artic.* 1-2 *fl. bulbis terrestris unifol.*—*Colax harisoni* Spr. *Dendrobium do* Hook. ex. fl. 120. *Maxillaria do* Lindl. b. reg. 897. Hook. b. m. 2927. Grandiflora would have been a better name; large yellow fl. 4 inches broad odorous, lip red, petals oval, leaf lanceol. plicate.

319. Tritelandra, R. (3 perf. St.) Orchidea with 3 perfect stamens, quite distinct from *Epidendrum* with one! instead of an anomaly it is deemed now the real type of the tribe! and yet was left in Epidendrum! Petalis 5 patulis subeq. label. major basi adnato ad columna, tereta, apice antice antheris ternis subeq. liberis in triangulo positis, supera major 4 pollen, 2 infimis latere valvatis 2pollen. *Rad. vermicul. fol. distichis, fl. capitatis*—Distinct by habit, lip and anthers, as near *Octomeris* as *Epiden-*

drum. Probably several sp. mixt. compare *Epid. fuscatum*, *anceps*, *secundum* &c. the main type is

320. *Tritelandra fuscata*, Raf. Fol. obl. acutis, caule basi et apice subnudo, petalis obovatis, label. flabellato lobulato—Antilles, flowers small greenish brown. His *Epid. fuscatum* Sw. W. often figured by Sm. Andr. Lod. 472. Bot. reg. 67, Bot. mag. 2844. Is the *E. anceps* Jaq. Lod. 887, the same? and *E. secnndum* Sw? as Hooker says; but he is so much in the habit of confusing Sp. that these must be verified again.

321. Sacoila, R. (bag hollow) Orchidea diff. *Neottia*, Petalis connivens teretis, 3 infernis basi coalitis saccatis unicalcaratis, labello indiviso, columna teres truncata aptera, stylo conico, anthera liaearis 2pollen postice posita. *Caule squamoso, vaginato fl. spicatis*—Very distinct by habit, united petals and style. Type *Sacoila lurida* Raf. (*Neottia aphyla* Hook. b. m. 2797) Tota rubescens fuscata, squamis acutis vaginatis, spica paucifl. fl. nutans, labello ligulato obtuso integro. Antilles, whole color lurid redish brown, flowers 5-8 large shaped as in *Spiranthes*, but calcarate not spiral: habit of Orobanche.

322. Neottia, of authors. They have mixt in this Genus a crowd of heterogenous plants, and so many have been removed that now we hardly know the real types of it. The characters of all the authors are quite different. Many Sp. of *Ophrys*, *Orchis*, *Serapias*, *Satyrium*, *Limodorum*, *&c.* have been united thereto, and the *Aristotelia* of Loureiro. While the Genera *Spiranthes* and *Goodyera* have lately been distinguished. All the Sp. must be examined

again, I have removed several of them: see my G. 214 *Dothilis*, and *N. calcarata* or my *Eltroplectris* 185. As many as 12 Genera may be made out of this; and the real reformed *Neottia* will merely comprize *N. Speciosa, elata Orchioides, plantaginea* of Hooker, not mine of 1817 which is a *Spiranthes*.

323. Neottia, Raf. Corolla ringens, petalis connivens, labello concreto subeq. basi saccato Col. tereta, stylosa, anthera stylo paralela. *Fol. radic fl. spicatis.*—Even this requires revision; it appears in this the lip is saccate while in *Sacoila* it is the external lower base of petals.

324. Adnula, Raf. diff. label, et 2 sepalis tricalcaratis decurrens calcarib. ad ovario adnatis. Type *Adnula petiolaris* Raf. (N. adnaria auct.) fol. longe petiol, oblongis, spica simplex, labello deflexo bilobo. Antilles.

325. Narica, R. (Nympha) diff. *Neottia*, labello concavo bilobo, petalis liberis, *fol. rad. florib. radic. sessilibus*--Type *Narica moschata* Raf. fol. sessilib. ovatis undulatis, labello oblongo obtuso pubero dilatato undulato—ld Trinidad, fine large flowers smelling like musk, mixt of white and green. It is the *Neottia acaulis* of Smith.

326. Monustes Raf. (Nympha) diff. Neottia, labello non saccato basi appendicis binis ligulatis columna alata, lobis elongatis. *Fol. radic. fl. Spicatis Spiralis.*—This G. is near *Pterostylis* with the habit of *Spiranthes*. Type *Monustes australis*, Raf. fol. lanceol. labello oblongo undulato. *Neottia anstralis* Brown, Smith.

327. Goodyera, Br. 1812? *Tussaca* Raf. 1814. for this G. see my new flora of N. America. Habit peculiar by dense spikes.

328. Spiranthes, Richard. *Girostachis* Per-

soon 1807 proposed earlier but not established, and objectionable formed from Stachys. Genus now generally adopted aud easily known by the habit of spiral flowers. The lip is unguic. bicallose paralel, anther peduncled &c. It is very prolific in species, not yet well distinguished and often blended. Many new species of N. Amer. are described in my Herbar. New flora, Autikon &c. but I add here some exotic species.

329. *Spiranthes tortilis* et *Satyrium spirale* Sw. Fol. longissimis linearibus, Spica tortilis, fl. secundis laxis, labello trilobo crenulato. In Jamaica, the plants of N. Amer. and China, refered to this are all different.

330. *Spiranthes laxiflora Raf.* Fol. linearib. spica laxa, floribus glabris nutans, labello reflexo trilobo.—In China, fl. white large. It is *Neottia tortilis* Smith &c. but not the *N. sinensis* of Wild.

331. *Spiranthes flexuosa* Raf. Caule basi folioso, fol. oblongis patulis, florib. villosis, label. ovat. undul.—In Nepal, fl. whitish very spiral. *Neottia flexuosa* Smith. Roots vermicular.

332. *Spiranthes Sibirica*, Raf. fol. lin. lanceol. erectis, spica gracilis, labello obovato crenato. In Sibiria, blended with our Sp. *estivalis* and many other peculiar Sp.

233. *Spiranthes glauca,* Raf. Foliis ovatis petiolatis glaucis, fl. albis adoratis, labello ovato crispo.—In South Europe, blended with *Sp. autumnalis*, or *Neottia spiralis* by many authors, which has oblong green leaves subsessile. There are two other odorous Sp. in North Amer. and others in Sibiria.

334. *Spiranthes parviflora*, Raf. (Neottia do Sm.) same characters as *Sp. flexuosa* except flowers hardly spiral unilateral, lip red

crenulate.—In Nepal also, *Sp. bicolor* perhaps a better name.

335. *Spiranthes diuretica*, Raf. (Neottia do Auct) fol. radic. lin. fl. unilat. vix spiralis, labello obl. obtuso crenato reflexo.—In Chili, *Nil* Feuil. t. 17.

336. *Spiranthes quadridentata*, Raf. (Neottia do Auct) Caule basi folioso, fol. obl. obt. spica secunda vix spiralis, labello obovato 4dentato—Guyana & Antilles.

337. Nerissa, R. (Nympha) diff. *Neottia*, petalis sub patulis obovatis campanul. labello cordato concavo. *Floribus racemosis, pedunculatis*—Type *Nerissa glandulosa* Raf. Neottia do Sims. bot. mag. 842, Smith &c. Fol. radic. ellipt. obt. recurvis, fl. racemosis, labello acuto —Antilles, fl. white with green stripes. Compare with G. Corallorhiza.

338. Tomotris R. (cut cluster) diff. *Neottia*, labello basi inflato, apice plano, calcarib. nullis, petalis vix concretis. *Caule ramoso articul. geniculato, folioso, racemis compositis.*—Very near *Neottia* and *Sacoila*, but habit quite peculiar indicating a different Genus. Types *Tomotris polystachia* and *flava*, Neottia do of authors. Once *Serapias flava.*

339. Strateuma Raf. *Stenorynchus*? Auct. Diff. *Neottia* culcar elongato ut in. Eltroplectris, angusto libero, labello bilobo. *Rad. fascicul. caule folioso, spica foliosa.*—Type *Strateuma zeylanica* Raf. Orchis strateumatica! Lin. Fol. lineari lanceol. infimis brevioribus, calcar ad ovario equante. Id Ceylon.

340. Synoplectris R. (united spur) Petalis connivens, bilabiatis 3 supernis coalitis galeatis—labio inf. bifido petalis 2 basi coalitis et decurrens in tubo calcarif. ad ovar. toto concreto

adnato, labello elongato spatulato integro basi gibboso, decurrens in tubo. Columna erecta, tereta, basi mellifera. apex glandula, anthera infera ad glandula dependens, loculis 2 lanceol. pollen 2 utrinque. *Fol. magnis radicalis, scapo bracteato, fl. spicatis flavis.*—This G. is very peculiar and distinct from *Admula* by the position of the bilabiate petals, anther and habit, 2 types.

341. *Synoplectris viridis* Raf Neottia viridis and grandiflora. Hook. 6. m. 2730. (not the same as 2956) Spiranthes grandiflora, Lindl. b. reg. 1043, not at all like a Spiranthes!—Fol. sessilib. carnosis ovato lanceol. undulatis nervosis, scapo sulcato bract. ov. lanc. fl. bract. lin. lanc. puberis, petalis connivens, labello basi involuto, apice undulato.—Brazil, large leaves and flowers occupying most of the scape and greenish yellow.

342. *Synoplectris picta.* Raf. Neottia vel Spiranthes do Auct. Fol. petiolatis ovato-lanc. maculatis pictis, petalis subpatulis labello revoluto.—South America, flowers whitish yellow smaller.

343. DIPLECTRADEN (*double spur gland*) Raf. Orchidea. Petalis 3 ext. concavis, superior galeato, lateralis obliquis, petalis 2 internis semi sagittatis, labello lin. basi trifido, calcarato. Anthera unica ovata sulcata, biloc. bipollen pedic. basi bicalcarata, biglandulosa. *Caulescens, spicata.*—Neither Neottia nor Habenaria as supposed: Anther peculiar, like Orchis.

344. *Diplectraden leptoceras* Raf. Neottia orchioides. Auct. Habenaria leptoceras Hook. b. m. 2726. Caule angul. fol. lanceol. carinatis, spica laxa, bract. ovato lanc. calcar filif. compresso ovario duplo longior.—South America, flowers green many, lip yellow acute, ovary striated twisted.

345. Endorima Raf. (in pits) diff. Conyza, Periantho imbric. tereto scarioso, phorantho favosum, alveolis magnis ineq. laciniatis, flosculis omnis fertilis tubulosis 5dent. antheris bisetosis. Sem. obl. verrucosis in alveolis immersis, pappus filis clavatis plumosis basi coalitis interdum furcatis. *Habitus Conyza, fl. pedunc.*—Very striking distinct Genus by phoranthe, seeds and pappus, nearer Conyza than Astelma and Gnaphalium.

346. *Endorima modesta* Raf. Astelma do Sieber, Gnaphal. do. Hook. b. m. 2710. Fruticosum ramosum, fol. lin. fil. canalic. cano tomentosis, pedunc. term. unifl. elongatis, periantho sq. cuspidatis roseis tomentosis, flosculis flavis.—South Africa, pretty plant, discovered by Sieber; but the G. *Astelma* of Brown has a smooth mutic phoranthe.

347. Trilomisa Raf. (3 edges eq.) diff. Begonia by, fl. masc. pet. 4 ineq. 2 patulis, 2 internis minor erectis, fl. fem. petalis 5 subequalis, stigm. 3 bilobis convolutis angulatis, Capsula alis 3 equalis, loculis 3 equalis. *Frutex artic. fl. subsess. fl. panic.*—Type *Trilomisa undulata* Raf. Begonia do Auct. H. b. m. 2723. Caule albo macul. fol. brevi pet. obliquis undulatis ellipticis glabris, panic. axill. dichot. fl. fem. pendulis.—Brazilian shrub with white flowers.

348. Strepsiphus Raf. (twisted tube) Cal. 5phyl. subeq. Cor. tubo elongato tortilis, limbo bifido bilab. lab. sup. obl. 3dent. inf. integro s. bif. minor. Stam. 2 Antheris loculis 2 superpositis obliquis. Stylo filif. stig. emarg. Caps. ut Justicia.—*Frutex, fol. opp. pedunc. axil. involucr. 3floris.*—Very distinct G. near Dianthera, corolla and stamens quite peculiar.

349. *Strepsiphus speciosus* Raf. Justicia

speciosa Roxb, Hook. bot. m. 2722. Fol. opp. petiol. ovatis acutis crenulatis glabris, infimis subcord. pedunc. axil. et term. involucris duplicis, utrinque 4phylis ineq. spatulatis trifloris ciliatis.—Bengal, fine shrub with many large violaceous flowers.

350. Delonix R. (evident claw) Legum. diff. *Poinciana*, Cal. eq. non fornic. Pet. 5. subeq. unguis longissimis, limbo. crenatis flabellatis. Stam. 10 ineq. glabris, declinatis.—*D. regia* Raf. Poinciana regia Hook. b. m. 2884. inermis, fol. bipin. ovatobl. muticis. A beautiful tree of Madagascar, with large scarlet flowers. The G. Poinciana DC. separated from Caesalpinia is American with uneq. cal. hooded, petals unequal, stamens hairy. &c.

351. Omonoia R. (Papaver diosk) Eschscholzia Auct. barbarous russian corrupt name, similar besides to the prior *Elshozia* of Wild. Auct. being dedicated to the same family of botanists! wrongly united to Loasacea by DC. and by Hooker to Papaveracea; I have ascertained on the living plant, that it belongs to my nat. family *Glinidia* of 1815 near to Glinus and *Portulaca*, all the Papaveracea with several styles belong there also; but it is the type of a sub family *Omonoidea* by calix and capsule. Such diversity happens in Hypericea and Portulacea, both very near families of same order POLYMESIA. My family Resedacea differs by unequal calix, petals and stamens.—Cal. calyptratus, pet. 4. Stam. plura hypog. epipetalis. Ovar. conico, Styli 4 ineq. lin. siliqua bivalvis angul. uniloc. polysp. valvis seminif. *fol. decomp. fl. term. solit. amplis, flavis.—Omonoia californica* Raf. foliolis linear. apice multifidis. Eschscholzia do. Chamis, DC. bot. reg. 1168, bot. mag. 2887. Sweet t. 265, &c.

352. Streptima R. (twisted st.) Cal. tubul. 5ang. 5 dent. Pet. 5. unguic. eq. Stam. 6. ineq. 3 major hypogynis. Stylo filif. apice trifido contorto flexuoso. Caps. uniloc. 3valvis, valvis seminiferis polysp.—*Frutex fol. opp. vertic. vel fascic. fl. axill. sess, vel. ad dichot.*—Str. pauciflora Raf. *Frankenia pauciffl.* DC. Hook. b. m. 2896. fol. lin. obt. marg. revol. canescens, petalis cuneatis apice crenatis roseis.—Another plant evidently united to *Frankenia* by mere habit, altho' akin; both belong to POLYMESIA also, and are akin to *Omonoia*, *Reseda* and *Portulaca*, differing by Stam. definite; but they are neither equal nor isarine as in Alsinides and Phorandres, the Caryophyles of authors: they belong therefore to Hypericea near *Sarothra* and *Triadenum* with *Menetho*, *Nothria* and some others, having few stamens. The *Frank. revoluta* of Forskal with ovate revolute leaves, dichotome stem, belongs here perhaps, it is an Egyptian shrub. *Str. pauciflora* altho' supposed to be Australian is perhaps African also. Hooker doubts if his own plant is really that of Decandole, because scabrous. All the shrubby Sp. of *Frankenia* are also African, such as *corymbosa* and *thymifolia* Desf. except F. *microphyla* of Patagonia. But all the sp. must be examined again, since Adanson gives a different character to some species, and the next real Australian Genus is very distinct from both.

353. Menetho R. (nom mythol) Cal. 4fidus, petalis 4 unguic. integr. Stam, 6 ineq. stigma 2, Caps. uniloc. bivalv.—Type *M. sedifolius* Raf. frutex prostratus, fol. subul. crassis calcaratis, fl. term. sessilib. In Australia, the *Frankeria quadripetala* of Labil. t. 114.

354. Frankenia, L. Franca Mich. Cal. teres

5dentatus 10gonus persistens, Petalis 5 integris ung. squama ad unguis, stig. 3 vel. 6 (Lin.); Caps. uniloc. 3valv. sem. centralis? This includes many herbaceous Sp, of the mediterranean region, *Fr. levis*, *hirsuta*, &c. which I have seen alive, and found with 3 stigmas and central seeds.

355. Nothria, Berg. Franca Ad. I take the name from the first, but characters from Ad. Cal. tubul. 5dent. Pet. 5 crenatis, Stam. 5-10 (an 6-9?) stylo, stig. 3 caps 3valv. unil. Jussieu says Adanson meant 3locular. The type of this is the *Frankenia pulverulenta* of several authors, found from Sibiria to Senegal; but perhaps several Sp. have been blended. The real *Nothria repens* of Berg and South Africa has acute petals, and must be examined again. In fact the authors have neglected to notice the inequality of stamens and their proportions, which are quite essential; altho' heterines for the Corolla, they are isogyne or proportionate to stigmas in all.

356. Lacanthis, R. (much spinos.) Euphorbia splendens Hook. b. mag. 2902. of all the beautiful and strange plants blended in Euphorbia, this is one of the most singular and distinct Genus.—Periantho cupularis 10lobo, lobis alt. minor glanduliformis, Phorantho villoso. Androphoris bifidis, stam. 2 ferens, antheris subrot. uniloc. Gynophoro nullo, ovar. sessile obl. stylo 3fido, stig. 3dent. *Frutex toto aculeis vestito, fol. paucis sparsis, umbella dichot. bracteis binis coalitis coloratis unifl.*—How can a botanist of sense unite this with even the other fruticose Euphorbias?

357. *Lacanthis splendens*, Raf. Aculeis basi dilat. confluens, fol. cuneatis cuspidatis. bracteis

orbic. mucron. coccineis.—Disc. in Madagascar by Bojer, the bracts are scarlet as in *Pleuradena*, while the fl. are of a dull yellow. The bifid stamens and 10 lobed fl. are quite striking: deemed generic in *Salvia!* why not here? I would have dedicated this fine G. to Bojer, if I had been sure there is no other *Bojeria*.

358. Tropilis, R. (keel lip) diff. Dendrobium, Petalis 5 linearib. vix patulis basi coalitis, labello parvo cucul. basi cum appendicis ad columna adn. apice reflexo, dorso 3carinato. *Rad. fibrosis, bulbis terrestris costatis paucifol. Scapo laterali paucifl.*—Type Tr. emulum Raf. *Dendrob. do.* Br. Hook. b. m. 2906. fol. ovatobl. scapo brevi 3-5fl. labello tricarinato, apice acum. latere unidentato—Australia.

359. Eusteralis, R. (mentha diosk) diff. Mentha. Cal. ovato inflato 4fido, eq. Cor. tubul. 4dentata subequalis, Stam. 4 subeq. filam. ad media barbatis, antheris uniloc. transv. dehiscens. *Annua, fol. vertic. fl. spicatis*—Fine Genus habit and characters quite peculiar. Type *Eusteralis pumila* Raf. caule vesiculoso, adscendens, fol. 4-5nis lin. lanc. sub serratis, spica term. densa, bract. ovatis lanc. ciliatis—In Nepal, corolla rosate. It is *Mentha pumila* Grah. *Mentha verticillata* Roxb. Don. Hook. b. m. 2907.

360. Styrosinia, Raf. (cross union) Cal. 5 part. ineq. libero, Cor. tubulosa clavata basi supra bigibbosa staminifera, limbo 5lobo. Stam. 4 didyn. antheris 4 coalitis planis cruciatis 4lobis. Ovario libero ovato, basi gland. 4 ineq. supera major, stylo filif. stig. obt. *Fol. petiol. oppos. axillis multifl.*—Wrongly united to Gesneria, not same family since ovary free and stamens on

corolla, rather near Scrophularia; but do not the united anthers indicate a peculiar tribe?

361. *Styrosinia coccinea* Raf. Gesneria agregata Bot. reg. 329. Hook. b. m. 2725, G. pendulina B. reg. 1032! Villosa, fol. ovatobl. rugosis crenatis acutis, axillis 2-4 fl. pedunc. ineq—Brazil, pretty flowers scarlet, one inch long.

262. Rafinesquia vel Flundula, Raf. Leguminosa, Cal. tubul. basi carnoso, apex 4dent. dent. sup. bifido. Petalis longe unguic. undulatis, subeq. Vexillum major reflexo cuculato. Stam. 9 monadelphis, filam. apex liber. parvo, 4 alternantis fil. et antheris minor, filam. decimo toto libero sterilo. Ovar. lineare, stylo filif. incurvo, stigma capit. glabro. legum. lin. acum. compr. subarticul. polysp. sem. ellipticis. F*ol. imp. pinnatis, fl. umbellatis*—Another G, wrongly refered by Hooker to *Lotus*, by mere inflorescence: lacking even the trifoliate habit. It is a beautiful distinct Genus by habit, calix, corolla, stamens, stigma and fruit... It is one of those I propose to dedicate to myself, as Linneus did for the Linnea, but I propose a second substitute, in case there is another previous *Rafinesquia*. This is so distinct that I rather fear it may have already a third name unknown to me.

363. *Rafinesquia* (vel Flundula) *comosa* Raf. Lotus pinnatus! Hook. b. m. 2913. Glabra, ramis teretis striatis flexuosis, stipulis ovatis, foliolis 7-9 obovatis (vel oblongis) pedunc. elongatis, 5-7floris umb. sessilibus—In Oregon, on Columbia R. &c. Hooker says the wild specimen had obovate leaves; but in the gardens they changed to oblong! as in his figure. Perhaps two Sp. collected by Douglas, *R. comosa*,

R. obovata, or else the species has undergone an evident transmutation by seeds in Scotland.

364. Tricoilendus, R. (3 inside hollows) Legum. ad *Lotus* toto celo diversus. Cal. camp. ineq. 5fidus pers. Vexillum dilatatus alae obliquis equante, Carina non rostrata latere tubercul. Stam diadelph. basi submonadelphis, ineq. Ov. lin. pub. Stylo glabro persitens, stigma capitato glanduloso. Leg. bivalv. tereto oblongo, trilocular. 3 sp. loculis serialis, sem. glob. punctatis. *Facies ut Lotus.*—Very distinct N. G. by the pod, stigma, petals, calix, refered to *Lotus* by Hooker by the mere habit or aspect of the type.

365. *Tricoilendus microphylus*, Raf. Lotus do H. b. m. 2808. Decumbens filif. puberus, fol. petiol. foliolis 3 parvis obl. acutis carinatis, stipulis subul. pedic axill. elongatis, fl. 5-6 capitatis roseis.—South Africa. Delicate annual with minute leaves and flowers.

366. Liriactis, Raf. (lily star) Petalis 6 equalis patulis stellatis, 3 ext. apex subbident. Stam. 6 brevis eq. filam, subul. glabris, antheris linearis, ovar. sess. trigono, stigma sessile trigono supra plano. *Caulescens*, 1-2*fl*—Fine new G. united to *Tulipa* by Hooker; but really distinct by petals, stigma &c.

367. *Liriactis albiflora*, Raf. Tulipa stellata Hook. b. m. 2762. Fol. gramineis convolutis, infimis falcatis, superis tortilis, fl. amplis, albis, petalis ellipticis obtusis.—From Kumana in East Indies, two feet high, brown bulb. large white flowers 4 inches broad spreading in the day as *Ornithogalum*, closing at night.

368. Pleurostima, Raf. (lateral Stigma) Corolla infund. basi adh. tubo angulis 6 verrucosis, limbo 6fido, lac. lanceol. 3 ext. angustior.

Stam. 6 petaloideis bifidis, antheris lincarib. ad basis intus adnatis. Ovar. adherens obl. scabro 6gono tubere. stylo conico trigono acuto, stigm. 3 glandulos. adnatis ad medio stylo. caps. 3loc. polysp. *Caudex foliosis, scapis lateralis radicalis unifloris.*—Fine G. of family Narcissides, near *Pancratium*, not Hemodorea as stated by Hooker. The fruit is very peculiar with 3 large stellate partitions, bearing in their angles 3 placentas and many seeds. *Barbacenia* differs by anthers in the fork of stamens and different style.

369. *Pleurostima purpurea*, Raf. Barbacenia do Hook. b. m. 2777. Fol. lin. acum. carinatis spinuloso serratis. scapo fol. longiore, scapo trigono scabro unifloro, capsulis scabris angulis 6 tuberculatis.—In Brazil, flower large violet purple, base green.

370. Tulisma, Raf. (warty cleft) diff. *Gesneria* by Cal. adher. 5dent. Cor. tubulosa, basi 5gibbosa, apice 5loba, subeq. verrucis ad sinubus, stam. didyn. epicorollis, antheris coalitis, ovario apice libero, dorso bigland. stylo filif. stig, obt. *Herba fol. verticil. fl. term.*—Really distinct from Gesneria, and not of same family, unless it has staminiferous corollas as this.

371. *Tulisma verticillata*, Raf. Gesneria do Hook. b. m. 2776. Pubescens, fol. quaternis petiolatis ovatis subcord. serratis, pedunc. 2-4 term, unifl. recurvis, florib. pendulis.—Brazil, fine plant one foot high, stem terete. petiols colored, flowers large, 3 inches long, red with darker spots.

372. Menadena, Raf. (moon gland) Orchidea diff. *Maxillaria* Petalis connivens non resupinatis, labello basi cuculato cum basi Col. adnato, ad medio costato. Col. semiteres, stigma 4ang.

Anthera operculata term. pollen 4 ineq. 2minor ad glandula lunulata inserta. *Bulbo rugoso terrestris unifolio, scapis lateralis squamatis unifl.*—Very distinct G. by habit, flower and anther.

373. *Menadena parkeri*, Raf. Maxil. do Hook. bot. m. 2729. Bulbo ellipt. rugoso, folia lanceolata pedalis, scapis brevis, squamis imbric. ovatis coloratis, petalis 3 ext. ellipt. 2 int. lin. lanc. labello ligulato trilobo, undulato.—Demerara, flowers fulvous, 2 inner petals white with purple spots, lip yellow with purple border.

374. Maturna, Raf. (Nympha) Orchidea. Petalis patens 5 sub-equalis, 2inf. coalitis, labello simplex basi 2tuberc. 2alato. Col. semiteres, anthera operc. pedicello pollen 2 ferens, Ovario clavato, *Bulbis terrestris basi et apicem foliosis, scapis radicalis, fl. spicatis, bracteis persistens.*—Beautiful G. totally unlike *Pleurothalis* in habit, flowers, anthers, &c.

375. *Maturna suaveolens*, Raf. Pleurothalis foliosa Hook. bot. m. 2746. Bulbo oblongo, vix striato, fol. inferis vaginans, fol. sup. binis lanceol. carin. scapis multifl. bract. lanceol. fl. luteis odoratis, petalis linearibus. labello ovato acuto.—Brazil, fine spike of yellow flowers very fragrant, like Primrose.

376. Meliclis, Raf. (honey lip) Orchidea, Petalis ineq. difformis, distortis 3 ext. involutis obliquis, 2 int. erectis undul. Labello heteromorpho, pedunculato saccato mellifluo, operculo magno galeato ferens. Columna elongata tereta, basi bidentata apice incrassata biloba, anthera pollen 2 sess. ceracea. *Bulbis terrestris striatis bifoliatis, Scapis basillaris bifloris.*—A most extraordinary N. G. which Hooker is at a loss to describe and wrongly refers to

Gongora. The Lip distils honey that fills the hollow bag.

377. Meliclis *speciosa*, Raf. Gongora do Hook. b. m. 2755. Bulbis oblongis, fol. lin. lanceol. longissimis, scapo compresso artic. bifl. galea tridentata.—Brazil, very large yellow flowers 4 inches broad, with a strong smell.

378. Petalanthera, Raf. Cal. 5part ineq. Cor. tubul incurva bilab. lab. nervosis, sup. integro sulcato, infero apice 3lobato. Stam. 2, Antheris obliquis petaloideis ineq. bilobis, uno subrot, alio acum. ambi loculo ferens. Ovario supra glandula magna. stylo filif. stig. acut. *Frutesc, fol. oppos. fl. capit. bracteatis.*—Another fine G. distinct from *Justicia* and *Dianthera* by the singular peculiar Anthers with unequal lobes.—Near G. *Echolium* and *Dianthera*.

379. *Petalanthera punctata*, Raf. Frutic. fol. petiol. ovatis obovatisque integris glabris. Capitulis obl. term. bracteis imbric. subrot. fl. subternis sessilib. punctatis.—China, fine sp. fl. white with purple dots. It is *Justicia Ventricosa* Wallich and Hooker bot. m. 2766, but there is nothing ventricose about it.

380. Cruciundula, Raf. Crucifera diff. Hutchinsia. Cal. eq. concav. margine scariosis. Petalis 4 eq. oblongis obt. *undulatis*, stylo longo persistens. Siliqua oblonga cuneata emarg. Valvis carinatis basi dehiscens, loculis 5 spermis. Pretty G. wrongly united to Hutchinsia, Iberis and Thlaspi!

381. *Cruciundula minima*, Raf. Thlaspi do Ard. t. 15. Iberis Stylosa Tenore fl. nap. 37. Hutchinsia Stylosa. Dec. Spr. Hook. b. m. 2772. Minima, multicaulis, fol. radic. cespitosis obovatis petiolatis subcarnosis, subintegris, caulinis obl. sessilib. stylo siliqua subeq.—Mts. of South

Italy, pretty little sp. with rose flowers, (Hooker) white (Dec.) quite peculiar by undulate petals. Biennial 2 or 3 inches.

382. Tolumnia, Raf. (Nympha) Orchidea, Petalis 4 patens, subeq. 3 sup. 1 infero bidentato, labello magno 4 lobum, ad basi 3cristato, Columna semiteres bialata, anthero ovata acuta, pollen 2 supra pedicello clavato. *Parasitica, Rad. vermicul. ramosis, fol. radic, carnosis scapo nudo, fl. racemosis.*—Another beautiful N. G. of Orchidea refered to *Oncidium*, altho' it has only 4 petals or 5 with the lip, and different anther, habit, &c.

383. *Tolumnia pulchella*, Raf. Oncidium do Hook. bot. m. 2773. fol. carinatis triquetris acutis basi striatis, florib. racemosis secundis, petalis obovatis, labello subquadratum 4lobo, lobis equalibus.—Demerara, lovely sp. with large white flowers in a cluster, with pink and yellow shades.

384. Adipe, Raf. (Nympha) Orchidea, diff. *Maxillaria*, petalis connivens subeq. 2 externis coalitis in calcar conico, labello unguicul. ad. col. adnato, ad medio tuberculato, sub cuculato. Columna porrecta inter calcar, anthera opercul. pollen 2. *Bulbis terrestris 4 gonis, unifoliatis, scapis lateralis.* fl, *racemosis.*—Very distinct G. by habit, conic spur, 2 pollens instead of 4, &c.

385. *Adipe racemosa*, (s. fulva) Raf. Maxil. do Hook. bot. mag. 2789. Bulbo compresso 4gono squamis ad basis, folia lanceol. trinervia undulata, racemo laxo multifl. petalis ovatis acum. labello obovato, margine involuto, obtuso integro.—Brazil. flowers fulvous. Hooker says the *Dendrobium* or *Xylobium Squalens* may be akin. Is it of same Genus? Why not attend

to the generic distinctions! Hooker can hardly make out the genera of his new Orchidea, and Lindley bases his genera on inconspicuous characters, instead of plain, striking distinctions.

386. ZELONOPS, Raf. (*Zelon*, *Datepalm*) Palma, diff. Phenix Stam. 6, Stylis 3, Ovar. 3sperm. Drupa monosp.—The Date palm to which it has been wrongly united has 3 Stamens and 1 style!—Type *Zelonops pusilla*, Raf. Fol. pinnatis inermis, foliolis linearib. Caule pusillo pedale vel bipedale.—Small dwarf palm of India and Anam. It is Phenix pusilla Lour. Gaertn. t. 24. Ph. farinifera Roxb. Cor. t. 74. Smith et Auctoris.

387. PIARIMULA, Raf. (thick stigma) Cal. bipart. Cor. tubulosa ineq. 4loba, Stam. 4 ineq. Stigma incrassato, Semen unicum. *Fol. oppos.* fl. *capitulis pedunc. cum periantho.*—Type the *Phyla chinensis* of Loureiro, which has the habit of Verbena nodiflora: the name *Phyla* is objectionable meaning leafy like *Phyllis* of Lin.—*Piarimula chinensis*, Raf. Fol. ovato lanceol. glabris, apex serratis, fl. violaceis longe pedunculatis, perianthis spatulatis.—In China.

388. PILOPUS, Raf. vel Bertolonia, 1812.—Types all the several blended species miscalled *Verbena* and *Zapania* or *Lippia* and *Blaeria nodiflora*, and akin, which are in utter confusion. I wrote in 1812 their monograph and sent it to Sir James Smith, calling the G. Bertolonia, which name has since been employed for another Genus; I therefore substitute now *Pilopus*, meaning *peduncled head*, if needful. See my monograph of N. American Sp. in my new flora. The Genus differs from all those blended in Verbena by creeping habit and calix bilabiate

not 5dentate, and only 2 seeds as in *Zapania*. I add these for illustration of diversities.

389. ZAPANIA, Auct. Cal. 5dent. Cor. ineq. 5loba, Stam 4, Stigma. capit. fructus utricularis 2sperm. *Frutex Fol. opp.* fl. *capitatis.*—The type is *Zap. odorata* Persoon. *Z.* lantanoides Lam. Verbena globifera Lher. W. &c. Fol. lanceol. crenat. scabris rugosis.—A South American Shrub.

390. PANOPE. Raf. (Nympha) diff. Zapania Stam. 2. Type *P. stechadifolia* Raf. Verbena and Zapania do Auct. Fol. lanceol. serratis plicatis, spicis ovatis.—A shrub from Florida and Jamaica, probably 2 blended Species.

391. TARPHETA, Raf. Stachytarpheta Vahl. Pers. &c. Cal. tubul. 4dent. Stam. 2 fertilis, 2 sterilis, Ovar. 2lob. stigma peltatum. Sem. 2. This chiefly differs from *Zapania* by the calix, and has many Sp. formerly called Verbena. The G. *Lippia* differs chiefly by Corolla 4lobed and a drupe. The G. *Lantana* is also very near both.

392. CYMBURUS, Salisb. Diff. Tarpheta by, Corolla ringens, bilabiata, lab. sup. emarg. inf. 3lob. *Frutex, fol. alt.*--Type, *C. squamosus* Raf. Stach. do Vahl. &c. Caule fruticoso, fol. alternis ellipt. lanceol. serrulatis, pedunc. squamis ciliatis obtectis, apice subramosis.—*Verbena Squamosa* Jaq. ic. South American Shrub with very different habit. *Cymburus* was applied by Salisbury to all the Tarphetas, I restrict it to this type and akin if any. The *Lippia umbellata* and *cymosa* may be akin, and Smith asks to compare *Elytraria*.

393. VERBENA, L. Auct. To this G. are left all the species with 4 stamens and 4 seeds; Cal. 5dent. Cor limbo 5lobo ineq. &c. But many

require revision as yet, some have Calix and Cor. subequal, others only 2 fertile stamens, or a peculiar style or fruit like the next G.

394. Styleurodon, Raf. Cal. tubul. 5dent. ineq. Cor. tubulosa, limbo subbilab. lab. sup. lato emarg. inf. 3lobo. Antheris 4 sessilis. Stylo latere unidentato, stigma capitatum. Nux indehiscens dura, 4loc. 4sp.—Blended with Verbena and Phryma by all our authors, habit similar, but fruit peculiar, the name means *lateral toothed style.*

395. *Styleurodon carolinianum*, Raf. Verbena do L. Phryma do Walt. Scabro erecto, fol. cuneatis oblongis ineq. serratis, spicis filiformis.—From Carolina to Florida and Alabama, seen alive. Very near *Verb. ringens* in habit. See my New flora.

396. Plexipus, Raf. (Nom. mythol.) Cal. tubul. 5angul. 5dent. Cor. tubul. limbo 5lobo equalis. Stam. 4 didyn. Ovar. oblong. Stylo brevis, ½stig. simplex, Nux 4gona 2loc. 2sperma, sem. clavatis dehiscens. *Habitus ut Verbena et Buchnera*, nearer the last Genus.

397. *Plexipus cuneifolius*, Raf. Buchnera cuneifolia Thnnb. L. W. P. auct. Phryma dehiscens Lin. supl. Wild. Fol. cuneatis glabris apice dentatis.—South Africa, put in two Genera by Linneus, W. &c. very near *Buchnera* and above all *B. Cernua;* but the true Sp. of Buchneras have a real Capsule, with emarginate lobes to the Corolla. By this *G. Verbena* is linked to them, as it is to *Lippia* by *Zapania.*

398. Micalia, Raf. (Nympha) diff. Buchnera by, Cal. infundibulif. 5dent. Cor. tubo longissimo, limbo plano 5lobo, lobis rotundatis.—*Fol. opp. fl. axill. pedunc. bibract.*—Habit pe-

culiar, very distinct G. many other Buchneras must be examined again.

399. *Micalia grandiflora*, Raf. Buchnera do L. &c. Scabra, fol. obl. integris, pedunc. unifl. bibracteatis.—A beautiful plant of South America, with large flowers 4 inches long.

400. ALOYSIA, Ortega, Vitm. Pers. Beautiful Genus which the Linneists have persisted to unite to Verbena, altho' perfectly distinct by shrubby habit, whorled odorous leaves, whorled spikes and flowers, &c. It has besides Cal. 4lobus, Cor. 4loba, stigma emarg. Stam. 4, Sem. 2. Whoever unites it to Verbena must be blind. There are 2 Sp. of this fragrant G.—1. *Al. citriodora*, fol. ternis lin. lanceol. 2. *Al. virgata*, fol. ternis ovatis crenatis. Both are from Peru, Chili, &c., and now common in our gardens. Seen alive.

There are other new Genera connected with these, blended in *Priva*, *Buchnera*, *Verbena*, *Lippia*, *Lantana*, *&c.*, that deserve to be studied, and I shall perhaps resume the Verbenacea tribe.

END OF SECOND PART.

INDEX OF THE GENERA, &c.

OF

CENTURIES 1, 2, 3, 4.

New families are in Capitals, Synonyms in italic.

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FLORA

TELLURIANA

BY PROF. RAFINESQUE.

THIRD PART.

PHILADELPHIA

1836.

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OF THE

SYNOPTICAL FLORA TELLURIANA,

CENTURIES V, VI, VII, VIII.

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BY C. S. RAFINESQUE, A. M.

Prof. of Botany, historical and natural sciences—member of many learned Societies in Paris, Vienna, Bruxelles, Bonn, Bordeaux, Zurich, Naples, &c. Philadelphia, New York, Cincinnati, Lexington, &c.

To observe and compare, to correct or approve
By good names and new facts that convince and improve.

PHILADELPHIA.

PRINTED FOR THE AUTHOR

BY H. PROBASCO, NO. 119, NORTH FOURTH ST.

1836.

Les noms font les choses.

Names realize Entities.

Plus nos noms sont generaux, plus non idees sont incompletes.—Plus nous avons de noms, plus elles se completent. Lamark, Leach, &c.

PREAMBLE
TO THE THIRD PART.

This part has been somewhat delayed by some occupations foreign to my favorite sciences of Botany; but every delay is attended with ultimate good results and greater accuracy.

I have been much amused lately by looking over all the singular contradictions of Lindley in the botanical Register, and particularly his remarks in the 22d volume on the labors of Spach on *Œnothera & Fuchsia.*—Lindley is one of the best English Botanists, having fully adopted the natural method, and trying to improve it; yet he has his own blemishes, and appears to be jealous of Spach, because he has rectified these Genera by divisions, endeavouring to ridicule the minute characters he has employed for it ..... This must appear singular from him, who has ventured to establish the Genus *Lowea* for the *Rosa berberifolia*, merely upon having *single leaves and no stipules!* contending that mere habit may form good Genera! in which case all the species of G. *Oxalis*, *Lupinus*, *Jasminum*, *Fraxinus*, &c. with single leaves ought to be Genera also! compound leaves and various inflorescence will also become generic accordingly, and we should return to the absurdities of old genera before Linneus, as indeed Lindley advises in his overzeal to explode the Linnean sexual system, Necker was more rational when he made Genera of all stemless species!

Lindley is a great Genera monger as we are called, or framer of New Genera, and thus a real improver; but all his Genera are not good, and he shows too much propensity to seek for

inconspicuous microscopical characters into the seeds and pollen; which belong to Anatomical Botany, rather than descriptive Botany, being quite useless in practice. This absurdity is too prevailing at present, it is as wrong as if we were to make the Genera of Birds upon their Eggs! instead of their bills and feet. Some modern Ornithologists led astray by the same anxious wish to find distinguishing marks, have made Generic distinctions upon the tails and feathers of birds, which answer exactly to the blunder of Lindley about his *Lowea*.

They appear to have forgotten that the different habit, leaves and inflorescence of plants, when they are outward indications of Genera, have corresponding essential characters in the flowers to be sought for and on which the Genus is to be based, as Jussieu did explain long ago. Thus in *Lowea* there are some partial characters in the flowers somewhat different from *Rosa!* which Lindley neglected to seek, and I shall describe; but they merely indicate a Sub Genus, not a Genus; else all the Sub Genera of Decandole are Genera.

Meantime I shall probably adopt all the Genera of Spach, or any other, when properly known to me, as based on permanent characters of the fructification. Lindley will only admit of *Godetia* because it has fringed seeds (always the seeds for him;) but I know already that most of the other Genera out of *Oenothera* are good, *Boisduvalia* is very distinct by unequal stamens, even *Brebissonia* is good. The Oenotheras with capitate or 4partite stigma, winged capsules, bifid calix, must certainly form peculiar Genera, and my 3 Genera *Onosuris*, *Pleurandria* and *Chamerium* established in

1817 in my florula Ludoviciana, on such distinctions were adopted by Decandole.

Lindley seldom quotes me, and only by *ricochet* as the French say, not knowing or not caring for my works or labors. I shall show his blunder about the *Skilla Cupaniana*, to which he adds two of my plants, both distinct, with blue and white flowers, while his has purple flowers.—When he shall receive this Work and be astonished by my 2000 rectified Genera, he may if he likes probably treat me even worse than Spach; but although he may deny my New Genera, he cannot say that I make them on leaves, nor stipules, nor sperm-pollen, nor inside of the seeds or eggs of plants. Thus they cannot involve any one in perplexity, and are all conspicuous. Nor shall he find me adopting any barbarous or compound exploded name, such as *Cotone-Aster* (my *Cotonea*,) nor *Amelanchier* (my *Amelancus*); nor *Mus Cari* the Cari Mouse, else *Musca Ri* the Ri fly; for my Genus *Eubotrys &c.*

I hope he may deem my Genera of the Linnean G. *Allium*, as good as his own *Hesperoscordum* and *Nectaroscordum*, rather long uncouth names, which however need not be changed. I hope he may admit that my previous Genera *Clintonia* (1817) *Oxyurus* (1810) &c, ought to prevail over his of same names, changed by me into *Gynampsis* and *Steiractis.*

Whatever he or others may think or say of my labors, they cannot find me inconsistent, nor in contradiction. Within 40 years of botanical investigations I have always been consistent in deeming that *Genera and Species ought to be reformed till they become perfect, and un-*

exceptionable. Nor can I be accused of forming Genera on minute or invisible characters, or to give any bad names to my new or reformed Genera. As to my own errors and oversights (to which all Botanists are liable) I have always corrected them myself, as soon as perceived, those that may occur in this work will be corrected at the end. I wish all my fellow Botanists would do the same; but some are very tenacious of their conceits and mimomers.

I must now for instance mention that I was right when I said that the Genus ***Flundula*** or ***Rafinesquia*** 362 of this Flora had perhaps a third name since it is the ***Hosackia bicolor*** of Bentham and Lindley. I wrote that article upon the egregious blunder of Hooker who called it ***Lotus pinnatus***, but he has since rectified it himself in his flora Americana. Yet as the 5 Species reduced to ***Hosackia*** may probably form two Sub Genera, the name of ***Flundula*** may yet be applied: as to a ***Rafinesquia***, I have provided half a dozen, out of which I hope some one will suit the fancy of botanists and be adopted—although I may be blamed for this conceit, I blame instead for it those makers of New Genera that dedicate them to obscure individuals that have not added one page to the Science, and have not thought of me for 40 years, although I have added 1000 pages to it, and 3000 New Genera or Species. Now by the absurd contending whims of Botanists it is become often needful to provide two names for a New Genus, for fear one should be already employed—or if you wish to secure a good name, it must be repeated till adopted, for fear that some jealous exploding Botanists may

annul it by not deeming the first application given to a proper Generic group. When correct principles shall always guide Botanists, this will be avoided and rectified. I find that my G. *Eusteralis* 359 is a *Dysophyla* of Blume, but yet a Sub Genus at least, differing as *Euhemus* does from *Lycopus*.

While Lindley was so severe on Spach, he has admitted the whole labors of Bentham on the Labiate, an admirable rectification of 108 Genera to be sure; but exactly similar to that of Spach: The Genera of Bentham are often based on very minute characters likewise, and yet he has left many Genera, *Salvia*, *Teucrium*, *Phlomis*, *Sideritis*, *Marrubium*, &c, hardly rectified, as I will easily prove in this Work. He has omitted my *Empedoclia* of 1810, also *Cephaloma* and *Bonamia* of Neeker: my G. *Vleckia* of 1808 unknown to Bentham or Lindley, although republished by Desvaux, is exactly their *Lophanthus*, a name of Linneus and Adanson, different from that of Forster. (Thus the *Microstylis* of Nuttal 1818 is my *Acroanthes* of 1808, published by Mitchell and since by Desvaux in their works)—while the divisions of the family are actually absurd, being based on the direction of the Stamens! and many Genera of Adanson, Mench, &c. are omited.

When Lindley shall take the trouble to consult my Works, as does Decandole, he will I hope rectify all such oversights.

I might proceed to state how loose and inaccusate are the characters of many natural families of Lindley. I have already stated that they are often like those of Adanson & Necker *without definite evident common characters*

..... not so with mine. I will give a single instance now, Lindley so intermixes the Convolvulides and Polemonides, that it is impossible to know what he means by them. But I have long ago shown that they are perfectly distinguished by the *Stamens unequal* in Convolvulides; but *equal* in the Polemonides—This is the plain evident character that any one can see, and by which many of the Genera of Lindley must be removed, and properly placed in each family: the position of valves is less evident.

As to Species Lindley often blends many into one, and mistakes others; but these errors will be rectified hereafter I suppose, or at least are of lesser importance, if all species are variable. Of all variable characters, the colors of flowers are well known to be the least permanent; yet I was much surprised to see Lindley confess (in article *Skilla plumbea* bot, reg. 1355) that the Genera *Skilla* and *Ornithogalum* were merely distinguished *by the colors of their flowers* since Linneus . . . ! what a confession, and what a blunder! for a correct botanist . . ! blue or purple flowers make a *Skilla!* white or yellow an *Ornithogalum!* what a mistake! since the *Skilla maritima* type of *Skilla* has white flowers! I have proved 30 years ago that the *filiform stamens* form the real *Skilla.* I hope my reform of akin Genera, will be deemed by him equal to that of the *Amaryllis* by Sims.

If I have chiefly noticed Lindley in this introduction, it is because I value him as a colleague in improving Botany; but I might have made similar remarks on many other European Botanists, that fall into the same mistakes, or

appear to neglect my improvements in Genera and families. They may apply to themselves every one of the deffects and contradictions that I have thus exposed, and then endeavour to avoid them.

I shall conclude by the remarks of Lindley on the Genus *Aster*, which he states in the 18th vol. of Bot. Reg. to have been the *disgrace of Botanists* by imperfect descriptions, unscientific arrangement, false species, confused synonymy, and multiplied names, till the second rectified monograph of Nees. Those remarks apply equally well to 100 other Linnean Genera, and this work is a perpetual comment on such disgraceful general blunders of many Botanists to this very day.

FLORA TELLURIANA.

Centuria V.

Number 401. Polygonum L. auct. Nearly all the botanists acknowledge that this Linnean Genus is absurd; even Lindley says it ought to be divided: Adanson and Necker partly did so, but their useful labors were neglected. I now mean to revise the whole, and rectify or establish 20 Genera out of it; all perfectly plain and distinct: the linneists may vince and evade, but this must be done at last. My labor dates of 1815, my true Polygonum Raf. will have, Calix 5partito equal, Stam. 8, internis 3 fertiles, Ovar. 3 gonum, Stylis 3. Semina trigona, cal. vestita.—This includes *P. avicularis*, *maritimum*, *setosum*, *bellardi*, *glaucum*, *erectum*, *serratum*, *tenue*, and all similar sp. with axilla-

ry flowers chiefly, of which many new ones in N. Amer. see my flora. I have not yet seen the late monograph of this Genus, by Meisner, but it appears he has kept it entire as yet, only using sub genera as Persoon and Jussieu.

The Species with colored flowers in panicled racemes, like *articulatum, fimbriatum, divaricatum, alpinum, undulatum, sericeum*, &c, must probably be united to *Stopinaca* but offer but few essential characters in the flowers. The frutescent *P. grandiflorum* with large axillary flowers is perhaps another G. or sub G.

402. Fagopyron Tourn diff. 401. Cal. coloratus, Stam 8, externis 5 antheris bilobis remotis, internis 3 brevis sepe sterilis, alternis cum glandula 3 hypogyna. Sem. ut P. *flores sepe corymbosis vel glomeratis.*—This G. called *Buckwheat* in English, is perfectly distinct, and known at first sight, the leaves are commonly broad and cordate; the types are *Fag. cereale* (P. fagop.) *tataricum, chinense, perfoliatum, crassifolium*, &c. If any one may object to the name being rather mongrel, beech (lat) *wheat* (gr) they may use instead *Trachopyron* of Gerard.

403. Helxine L. first ed. since wrongly rejected, may be applied to all the species with unequal calix, Diff 401. Cal. colorat ineq. lac. 3 major sepe carinatis s. alatis. Sem. in Cal. 3alato sepe. *Caule sepe scandens, fl. racemosis*—Types, *H. Scandens, dumetorum, convolvulus, multiflorum, cilinode, sagittatum, &c*, and akin with unequal calix. Those with carinated rather than winged fruit, form the G. *Fallopia* of Adanson, who ascribe to it 9 Stamens, if so it is a good Genus; but I only saw 8 stamens in *H. Scandens*, as in the others.

P. Sagittatum forms another Sub G. *Belotrachis* by fl. polygamous glomerate Cal. colored 3 parted with a calicule of 2 small green segments, style trifid &c.

404. Tephis Raf. (non Ad) *Asicaria Neck. Pedalium* Ad. non L. *Atraphaxoides* Sub G. auct. Diff. 403. Cal. ineq. lac. 2 ext. reflexis parvis, 3 internis erectis planis persistens reticulatis *Frutex. fl. racemosis.* This differs from 403 chiefly by calix, perhaps only a subgenus. Type *Tephis frutescens* and *parvifolia* Raf. Tephis was Adanson name for Atraphaxis.

405. Stopinaca Raf. (nom. lat.) *Polygonella* Mx. diff. 401. Cal. subineq. coloratus, Stam. 7-8, stigma 3 clavatis. sem. 3gona, sepalis 3 ampliatis vestita. *Fruticul. fl. racemosis dioicis S. polygamis.* Type *St. parvifolia Raf. P. do. Mx. P. polygamum* auct. This appears entitled also to be a Genus, with *P. gracile* of Nuttal,

406. Karkinetron Raf. (nom gr) Cal. 5fido, basi turbinato subcarnoso, limbo lac. eq. Stam. 8 monadelphis in unica serie coalitis in disco. ovar. subrot. stylis 2-3. sem. globosa in Cal. basi baccato immersa. *Frut. fl. racemosis*— Genus quite peculiar near to *Coccoloba* like *Calacinum* 103. Types 2 Sp.

407. *Karkinetron undulatum* Raf. Polygonum injucundum Lindley b. reg. 1250. Frutic. fol. petiol. ovatis deltoideis acutis undulatis, ochreis truncatis, racemis axill. paucifl. foliosis, stylis 2. Andes of chili, fl. green.

408. *Karkinetron hastatum* Raf. Coccoloba sagittefolia Ortega, Dec. 60. Polyg. acetose fol. Persoon. Scandens fol. hastatis lanceol.crassiusculis, stylis 3. Brazil. an S. G. ad stylis, vere bacca?

409. KUNOKALE Raf. (nom. diosk) near *Fagopyron* diff. Stam. 10 ineq. 5 interna brevior, glandulis 10 hypogynis, Sem. truncato emarg. 3alate—Type *K. carneum* Raf. Polyg. emarg. W. Don, Lindley b. reg. 1065. fol. cord. sagitatis, superis sessilib. racemis corymbosis. Cult. in Nipal and China as Buckwheat, perfectly distinct by 10 Stam. flowers incarnate: the *Polyg. chinense* with ovate leaves is perhaps a second species. The Genus is nearer to *Brunnichia* than *Polygonum!*

410. BISTORTA Tourn, Ad. diff. 401 Cal. 6partitus, Stam. 9 (ex Ad) *Radix tuberos. florib. coloratis spicatis.*—Types *B. officinalis* R. 2. *B. americana* R. 3. *B. vivipara*, &c.

411. ANTENORON Raf. fl. lud. 1817. Calix 4fidus, Stam. 4, stylis 2, persistens, sem. ovata striata stylis coronata *fl. racemosis.*—Type *A. racemosum* Raf. hirsutum, fol. petiol. obl. acutis, racemo longissimo. fl. remotis albis, bracteis scariosis vaginatis. Louisiana.

412. TOVARA Ad. cal. 4fidus. clausus ineq. 2 minor. alt. Stam. 4 ineq. Stylis 2. Sem. lenticularis levis. fl. spicatis.—Type *Tovara virginiana*, the Polyg. do. L. totaly unlike the other species, a Genus as distinct as any, but near the last. Adanson and others ascribed 5 Stam. to it by mistake, I never saw but 4.

413. PLEUROSTENA Raf. (narrow side) cal. rhombeus 5fidus ineq. Stam. 5, Stig. 3 sessilib. Sem. conicus cal. longior, ineq. triqueter, lato uno angusto. *fl. axill. polygamis.*—Type my *St. serotinus* Raf. Polyg. do Raf. an. nat. 1820. Suffruticosus, ramis plurimis virgatis angul. fol ovatobl. acutis ochreis fissis laceris, fl. axill, fascicul, pedunc. In Kentucky, it flowers in October.

414. CNOPOS Raf. (nom. gr.) Cal. 5part. eq. Stam 3, stylis 3, Sem. trigona. *fl. subverticilatis* —Type *Cnopos ramosissimum* Raf. Polyg. do Mx. Here the Stamens are reduced to the minimum number and are isostyle. Thus we see in the *Polygonum* of Linneus, blended Genera with 3, 4, 5, 6, 7, 8, 9, and 10 Stamens! thus belonging to eight sexual classes, what a delightful absurdity to swallow!

415. TRACAULON Raf. (rough stem) Cal. colorato 4partito, lac. 2 ext. minoribus, 2 int. major sepe emarg. Stam. 4 fertilia, 4 sterilia brevis alternis. ovar. compr. stylis 2, stig. capitatis. sem. ovato biangulato. *Habitus Helxine sed fl. glomeratis*—The type will be *Tr. arifolium*, a well marked Sp. very distinct from *Helxine sagittata*, although the stem is equally rough. Flowers more like *Tovara*, but habit quite unlike. Michaux saw 6 stamens, but the mistake arose from the sterile filaments first noticed by Elliot. The 3 Genera *Tovara Tracaulon* and *Antenoron* will form a group by the Calix and stamens. *Tracaulon* is also near *Kunokale*, the stamens being diplarine instead of isarine (equal to perigone) but here 4 are sterile.

416. SPERMAULAXEN Raf. (seed canaliculate) monoical. fl. masc. campan. 4-5fidis. lac. subeq. obtusis coloratis, Stam. 4-5 brevissimis. Flor. fem. similis majoi magis ineq. lac. erectis obovatis, stigma 2-3subsess. Semen conicum cal. duplo longior, basi accretum, triqueter, uno latere excavato sulcato. *Frutex, fl. spicatis.*—Another very distinct Genus, near to *Pleurostena*, but different habit; it has also some affinities with *Polyg. grandiflorum*,

which perhaps belong to it, as well as *Polyg. Ochreatum*; in this last are blended 2 species, the Siberian of Gmelin, and the Jamaican of Sloane; but the type of my genus is the following N. sp. of Florida.

417. *Spermaulaxen dichotomus* Raf. caule fruticoso dichot. sulcato, fol. petiolatis oblongis lanceol. acutis levis margine scabris, ochreis subnullis, spicis filif. fl. remotis nonnulis pedunculatis.—In Florida, fl. small greenish purple, male and female on the same spike. I can find no synonym for this: it differs from the usual character by lacking the tubular stipules, a small subulate deciduous stipule appears instead in some leaves and flowers; described on a dry specimen.

418. Chulusium Raf. (nom. anticus) Cal. 5fidus inequalis, lac. 2 major, Stam. 5, ovario compresso, stylis 2, Sem. lenticularis. *fl. spicatis coloratis.*—Types *Polyg. amphibium, natans, filiforme,* and several North Amer. Sp. blended in *punctatum*, such as the following, also *P. fluitans* of Eaton.

419. *Chulusium acuminatum* Raf. *Pol. punctatum* Raf. annals nat. 92. Fol. lato lanceol. acum. peticlatis, subtus punctatis, ochreis nervosis muticis, spicis densis, fl. geminatis, bracteis ovatis—In West Kentucky, fl. white.

420. Peutalis Raf. (nom. gr.) *Persicaria* Tourn. Ad. Necker, ad *Persica* and *Carya* malum. Cal. 5part. subeq. Stam 6, una interjecta ad latere ovar. compr. stylo 1 bifido, Sem. lenticularis. *flores spicatis coloratis.*—Types P. *persicaria, nodosa, hydropiper, minus, incana*, and several N. Sp. from North America, see my flora, also P. *incarnata* Elliot.

421. Discolenta Raf. diff. 420. stylis 2, Sem. discoformis utrinque latere concavo.—Type, *D. lapathifolia* and my *scabra*.

422. Heptarina Raf. (7 masc) diff. 420. Cal. corollato equalis, Stam 7, bina interna latere ovario, stylis 2. *flores racemosis*.—Type *H. orientalis*.

423. Dioctis Raf. 1817 (2 and 8) diff. 420. Stam. 8, internis 3 minor, stylis 2.—Types *D. pensylvanica*, and 3 Sp. of my fl. Ludov. *bicorne*, *maculatum*, *vernum*, besides *equisetifolia* of Egypt.

424. Mitesia Raf. (mildness) diff. 420, stylo 1 bifido, ineq. Sem. ovato subtrigono, Stam 8. —Types *M. albiflora*, *hirsuta*, *punctata* Elliot and my *M. divergens*, *M. montana &c.*

425. Pogalis Raf. (beard diff.) diff. 420, stam 6, Stylis 3, Sem. vix. lenticularis—Types P. *barbata*, *tinctoria*, *tomentosa*, &c. This concludes the reform of *Polygonum*, with my *Calacinum* 103, in all 22 Genera. If all those with lenticular seeds and 5fid calix have been commonly deemed *Persicaria*, the difference that I have shown, prove that at least Sub Genera are required. I am not yet sure to have exhausted this Genus, and may return to it if needful. I have in my herbal many new species of it as yet, some of which I add.

426. P*olygonum fastigiatum* Raf. caule erecto ramoso fastigiato fuscato, fol. lin. lanceol. adpressis, ochreis laceris, axillis unifloris —annual, Alleghany mts.

427. P*olygonum crassicaule* Raf. caule crasso striato diffuso ramoso, ramulis brevis divaricatis, fol. parvis subpetiolatis oblongis, obtusis, axillis 1-3floris—Perennial, Alleghany mts. stem pedal rigid, near P. *erectum*.

428. *Polygonum imbricatum* Raf. multicaule, caulib. brevis flexuosis vix ramosis, fol. imbricatis linearibus. ochreis laceris scariosis, axillis unifloris—annual, Kentucky, dwarf only 3 to 4 inches.

429. *Polygonum angustifolium* Raf. caule erecto flexuoso ramoso, fol. longis. linearib. angustis, ochreis integris, axillis unifloris—On the Sea shore and islands of Jersey and Virginia, pedal different from P. *tenue*.

430. *Discolenta scabra* Raf. *Polyg. lapathifol.* of Amer. bot. non alis. Caule erecto subramoso, fol. longe lanceolatis acuminatis scabris, infimis petiolatis, ochreis laceris, spicis paniculatis gracilis carneis—North America, 2 or 3 feet, large leaves, 6 to 8 inches long.

431. *Mitesia divergens* Raf. caule nodoso dichotomo ramis divergens vel retroflexis debilis, fol. sessilis longis lineari lanceol. glabris, ochreis ciliatis, spicis filiformis carneis—annual in Kentucky, singular sp. with widely spread branches.

432. *Peutalis linearis* Raf. caule simplex nodoso, foliis linearib. elongatis, margine glabris, ochreis ciliatis, spicis plurimis filiformis rubris—Carol. and Florida, one or two feet, flowers very small sessile and pedicellate.

433. Gononcus Raf. (knees swelled) I have to add here a very singular Genus, that unites many anomalies on the same spikes. Polygam. cal vix coloratus, ineq. 4-5fidus 2-3ext. major, stam. 6-8, ovar. et Sem. trigonis vel lenticularis, stylis brevis 2-3, stig. capitatis. *Flores Spicatis, masculis et supernis sepe 4fidis.* Therefore this appears to unite the characters of *Tovara*, *Peutalis* and *Mitesia*, yet differs from all by the calix less divided, hardly color-

ed, except in the male flowers. Is not this a hybrid Genus? and hybrid new Species?

434. *Gononcus undulatus* Raf. Glabrum, diffusum, ramosum, fol. lanceol. undulatis acuminatis obtusiusculis, geniculis inflatis oblongis, ochreis tubulosis ciliatis; spicis terminalis nutans gracilis imbricatis, basi interrupte foliosis. —In the swamps of Delaware, New Jersey and near Philadelphia, but rare: leaves acrid pungent, unspotted, nervose beneath; flowers green somewhat incarnate inside, male often white, the lower ones commonly with trigone seeds, the upper ones with lenticular seeds. Has it sprung from *Mitesia albiflora?* but this has narrow flat leaves, slender naked white spikes.

435. GENTIANA. One of the finest and yet most obsure linnean Genus, Jussieu said of it, *an G. dividendum?* Sir James Smith said that Linneus knew not this Genus! many of his Sp. were doubtful, and he has put in it even Sp. belonging to other families. G. *aphyla*, *filiformis* and *heteroclita*, have since been united to *Exacum*, but the last is a peculiar Genus of Acanthacea! The whole G. was often divided, but the blundering linneists would not admit the propriety. Tournefort had 140 years ogo 2 Genera, *Gentiana* with campanulate flowers, and *Centaurium* infundibuliform. Renealm, Morison, Adanson, Necker, Richard &c, have tried to improve it, but the *Erythrea* of Necker adopted by Richard has only been generally admitted. The whole requires *a radical reform;* this G. and its family has always been a peculiar favourite of mine, and I will be able to rectify the whole, adding many new Sp. also. It is as bad as *Saxifraga* was, having 4 to 9 Stamens, free or united, calix and corollas of all

shapes &c, thus belonging to 7 linnean classes, and being merely united by the fruit, as if the fruit alone was to form Genera, whereby all the Cruciferes should be one Genus! all the Gentians have a bivalve unilocular capsule, and so have 100 other Genera. Meantime I have detected in the whole group 4 important characters overlooked by all the botanists. 1st. All the Stamens are opposed to the segments of the Corolla as in the Primulacea! this will remove the Gentianides in the serial order: any one with alternate stamens must be removed from the family. 2d. The segments of the calix are more or less unequal in length or breadth in nearly all, this is a generic character. 3d. The stamens are equal, when they are unequal as in *Lisianthus* &c, those Genera belong to *Lisianthides*, a subfamily of Convolvulides, 4th. All the leaves are entire sessile, opposite or verticilate with reticulated veins besides the nerves, which are easily perceived in all their leaves. I shall now proceed with this fine group, dividing it into many good Genera with the akin *Chironia*, and adding some new species; but many more are in my flora of North America.

436. GENTIANA Ad. non Necker, cal. camp. anomalo spathaceo seu truncato, 1-6lobato. Cor. camp. 6-9loba equalis, stam. 6-9liberis. ***Rad. crassis amara, Fol. et fl. oppos. seu vertic.***— This must remain as the typical Genus, and the typical Sp. is *G. lutea* or *officinalis*, to which that name was given by the greeks. But the Genus is thus reduced to but few species, and even requires to form three subgenera. 1. ***Picriza*** (bitter root) Cal. 3-6lobato, Cor. camp. rotata. This includes *G. lutea*, *pannonica*,

campanulata &c.—2. *Pleuroglossa* (lateral tongue) Cal. truncatus, latere sepalo unico lingua similis, cor. camp. subtubulosa. Types *G. punctata*, *G. purpurea*, &c.—3. *Tulbela*, Cal. camp. 5-7fid. ineq. Cor. camp. 10-14fid. lac. alternis minor ciliatis, stam. 5-7. Type *G. rossica* Ruf. (7 *fida* Pallas, Frol. Persoon.) These subgenera might even become Genera if more Species are found belonging thereto.

437. Dasistephia Renealm. Ad. Cal. tubul. 5dentato, Cor. tubulosa, campan.. plicata 5dentata. Stam. 5, antheris coalitis—Types *D. arclepiadea*, and *D. cespitosa* R. Gentiana auct.

438. Diploma Raf. Cal. camp. 5fidus, Cor. infundib. inequalis 10fida, Stam. 5, antheris coalitis. Stylo et Stigma bilamel.—Types *D. altaica*, *ungustifolia*, *pyrenaica* Raf. &c. see 484, 485.

439. Ciminalis Morison, Mench, *Thylacitis* Renealm. Cal. camp. 5fido, sinubus obt. Cor. camp. 5dentata, sinubus plicatis integris, Stam. 5 liberis? stigma capitato 4lobo undulato.—Type *C. grandiflora*, *angustif*, *alpina &c* which were *Gent. aphyla* and 2 var. of Authors, Genus very distinct from *Pneumonanthe* by the stigma; the *Ciminalis* of Adanson was the *Xolemia* blended with *Picriza*.

440. Pneumonanthe Tournef. Neck. Cal. tub. camp. subtrunc. 5fidus ineq. Cor. tubul. camp. 5fida, sinubus integris. Antheris 5 coalitis vel connivens, stylo elongato, stig. 2lam.—This is a very extensive Genus, containing many of the European and American Sp. of Gentians, the types being the various Sp. blended by L. under *G. Pneumonanthe* and the akin Sp. such as the following and 487, 488,

441. *Pneumonanthe media* Raf. *Gent.*

pneum. N. Am. botanists, *G. pseudopneum*, Romer Sch. Caule erecto 1-3floro, glabro fuscato tereto latere sulcato, fol. lin. lanceol. obtusis, internodis eq. flor. pedunc. Cal. trunc. sepalis ineq. linear. obt. Cor. tubul. subventric. cal. duplo longior, apice obt. 5fida, sinubus unidentatis.—In New England and Canada, flowers blue, stem about pedal. This is even hardly a *Pneumonanthe*, the sinusses not being entire, and rather a *Xolemia* S. G. *Cutlera.*

442. Amarella Raf. *Hippion* Schmidt. cal. camp. sepalis 5 ineq. Cor. tubulosa, apice camp. 4-5fida eq. squamis 4-5barbatis alternis intus cor. Stam. 4-5filif. antheris liberis. Ovar. linear. stigma bilamel. *Plant. annua, caule angul. glabro.* 2 Sub Genera, 1. *Amarella* the Gent. do L. and akin Sp. with 5 divisions. 2 *Hippion*, with 4 divisions, type the *Exacum viscosum* or *Gent. viscosa* of Authors, perhaps distinct Genus if cal. 4phyle, in Amarella it has a campan. tube. The *Gent. germanica* with 4 or 5 Stamens connects them. I add here the blended Sp. that I possess in my Herbarium.

443. *Amarella vulgaris Raf. Gent. amar.* auct. Glabra, caule 4gono multifloro, fol. 3-5 nervis internodis subeq. inferis obovatis obtusis, medis ovatis acutis, summis ovatobl. acutis. fl. pedunc. ax. et term. Cal. sep. lanceol. tubo longior, Corolla ad cal. duplo longior.---Europe fl. blue, many varieties that are perhaps forming Sp. 1. *A. Simplex.* caule simplex semipedale, fol. omnibus obl. internodis brevior, cor. lac. latis acutis.---2. *A. brevifolia*, caule pumilo simplex sub 3floro, fol. omnib. deltoideis brevis, cor. gracilis, lac. angustis acuminatis---3. *A. ramosa*, caule fuscato ramosis, fol. in-

feris amplis obovatis, cal. sepe deltoideis revolutis, corollis acutis---4. *A. fastigiata.* caule rubello ramoso fastigiato.

446. *Amarella brevicaulis* Raf. Glabra, caule 4gono multifl. brevis ad fl. eq. fol. imbricatis ovatobl. acutis 3nervis, fl. pedunc. magnis. cal. sepalis linearib. revolutis, cor. ad. cal. triplo longior---Oregon, only 3 inches high including the flowers nearly half of that length, blue, peduncle and sepals equal to tube of calix, simuses of cal. and cor. obtuse.

447. *Amarella gracilis* Raf. caule gracile 4gono multifl. fol. remotis lanceol. acutis 5nervis, fl. axill. pedunc. ad medio bracteis binis linearib. cor. gracilis parvis cal. duplo longior. capsulis cor. superans---Sibiria semipedal, leaves and fl. uncial, upper leaves nearly linear, fl. very slender, teeth acute narrow erect.

448. *Amarella acuta* R. *Gent. do* Mx. El. Caule 4gono, fol. ampl. ovatobl. acutissimis, fl. fascic. cor. lac. lin. lanc.---Mts of Carolina and Canada, fl. small greenish yellow?

449. *Amarella rugosa* Raf. caule 4gono, pumilo simplex, fol. amplectens oblong lanc. obtusis rugosis undulatis vix trinervis, fl. subsess. ax. et term. cal. lac. lin. obt. rugosis revolutis, corollis brevis calix vix superans.---Oregon, triuncial.

450. Aloitis Raf. differ ad *Amarella.* Cor. tubulosa clavata, 5dent. dentib. mucronatis, squamis nullis, Stam. 5 liberis, Ovar. stipitatum obl. stylo brevis, stig. 2lamel. *Annuis, fl. fasciculatis.*---Type *Gent. 5flora* L. and akin species, such as

451. *Aloitis parviflora* Raf. *Gent. amarella* Elliot non Auct. Caule ramoso brachiato 4alato flavescens, fol. remotis ovatobl. acutis 5-7ner-

vis, fl. term. fascic. 3-10floris, ped. brevis, fl. ineq. Cal. sep. lincarib. Cor. brevis cal. duplo longior, lac. acum.—In the Mts of Carolina, Tennessee and East Kentucky, 2-3feet, flowers bluish half size of *A. 5flora.*

452. *Aloitis quinqueflora R. Gent. do. auct.* Differs from the last chiefly by stem pedal, simple or branches erect, fl. in fascicles of 3 to 5, large uncial slender, 4 times the length of calix, leaves broader deltoid. Fig. bot. mag. 3496.

453. *Aloitis anceps* Raf. *Gent. amarelloides* Mx. caule simplex tereto biangulato, fol. intern. eq. ovatobl. 5nervis, pedunculis 1 floris 4gonis, ad apice subumbellatis, Cal. sepalis obl. acum. Cor. cal. duplo longior, lac. acuminatis.—Kentucky, fl. large above one inch, blue but becoming yellowish in drying.

454. Xolemia Raf. (shut half) *Cutlera* Raf. 1807. Cal. tubul. camp. 5fido, sepalis foliaceis, ineq. Cor. ventricosa seu fusiformis apice coarctata multident. 5 major dilatatis, alternis in sinubus dentatis. Stam. 5. filam. subulatis, antheris subcoalitis. *Perennis, fl. fascic, seu capitatis bracteatis.*—Types the various Sp. blended or akin to *Gent. saponaria* and *ochroleuca*, such as my *X. clausa, acuminata, latifolia, palustris, trachiloma, catesbei, striata, rotundifolia, heterophyla, serpentaria, shortiana, Elliotea, axillaris, Collinsiana, obovata, enervis, fistulosa, longiflora, albiflora, ternifolia, rubella &c*, described in my Monographs med. flora 1828, and New Flora 1836. Every American botanist has blundered about these plants, since Linneus whose G. *Saponaria* was the *catesbei* and *ochroleuca* blended . . . The G. Xolemia chiefly differs from

Pneumonanthe by the superadded alternate segments of Corolla. The true *Xolemias* have the corolla ventricose nearly shut, the S. G. *Cutlera* has it more open and tubular, but the change is very gradual.

455. Ricoila Renealm. cal. tubul. 5fido, cor. hypocraterif. 15fida, 10lac. interjectis minimis binis in sinubus. Stam. libera, stylo elong. stigma capitato orbic. scutellato concavo.—Types R. or G. *verna*, *pumila*, *bavarica &c.* Here as in *Ciminalis* the Stigma is very different from the usual kind.

456. Chiophila Raf. (snow friend) differ. ad *Ricoila*, cor. tubo longo, limbo dentib. 5patulis eq. in sinubus nullis. stigma . . ?—Type *Ch. nivalis*.

457. Gonipia Raf. (angles under) *Chirvnia* et *Gentiana* L. *Centaurion* Ad. *Erythrea*, Neck. Rich. Pers. Cal. 5gonus 5dent, tubulosus, cor. infund. basi tubul. apex 5fida, stam. libera. stylo unico, stigma capitato bilobo—Genus easily known by the pentagonal calix: the names already given are objectionable being similar to *Centaurea* and *Erythrina*! the type is G. *centaurium* and akin sp. Persoon had 11 sp. to which 1 can add 8 other sp. of my herbarium, 4 of each continent, all are annual.

458. *Gonipia paucifolia* Raf. Caule humile 4gono, 1-3floro, fol. paucis remotis parvis subrot. obtusis, imis obl. cal. elongato, cor. eq.—Sicily, 3 to 4 inches, 3 or 4 pairs of minute leaves, limb of corolla small, one fourth of calix.

459. *Gonipia sicula* Raf. caule 4gono pedale gracile, apice alterne ramoso, fol. cuneatis et lanceol. trinervis acutiusc. adpressis internodis dimidio brevior, fl. laxis subternis, me-

dia sessilis, bract. lin. cal. elongato cor. eq.—In Sicily over a foot high, leaves uncial, fl. rose as in nearly all.

460. G*onipia linearis* Raf. caule humilo ramoso vix 4gono, fol. linearib. uninervis, fl. fascicul. bract. lanceol. cal. 5fido dentib. elongatis lin. cor. eq.—North of Europe, blended with G. *centaurium* by many botanists, 3 to 6 inches.

461. G*onipia rotundifolia* R. Pumila, caule subtereto, fol. plerumque orbiculatis obtusis, fl. agregatis parvis, cal. elongato 5dent. cor. subeq—North of Europe, also blended like the last: the real G. *centaurium* has stem 4gone, leaves ovate obl. acute, calix very short.

462. G*onipia pulchella* Raf. *Chironia do* L. caule ramoso subtereto, sulcato, ramis 1-2floris, fol. oblong. obtusis internodis longior, cal. 5fidis linear. tubo cor. equante---Florida, 3 to 6 inches, corollas large acute. Not the ***Exacum pulchelum*** of Pursh which is a ***Sabatia.***

463. G*onipia pumila* Raf. caule pumilo 4gono paucifl. ramis unifl. fol. paucis ovatis vel oblongis acutis internodis eq. cal. profundi 5fidis sepalis subulatis, subeq. ad tubo cor. gracilis, lac. lanc. acutis---Florida, minute plant of 1 or 2 inches.

464. G*onipia bicolor* Raf. caule sub dichotomo. sub 4gono multifl. fol. remotis ellipticis obtusis trinervis, fl. fascic. term. pedunc. 2-3fl. cal. 5dent. ad cor. tubo dimidio brevior, cor. obtusis, bract. lanceol.---On Lake Ontario, a beautiful sp. stem semipedal, fl. with yellow tube and rosate limb, leaves uncial, style exerted, stigma capitate as in most.

465. G*onipia tenuiflora* Raf. caule dichot. 4gono gracile, fol. internod. eq. linearib. obt. fl.

corymbosis, ramulis 1 fl. pedunc fl. eq. cal. tenuis subul. tubo cor. brevior, cor. filif. lac. subulatis, stam. et stylo exsertis—Louisiana and Texas, stem 4 to 6 inches.

466. PSALINA Raf. diff. *Gonipia* Cal. inflatus utriculosus, angulatus 5dent. cor. hypocraterif. 5fida.—Types *Gent. utriculosa, exacoides.*

467. THYLACITIS (nom. gr.) diff. *Gonipia* calix sub. 5part. subang. tubo camp. stylis 2, stigma 2.—Type *Gentiana* or *Erythrea maritima* of Authors, blending 3 species.

468. *Thylacitis maritima* R. caule dichot. tereto corymboso, fol. obl. lanc. fl. pedunc. luteis—Sea shores of Europe.

469. *Thylacitis compressa* R. (var. Sch. Pers) caule dich. compresso, fol. lanceol. trinervis—In Marocco.

470. *Thylacitis leptina* R. *Gent. do* Raf. precis 126. caule pumilo uncialis tereto sub unifl. fol. ovato lanc. acutis, cal. subul.—Sea shore of Tuscany and Sicily, disc. 1800 descr. 1814, fl. white, tube yellow.

471. ANTHOPOGON Necker 1790. *Eublephis* Raf. 1814, *Crossopetalon* Beck 1833. cal 4 partit. ineq. cor. camp. 4fida vel 4loba, lobis ciliatis, stam 4 libera, stig. bilobo—The finest Genus of Gentians, perfectly distinct, types *Gent. ciliata, crinita, barbata, detonsa,* and the following N. Sp.

472. *Anthopogon virgatum* Raf. caule gracile sub 4gono, virgato apice nudo unifl. fol. remotis adpressis longo linearib. infimis cuneatis obtusis, cal. sepalis lanc. cor. fimbriata—Canada and Alleghany mts. very rare, stem 1 or 2 feet, flower blue very large two inches long.

473. TRETORHIZA Renealm. cal. 4fid. ineq.

2 alt. minor, cor. hypocr. tubo longo, limbo plano 4fido, dentib. 4 alt. ad lacinis in sinubus. Stam. 4 liberis.—Type *Gent. cruciata* and akin sp.

474. Cicendia Ad. Cal. tubulos. 4fidus, cor. 4fida hypocrat. barbata Stam. 4 libera, stigma bilamelatis.—Type *Gent. campestris* and akin sp. *tenella, glacialis, &c.*

475. Pogoblephis Raf. Cal. 4part. sep. 2 alt. duplo longior, cor. tubulosa camp. 4fida, faux barbata ad squamis 5setis, stam. 4 libera—Genus near the two last. Type the following sp.

476. *Pogoblephis missurica* Raf. *Gent. acuta* Nuttal non alis, caule 4gono ramoso, fol. ampl. ovatis acutis trinervis, fl. axill. solit. longe ped. cor. lobis ovatis acutis—Upper Missouri, pedal, fl. greenish purple.

477. Narketis R. (nom. gr.) *Gentiana*! Necker, non alis. cal. 5part. cor. rotata 5part. stam 5brevis subul. liberis, faux squamosis—Types the *Gent.* or *Swertia rotata* of Authors *G. carinthiaca, sulcata &c*, besides the next sp.

478. *Narketis rotata* R. caule pumilo 4gono fol. remotis ovatis obt. cor. albis oblongis--Altaic mts of Sibiria, in my herb. blended with the next by Frolich, and the *Swertia rotata* of Thunberg is also a peculiar sp. *Narketis japonica.*

479. *Narketis hyperborea* R. caule gracile ramoso 4gono, fol. remotis obl. obt. fl. pedunc. cor. ceruleis ovatobl. acutis—N. W. America, at Kotzebue Sound, seen dry, stem 6 inches.

480. Lepinema R. (scaly thread) cal. et cor. ut *Gonipia* 457. diff. stam. squama nectarif. ad basis filam. stylus, stig. capit. capsula semibiloc. *fl. verticilatis*—Types the *Gent. verticillata* and

exaltata L. both of Antilles, with *octoflora* of India?

481. *Lepinema verticilata* R. *Gent.* do L. *Exacum* do Vahl, Wild Pers. caule simpl. fol. lanc. fl. sess. vertic. acutis luteis—Antillis et Florida. Many sp. of *Exacum* are yet obscure although the G. *Microcale* has been removed from it. *Ex. filiforme* is a *Microcale* rather than *Cicendia*.

482. Heteroclita Raf. cal. incurvus 4dent. subul. cor. hypocrat. limbo 2part. lac. bifidis, lobis 2 erectis, 2 deflexis, stam. 4 *inequalis!* minor inclusa, stigma bilabiat.—A very distinct G. wrongly united to *Gentiana* and *Exacum*, not even of same family, nearer to *Cutubea* and probably both of family Acanthides, or Orobanchides, unless types of a new family.

483. *Heteroclita dichotoma* R. *Gent. heter.* L. *Exacum heter.* W. P. caule dichot. 4gono, fol. ovatis, summis lincarib. fl. purp. solit. ad dichotomia—Malabar. Before concluding the Linnean Gentians, and beginning his Chironias, I shall give some interesting sp. of the above Genera.

484. *Diploma hudsonica* Raf. *Gent. pneumonanthe* Mx. non alis. fol. lin. lanc. fl. majusc. term. et axil. lacinis 5 rotundatis, 5 alt. plicatis unidentatis—Hudson bay and mts of Canada, very different from the others, not even a Pneumonanthe, having 10 teeth or parts to corolla.

485. *Diploma tenuifolia* Raf. caule. fllif. flexuoso unifl. fol. remotis angusto linear: flos magnus albus, cal. sinub. truncat. sepalis linear. cor. lac. alt. laceris.—Florida, beautiful sp. seen in the herh. of Torrey, very distinct from *D. angustifolia*, with many blue flowers. Only semipedal.

486. *Dasistepha cespitosa* Raf. *Gent. glauca?* Pallas. Parvula glabra, fol. radic. cespitosis, caulinis binis, ovato subrot. obtusis, fl. fascicul. cal. urceolaris 5dent. obt. sinub. obt.—N. W. America, Kotzebue sound, plant only 3 inches, and flowers one inch, tubular, blue.

487. *Pneumonanthe vulgaris* Raf. *Gent. Pneum.* of L. and many European bot. not of Am. bot—caule tereto paucifl. fol. internodis longior cuneatis seu obl. lingulatis obt. summis sublanceol, fl. subped. cor. cal. triplice longior, cal. sepalis lin. obt.—Europe, stem. pedal, fl. biuncial.

488. *Pneumonanthe minor* Raf. caule subangul. 1-2fl. fol. lin. obl. obt. rugosis revolutis, internodis eq. fl. ped. cal. sep. obl. obt. cor. triplo longior—Europe, deemed a var. probably of last; but very distinct, stem 4 to 6 inches, usualy one flower over one inch long, a var. is biflore—None of these two are found in N. America unless perhaps north of Canada, all the American sp. akin are different, such as *P. media* 441, P. *rigida*, *gracilis*, *torreyana* of my monograph of 1828.

489. *Xolemia trachiloma* Raf, caule scabriusc. rubescens, fol obt. et sublanc. subt. glaucis, margine et nervo scabris, fl. term. 2-5, cal. sepalis ovatobl. cor. subclausa ad cal. duplo longior, sinubus ineq. trifidis---New Jersey, near waters, autumnal like most of the American sp. of this G. fl. pretty blue. Some varieties, 1. *biflora*, minor 2fl. fol. obl. lin. cal. sepalis subovatis. 2 *major*. fl. 2-3 purpuro cerul. cal. sepalis lanceol, N. Carolina, called *Gent. loomesi* in Herbal of Torrey.

490. Chironia L. This Linnean G. was nearly as loosely framed as *Gentiana*, and chi e-

fly differed from it by the declinate style, and twisted anthers, all the other characters being often common to *Gentiana;* but it had from 4 to 12 stamens and parts to the corolla: when above 5, this character blended with *Chlora.* Adanson ascribed 4 stigmas to *Chlora* and only one to his *Sabbatia* formed by the *Chl. dodecandra* of L. which is not true. Pursh transfered the *Sabbatia* to the American Chironias, without giving any definite peculiar character to it, and Sir J. Smith would not admit therefore of this Genus. The whole is yet in utter confusion, there is a crowd of fine N. sp. from N. America, forming two distinct Genera at least. The African *Chironias* offer also several anomalies and may form various Genera: even *Chlora* must be divided, and I shall try to fix their true essential characters. The fruit is as in *Gentiana* except in *Roeslinia.*

491. *Chironia* Raf. cal. camp. 5part. equalis? cor. hypocrat. limbo 5fido, stam. 5, antheris spiralis, stylo declinato, stig. capitato bilobo. caps. uniloc. bivalvis.---Type the South African sp. but they all require to be verified, as the 4 next Genera prove.

492. Chondropis Raf. (membr. keel.) diff. 491 cal. ineq. sepalis membranaceis carinatis, stylo erecto &c.---Type *Ch. trinervis* R. *Chironia do* L, Pers. *Exacum do* alis auct. Fol. lanc. acum. 3nerv. fl. ped. opp. coruleis.---In Ceylon and South Arica, perhaps 2 sp. blended. *Ch. 4gona* is another sp. of this Genus.

493. Eupodia Raf. (well pedunc) diff. 491. cal. tubulosus 5fidus 5nervis, stylo apex flexo--- Type *E. purpurea* Raf. *Ch. pedunculatis* bot.

reg. 1803. frutic. fol. ovato lanc. acum. 3-5venis, ped. 1 fl. longissimis, cal. tubo cor. brevior. ---S. Africa? large purple flowers, corolla stellate, segments ovate acuminate.

494. ONEFERA Raf. (Rapunt. nom. antic) *Rapuntium* Breyn. diff. 491. cal. camp. subintegro semi-bilobus---Type *O. coccinea* Raf. C*hironia linoides* L. fol. lin. crassis, fl. ped. coccineis---S. Africa.

495. ROESLINIA Mench. diff. 491. corolla subrotata, stigma peltatum, bacca unilocul, vel caps. carnosa---very good Genus 2 types 1. *R.* 4*gona* M. C*hironia boccifera* L. 2 *R. frutescens.*

496. SABBATIA Raf. cal. ineq. 5part. tubo camp. corolla 5fida rotata, antheris involutis, style declin. stigma 2 linearis contortis, caps. 2 valv. uniloc.---Types the American sp. which are very numerous, see Elliot and my N. Sp. in my monograph, *S. obtusif. lanceol. cymosa, lingulata, petiolata, amena, umbellata, pumila, nivea, stricta, tenuifolia, diffusa, heterophyla, anceps,* &c.

497. PLEIENTA Raf. (more added) *Sabbatia* Ad. non. alis. diff. 496, cal. 7-12part. stam. 7-12 stylo sepe recto &c.---Although this G. chiefly depends on extra numbers, it is a very natural one, prolific also of Amer. sp. It chiefly differs from C*hlora* by the unequal calix. Type the C*hl. dodecandra* L. which included 12 blended sp. see my monograph and N. Sp. *Pl. leucantha, rigida, flexuosa, fasciculata, capitata,* &c I add here this last.

498. *Pleienta capitata* Raf. caule rigido tereto bisulcato, fol. remotis obl. lanceol. acutis uninervis, inferis ellipt. fl. term. capit. involucr. sub 8 andris, cal. lanceol. cor. brevior, lac. cor.

spatul. obt.—Unaka and Cherokis mts. very distinct sp. next to *Pl. gentianoides*, leaves uncial, fl. white or incarnate in sessile heads of 3 to 5, involucre of 4 leaves.

499. PLURIMARIA Raf. *Chlora* L. auct. cal. equalis rotatus 8-10part. cor. rotata 8-10part. stam. 8-10 non spiralis, stylo unico, stigm. 2 bifidis.—Types the *Chl. perfoliata*, *mascariensis* and *quadrifolia*? but *Chl. sessilis* W. or *Gent. do* L. is a sp. of my G. *Narketis* having a rotate 4fid corolla, or a N. G. if it has 8 stamens at the same time. All have yellow flowers.

500. DISINSTYLIS Raf. (2 un. st.) diff. 499, cal. camp. 6fidis, cor. rotata 6fida, stam. 6. stylis 2 coalitis, stigma 2 obtusis—Type *D. italica* Raf. *Chlora imperfol.* L. fol. sess. ovais oppositis. Very distinct Genus. Thus all theChloras were of different Genera! I changed the name because too similar to *Chloris* and *Chloranthus*.

After such an evidence of indispensable reform in 3 Genera of old in this Centuria alone, it will appear that those Genera *Polygonum*, *Gentiana* and *Chironia* were without any real peculiar characters, the species merely held together by *no one knows what*, except a kind of *fascies* or appearance. The Gentians now very numerous, amounting perhaps to 150 species, may be all reduced to the reformed genera, by a little care, and I may even do it hereafter. But there are several anomalous species types of subgenera. The G. *pratensis* probably a *Narketis* has a very unequal calix. The G. *auriculata* has also a similar calix with 2 sepals cordate; it has 4 or 5 parts to the campanulate corolla, and 4 or 5 stamens. Is it a Genus? *Dicardiotis* Raf. near *Pogoblephis*.

CENTURIA VI.

501. LINIDIA Raf. 1815. Cal. persistens 3 5partitus,Petalis 3-5isarinis, stam. hypog. definita basi sepe coalitis. stylis 1-5, stigma 3-5, capsula multicoca multiloc. multiv. loculis valvatis monospermis—These characters of my new nat. family of 1815 ought to have been the characters of the G. *Linum* of L. instead of the false ones usually given. This family is *in*termediate between *Alsinidia* and *Tamarixia*. It contains the G. *Linum*, *Radiola*, *Scheflera*, C*ometes*, G*lochidion*, and my *Numisaureum*, *Meiapinon*, *Mesynium*.

502. Numisaureum (gold coin) cal. 5part. petalis 5, stam. 5. stylis 3-4longis, stig. capit. capsula depressa 6-8loc. nonpartibilis evalvis. *Frutic. fol. alt.* fl. *auratis*—Indian Genus, 3 types *N. repens, petiolatum, acuminatum.*

503. *Numisaureum petiolatum* Raf. Linum trigynum Sm. ex. bot. t. 17 Lod. 1193, Curtis 1100. Ramis teretis erectis, fol. petiol. ellipt. acutis serratis. fl. corymb. petalis flabellatis, stylis 3.—A fine shrub of the mts of Ceylon and India, called G*ul ashafi* or the flower of golden coin, whence my generic name.

504. *Numisaureum acuminatum* Raf. Linum 4gynum Colebrook, Fol. ellipt. obl. acum. serrat. brevi petiol. fl. capit. corymb, sepalis ovat. acum. stylis 4—Shrub of Nipal.

505. Meiapinon (least flax) Raf. Cal. 3part.

petalis 3, stam. 3 liberis, stylis 3, caps. 3loc. 3sp. 3valv. *Herba. fol. opp.*—Very near to *Mollugo*, but really a Linidia by monosperm cells, and nearer *Radiola*.

506. *Meiapinon saginoides* Raf. Glabra, erecta, ramosa, fol. lin. obl. acutis, fl. axill. ped. —In Florida, small plant one or two inches high, flowers white.

507. MESYNIUM R. (middle un.) diff. ad *Linum*, stylo unico, stigma 5 capitatis, vel stylis 5 plus minusve coalitis, in stylo 5fido, caps. mucronatis 5valvis 5locularis 5sperma.—Types *M. africanum* or *Linum monogynum*, M. *mexicanum*, *texense* and *chilense* (L. macrei Lindl.) Lindley indicated this G. although he says that in some sp. with yellow fl. the styles are slightly united at the base, such are *L. ethiopicum*, *virginicum*, *rigidum*, *mysorense*: but they have capsule 10loc as *Linum*,

508. *Mesynium texense* Raf. *Linum berenderi* Hook. b. mag. 3486. Herbac. multicaule angul. fol. alt. lin. rigidis glabris mucronatis, fl. racem. flavis, sepalis lanc. acum. serrul. petalis basi villosis—Texas, quite monostyle, caps. globose acute.

509. *Mesynium mexicanum* Raf. Linum do. Kunth, DC. bot. reg. 1826. Herb. paniculat. glabr. fol. inferis oppos. ovatis, sepalis ovatis.—Mexico, style 5fid at top. capsule mucronate.

510. MOLLUGIDIA a new small family of mine, only differing from Linidia by cells or capsule polysperm, valves septifer, seeds central, and petals often lacking, Types *Rotala*, *Cherleria*, *Bergia*, *Moltugo*, *Nemallosis*, *Lampetia*, *Hermannia*, *Mahernia*, *Pharnaceum* they had been referred by me formerly to Alsinidia, but this branch of the old Caryophyles

have all unilocular capsules. *Sagina* belongs to Alsinidia as Smith proved that the caps. is uniloc. and not 4locular. Leaves opposite or verticillate as in Linidia and Alsinidia. *Hermannia* belongs here, but has united stamens, like *Linum*. *Mahernia* also and united styles like *Mesynium*, are they a N. Fam?

511. Nemallosis Raf. (fil. variable) cal. 5 part. petalis 5 linearis emarg. stam. 10, fertilia 5, sterilia 5 alt. stylis 3, caps. 3loc. polysperma. *Caule artic. fl. vertic. fl. nonnulis* 3 *andris apetalis*.—Types the two following plants with habit of *Mollugo verticillata*.

512. *Nemallosis prostrata* Raf. Pharnaceum mollugo L. auct. Burm. t. 5. caule depresso tereto, fol. 4-5ineq. ellipt. fl. vertic. pedunc.—India, fl. whitish.

513. *Nemallosis erecta* Raf. Pharn. mollugo L. Alsine Burm. zeyl. t. 7. &c. Caule erecto, fol. 5 lanceol. fl. vertic—Ceylon, larger white flowers. See Sir J, Smith for remarks on these plants, which he states had been called *Mollugo spergula* once by L. when showing only 3 stamens.

514. Lampetia Raf. (Nympha) cal. 4fidus, petalis nullis, stam. 4, stylis 4, caps 4loc. polysp. *acaulis, fl. panic*—Very near to *Pharnaccum*, habit peculiar, but many sp. of that Genus have various forms and must be examined again. Habit of *Dionea* and *Drosera*.

515. *Lampetia nudicaulis* R. *Mollugo do* Smith, Burm. t. 8. fol. radic. obovatis. scapis dichotomis paniculatis—Ceylon and Africa, perhaps two sp. blended also.

516. ALSINIDIA. This family of Adanson was Caryophyles of Jussieu, who united thereto the Spergulides Ad. and many heterogenous

plants, without common characters. They can be distinguished easily thus.—ALSINIDES. capsule unilocular polysperm, seeds central, calix parted. Such as *Alsine*, *Stellaria*, *Arenaria*, *Sagina*, *Mœnchia*, *Buffonia*, *Holosteum*, *Polycarpon*. *Cerastium*, *Spergula*, *Iresine*, *Velezia*, *Frankenia*, *Telephium*, *Cosmia* *Isgarum*.

517. DIANTHIDIA or *Phorandria* 1815 Raf. The Dianthides or Caryophyles (bad name meaning clove?) cal. tubulos. petals 5 unguic. 10 stam. 5 ad ung. pet. inserta, caps. 1-5loc. sem. centralis. *fol. opp. fl. ped.*—These are the real akin to *Dianthus*, *Silene*, *Lychnis*, *Agrostema*, *Cucubalus* &c which all require generic reforms as yet.

518. DIONIDIA Raf. 1815. This new family differs chiefly from Alsinidia by a single style and stigma: the habit is often peculiar.—Types *Dionea*,*Ortegia*, *Loeflingia*, *Adoketon* *Hagea*, *Lahayea*. &c.

519. AMARANTHIDIA. This family must be confined to the G. with free stamens, several stigmas, and yet with capsule monosperm, as *Amaranthus*, *Dimeianthus*, *Queria*, *Anychia*, *Digera*, *Xerandra*, *Paronychia*, *Herniaria*, *Drypis*,*Corigiola &c*, these 3 last have petals and form sub families.

520. ACHYRANTHIDIA. This small group differs by a single stigma and seed, stamens united. Types *Achyranthes*, *Illecebrum* *Gymnocarpon*, *Lophanthus* Forst. All these nat. families are gradually connected in flowers and habit. All the Genera with monadelphous stamens, ought to be of same order: yet we see this tendency in *Linidia* likewise and *Mollugidia*. See 534.

521. SCLERANTHIDIA Raf. another small family near to LINIDIA but diff. by stamens free and double diplarine, rather perigyne, fruit commonly dicocus—Types *Scleranthus*, *Galenia*, *Floerkea*, *Cabomba or Nectris* which is not monocotyle, as stated by a mistake of Jussieu, since the leaves are opposite as in *Galenia*, but *Floerkia* has alt. divided leaves. *Galenia* has affinities with *Hamamelis*, *Florkea* with *Limnanthes*.

522. DROSERIDI— 1815. Fine family near Alsinidia, only difference *valves seminiferous*, Habit peculiar but variable, often like *Dionea*, scapigerous.—Type *Drosera* and the divided Genera of it, *Aldrovanda*, *Parnassia*. &c.—*Roridula* differs from it as *Dionea* from Alsinides by a single style and stigma: it is probably the type of another family RORIDIA. *Turnera* differs only by the perigyne petals and stamens.

523. RORELLA Raf. 1815 ad *Drosera* diff. stam. 10, stylis 5.---Type *R. Insitanica* Raf. Drosera do L. Arenaria do nonnulis auct. Fol. radic. subul. scapo flor. umbellatis.

524. DISMOPHYLA Raf. (binate leaf) ad *Drosera* diff. cal. 4-5part. pet. 4-5. stam. 4-5, ovar glab. 4-5lobo, stylis 4-5multifidis *fol. rad. divisis*, *fl. corymb.*---Type the next sp. but probably Dr. *pedata* and others of Australia belong here.

525. *Dismophyla binata* Raf. Drosera do DC. Br. Labil. 105 bot. mag. 3082. fol. longe petiol. bipartitis linearib. glandulosis, scapo glabro, fl. paucis ochroleucis. Australia.

526. DROSERA L. auct. This G. requires total revision offering many forms, which I now indicate as mere Sub Genera; but are perhaps

Genera 1. ***Rossolis*** cal. 5p. eq. pet. 5. eq. stam. 5 eq. stylis 5. caps. 5valv. Type Dr. *acaulis*, *rotundifolia*, *&c.*

527. *Adenopa* Raf. (ped. glaud.) cal. 5p. ineq. petalis 5 subeq. marcescens, stam. 5. ineq. filam. planis subul. membranaceis, antheris obl. biloc. stylis 3-4bifidis, caps. oblongis, valvis 3-4 —Types Dr. *anglica* and nearly all the N. Amer. species, see new flora.

528. F*ilicirna* Raf. (thread rolled) cal. 5p. ineq. 1. obov. major, petalis 5 eq. venosis, stam. 5 eq. fil. filif. anth. bilobis, stylis 3-4basi coalitis bipartitis caps. obl. 3valvis, *fol. sine lamina*, *fl. racem. bract. secundis*, *roseis.* Three types disc. by myself in New Jersey in 1802, leaves reduced to mere petiols circinated or rolled when young, with stipules, cotyledons 2 elliptic obtuse. All annual vernal.

529. F*ilicirna*, *s.* D*rosera filiformis* Petiolis filif. supra piliferis, stipulis laceris, bracteis subul. pedic. longior, petalis obov. stylis 3.— This is my original sp. Pine barrens of N. Jersey, scapes 8-15 inches.

530. F*ilicirna s.* D*rosera tenuifolia.* W. Rom. Big. bot. mag. 3510 as filiformis. Petiolis filif. supra canaliculatis piliferis, basi lanatis, stipulis subul. deltoideis glabris integris. bract. brevis, petalis obov. concavis, stylis 4—N. Jers. Long Id. and N. England.

531. F*ilicirna s.* D*rosera leionema* Raf. Petiolis filif. undique glabris, apice vix piliferis stipulis laceris, racemis pauciflоris, bract. subul. ped. eq. Petalis cuneatis stylis 3—South New Jersey, fl. rose white, scape 6-9inches. Probably all sprung from each other.

532. TAMARIXIA 1815. This small family chiefly differs from Droseridia by stamens

more or less united at the base, and rather perigyne---Peculiar habit like *Cistus*—Type *Tamarix*, *Eudiplex*, *Rokejeka* and perhaps *Turnera*.

533. EUDIPLEX Raf. ad Tamarix diff. cal. pet. 4-5, stam, 8-10—Type Tam. *germanica*, *caspica*, *songarensis*, the real *Tamarix* is isarine with 5 stamens and petals.

534. GOMPHRENIDIA. Another small family that differs from Amaranthides by stamens monadelphous—Types *Gomphrena*, *Bragantia*, *Alternanthera*, *Belutta*, *Aerua*, *Waltheria* &c, with many new G. The whole tribe of Amaranthides and akin are known to be in utter confusion, the sp. having been refered by mere habit, the whole requires revision. The *Bragantia* of Vandelli was the *Gomphr. arborescens*. The *Caraxeron* of Vaillant is probably a good G. it was both *Gomphrena* and *Illecebrum Vermicularis* L.—The *Alternanthera* Forsk. was the *Gomphr.* or *Illec. sessile L.* the *Coluppa* of Adanson. The family *Achyranthidia* 520 is only a subfamily of this, the united stamens being more important than the stigmas, when there is only one seed.

535. CARAXERON Vaillant. *Philoxerus* R. Br. Sm. Cal. 5part. conc, stam. 5 basi coalitis, stig. 2. capsula evalve—Type C. *vermicularis* and *brasiliense* (Gomphrena and Illeccebrum, L *conicus*, *diffusus* (Philoxerus R. Br.) these two australian sp. form perhaps a subgenus. The real *Gomphrena* have only one capitate stigma says Smith; but the *Genus* appears to have been formed on the *capitate flowers* and mere habit! all those with a single style are *Illecebrum* of L. but the *I. verticillatum* forms the Genus *Paronychia* T. Juss. Ad. with free

stamens and a bifid style, of fam. Amaranthidia.

536. Belutta R. (nom. ind) cal. 5part. calicul. sq. 1-3. stam. 5 ad basi tubo monadelpho, stylo 1, stig. 2. caps. circumsc. monosperma, sem. lenticularis. *Fol. alt. capitulis axillaris.* Two types united in *Celosia nodiflora* by L. and Authors, but of a different family by one seed only, therefore of *Gomphrenides.*

537. *Belutta sessilis* Raf. Celosia nodifl. L. auct. Fol. subrot. obov. mucronatis, capitulis sessilibus.---Malabar and Ceylon, Burm. zeyl. t. 5. f. 2.

538. *Belutta peduncularis* Raf. Cel. nodifl. var. auct. Fol. oblongis vel cuneatis undulatis acutiusculis, capitulis peduncularis---In Sumatra &c.

539. Cadelaria Ad. Achyranthes L. cal. 5 part. reflexis, caliculus 2, stam. 5 liberis ciliatis stylo 1, stigma bilobo, utriculus monosp. *Frut. fol. oppositis, fl. spicatis.* The types are the 3 following sp all blended as *Achyranthes aspera* by L. all the other Achyranthes require revision; of family Amaranthides.

540. *Cadelaria indica* Raf. Fol. cuneatis acum. subt. toment. argenteis---In India, often figured by Burman, Rumphius &c, perhaps two sp. blended as yet.

541. *Cadelaria sicula* Raf. Fol. lanceol. acutis scabris subtus sericeis, spicis adpressis---In Sicily and Barbary, figured by Bocc. Sic. t. 9, but the Sp. from Jamaica appears different.

542. *Cadelaria punctata* Raf. Fol. obovatis acuminatis glabris subtus punctatis glabris---Arabia. The *Achyr. paniculata* of Forskal with free stamens broad at base, is probably also of this Genus. It will be hard to say

which are the true types of the real *Achyranthes!* see the next Genera, *A. dichotoma* and *corymbosa* are *Amychia*. *Ac. altissima* with scandent stem must be a peculiar Genus.

543. Codivalia Raf. *Pupal* Ad. cal. 5part. 2ciliatis hamatis seu echinatis, caliculus 2, stam. 5 basi coalitis, stylo, stig. sem. unicum *Fruct. Fol. oppos. fl. spicatis, glomeratis*---Types *Achyr. lappacea, patula*, L. &c.

544. Uretia Raf. *Ouret Ad.* cal. 5fidus, caliculus 1, stam. 10 basi coal. 5 sterilis, 1 styl. 2 stigma, sem. 1. *Herba, fol. alt.* fl. *capitatis*. ---Type *Achyranthes alternifolia* L. and probably several others.

545. Kokera Ad. cal. 6part. concavis, stam. 5 liberis styl. 1. stig. 2, caps. circums. 1 sperma. *Fol. alt. glomerulis panic.*---I am unable to indicate the type of this G. of Adanson, as he quotes no figure, it is probably found among the Achyranthes, although the fruit is like *Amaranthus*. Family Amaranthides.

546. Eclotoripa Raf. (Nom. Egypt. Amaranth) cal. squarrosus, 5part. ineq. 3 internis petaloideis major patens, stam. coalita in corpus calloso 3dent. antheris 3 internis, stigma . . . sem. unicum. *Fol. alt. fl. spicatis*---another peculiar Genus blended in *Achyranthes muricata* of Egypt, at least 2 species.

547. *Eclotoripa fruticosa* Raf. caule frutic. fol. petiol. ovatis, spicis pedunc. axill. elongatis, ped. 5gonis.---Egypt &c.

548. *Eclotoripa annua* Raf. caule annuo ramoso patulo, fol. petiol. ciliatis, subcordatis, ped. ut supra---Arabia and Mollucas.

549. Steiremis Raf. (sterile half) Cal. duplex, ext. 3part. internus 5part. ineq. stam. 10

monadelphis 5 alt. sterilis, stylo brevis, stig. 1. obtus. glanduloso, utriculo monosp. sem. lentic. *Fol. opp. fl. capit*—New American Genus near *Uretia* and *Digera*, of real subfam. Achyranthidia by unic stigma. Three types,

550. *Steiremis repens* Raf. Achyr. do Elliot. Gomphrena et Illecebr. polygonoides L. auct. Achyr. Lam. non Retz nec Vitm. quid et *Digera arvensis* Forsk. Repens hirta, fol. pet. lanc. capitulis sessilibus ovatis—Carolina, Georgia and Antilles, the Antillian plant is perhaps different by stem dichotome, broader leaves and globular heads, *St. globosa* Raf.

551. *Steiremis ficoidea* Raf. Achyr. do Elliot, Illecebrum do L. auct. Repens, glabra, fol. petiol. lato lanceol. capit. globosis sessilis pubescens—Carol. Florida, Antillis &c.

552. *Steiremis sessilifolia* Raf. Repens radicans glabra, fol. sessilib. obov. et subrot. acutis, capit. glabosis sessilis—In Spain and Africa, blended with the last by all Authors, probably several other sp. near these in both continents.

553. Phyllepidum Raf. 1814 sp. sc. cum. ic. cal. duplex, utrinque 5part. internis emarg. stam. 5 liberis filif. stylis 2. filif. utriculus monosp. *Fol. alt. sess. fl. spic. bract*—Of family *Amaranthidia* New G. of mine disc. 1804, the habit is peculiar, leaves scaly like, the internal calix has emarginate divisions, both are persistent as usual in the whole tube.

554. *Phyllepidum squamosum* Raf. ut supra, Desvaux &c, caule erecto ramoso, fol squamul. semiamplex. ovatis acuminatis, spica densa oblonga, bract. subul—In Maryland, sandy Pine woods, rare, flowers uncolored, stem 6 to 8 inches.

555. Dimeianthus Raf. (2 less in fl.) *Bliton*

Ad. Differ. ad *Amaranthus* cal. 3part. stam. 3—Types all. the triandrous Amaranthus that ought never to have been united with the pentandrous, half the Genus belongs here. It is said that *A. oleraceus* appears to unite both, having 3 or 5 stamens, if so it is like *Gononcus* a dimorphous sp. that ought to be a peculiar Genus, PENTRIUS Raf.

556. EUXOLUS Raf. (well shut) diff. ad *Dimeianthus*, fructus utriculus ovatus indehiscens sem. ovata non lenticulata cal. longior—Type *E. deflexus*, or Amar. do L.

557. AMBLOGYNA Raf. (obt. fem. fl.) diff. ad *Dimeianthus* fl femineis infundibulif. 3fidis, lac. obl.—Type Ambl. or Amar. polygonoides L.

558. AMARANTHUS L. Bajan Ad. as *A. sanguineus* appears the type of this Genus, it must with the pentandrous sp. retain this name. Adanson's *Amaranthus* was *Celosia* L.

559. CELOSIDIA Raf. 1814. This family differs from Alsinidia just like the Gomphrenides from the Amaranthides by having united stamens. It differs from Gomphrenides by several central seeds in the capsule. The habit is nearer Amaranthides, leaves commonly alternate—Types *Celosia*, *Lophoxera*, *Snkana*, *Hyparete*, but *Cedrela* does not belong to it, nor *Coilosperma*, nor *Belutta*.

560. LOPHOXERA Raf. (crest dry) ad Celosia diff. stam. vix. coalitis, stylo trifido stig. 3, caps. 3sperma et 6sp.—Types Loph. *comosa*, *paniculata*, *caudata*, *polygonoides*, and *racemosa* (Cel. 3gyna L.) all Celosias. The true Celosias have one style, 2 stigmas, 2 ar 4 seeds. The *Cel. lanata* is now *Aerua tomentosa*.

561. SUKANA Ad. Diff. Celosia, stam, 5 sine

filam. sterilis interjectis, cal. vix caliculatis—Type the Amaranthus of Barr. t. 193 says Adanson, Celosia has properly 10 stam. 5 alt. sterile, and cal. with 2 or 3 calicules.

562. Xerandra Raf. neog. 1825, ad Iresine diff. cal. duplex ext. 3part. int. 5 part. stam. 5 glandulis globosis, alternis. fl. fem. extus comosa, stylis 2, sem. glabrum unicum in utriculo.—Type *X. celosioides*, and *elatior*, both *Iresine* do auct. but this G. belongs to *Amaranthides* while *Iresine* belongs to Alsinides by polysperm capsule.

563. Iresine L. auct. Dioica cal. 5part. bicalicul. stam. 5, squamulis alt. stig. 2 sess. utriculo polysp. sem. tomentosa—the stamens are slightly united at the base. this G. might be reduced to Celosides.

564. Coilosperma Raf. (hollow seed) cal. duplex, ext. 2part. int. 5part. concav. stam. 5 liberis basi dilatatis, stylis 3, bacca 3sperma, sem. concavis, lucidis—A very distinct Genus from *Celosia* by free stamens, berry and seeds, whereby it belongs even to a different family Empetridia, see 633, but the habit is somewhat like Celosides. The type is C. *cordata* Raf. the *Celosia baccata*! Retz. W. P. fol. cord. acum. racemis laxis. India.

565. Deeringia Br. cal. duplex ext. 3part. int, 5part. stam. 5 basi coalitis, stylus trifidus, bacca triloba polysperma uniloc. sem. centralis —This G. was wrongly deemed the *Celosia baccata* by Brown; it is not even of same family, being a real Celosidia. Type *D. celosioides* Hooker b. m. 2717. fol. petiol. ovatis acum. spicis gracilis, fl. remotis viridlis—Australia.

566. Hyparete Raf. (Nympha) cal. urceolatus 5dentatus stam. 5 basi coal. stylis 3, caps.

3valvis monoloc. polysperma. *Fol. alt.*—A very distinct G. blended with *Celosia*, that has a circums. caps. or pyxidium, yet of same family. Type *H. glauca* Raf. Celosia do. Wendland, Persoon, fol. lin. lanceol. carnosis canis—South Africa.

567. LITHOPHILA Sw. Sm. cal. duplex, ext. 3 part. int. 5part. ineq. 3 petaloideis, 2 squamosis, stam; 2 lib. stylo 1, stig. capit. emarg. capsula 2locul ? 2sperma ? *Fol. oppositis*—Of family Scleranthidia ? altho' near *Ortegia* and *Loeflingia* fruit not well known, on which will depend the main affinities.

568. *Lithophila muscoides* Sw. Sm. pumila, fol. lin. obt. canaliculatis, fl. congestis. minute plant of I. Navaza in Antilles.

569. ATRIPLEXIA. This natural family will be much reduced by separating the anomalous G. with berries or more than one seed: being thus reduced to those with a single seed akene or utricule, altho' with several stigmas, the Genera therein placed hardly differ from Polygonides, and might as well be united, the habit in those last of articulate stem and vaginate leaves being the chief difference! while Urticides differs by single stigma or hypogyne stamens. Uniting therefore Atriplexia and Polygonidia we may divide them into 6 more evident subfamilies, distinguished by the fruit and proportions of stamens. Salisbury detected the mistake of Jussieu who deemed them perigyne, while they are properly hypogyne.

570. POLYCNEMIDES. utriculus monospermus, —G. Polycnemum, Camphorosma, Petiveria, Chenolea, Kochia.

571. BASELLIDES. Calix baccatus—G. Basella

Anabasis,Coccoloba, Calacinum, Naucorephes? see 105. Calostima ? 589.

572. Salsolides. Akena, cal. isarine—G. Salsola, Chenopodium, Spinacia, Beta, Atriplex, Crucita,Acenida, Dondia, Isgarum,Axyris, Sovara, Tracaulon, Rumex, Oxyria, Triplaris, Koenigia, and all the pentandrous G. of Polygonum.

573. Polygonides. Akena, cal. meiarino; more stamens than parts---G. Polygonum and reformed Genera, Atraphaxis, Rheum, Calligonum, Pallasia, Anredera, Vibones, Menophyla, &c.

574. Blitides. Akena, cal. pleiarino; less stamens than parts---Blitum, Ceratocarpus, Salicornia, Cnopos, Sclerosperma, Ofaiston &c.

575. Corispermides. Akena nuda, not covered by the calix as in 572, 573, 574.---Corispermum and akin.

576. Menophyla Raf. (moon. leaf) monoica, cal. duplex, ext. 3fidus, int. minor petaloid. stam. 12 antheris bifidis. fem. stylis 3 reflexis stig. plumosis, cal. in fructo ampliato, *Frutex*, fl. *panic*---'Types *M. lunaria*. Rumex do L. auct. 2. *R. polygamus* Cav. t. 22. has granular calix and 6 sterile stamens.

577, Vibones Raf. (Rumex lat.) diff. Rumex, Dioicus, fl. masc. 3part. stam. 9-12 antheris bifidis---Type *V. auratus* Raf. caule angul. fol. ovato lanceol. subcrenatis, nervis pilosis, cal. lin. canaliculatis. Alps of Switzerland.

578. Nibo Mench diff. Rumex, Dioicus, fl. masc cal. 6part. equalis, 3 internis, fl. fem. cal. cupularis 3fidus spinosus reflexus punciatus—Type *Rumex spinosus* L.

579. Rhodoptera Raf. (rosate wing) diff. Rumex, cal. ineq. internus valvis membrana-

ceis, una major aleformis.—Type ***R, roseus*** **L.**

580. Emex Necker, diff. Rumex, stam. 12, fructus uncinatum.—Type ***Rumex acutus*** **L.**

581. Analiton Raf. diff. Rumex, Dioicus, cal. 3part. eq. subrot. internis nullis. fl. fem. cal. 3part. cordatis sine granulis. ***fol. bipinnatis***—Type ***R. bipinnatus*** of Marocco, habit very different from Rumex. stam. 6, not 9 as in Vibones.

582. Rumex L. auct. This G. was like Polygonum in great disorder, with many anomalies. The old G. ***Lapathum*** and ***Acetosa*** of Tourn. deserve to be subg. at least. ***R. digynus*** is become ***Oxyria reniformis*** quite lately. I think the 6 foregoing Genera are quite distinct, and the following subgenera ought to be admitted besides. 1. ***Patientia*** hermaphr. cal. granulato—2. ***Rumex*** herm. cal. non granul.—3. ***Tomaris*** herm. cal. laciniato—4 ***Atecosa*** dioicis, cal. granul.---5 ***Acetosella*** dioicis, cal. non granul. 6 ***Eutralia*** Raf. dioic. cal. very unequal. ext. subulato, int. large orbicular, type ***R. luxurians***, this might even be a Genus perhaps.

583. Isgarum Raf. (Salsola) cal. 5part. stam. 5 stylo bifido, stig. 2 capsula biloba uniloc. disperma. F***ol. oppositis***---Type ***I. didymum*** Salsola do Lour. Sm. caule decumb. fol. obl. crassis, fl. axill. sessiles. East Africa. By the two seeded capsule and habit, this G. is not of Atriplicides but rather of Alsinides family, some Kochias belong here.

584. Ofaiston Raf. (Salsola) diff. Salsola, stam. 1, while all salsolas have 5 . . . ! Type ***O. paucifolium*** Raf. Salsola monandra Auct. fol. paucis alt. teretib. carnosis. Caspian region. near ***Corispermum.***

585. Salsola L. this G. ought to be distinguished by the spiral seed, and 2stigmas: therefore *S. trigyna* with 3 stylis is probably a peculiar G. Trikalis (Raf.) *triflora*. The G. *Kochia*, *Chenolea*, *Sueda*, *Dondia* are all good. Even in *Kochia* those with two seeds are probably sp. of *Isgarum*, *Dondia* of Adanson has one style with 3 to 5 stigmas and lenticular seed.

586. Salicornia L. One stam. 2 stig.—S. herbacea, fruticosa, polystachia, cruciata, arbuscula &c.—stem. artic. as in Polygonides.

587. Sarcathria Raf. (fleshy artic) two Stamens, 2 stigmas—Here belong. S. procumbens, radicans, strobilacea, virginica, indica, ambigua &c, all Salicornias of *L.* and Authors. This *G.* was chiefly made by habit of artic. stems; it may offer yet other anomalies by calix entire or 4dentate &c.

588. Urtica L. Another G. full of anomalies, many of the 100 sp. united thereto were merely held by habit or aspect, Linneus had only 28. The Genera *Boehmeria* has been properly separated, I also separated *Adike* and *Selepsion* long ago; but must now add two others which are not even of same family! four parts to the male calix, but fem. cal. 2parted: the seed is thus as *Atriplex*, therefore very near that G. and its family, altho' *Urtica* is made the type of another, the main difference is in the single stigma, with hypogyne stamens. *Parietaria* differs from *Urtica*, by same means as *Chenopodium* from *Atriplex*.

589. Calostima Raf. (fine stig) diff. Urtica, Dioica, stigma radiato pilis stellatis, cal. fructif. inflato pulposo cordato.—This certainly a peculiar G. having a beautiful tuft of radiated

hairs for stigma, thus many stigmas! and the fruit as in Baselides, therefore it belongs to that subfamily of ATRIPLEXIA.

590. *Calostima aculeata* Raf. Uctica baccata L. plum. ic. 260 Andr. rep. 454 &c. Arboresc. acul. fol. alt. cord. dent. acum. racemis axill. retroflexis—South America, habit of Nettles, but a tree, perhaps several blended species.

591. LITHOCNIDE Raf. (stone nettle) diff. Urtica fl. fem. 3part. stigma 3, semina 3gona—This also belongs to ATRIPLEXIA by the stigmas multiple. type *L. lappulacea* Raf. Urtica, do Sw. W. P. caule repens, fol. alt. ovatis ciliatis, fl. axill. Antilles on stones, leaves not stinging.

592. PENTOCNIDE R. (5 nettle) diff. Urtica, cal. 5part. stam. 5—Perhaps only a subgenus, near to Chenopodium, Type P. *glomerata.* suffrut. fol. alt. ovatis, fl. axil. sessilis. Antilles. any other pentandrous sp. must be added.

593. ADIKE Raf. 1808. diff. Urtica, fl. tripartitis, triandris, fl. fem. similis. *caule carnoso, fol. glabris*—Many American Sp. blended in *Urtica pumila*, see my New flora, and I add here another from Antilles.

594. *Adike allophyla* Raf. Urtica trianthemoides Sw. W. P. Sm. caule erecto ramoso carnoso, fol. oppos. ineq. oblongis et obovat. obt. integris—Hayti, near streams.

595. SELEPSION Raf. 1814. diff. Urtica, fl. fem. 4part. ineq. 2alt. minor, stylo, fl. dioicis—This G. was indicated by Leers long ago for *U. dioica* and *urens*, it is a subgenus at least. Many Sp. belong thereto, see my New flora for *S. vernum* and *montanum*. Selepsion was an Egyptian name for nettles, and Adike a Greek name according to Adanson.

596. Oblixilis Raf. 1818. diff. Urtica, Cal. masc. 5part. 5andris, fl. fem. 2phyl. ineq. persistens, stylo lateralis reflexo, stig. acuto, sem. orbic. obliqua plana acum.—Types. *U. divaricata*, *canadensis* and my new species, see my new Flora. These plants have a singular structure of seed, with a very evident style and unequal small valves to it. Sir James Smith hoped that some American botanists would illustrate them. It is probable other sp. belong here, compare *U. membranacea*.

597. Monosteria Raf. (one ster) cal. 4part. corolla 4fida infund. stam. 2, una sterilia, stig. capit. caps uniloc. bivalvis, polysperma.—This must be added to the *Gentiana*? but is very near *Heteroclita* 482, and *Pladera*. It is the *Hopea*, of Vahl. W. Sm. but now L. which has wrongly been united to *Symplocos*.

598. *Monosteria dichotoma* Raf. Hopea do V. W. Sm. Exacum pusillum Roxb. caule dichot. 4gono pumilo, fol. ovatis et lanceol. superis subul. fl. ad dichot. ramis 3fl—Coromandel, fl. yellow.

599. Pladera Roxb. Canscora Lam. cal. tubulosus 4alatus 4dentatus, cor. infundib. irregularis 4loba, lobis 2 major. stam. 5 ineq. una minor, stigma stylosus bilobus. Capsula ut Gentianea—another G. blended with *Exacum* by L. yet evidently not even of same family, but of Orobanchides with *Monosteria* and *Heteroclita*, that family differing from Gentianides by irregular corolla or stamens not isarine nor opposite. Hooker says it has 5 sp. all annuals, and that *Canscora* badly described by Lamark belongs here; but the type will be.

600. *Pladera decussata* Roxb. b. mag. 3066. caule 4alato, fol. ovato lanc. trinervis, florib.

paniculatis trichotomis albis.—East Indies. The G. *Exacum* is thus nearly as loose as *Gentiana*, I shall return to it with *Sebaea* of Solander.

In this Centuria I have chiefly attended to settle or reform the natural families of which Linum, Amaranthus, Atriplex, Polygonum, Urtica, Drosera &c were the main types, with several akin Genera and families. By this labor it will be seen how utterly inconsistent was even Jussieu in framing his families or refering Genera to them, whereby it was almost impossible to separate them by any definite character. The later writers had done no better; but now I hope that it will be easy to know each family and refer genera to them by something definite and tangible. It is in this manner that all natural families ought to be revised, ascertained and ultimately settled.

CENTURIA VII.

I shall here resume again the beautiful tribe of Asphodelides and akin, begun in the first Centuria, and shall quote the very words of Lindley on that score—"In tribes of plants so simple in structure as Asphodelea, like Umbellifera and Crucifera, it is indispensable that Genera should be confined within most exact limits, and it is far better that this should be effected by the creation of many new Genera, than that it should not be done at all. Lindley bot. reg. 1486.

601. Lemotrys Raf. (meadow raceme) this

name is to be substituted for my *Quamasia* 64. It now appears that this G. is based on the *Skilla esculenta* found from Kentucky to Missouri. my *Lem. hyacinthina ;* while the same plant found in Oregon is even another Genus to which Lindley applied also the name of *Camassia* in 1832, as follows—

602. QUAMASIA Raf. 1827, Camassia Lindl. 1832. Petalis 6 inequalis, 5 adscendens, 1 inferu declinato unguicul. stam. 6 filif. hypog. equalis omnis adscendens, stylo declinato, stigma tridentatum—Habit of *Lemotrys* very distinct by irregular petals, stamens and style.

603. *Quamasia esculenta* Raf. Lindl. b. reg. 1486 excl. Skilla syn. *Phalangium quamash* Pursh. fol. longissimis carinatis non glaucis, petalis lanceolatis purp. ceruleis—In Oregon, flowers double the size of *Lemotrys hyacinthina* that has glaucous leaves and pale blue or white flowers, but this has also a white variety or perhaps sp. figured by Hooker b. m. 2774. Sprengel united all these plants to *Anthericum*, but totally different by stigma and smooth stamens.

604. BARNARDIA Lind. diff. ad Skilla, stam basi dilatatis in squamis valvatis ut Asphodelus, caps, 3loc. 3sperma—Type *B. scilloides* b. reg. 1029. Bulbus ovatus, fol. rad. lin. canal. elongatis acutis, scapo racemoso, fl. carneis, bract. subnulis. China. This is a G. taken from Skilla on characters like my own Genera. The *Skilla plumbea* of Lind. b. reg. 1355 is a real *Skilla* by filiform stamens.

605. UROPETALON Echv. Zuccagnia Bodin non alis, *Dipcadis* Uster diff. ad Skilla et Lachenalia, cor. tubulosa 6fida, lac. 3 externis, stam. adnatis, stigma 3—another G. near Le-

motrys, by the 3 stigmas, Types 4 species. 1 Lachenalia viridis, 2 Scilla serotina *Curtis* 859, 1185! and 2 N. Sp. 3. U. crispum, 4 U. glaucum, bot. reg. 156.

606. Borboya Raf. (greek name) corolla campan. semi 6fida, stam. 6, membranaceis 3 dentatis, dente medio antherifero, filam. dilatatis coalitis ad cor. adnatis. stig. trilobo, caps. subrot. 3loc. polysp. sem. centralis. *Fol. radic.* fl. *spicatis*—A striking N. G. blended with Hyacinth, near to *Lagocodes* 62, but stamens not filiform! the real G. *Hyacinthus* is now confined to *H. orientalis* and *amethystinus.*

607. *Borboya spicata* Raf. Hyacinthus spicatus Sm. fl. gr. Lind. b. reg. 1869. Fol. lin. canal. elongatis, scapo brevis, fl. spicatis confertis 8-9, bracteis adnatis appendiculatis, sepalis obl. obtusis—Id. Zante. flowers cerulescent, modern greek name Borboya.

608. Nemaulax Raf. (fil. can.) diff. ad Albuca. petalis 6, internis 3 apex fornicatis, stam. 6 ineq. 3 brevior alt. filam. canaliculatis, stylo 3gono, stig. trilobo—The G. Albuca is very near Skilla, in the hexandrous sp. but the real Albuca has 3 sterile stamens: all the other sp. united thereto are aliens like this. Type.

609. *Nemaulax fastigiata* Raf. Albuca do. Th. W. P. bot. reg. 277. Fol. lanc. et lin. planis, scapo multifl. corymboso fastig.—South Africa, fl. white green.

610. Albuca L. auct. diff. ad Skilla et Ornithog. cor. 6pet. 3 ext. patens, 3 int. alt. erectis, stam. 6, alt. 3 sterilis, stylo 3gono, sem. plana —Types A. altisima, major, minor, flaccida, viridifl. coarctata, &c. all those with 6 fertile stamens are Nemaulax or of other Genera.

611. Tenicroa Raf. (colored ribbon) cor.

petalis 6 rotatis, carinatis fornicatis, stam. 6 equalis subdeclinatis glabris, stylo declinato incurvo 3gono, stigma concavo trifido—Very distinct G. wrongly united to Anthericum and Albuca, akin to Quamasia, but stamens not filiform.

612. *Tenicroa fragrans* Raf. Anthericum do, Jaq. W. Albuca fugax Edw. b. reg. 311. Fol. trigonis, filiformis. scapo racemoso multifl. elongato—South Africa, fl. white red.

613. Pilasia Rad (head villose) very near Tenicroa and Quamasia diff. Petalis nervosis non fornicatis, stam. filif. eq. glabris ovario 3 gono, stylo adscendens, stigma capitato villoso —Several sp. of Anthericum belong here or to the Genera *Tenicroa*, *Bulbine*, *Quamasia* &c. by declinate style or stamens, such as *A. exuviata* bot. mag. 871, A. vittata. 1046, A. physodes 1329, but their real Genus and place depends on their stigmas, and not having now the figures before me I cannot ascertain the fact, but will do it hereafter. Meantime the type of this G. is

614. *Pilasia filifolia* Raf. Anthericum do Jaq. W. Albuca do Edw. bot. reg. 557. Fol. filif. flexuosis longis, scapo brevis, racemo paucifl. albo carneo. South Africa.

615. Laothoe R. (Nymph) diff. 613. stigma bidentatum, caps. 2locularis, *caulescens*, *paniculato*—Habit and fruit very peculiar. Type *L. pomeridiana*, Raf. Skilla do DC. pl. gr. Anthericum do Edw. b. reg. 564. Caule ramoso panic. fol. lanceol. carinatis glaucis scabris— Africa, fl. white.

616. Oziroe R. (Nymph) diff Ornithog. cor. 6pet. eq. integris, stam. 6 eq. filam. ovato lanc. acum. stigma trifidum. caps. polysp. sem. alatis —Very distinct G. near *Lemotrys* and *Askolame* by stigma. Type

617. *Oziroe leuchlora* Raf. Ornithogalum chloroleucum Lind. b. reg. 1853. Fol. lanceol. canal. strictis, scapo equante racemoso, pedic. elongatis, bract. brevis lanceol. petalis obl. obtusis—Chili, fl. greenish white.

618. Tomoxis Raf. (cut end) diff. Eliokarmos, 58. Pet. 6 eq. stam. ineq. 3 alt. dilatatis apex. emarg. vel. bidentatis, antheris inter dentis, 3 alt. subul. ad pet ext. opposita, ovar. 3gonum, stylo. trigono, stig. simplex—The stamens are here nearly as in *Getuonis* 41, but the habit is like the racemose *Loncomelos* 57. Three types, for real *Eliokarmos* see 643.

619. *Tomoxis odorata* Raf. Ornithogal do. Jaq. ic 432. Andr. t. 260. W. P. Fol. lin. lanceol. brevis prostratis, racemo elongato, bract. ad ped. brevior.—S, Africa, fl. large greenish. fragrant.

620. *Tomoxis virens* Raf. Ornithog. do Edw. b. reg. 814. Fol. lin. lanc. elongatis apex teres acum. bracteis sphacelatis fl. longior—S. Africa, flowers smaller, hardly odorous virescent.

621. *Tomoxis coarctata* Raf. Ornith. do Jaq. ic. 436. W. P. &c, Fol. linearib. canalicul. racemo coarctato, stam. alt. emarg.—South Africa.

622. Nicipe R. (Nymph) diff. ad Ornithog. Petalis 6 lanceol. 3 ext. carinatis, stam. ineq. 3 alt. lanceol. major, 3 alt. subul. ovar. 3gon. stylo 3gono, stig. 3gono, *fl. racemosis.*

623. *Nicipe nivea* Raf. Ornithog. niveum. Ait. W. P. Edw. bot. reg. 235. Bulbo globoso, fol. filif. canal. racemo brevi paucifl.—S. Africa, flowers perfectly white. I shall resume the akin Genera at 640.

624. Raxamaris Raf. (berry bitter) cal. 2

part. petalis 5 concavis, stam. 5 subulatis, ovar. obov. bifidum, stig. 2 sessilib. Bacca biloc. 2 sperma, obcordata coriacea, sem, obl. plana—Very peculiar G. of my family SARCOCIDIA, and also akin to Scleranthides, blended with *Ophioxilon* by Sm. not L. Habit of Phytolaca.

625. *Raxamaris parviflora* Raf. Rex. amaroris Rumph 2. t. 41. Frutic. fol. alt. ellipt. petiol. racemis axillaris—A shrub of the Moluca Ids. intensely bitter, valuable specific for cholera, pleurisy and fevers.

626. SARCOCIDIA. A small family of mine very near to Linidia, differing by berry instead of capsule, and stamens perigyne: the berry is multilocular or polycoca, cells monosperm, leaves alternate, fl. racemose—The types are *Phytolaca*, *Sarcoca*, *Schefferia*, *Raxamaris*, &c, see 624. I had reduced them to Empetridia in 1814, but there the berry is unilocular. polysperm. Very distinct from Rivinidia.

627. PHYTOLACA L. cal. 5part. stam. isostylis, liberis, 6-10, stylis 6-10, bacca 6-10loc. 6-10 sp.—Types Ph. *decandra*, *octandra*, *stricta*,

628. SARCOCA Raf. (fleshy cells) diff. 561. stam. diplostylis 10-20, stylis 5-10, bacca 5-10. loc 5-10sp.--Types *Phyt. abyssinica*,*icosandra dioica*, &c.

629. SCHINIDIA, another small family very near the last, perhaps a subfam. of it, difference, petals present, 1 style several stigmas, leaves compound. Types *Schinus*, *Spathelia*.

630. RIVINIDIA 1815 Raf. diff. from Sarcocides, Empetridia, Atriplices &c, by a *monosperm berry*, although several styles, or stigmas—Types *Rivina*, *Piereea*, *Mancoa*, *Salvadora*, *Rhagodia*, *Einadia*, *Bosea*, *Trophis*, &c. The G. *Dobera* is akin but has united

stamens, *Rhus* or *Sumacus* is also very near, but has petals, and rather a drupe than berry. The PIPERIDES differ chiefly by calix lepigone, stamens hypogyne.

631. PIERCEA Miller. ad Rivina diff. stam. 4, all the tetrandrous Rivinas belong here, the type of Rivina is *R. americana* (octandra L. 12andra Jaq. with 8 to 12 stamens.

632. MANCOA Raf. diff. Rivina stam. 4, cal. 4part ineq. bilabiatus.—Type *M. secunda* (Rivina do fl. per. t. 100) glabra, fol. ovat. acum. subdentic. Peru.

633. EMPETRIDIA 1815 Raf. This family will be reduced to *Empetrum*, *Euleucum*, *Grubbia*, *Ceratiola*, *Batis*, *Coilosperma*, &c, with berry unilocular polysperm, stamens free, several styles or stigmas. The habit is often heath-like, dicline and no petals. The G. *Skimmia*, *Nandina*, *Melicytus* are akin, but have petals and only one stigma, they probably form another family NANDINIDIA.

634. EULEUCUM Raf. (well white) ad Empetrum diff. Dioicus, stig. 3, bacca 3sp—Type *E. album*. The others have 9 stigmas and seeds. But the whole akin Genera and sp. require revision.

635. TEROGIA Raf. (ad Ortegia) diff. Ortegia, stigmas 3. type *T. dichotoma*—The true *Ortegia* has a single capit. stigma, which makes it of a different family! *Terogia* is a true Alsinidia, and not Dionidia.

636. ENDOPLECTRIS R. (inside spurs) another *Epimedium*, differing from my 3 G. 187, 188, 189—cal. duplex, ext. 4sepalis lin. int. sepalis 4 ovatis. petalis 4 calcaratis, stylo, stigma concavo. caps. obl. sessile. *Fol. triternatis fl. racem.*—Type the following sp. but it is said there

are 7 other sp. in Japan, Ep. *violaceum* and *muschianum*. This G. quite peculiar by the long spurs of petals.

637. *Endoplectris tricolor* Raf. Epimedium macranthum of Meren, Lind. bot. reg. 1906. Fol. 3tern. foliolis ovatis obliq. serratis, fl. racemosis—Japan, a beautiful sp. with large flowers of 3 colors, ext calix red, int. calix lilac, petals white.

638. VANESSA Raf. (Nymph) cal. 4part. dentes 4 alt. internis, brevis, cor. tubulosa clavata 4dent. stam. 4, stylo filif. longissimo, stig. 2lamel. caps. 2loc. 4valvis *Scandens*, *fl. axill*—Rubiacea near *Manettia*, that has cal. 4-5dent. thus differing as Bouvardia from Houstonia.

639. *Vanessa cordifolia* R. Manetta do Dec. Hook. b. m. 3202, fol. ovatis cordatis acutis petiol. fl. ax. longissime pedunculatis. Vine of Uraguay with scarlet flowers.

640. LEDEBOUREA Roth. cor. 6pet. patens persistens, stam. 6, erectis ad basis pet. ovar. stipitatum 3part. stylo simplex, stig. acum. utriculis 3 connexis 1sp—A very distinct G. of Asphodelides, altho' near Veratrides by fruit—Type *L. hyacinthina* b. m. 3226. Anthericum do W. Erythronium indicum Rottler, Melanthium do Heyne! fol. lanc. macul. scapo racemoso, fl. cernuis viridis. India.

641. LICINIA Raf. (Nymph) cor. 6part. extus hispidis medio nervosis, stam. 6 eq. filif. acutis glabriusculis, stylo recto. stigma simplex—Chiefly different from *Anthericum* and *Endogona* by the smooth stamens and having petals. Type *L. canaliculata* R. Antheric. do Ait. W. (Phalangium do Pers.) bot. reg. 877. Var. rufa. Pilosa, fol. ensiformis, canalic. triquetris, scapo tereto racemoso—S. Africa, several var.

with whitish, greenish and rufous flowers. Habit of Aloes. The G. *Trichopetalon* of Lindley differs from this by the petals plumose or hairy inside not outside. It has 2 types Tr. gracile and stellatum, once Anthericum plumosum.

642. Loncoxis Raf. (lance sharp) diff. ad Fusifilum 69, filamentis basi dilat. lanceolatis planis acum. caps. trigona oligosperma.—Another G. or subg. distinguished by the flat stamens, very near to Loncomelos 57 but petals equal. Type *L. sulfurea* Raf. Anthericum sulf. Waldst. W. P. Spr. b. mag. 2623. fol. lin. canal. obtusis, scapo tereto, racemo teres, petalis obl. obtusis pallide sulfureis. In Hungary. All the sp. of Anthericum or Phalangium, my Endogona, must be revised; as stated they would all be Skillas without bulbs! *A. graminif.* with 3 undulate petals must be a subgenus at least.

643. Eliokarmos Raf. see 58, my characters then were rather those of *Tomoxis* 618: as I meant *Orn. thyrsoides* and akin to be the type of this Genus I must rectify it—Petalis 6 patens ovatis subeq. stam. 6 ineq. lanceol. 3 alt. magis dilat. ad basis, apex bifurcatis. Ovar. glob. coloratum, stylo brevissimo crasso tereto, stigma capitato trilobo; *fl. racemosis vel thyrsoideis*—Therefore this G. is distinct. very near to *Melomphis* chiefly distinct by stigma nearly sessile and split unequal stamens. The types are the various sp. blended as *Orn. thyrsoides, aureum, &c*, which are in utter confusion, and I can only indicate some of them here.

644. *Eliokarmos thyrsoides* Raf. Ornith. do. Ait. Jaq. W. Curtis 1164, Edw. b. reg. 305. Red. lil. 333—Fol. lanceol. racemo thyrsoides pallide luteis, bract. ovatis acum. petalis obtusis.

In S. Africa, the ovary and capsule are ash blue, different thus from petals as in *Melomphis.*

645. *Eliokarmos maculatus* Raf. Ornithog. arabicum Red. lil. 63 non L. thyrsoides var. alba bot. reg. 316. Jaq. hort. 28. Miller ic. 129 —fol. longis lanceol. planis, racemo pyramidalis, bract. elongatis, petalis ovatis acutis albis basi macula fuscata. S. Africa, certainly a peculiar sp. not variety.

646. *Eliokarmos aureus* Raf. Ornith. do Wild Pers. fol. lanc. subdenticulatis, racemo coarctato corymboso. South Africa, several varieties of colors, perhaps blended sp. *Ornith. miniatum*, *flavescens* and *flavissimum* of Jaquin.

647. Lomaresis Raf. (edge turned) Petalis 6 ineq. patentissimiss ovatis, margine revolutis, 3 alt. latior, stam. 6 ineq. subulatis, 3 alt. basi dilatatis. ovar. 3sulcat. stylo brevi crasso, stigma capit. globoso vix 3lobo—Near the last G. but simple stamens and stigma. Type *L. alba* Raf. Ornithog. revolutum Jacq. sch. t. 89. Curtis b. m. 658. Edw. b. reg. 315. fol. brevi lanceol. scapo racemoso flexuoso, bract. lanc. acum. petalis obtusis albis. South Africa.

648. *Melomphis patens* Raf. Ornithog. corymbosum Lind. bot. reg. 906. Fol. lato linearib. canalic, acutis, scapo tereto, corymbo paucifloro, bracteis scariosis albis ovatis amplex. petalis patens, 3 alt. retusis subtridentatis—A fourth sp. of this G. from Chili, wrongly blended with my *M. peruviana* 51. the syn. of Lindley must be erased. *O. Narbonense* has also 3 petals tridentate, but the stamens are equal, fl. racemose, is it a subg. of *Loncomelos*? to be called *Tritriela* Raf.

649. ETHESIA Raf. (Nymph) diff. ad Loncomelos, filamentis equalis basi ovatis dilatatis, stylo elongato striato, stigma capitat. pubescens. —Type *E. prasina* Raf. Ornithog. prasinum Edw. b. reg. 158. fol. glaucis canalicul. apice tortilis, scapo racemoso, fl. viridescens. South Africa.

950. STREPSIPHYLA Raf. (twisted leaf) corolla campan. 6fida, limbo obliquo, lac. ineq. reflexis. stam. connivens in cono, 6 ineq. 3 brevior alt. antheris lanceol. stylo conico, stigma 3gono. caps. 3loc. polysp. duplice series in loculo.—Very distinct G. near Drimia, Lachenalia, Hyacinthus &c. but separated by the unequal segments. Type

651. *Strepsiphyla villosa* Raf. Drimia do Lind. b. reg. 1346. fol. lanceol. undul. tortilis acum. villosis erectis, scapo racemoso, bracteis brevis ovatis—South Africa, flowers greenish, but stamens incarnate, the *Drimia undulata* is probably a second sp. with smooth narrower leaves, *Str. undulata* Raf.

652. TRIALLOSIA Raf. (3 uneq.) cor. tubulosa camp. 6fida ineq. lac. 3 ext. lobis brevis ineq. lac. 3 internis longior ineq. stam. 6 ineq. cetera ut Lachenalia—Near the last G. such Genera with unequal corolla ought to form a family. Type.

653. *Triallosia pallida* Raf. Lachenalia do Ait. Th. W. bot. reg. 1350. fol. lanceol. carinatis acum. fl. racemosis nutans. South Africa, fl. pale blue or incarnate.

654. CUMMINGIA Don. This G. differs from Conanthera, as Hyacinthus from Skilla, by cor. campanulate, the 6 stamens are connivent in cone also, and the ovary half inferior: therefore belonging to my order YMNODIA probably fam-

ily of Hypoxides—Type *C. andica* Raf. Conanthera bifolia Sims b. m. 2196. C. campanula b. reg. 1193. fol. 3-4 lin. acutis, scapo ramoso, fl. panic. cernuis ceruleis. Andes of Chili!

655. Aurota Raf. (Nymph) cor. supera 6 part. patens, stam. in disco epigyno insertis 6 eq. stigma capit. caps. basi 3locul. apice monoloc. polysp. sem. globosis. *fl. radicatis sessilis.*—Very different from Curculigo except by habit. Type A. *latifolia* Raf. Curculigo do Ait. b. m. 2034, b. reg. 754. fol. petiol. lato lanceol. plicatis. Polynesia, fl. yellow sessile on the thick root, akin to Hypoxis and Hypoxides.

956. Curculigo Roxb. W. P. this G. of which C. orchioides was the type, is now increased to many sp. but all those that have not 3 stigmas and a monoloc. capsule with few seeds like this type, ought to be excluded. Is the Ovary realy free or inferior in all?

657. Leucoryne Lindl. diff. ad Brodiea, cor. hypocraterif. stam. 3 sess. in tubo, 3 infauce sterilis—Plants of Chili, 3 sp. L. *odorata*, *iriodes*, *alliacea*. Near family Xuridia.

658. Triteleia Hooker near last, cor. 6fida basi tubulosa, stam. 6 fertilis, ovar. stipit. stigma 3partito—Two sp. from Chili, T. *uniflora*, *bivalvis*, and perhaps a third from California Tr. peduncularis; but two others form my G. *Tulophos* 700.

659. *Skilla fistulosa* Raf. precis 1814. Fol. erectis linearib. obtusis glabris canalicul. scapus fistulosus tereto, racemo elongato, bracteis brevis, petalis ovatis obtusis albis—On Mount Etna on rocks, estival. This is a real *Skilla* with filiform stamens and white flowers, which Lindley has blundered so far as to unite with my *Ornithogalum ceruleum* 54, with blue flow-

ers with flat subulate stamens, and also with the next plant of Gussone, which is not a Skilla neither, and another plant by purple flowers.

660. *Loncomelos purpurcus* Raf. Skilla cupaniana (Gussone! R. S.) Lind. b. reg. 1878. fol. lanceol. denticul. acutis, fl. racemosis. racemo oblongo multifl. 20-30fl. bract. linearib. ped, dimidio, petalis ovatobl. obt. purpureis—Sicily: this description is irom Lindley figure, where the petals are purple, ovary blue, stigma 3lobe, filaments equal lanceolate, seeds central few: the descr. of Gussone appears to recede and apply to my Orn. ceruleum 54, by pauciflore corymb of blue flowers, but differ yet by ciliate leaves and rostrate capsule. There must be several akin sp. in Sicily, of different Genera; meantime I will state the great main distinctions of 3 species of 3 Genera! ***Loncomelos purpureus,*** raceme of purplish fl. stamens lanceolate. ***Ornithogalum ceruleum,*** corymb of blue fl. stamens subul. flat. ***Skilla fistulosa,*** raceme of white flowers, stamens filiform.

661. Arisarum Tourn, Ad. Arum L. auct. (name included in Asarum, Comarum &c.) This Genus is the type of the Aroides family, a fine singular tribe: in utter confusion as yet, because the Genus was based on the mere spatha, instead of the stamens. I mean to revise it partly, but all the species must be examined again, as well as those of ***Colocasia*** and ***Caladium.***—My real ***Arisarum*** has, spatha cuculata uniloba, spadix brevior ad basis pistilifero, in medio staminifero, filam, sterilis medialis apice nudo clavato,antheris rhomboideis,sessiles stigma sessile. baccis monolocul. oligospermis. ***Rad tuberosa, scaposis*** s. ***acaules,*** fol. ***simpli-***

ces, sepe basi divisis—This will include A *maculatum, italicum, pictum, serpentinum* (A. arisarum L.) *ovatum*? &c with akin species. The 3 Genera of Necker were chiefly distinguished by habit, and thus improper, they were *Colocasia* caulescent, *Alocasia* stemless with compound leaves, *Arum* stemless, simple leaves Many other essential distinctions are offered by the spatha, spadix, pistils and anthers. The singular *G. Kunda* 305 deviates greatly, also *Seguinum* 977.

662. Homaida Ad. diff. 661. spatha angusta, spadix longior apex nudo tereto vermiculato, ad basis squamosus, et antheris mixtis cum squamis, baccis monospermis, *Acaules, fol. angustis integris*—Types the several sp. blended as *A. tenuifolium* L. and *gramineum* Lam. The *A. gramineum* of Russel with lanceolate spathe and clavate spadix is different and perhaps a true Arisarum not *Homaida;* but *A. proboscideum* is a *Homaida.*

663. Desmesia Raf. (separ. middle) diff. 661. spatha basi tubulosa seu globosa integra, pistilis et antheris divisis ab annulo nudo, filam. sterilis superis plumosis. *Acaules, fol. divisis.* —Several sp. probably, types the two following.

664. *Desmesia orixensis* Raf. Arum do Andr. rep. 356. Edw. reg. 450. fol. hastato tripartitis, scapo brevissimo basi globosa, labio ovato, spadix clavato—Orixa in India, inside of spatha and club red.

665. *Desmesia venosa* Raf. Arum venosum Ait. W. P. Edw. reg. 1017. Fol. pedatis, foliolis 5 ovatis acum. basi confluens, scapo brevi, spatha basi tubulosa, apex lanceol. longissima spadix tereto.—Brazil, spatha green, veined and marbled with purple inside, 2 large scales spa-

thiform at base of spatha, by this character, lack of plumose sterile filaments, terete spadix and tubular base, it may be a snbgenus, or real type of G. while *D. orixensis* might form subg. *Steiroptilus*.

666. MEGOTIGEA Raf. (big ear of ground) diff. 661. spatha basi tubulosa inflata recurva, apex coarctato, labio amplissimo auriculato cucullato emarg. intus crinito. spadix tuberc. crinito. ad basi squamis involucrato, pistilis cuneatis apex 6gonis, antheris confluens carnosis 2loc. biporosis, baccis 4-6spermis. *fl. subradic. fol. divisis radic*—Very peculiar Genus.

667. *Megotigea crinita* Raf. Arum. do. Ait. W. Edw. reg. 851. A. muscivorum L. fol. pedatis furcatis glaucis, foliolis lanceolatis, scapo brevissimo—Minorca and Spain, spatha green spoted of brown, inside dark red, spadix greenish black, this flower is like a huge ear or a flower of Aristolochia, and is fetid like many others of the tribe.

668. ALOCASIA Raf. name of Necker but only part of his Genus. Diff. ad 661, spathis triclinis, masc. fem. et herm. basi tubulosa, spadix clavato, basi et apice nudo, stigma sessile punctiforme, antheris subpedicellatis 2-4locul. In fl. herm. confluens, baccis oligospermis. *subcaulescens*, *fol.* 3-5*natis*—Distinct G. by the division of sexes either monoical, dioical or trioical. Types the several sp. blended in *A. triphylum*, *ternatum*. *ringens*, *atrorubens* and *pentaphylum*, see my new flora for these species. The 5 leaved sp. most form the subgenus *Rhomphalis* name of Zanoni.—*A. triphyla* includes 3 sp. *A. lobata*, *pedata*, *Virginica* Raf.

669. DRACUNCULUS Tourn. Ad. diff, 661,spa-

tha involuta angusta, spadix tenuis non clavato, antheris et pistillis confluens et nonnulis mixtis, *Acaules, fol. sepe divisis*—Several sp. belong here, 1 *Dr. polyphylus* (Arum dracunculus L) 2 *spadiceus* Raf. (A dracontium,) with spadix elongato. 3 *divaricatus*, 4 *trilobatus*: 5 *cannefolius* &c, all Arums of L. with several others probably and N. Sp. *Dr. tenellus*, and *crassicaulis*. This G. is very near *Homaida*, but has no scales and several seeds. The sp. with entire leaves form the subgenus *Neiushena*.

670. Peltandra Raf. 1819. *Lecontea* Torrey 1824. *Renselaria* Beck 1833. spatha angusta involuta tubulosa, apice fissa, spadix incluso toto genifero, pistillis inferis, stigma sess. capitato, antheris confluens (ad apice sterilis) peltatis crenatis multilocul. Baccis 1-5spermis ineq. *Acaules, fol. simpl.* The types are the various sp. blended under *Arum Virginicum* L. descr. in my monograph of new flora *P. undulata, hastata. Walteri, angustifolia, sagittata, latifolia, heterophyla*, these 3 last have only one seed in ripe berries, and form subg. *Renselaria*. I noticed this G. since 1804, I published it 1819 in my 50 N. G. Journ. phys. yet two other names were given to it since.

671. Colocasia Necker, diff. 661, antheris divisis cirrhis sterilis mixtis, baccis multilocul. polysp. *Acaules, fol. sepe peltatis.*—Types C. *vulgaris* (arum colocasia), C. *esculenta*, *C. macrorhiza, peregrina, cuculata &c*, and similar useful sp. called Edoes in English.

672. Caladium Vent. W. P. diff. 661. spatha cucul. apice dilatata, spadix medio glandu lifero, apice antherifero, antheris peltatis multiloc. stig. umbilic. bacca monol. polysp.—Chiefly different from *Peltandra* by the glands or

sterile stamens medial, and the spatha as in Arisarum, Persoon had 16 sp. some of which frutescent or twining: they must all be examined again. and compared with *Peltandra*, *Arosma*, *Seguinum* &c. The C. *glaucum* of Elliot appears of this genus. C. *bicolor* has tho anthers unequal rhomboidal.

673. Arosma Raf. (Ar. odor) diff. 661, spatha cuculata basi inflata, spadix toto genifero, antheris 6gonis 6loc. planis, inferis sterilis, pistillis 6costatis, stigma 6lobo, baccis 6spermis, *Caulescens radicans*—Two types from South America, both very fragrant, perhaps the fragrant *Arum cordatum* belongs here also.

674. *Arosma obtusifolia* Raf. Caladium fragrans Hooker b. m. 3314. fol. cordatis oblongis obtusis, petiolis semiteretis marginatis, spadix tereto—Guyana, spatha white, base red, suaveolent.

675. *Arosma acutifolia* Raf. Calad. grandifol. Sims b. m. 2643 non Jaq. Caladium simsi, Hooker. fol. cordato sagittatis lucidis acutis, petiolis teretib. spadix clavato obtuso—Also from Guyana, less fragrant than the last.

676. Telipodus Raf. (spotted feet) near Caladium 672, diff. spadix ad spatha coalito decurrens, antheris turbinatis angulatis 12locul. supra planis, pistillis lateralis obovatis, stigma plano umbilic, integro, baccis monosp? *Caulescens, radicans*—Type *T. grandifolius* R. Calad. do Jaq. h. sch. 189. W. P. Hooker b. m. 3345. fol. cord. sagitt. acutis opacis, petiolis, teretibus maculatis, spadix clavato obtuso—Guyana, large leaves two feet long, flower inodore greenish white.

677. Seguinum Raf. spadix cuculato lanceol. brevis, spadix tereto longior unilatere toto gen-

ifero sed ad medio nudo verrucoso, antheris rhomboidalis umbilic. squamiformis. Pistillis *caliculatis*! calix 3-4part. clavatis, stigma capitatis 3-4lobis, baccis 3-4spermis. *Caulescens, fol. integris*—Very peculiar Genus by a calix to fem. fl. thus approximating to the family of POTHIDES.

678. *Seguinum maculatum* Raf. Arum seguinum L. Calad. do. W. P. fol. ovatis lanceol. acum. albo maculatis. Jamaica, called Dumb Cane, spatha green, anthers brown.

679. PROVENZALIA Ad. Calla L. auct. bad name too near Calea, Caladium, Calamus! very near Caladium difference only male and fem. fl. mixt, a style and acute stigma. There are 3sp. of this G. in N. America, see my new flora. One from Oregon *P. bispatha* Raf. is very peculiar by double spathas and obtuse leaves.

680. SIDERASIS Raf. (rusty fur). cal. 3part. ineq. ferrug. petalis 3 ineq. basi connatis, stam. 4-6 ineq. antheris oblongis et difformis, stigma simplex, caps. 2-3loc, 2-3valvis, 4-6sperma. *Acaulis, fl. radicalis.*—I begin to add now same other new genera blended with Tradescantia and Commelina, see my former G. 22 to 32: they all belong to the family of Commelinides. This is akin to *Etheosanthes, Callisia* &c, yet was united to Tradescantia. Type *S. acaules Raf.* Tradesc. fuscata Lod. Edw. b. m. 582. acaulis ferrug. hirsuta, fol. ellipt. acutis, pedunc. radic. 1-3fl.—Brazil, flowers pale blue.

681. POGOMESIA Raf. (beard middle) diff. ad Tradesc. Petalis basi barbatis, stam. 3 superis brevior, 3 inferis longior. declinatis, stylo declinato incurvo—Type P. *undata* Raf. Tra-

desc. do W. Kunth, Lind. b. reg. 1403. fol. amplex. ovatis undul. umbella term. 5fida ramosa corymb. bracteis ovatis, cal. pilosis. Cumana and Mexico, petals purple, bracts ivolucrating and on peduncles.

682. Tropitria Raf. (3 keels) a subgenus only of Tradescantia? difference, cal. carinatis, filam. basi villosis, stylo glabro, seminis biserialis in loculis—Type *Tr. crassula* Link. Grah. Hook. b. m. 2935. glabra ramosa, fol. obl. lanceol. ciliatis nervosis, umbella termin. petalis cal. brevior albis. South America.

683. Ovidia Raf. Spatha ut Commelina, cal. 2phylo ineq. infero major bilobo. cor. petalis 3 ineq. 2 subunguic. rotundatis. stam. 5 glabris 2 sterilis, stylo declinato, stig. 3lobo, caps. 3locul. 3gona—Very distinct from Commelina by 5 stamens &c. perhaps several sp. but the type is.

684. *Ovidia gracilis* Raf. Commelina do fl. per. t. 72, Hooker b. m. 3047. C. formosa Grah. caule assurgens articulato retropiloso, fol. lanceol. glabris acutis 7nervis, spatha plicata compr. cordata multiflora. Peru.

685. Eudipetala Raf. diff. Commelina, polygama, cal. 3fol. eq. pellucidis membr. petalis 2 superis eq. infero minimo seu nullo, stam. 3 fertilis, antheris ineq. 2ovatis, 1 lobata major, stam 3 sterilis lobatis—Type *Eud. deficiens* Raf. Commelina do Hook. b. m. 2644. erecta, ramosa, fol. ovatis lanceol. undulatis basi ciliatis, spatha cordata acum. nonnulis fl. femineis —Brazil, perennial, petals blue, the third when present is white.

686. Commelina L. auct. a crowd of heterogenous sp. was blended here; it is difficult to say which ought to remain the real type. I

venture the following characters—Cal. 3part. equalis coloratis, cor. petalis 3 eq. stam. 3 fertilia, 3 sterilia. nectariforme, stylo 4, stig. simplex, caps. 3loc. 3valvis 3sperma, valvis oppositis. *Spatha plicata multiflora.* Types the tropical species C. *cuculata*, *fasciculata*, *nervosa*, *bracteolata*, *spirata* &c, but all must be examined again.

687. Stickmannia Necker. diff. 686. cal. 3part. eq. cor. petalis 3 ineq. uno minor, stam. 6ineq. omnis fertilia, caps. 3loc. oligosperma—Types C. *mollis*, *longicollis*, *africana*? *guyanensis* or C. communis of guyana, &c.

688. Ditelesia Raf. (2 perfect) diff. 686, stam. 2 fertilia, 4 sterilia nectarif. *spatha nulla*—Type *D. nudiflora* Raf.

689. Dirtea Raf. (Nymph) diff. 686. Polygama, cal. et petalis ineq. stam. 2 fertilia, 4 sterilia, stig. capitato. capsula loculis ineq. polyspermis—Types *D. japonica* R. and several sp. of N. America blended as C*om. erecta*, *communis*, *hirtella* &c, see my new flora.

690. Ananthopus Raf. fl. lud. 1817 diff. 686. cal. 3sepalis scariosis, petalis ineq. 2 major. stam 6 ineq. diffformis, una lanceol. stylo coalita, stylo reflexo declinato. *Spatha gelatinosa*, *multifl. pedunc. uno obortivo*—For an ample account see my fl. ludov. page 21, 22. Several types, but chiefly A. clandestinus.

691. *Ananthopus clandestinus* R. fl. lud. 58. fol. lanceol. retrorsum scabris subtus glaucis, spatha saccata mucron. demum plana reniforme.—Louisiana, petals blue, the spatha changes in form.

692. *Ananthopus cordatus* R. fl. lud. 59. caulib. virgatis, fol. lanceol. supra basi scabris, spatha cordata—Louisiana, an Dirtea?

693. *Ananthopus undulatus* Raf. caule ramoso, fol. amplis ovatis acum. glaucis scabriusculis, margine aspero undulato, vaginis amplis tubuloso campanulatis, spatha cordata plicata acuminata—Alabama, in my herbal, stem 1 or 2 feet, leaves 5 to 8 inches long.

694. ALLOTRIA Raf. diff. 686, cal. 3sepalis ineq. Petalis 3 subeq. unguic. stam 3 fertilia antheris sagittatis, 3 sterilia amorphis lobatis cum glandulis pedunc,—Type *A. scabra* Raf. Commel. virginica L. Elliot &c. caule erecto, fol. lanc. subpetiol. serrulatis supra cabris, spatho renif. scabra uniflora cum ped. anantho—Virginia and Carolina, 3 feet high, not C. virg. of all botanists.

695. NEPHRALLES Raf. (kidney diff.) cal. 3 part. ineq, concavis, supero minor. Petalis 3 ineq. infero minor sessile reniforme, 2 major unguiculis canalicul. lamina renif. obliqua. stam. 6 ineq. omnis fertilis glabris, filam. filif. erectis, antheris ovatis. Ovar. obl. stylo filif. erecto, stig. obtuso. caps. membranacea 3loc. 3sp. sem. obl. *spatha plicata multifl.*—A very distinct Genus akin to Stickmania, which I have described at length on the living plant in full bloom; the flowers of all this tribe are so evanescent that unless they are caught at their blooming hour, no correct idea can be had of them.

696. *Nephralles parviflora* Raf. glabra, decumbens ramosa, ramis geniculatis divaricatis, vaginis tubulosis membran. fol. ovatis acutis *spatha cordata pauciflora.*—Kentucky and Tennessee, fl. small pale blue. estival, in bloom at noon.

697. LARNALLES Raf. (cells uneq.) cal 3 sepalis ineq. color. supero minor, petalis 2 subrot.

emarg. unguic. uno infero sessile vel carens ut in Eudipetalæ. Stam. 6 ineq. fertilis, 3 superis. brevior antheris cruciatis. 3 inf. longior, antheris ovatis, stylus filif. stig. simplex caps. 3loc. loculis ineq. polyspermis ut *Dirtea*.—Several North American Species seen alive,

698. *Larnalles dichotoma* Raf. caule dichot. geniculato, fol. lanceol glabris, vaginis fissis, fl. panicul. spathis cordatis brevis plicatis pedunculatis—Apalachian mts. stem slender 1 or 2 feet high, petals blue.

699. *Larnalles glauca* Raf. caule simplex, fol. glaucis lanceol. basi vaginatis, spatha term. subsess. cordata plicata—Kentucky, Illinois, pedal, flowers large pale blue.

700. Tulophos Raf. (wart crest) near to Triteleia 658, diff. cor. tubulosa eq. 6fida, stam. 6induplice series ad tubo inserta, filam. 3 decurrens ad basis callosis vel. cristatis, Ovar. brevi stipit, stigma trilobo. *Scaposa, fl. umbellatis ceruleis*—Habit of the Hyacinth and mistaken for such by some or united to Triteleia. Two types 1. *T. grandiflora* Raf. Triteleia do Lindl. b. reg. 1293. fol. lin. glaucis, scapo brevior, spatha triphyla, umbella paucifl. bract, ped. eq. filam. callosis. Oregon.—2 *T. laxa* Raf. Trit. do. b. reg. 1685. fol. lin. glaucis scapo longior, umbella 6flora, ped. laxis bract. longior, filamentis cristatis. California.

CENTURIA VIII.

701. RESEDINIA, this little family of mine belongs to the Order Polymesia and is very near the GLINIDIA see 351, differing by unequal calix, petals and stamens; the capsule is unilocular end polysperm, seeds parietal, as in some Hypericines, but the habit is very different. and also from Droseridia; altho' the flowers are akin, but stamens not isarine. It is also akin the Euphorbides; how Jussieu and others put them near the Capparides with a single style, is rather strange. The G. *Reseda* of L. is the type of it, and as it had a crowd of anomalies may be easily divided into several good genera, only united by the fruit, which even differs in Astrocarpos.

702. RESEDA Raf. cal. 6part. ineq. petalis 6-8ineq. nonnulis integ. et nonnulis divisis, stam. 12-14 hypog. ineq. disco glanduloso, stylis 3-4 caps. angul. verrucosa, apice 3-4 dent, dehiscens, uniloc. polysp. placentis 3-4parietalis. *fol. alt. sepe dissectis, fl. racemosis—Reseda odorata* must be the type of this old Genus,with *R. suffruticosa, lutea, gallica, mediterranea, tetragyna? &c.*

703. TEREIANTHES Raf. (cut fl.) difl. 702, cal. 5part. petalis 5 subeq. omnis 3 seu 5fidis, stam. 11-15 ineq. stylis 3-5.—Types *T. undata* Raf. Reseda do L. 2 *T. fruticosa.* 3 *T. glauca*, 4 *T. alba:* all Resedas.

704. PECTANISIA Raf. (comb uneq) diff. 702. cal. 6part. reflexo magno, petalis 4 ineq. pecti-

natis, stylis 3, caps. angulata 3dentata—Type. P. *phyteuma* Raf.

705. ARKOPODA Raf. (nom. gr.) diff. 702, cal. 4fido, petalis 3, 2 integris vel trifidis, uno major supero multifido, stam. 12-15, stylis 3. *fol. integris*—Type A. *luteola* Raf. Reseda do. L.

706. HEXASTYLIS Raf. diff. 703. Ovario stipitato, stylis 6, caps. 6dentata, *fol. integris*—In this G. the number of petals is anisostyle. Types *H. canescens*, 2 *H. arabica* Raf. Reseda hexastylis Forsk.

707. DIPETALIA Raf. diff. 702, cal. parvo marg. membr. petalis 2 integris cuneatis, stylis 4. *fol. integris*—Type *D. capensis* Raf. Reseda do Burm. R. dipetala Ait. W. P. fol. linearib. integris.

708. ASTROCARPUS Necker, Sesamoides T. diff. Tereianthus 703, petalis 5 multifidis. stylis 4-5, capsula 4-5loba, demum 4-5valvis stellata. *fol. integris*---Type A. *purpurascens*, and *Sesamoides*, Resedas of Authors.

709. NICOTIANA L. the plants akin to the real Tobacco form several Genera, and more must be added. They all properly belong to the family of Verbascides by the unequal stamens, the capsule bilocular with many central seeds, separates them chiefly from Solanides and Convolvulides. I will give the main distinctions of the old Genera, so as to contrast them with my new Genera.

NICOTIANA cal. tubulosus tereto 5dent. eq. cor. infund. plicata, 5dent. stam. 5 ineq. filif. stigma capit. bilobo &c.

PETUNIA Jus. diff. cal. profunde 5fidis, cor. hypocr. 5loba.

LAMARKEA Rich. diff. cal. tub. 5gonus 5fidus, cor. hypocr. 5loba.

NIEREMBERGIA R. P. diff. cal. tubul. 5fido, cor. hypocr. tubo longissimo, limbo subineq. stam. 5 exertis, filam basi connatis. Many sp. now known; but some are anomalous and must form New Genera.

710. SIPHAULAX Raf. cal. tubul. 5dent. cor. tubo clavato curvo basi 5gonus, apex 5sulcato, limbo parvo cupularis 5dent. stam. 5ineq. Ovario immerso in disco carnoso. stylo filif. stig. bifido. caps. 2loc. recept. centrale magno carnoso. *Frut. fl. panic*—This ample diagnosis evince its distinctions from Nicotiana, the type is S. *glabra* Raf. Nicot. do Gr. b. mag. 2837. Suffrutic. glabra, fol. ineq. ovatis repandis acutis longe petiolatis, panic term. Buenos Ayres.

711. LANGSDORFIA Raf. vel PERIETERIS Raf. cal. camp. ineq. 5fidus cor. hypocr. tubo clavato, limbo eq. sepe integro rotato, stam. ineq. 1 minor—Thus nearer *Petunia*. main diff. the unequal calix. Types *L. P. viridiflora* Raf. Nicot. langsdorfi R. S. b. mag 2555. fol. sess. obl. acutis villosis, superis decurrens, fl. panic. parvis viridis. Brazil—2 P. *tristis* R. Nicot. do Com. Sm. fol. undul. rad. obov. caulinis lanceol. fl. racemosis. B. Ayres, fl. purple.

712. EUCAPNIA Raf. (good smoke) cal. obl. 5gonus 5dentis ineq. cor. hypocr. tubo gracilis limbo stellato 5partito—Thus between Lamarkia and Nicotiana, diff. unequal teeth of calix. Type *E. repanda* Raf. Nicot. do Lehm. Hook. b. m. 2484. fol. amplis cordatis repandis undul. fl. axill. et subspic. sessilis, lac. limbo ovatis acutis uninervis.—This is the mild tobacco of Cuba, flowers small incarnate.

713. CAPNOREA Raf. (smoke of mts.) cal. camp. 5fidus ineq. cor. hypocr. tubo clavato, limbo plano 5fido, stam. 5 subeq. pilosis, disco

annularis, *Acaules, fol. et fl. radic*—Very near 711, but different habit, limb divided and pilose stamens. Type *C. nana* Raf. Nicot. do Edw. b. reg. 833. fol. pilosis lanceol. et cuneatis, fl. subsess. brevis. lobis limbo obtusis. Oregon mts. cult. by Indian tribes as a mild tobacco, leaves 2 or 3 inches only, flowers small white.

714. Amphipleis Raf. (all more) cal. ovatus costatus 6-8fidus, cor. hypocr. tubo basi infl. limbo plano 6-8fido, stam. 6-8ineq. caps 4-8loc. 4-8valvis. stigm. capit. integrum. *fl. axil.*—This G. deviates widely from the tobacco tribe, and is still nearer the Convolvulides. Two types, *A. 4valvis* R. Nicot. do. 2. *A. fetida* R. Nicot. multivalvis Lindl. b. reg. 1057. Viscido pilosa, fol. lanceol. inf. petiolatis, fl. axill. subsess. cal. acuto, cor. obt. cult. on the Columbia R. hircose smell.

715. Cohiba Raf. (Haytian) diff. Nicotiana cal. hirtus camp. cor. campanulata 5dent. capsulis bicornis. *Frutic. fl. racemosis*—Type C. *urens* Raf. Nicot. do L. auct. Arboreus hispidus, fol. cord. crenatis, racemis compositis secundis. South Amer. fl. white.

716. Blenocoes Raf. (Renealm) diff. Nicotiana et Petunia cal. magis ineq. lacinia una foliosa duplo major, cor. obliqua subringens, *fl. racem.*—Type *Bl. glutinosa* R. Nicot. do L. auct. fol. petiol. cordatis, glutinosis, racemis secundis—Peru, fl. rosate.

717. Siphonema Raf. (tube fil) cal. camp. limbo amplo 5part. ineq. foliaceis. cor. hypocr. tubo filiformis, limbo 5lobo subeq. stam. 5 ineq. inclusis, filam. et antheris connivens vel coalitis. stig. oblongo transverso integro—Very peculiar G. near Cohiba and Nierembergia, two types.

718. *Siphonema longiflora* Raf. Nierembergia calicina Hooker b. mag. 3371. glandulosa, fol. opp. et alt. petiol. obovatis, pedic. extraxill. cal. obovatis—Paraguay.

719. *Siphonema filicaulis* R. Nieremb. do Lind. b. reg. 1649, Hook. b. m. 3370. Glabra erecta, ramis filif. fol. alt. linear. cal. linearib—Buenos Ayres.

720. Stimomphis Raf. (stig. umbil) cal. campan. 5fidus ineq. foliosus,cor. campanulata 5loba subequalis, stam. 5 ineq. 2 major, stylo filif. stig. turbinato umbilicato, *Fl. axillaris*—Another striking G. blended with Nierembergia and Salpiglossis; this last is very distinct by only 4 fertile didyn. stamens, and is of therefore another family. Type *St. linearis* Raf. Salpiglossis do Hook. b. m. 3256. Nieremb. intermedia Grah. fol. sess. lin. obl. caule ramoso, fl. ax. pedic. Buenos Ayres, fine purple and yellow flowers.

721. Stimoryne Raf. (stig. club) cal. 5partito ineq. cor. campan. 5loba subeq. stam. 5fertilis ineq. stigma clavato. *fl. axill.*—Very near the last, chief diff. calix and stigma. Type. *St. purpurea* Raf. Nieremb. phenicea Gr. Salpigl. integrif. Hook. b. m. 3113. fol. spatulatis obl. integris, fl. solit. pedic. Uraguay, fl. purple.

722. Stimenes Raf. (stig. lunul) cal. camp. 5fidus equalis, cor. hypocr. limbo plano ineq. 5 lobo, stam. liberis subeq. 2 longior, antheris renif. stigma lunulato magno transverso. *fl. terminalis*—Near to 720 diff. equal cal. and stigma. Type. *St. gracilis* Raf. Nierembergia do Hook. b. m. 3108 caule erecto gracile, fol. sparsis linearib. fl. term. Uraguay, flowers white streaked of blue.

723. Ninanga Raf. (nom ind) cal. duplex

utrinque 3part. persist. erectis coloratis, internis bifidis, tubo corolliformis urceolatus 5dent. antheris 5 intus ferens. stylis 2. utriculus 1spermus. *fol. oppos. fl. verticil*—This G. must be added to the Gomphrenides, but is very distinct from *Gomphrena*, the type of which must be the G. *globosa* and akin sp. that have cal. ext. 3p. int. 5part. one style, 2 stigmas, as I have verified: it is *Oplotheca* that has only one capitate stigma. The types of *Ninanga* are *N. bicolor* Raf. Gomphrena perennis L. auct. b. m. 2614. and perhaps 2 *N. interrupta* Raf. Gomphr. do L. Celosia procumbens Jaq. —Gomphr. arborescens is probably type of another G. Wadapus Raf. but I lack the distinction.

724. Megasea Haworth. aff. Telesonix 252. Petalis unguicul stam. 10 ineq. 5 alt. brevior. *scaposa fl. cymosis*—Another G. to be added to the *Saxifragides*, Ovary free and capsule as in them, but unequal stamens. Type *M. ciliata* Haw. Saxifraga ligulata Wallich. Hook. ex. fl. 49, b. mag. 3406. fol. radic. petiol. obov. erosis retusis ciliatis, scapo panic. cymoso—Nepal.

725. Evaltiie Raf. (Nymph) cal. tubul. 5 gonus 5fidus eq. cor. hypocr. limbo 5fido rotato, stam. 5equalis, antheris linearib. 4gonis 4 dentatis, stylo sulcato erecto, stig. capit. obtuso —Another fine G. of Gentianides near *Chironia* 491. It shows well the family character of opposited stamens. Type *E. jasminoides* Raf. Chironia do L. auct. b. reg. 197. Caule 4gono, fol. cuneatis lanc. acutis, ramis unifloris. South Africa, fl. rosate.

726. Exacum L. auct. cal. 4fido eq. cor. 4 fida basi globosa, stam. 4, antheris poro dehis-

cens, stylo declinato, stig. unicum, caps. 2loc. 2 valvis—This is a corrected account of this G. and includes chiefly *E. sessile, pedunculatum* &c, many G. have or must be taken from the old Linnean genus, like the next.

727. Sebaea Solander, Br. Sm. cal. 5part. carinatis, cor. infund. 4fida, tubo inflato, stam. 4, antheris elongatis stylo erecto, stig. 2, caps. compr. 2loc. 2valvis—This includes the *Ex. albens, aurea. ovata*, &c, but not the *cordata* see next. The G. *Cutubea* Aublet chiefly differs by the 4 scales, caliq 4fid and capsule nearly unilocular.

728. Parrasia Raf. (Nymph) diff. 727, corolla 5fida, stam. 5 calix dilatatus 5part. membr.—Type *P. cordata* Raf. Exacum do L. and Gentiana exacoides L. thus put into double Genera by him, caule dichot. angul. fol. cord. amplex. fl. luteis. S. Africa.

729. Episiphis Raf. (upon tube) cal. 5part. eq. extus bracteis 2 magnis involvens, cor. campanul. petalis 5 connivens in tubo, basi intus squama lanceol. posita ut in Ranunculus, stam. indef. pauca in 3 phalangis basi tubulosis, glandulis 3 hypogynis ad basi ovar. stigma 3 subsessilis. caps. 3loba, 3loc. polysp. F*rutex fol. opp. parvis, ramis 1fl.*—A very distinct G. blended with Hypericum and Elodea by all Authors. Type *E. parvifolia* Raf. Hypericum egyptium L. auct. bot. reg. 196. caule suffrut. compresso, fol. ovatis acutis glaucis squamiformis, ramulis unifl. petalis spatulatis. Egypt, small yellow flowers.

730. Triadenum Raf. 1808 (3 glands) cal. 5part. equalis, Petalis 5 eq. stam. 9 in 3 phalanges planis trifidis triantheris, glandulis 3 magnis carnosis, alt. cum phalanges. Ovario

3gono. stylis 3, caps 3valvis subuniloc. *axil. et term*—I established this fine G. long ago for the Hyper. Virginicum, to which must be added several blended or new species of North America, improperly united to Elodea of Adanson. See in my new flora *Tr. virginicum.*

731. Elodes Ad. Raf. diff. 730 Petalis 5 basi squamulis ut 729, stam. 9-12-15 basi coalitis, apice in 3-5phalanges divisis, glandulis interpositis nulli —This G. is thus between the two last, the types are *E. tubulosa, petiolata*, &c; the *Elodea* of the actual botanists, includes all these 3 genera.

732. Sarothra Raf. 1808 non L. ad Hypericum vel Tridesma diff. stam. paucis 5-12 liberis vel vix coalitis, stylis 3, capsula 3valvis unilocularis, valvis seminiferis—The Linnean Sarothra was united to Hypericum; but many sp. having few stamens, uniloc. capsules, and commonly small flowers and leaves, required to form a G. including many sp. *S. fastigiata, pauciflora, trinervia, canadensis, parviflora*, &c, Choisy in his Monograph of this family in 1821, as well as Decandole since, have yet united this to Hypericum.

733. Hypericum Raf. I confine this G. to the first section of L. et Dec. with 5 styles, 5 phalanges, caps. 5locular. many sp. I shall return on the fine family of Hypericines, but will now give the main distinctions of my Genera of 1815 before Choisy, to which I shall add 4 others hereafter.

734. Komana Ad. diff. stylis 5 coalitis seu stylo unico, stig. 5. caps. 1loc. 5valvis. *Centena* subgenus with 1style 5fid.

735. Tridesma Dec. subg. cal. ineq. pet.

eq. phalanges 3, stylis 3, caps. 3loc. 3valvis.—Most of the species.

736. Streptalon Raf. cal. 5p. ineq. petalis 5 obliquis contortis, stam. pluris liberis, stylis 3, capsula uniloc. 3valvis—Type *Str. dolabriforme*, &c.

737. Petalanisia Raf. cal. ineq. pet. ineq. stylis 3, caps. 3locularis.

738. Pleurenodon Raf. cal. campanul. 5fidus, pet. 5eq. latere unidentatis, stylis 3, caps. 3loc?

739. Kniffa Ad. cal. eq. 5fido camp. pet. eq. stylis 2, caps. 2loc. *H. brevistylis* Choisy tab. 7 appears to belong here.

These G. are all distinct from the others of same family, such as Ascyrum, Androsemum, Arungana Jus. Palava R. P. Vismia W. or Caspia Necker, Eucryphia Cav. Carpodontes, Brathys Mutis &c, but *Triplaris* with one seed is of Amaranthidia.

740. Anisanthera Raf. diff. ad Borrago, cor. hypocraterif. non rotata, tubo cal. longior, antheris magnis longis inequalibus—Type A. *ciliata* Raf. Borrago macranthera Russel fl. alep. fol. lanceolatis ciliatis, calicib. ciliatis. Syria.

741. Eudesmis Raf. (well fasc) diff. ad Hypoxis, cor. tubo longo filif. limbo 6part eq. stam. 6ineq. 3 brevior alt. stylo filif. stig. obtuso, *Spatha rad. fol. et fl. involvens latere fissa*—Very distinct *G.* by habit, tube and stamens. Type, *E. fascicularis* Raf. Hypoxis do. L. Russel, fl. alep. fig. 9. Allium Rus. 1. ed. fig. 2. Bulbo subrot. fol. linearib. canalic. cum florib. fasciculatis. Syria, fl. white.

742. Chetropis Raf. (bristle keel) diff. ad Alsine, cal. carinatis aristatis, petalis 5 integris brevissimis---Type *Ch. setacea* Raf. Alsine

mucronata Gouan ill. 22. A. aristata Rus. alep. p 249 fol. setaceis, cal. glabris mucronatis aristatis, petalis linearibus. Syria and Italy. Alsine differs from Stellaria by 5 stamens, but has bifid petals like it. This is perhaps a subg. of the next.

743. Melargyra Raf. (membr. silvery) cal. 5part ineq. margine membr. Petalis 5 integris cal. eq. (rubris) stam. 5-8, stylis 3, caps uniloc. 3valvis, *fol. fascic. cum. stipulis membr. argenteis*—Very near to the last G. chief diff. calix and stipules. This G. includes all the pentandrous Arenarias like *A. rubra, media, purpurea, canadensis* &c with the next N. Sp.

744. *Melargyra rosea* Raf. Caulib. prostratis, apice pubescens, fol. subul. internodis eq. fl. axill. racemosis, cal. obt. pubesc. petalis ovatis roseis cal. vix brevior, caps. ovatis cal. eq. —dry hills of Pennsylvania, pretty flowers autumnal.

745. Disynoma Raf. (2 un. law) Crucifera, sepalis et petalis subineq. obov. obl. obt. stam. 4 minora 2 libera, 2 major binis coalitis, filam. 2 obl. planis bifurcatis 2antheriferis. Ovar. orbic. compr. stylo filif. stig. acuto. siliculis orbic. obcord—Singular G. near Thlaspi, but belonging to the tribe of Anomandria or cruciferous anomalous in the stamens. Type *D. carnea* Raf. Thlaspi carneum Russ. fl. alep. tab. 11. f. 2. caule superne ramoso, fol. cord. amplex. glabris integris, petalis cal. eq. carneis. Syria and Natolia, found by Tournefort and Russel. Not in Wildenow nor Persoon,who both appear to have overlooked all the 77 new plants of Russel in his floras of Aleppo and Libanus, although published in 1794!

746. Andaca Raf. (nom. gr.) Legum. cal. camp. bilab. lab. 2-3fidis, vexil. unguic. subrot. emarg. carina brevis. stam. 9 monadelphis, 4 alt. brevis, antheris subrot. sterilis, 5alt. longior fertilis, antheris oblongis, apice poro dehiscens, stam. decima libera sterilis, anth. subrot. Ovar. genicul. lineare. stylo brevissimo, stig. capitato, Leg. tereto polysp. *fol. ternatis, pedunc. axil.* 1-3*fl.*—A fine G. that has escaped all the botanists altho well described by Russel, and quite distinct from *Lotus* by the singular stamens. Type

747. *Andaca arabica* Raf. Lotus arabicus L. et omnis auct. Russel fl. alep. tab. 14. Jaq. h. t. 155. Prostrata, fol. pet. foliolis 3 petiol obov. obt. subincanis glabriusc. stipulis fol. similis, pedunc. erectis 1-3fl. unibract. fl. nutans—Arabia and Syria, flowers fulvous with red veins.

748. Loreia Raf. Campanulacea, cal. 5part. ineq. serratis, cor. rotata 5part. ovar. villoso sulcato, stam. et stylis ut Camp. caps. 3loc. 3 poris dehiscens.—A pretty G. to add to this family, it is near the true G. Campanula, but differs by the calix, rotate corolla and ovary. Type

749. *Loreia baldensis* Raf. Camp. do. Balbi, C. lorei R. S. b. mag. 2581. caule diffuso 5gono, fol. pet. ellipt. obl. lanceol. serratis, pedunc. elongatis unifl, cal. ad cor. eq.—Mt Baldo and Alps, flowers dark blue.

750. Rafinesquia vel Diodeilis R. Labiata. cal. tubulatus rectus striatus subbilab. lab. sup. bident. inf. 3dent. faux intus villosa clausa cor. recta bilab. lab. sup. concavo emarg. lab. inf. subeq. 3lobo, stam 4 remotis, antheris cordatisbilobis sem. levis, *Frutic. fl. axill*—Here

is another Rafinesquia for a fine shrub mistaken by all the Authors, and forced into 3 Genera! Cunila, Melissa, Gardoquia! if not approved, I add a 5th name! abridged from *Diodontocheilis*! I add next the Gardoquia to compare them. The type of this is in my herbarium with several other shrubby Labiate of Florida.

751. *Rafinesquia* (vel. *Diodeilis*) *coccinea* Raf. Cunila! do Hooker, Melissa! do Spr. Gardoquia! hookeri; Benth, Don. Lind. bot. reg. 1747 . . . Fruticosa, glaberrima, fol. obov. sess. acutis integr. pedunc. axil. 1-3fl. pretty Shrub from Florida, flowers scarlet or miniate, seen dry. Bentham doubted the G. of this plant, he says it has stamens nearly like Origanum. I have another N. G. from Florida different by campan. calix &c. see *Diseldia*.

752. Gardoquia R. P. fl. per. cal. tubul. incurvus 5dentib. subeq. faux nuda s. barbata, cor. tubulosa incurva. lab. sup. plano emarg. lab. inf. 3lobo, lobo medio latior. Antheris renif. sem. levis. *Frut. fl. axil*—Thus every thing is in contrast with the last except the habit. Type G. *chilensis* bot. reg. 1812 fol. linearib. cuneatis obtusis, Chili---I shall begin to add some good new Genera to those of Bentham on the Labiate: I have already stated that his valuable labors are incomplete in many genera, and that his tribes of Labiate are artificial. The old division of Unilabiate, Diandres,and Didynames by Jussieu was more natural, the stigma lateral or terminal, the stamens bilocular or unilocular,with or without appendages, would form much better natural tribes. Therefore I offer the following tribes or families to be hereafter rectified and enlarged.

753. Order LOBOGYNIA, suborder ARCYTHIA Family LABIATA---1 subfamily or tribe DIANDRIDIA, the Diandrides with two fertile stamens, filaments simple. Types Monarda, Lycopus, Cunila, &c.

754. SALVIDIA, the Salvides or Sages, stam. 2 fert. filam. append. antheris uniloc. types Salvia, Sclarea, and Hemistegia, *Calosphace* &c.

755. UNILABIATA, the Unilabiates, stam 4,corollis unilab---Teucrium,Ajuga, Scorodonia, Monipsis, Chamedrys, Melosmon. &c.

756. BILABIATA, the true Bilabiate and Galeate, stam. 4. cor. bilab. divided into several smaller tribes.

1. PRASIDES, with baccate seeds. Prasium L. or Levina Ad.

2. HETEROSTIMES, with terminal or unusual stigma, Sideritis, Lavandula, Cleonia, Perilla.

3. PLEIODONTES, calix with more than 5 teeth Leonotis. Hemisodon, Marrubium, &c.

4. SYNANDRINES, stamens united or connivent Synandra, Coleus &c.

5. THYMIDES, stamens divergent far apart. Types Thymus, Satureja, Hyssopus, Origanum, &c.

6. OCIMIDES, stamens declinate, 7th order of Bentham, very unnatural.

7. BRUNELLIDES with furcate stamens, *Brunella*, &c.

8. NEPETIDES. All the Genera excluded by the aboue characters ; and they are yet very numerous. I shall increase the 108 Genera of Bentham to about 160 ; but most of the N. G. beong to Unilabiates or Salvides or Phlomis &c.

757. TEUCRIUM Raf. non L. et auct. I confine this G. to the Species with cal. urceolatus,

5dent. eq. cor. lab. sup. vix nullo, infero lobato concavo, *fl. racemosis*. Types *T. flavum, fruticosum, canadense, virginicum*, and several sp. blended with these, see my new flora.

758. Scorodonia Ad. diff. 757. cal. tubul. incurvus ineq. sub labiato, dentis 5ineq.—Types *Sc. trivialis, massiliense, sicula, arduini* &c, and other blended sp.

759. Chamedrys *Tourn.* diff. 757,cal. tubul. lanato subintegro, cor. lab. supero brevis sed evidens dilatato, *fl. axill. et glomeratis*. Types *Ch. marum, polium, capitatum, creticum, quadrulum, betonicif. nissolianum, latif. montanum, pumilum* &c. 3. subg. 1. *Polium* fl. cap. 3 *Marum* fl. racem. 3 Chamedrys fl. vertic axill.

760. Trixago Raf. (n. antic.) Iva Dillen non L. diff. 757. cal. gibboso, inflato tubul. 5 dent. connivens, *fl. axill.* Types *T. botrys scordium*, &c.

761. Melosmon Raf. (n. diosk) diff. 757. cal. amplo campanulato 5fido eq. 10striato, dentis carinatis, *fl. axill.* Types *M. bicolor, rotundifol. campanul. orientale*, &c.

762. Scorbion Raf. (n. diosk) diff. 757. cal. curvus striatus, apex camp. 5dent. ineq. 1 sup. major, 4 inf. spiuosis, cor. basi globosa. *fl. axill* —Type *Scr. spinosum*; but several sp. are blended under Teucrium Spinosum.

763. Monipsis Raf. (single form) diff. 757. cal. camp. 5fido subeq. ut in 761, cor. tota unilabiata, lab. sup. nullo, lab. inf. labelliforme 5lobo, lob. ultimo major, stam. et stylis superis adscendens. *fl. axill*—Type *M. orchidea* Raf. Teucr. do Lind. b. reg. 1255. frutex, fol. obl. obtus. sessil. glaucis subint. fl. axill. solit. sess. carneis. Chili.

Thus I have tried to revise Teucrium into 7 Genera; but all the sp. must be examined again. Linneus had 35 sp. Schreber in monogr. unilab. and Vitman 26 more, Persoon 69 in all: we have nearly 100, of which but few are completely described. According to Smith several belong to Ajuga, such as T. iva, laxmani, chamepytis, and salicifolium, but this last has 4fid calix! if so it is a Subgenus. *Vimenerba* Raf.

764. ORIGANUM Raf. non L. one of the absurd linnean Genera formed upon mere habit and the strobilaceous inflorescence, and therefore including many distinct G. I confine the name to the sp. with *calix tubulose equal 5 dentate*, such as *O. vulgare, humile, glandulosum, americanum*, &c, and akin. The Authors having neglected to describe the Corollas of the sp. many genera are yet hidden therein perhaps, such as

ZATARENDIA R. type O. egyptiacum L.

OROGA Lobel. type O. hereaclontica.

765. AMARACUS Mench. cal. tubul. 5dentes ineq. supera major labiatiformis, cor. basi saccata, faux compressa—Type Am. *dictamnus* and *sipyleus*.

766. MAJORANA Raf. cal. urceolatus bilabiato, lab. sup. magno integro, lab. inf. parva dentata—Type *M. fragrans* Orig. majorana L. 2 *M. suffruticosa*. Orig. majoranoides W. 3. M. *tenuifolia*, 4 *Syriaca*? &c.

767. ONITES Raf. cal. bilabiato, labis subeq. subintegris—Type *Onites tomentosa* Raf. Orig. onites L. &c.

768. BELTOKON Raf. (n. gr.) differs from 764 by *Corolla calcarata* ut in Plectranthus!—Type *B. Tourneforti* Raf. Origanum do auct.

—Many other genera will probably be required, the Audibertia of Bentham would have been an Origanum for the linneists, although diandrous!

769. PHLOMIS Raf. non L. of all the absurd linnean G. of Labiate this was the worst (except Salvia) including a crowd of Genera united by nothing except verticillate flowers. It was so bad that Brown took away Leucas and Leonotis, I confine my *Phlomis* by cal. tubulosus 5gonus 5dent. equalis, cor. galea compressa emarginata, such as Phl. fruticosa, italica, nissoli, lychnitis, purpurea, crinita, samia, pungens, lunarifolia &c. and I establish the following 16 genera for the others till 785.

770. TRAMBIS Raf. (n. gr.) cal. tubul. 5gono extus glabro intus hirsuto, 5fido lac. patulis. Galea ovata dentata intus lanata—Types *Tr. tuberosa* and *alpina*, both Phlomis of L. and perhaps my *Phlomis grandifolia*, which is a subgenus *Blephiloma* see am. flor. and appendix.

771. CLUERIA Raf. (n. lat) cal. 5dentato eq. lanato, galea ovata plana fimbriata *fol. pinnatis*—Type *Cl. laciniata* Raf.

772. ANEMITIS Raf. (wind plant) cal. dentib. 5 aristatis pungens subeq. Galea bifida—Type *A. rigida* Raf. Phlomis herbaventi L.

773. BELOAKON Raf. (n. gr.) diff. 772 Galea non bifida, villosa, apice crenata, labio infero latere dentato, lobo lato emarginato—Types *B. luteum* Raf. Phl. herbaventi Russel fl. alep. t. 16, non L. fol. subsess. ovato lanc. acutis serratis, bracteis lanceol. ciliatis. mts of Syria, fl. yellow; while white and purple in Anemitis rigida, 2. *B. tomentosum* Raf. Phl. lunarif. Hook. b. mag. 2542. Phl. russeliana Lagasc. not

Russel plant,fol. ovatis serratis ruogosis, subtus tomentosis, bract. lin. lanceol. Spain.

774. Hersilia Raf. (nymph) cal. camp. profunde 5fido, galea profunde bipartita.—Type *H. biloba* Raf. Phl. do Desf. alt. t. 127.

775. Leonotis Pers. Br. cal. tub. angulato ineq. 8dentato spinoso, dens supero major, Galea elongata concava villosa integra, lab. inf. parvo deflexo trilobo subeq.—Types *L. nepetif.* 2 *L. capensis.* (Phl. leonitis L.) 3 *caribea?* cal. incurvus, subg. *Eupalus.*

776. Hemisodon Raf. (half. eq. teeth) diff. 775. cal. tubulosus regularis 10dent. 5 dent. alt. minor—Type *H. leonurus* Raf. Phl. do L. Leonotis do. Br. b. mag. 478.

777. Blandina Raf. (Nymph) cal. campan. subinfundib. 10dent. 5 alt. minor. cor. an idem 775 ?—Types Bl. *biflora* and *chinensis.* Phlomis do W. Stachys Forst. Leucas of Brown.

778. Isodeca Raf. cal. obl. 10striatus, 10 dentatus equalis. galea integra—Near to Hemisodon and Marrubium, but this last has bifid Galea. Type *I. flaccida* Raf. Leucas do Br. fol. ovatis membranaceis, verticillis multifloris. India.

779. Leucasia Raf. diff. 778. cal. obliquo 10 dentis subineq.—Type *L. zeylanica* Brown, Leonurus indicus L. Leucas was too short a name, root of Leucadendron and Leucanthes.

780. Hetrepta Raf. diff. 778, cal. obl. striato 7dentes inequalis—*H. lavandulifolia* Raf. Leucas do Br. Sm.

781. Eneodon Raf. diff. 778 cal. membranaceo truncato obliquo. striato, 9 dentes ineq.—Type *E. urticif.* Phlomis do W. P.

782. Elbunis Raf. (n. gr.) diff. 778. cal. campanul. faux obliqua 5dent. subeq. cor. lobo

medio ad lab. inf. obcordato major—Type *E. alba* Raf. Phlomis do W. &c Leucas Br.

783. Doriclea Raf. (nymph) diff. 778. cal. obliquato unilabiato 3dentato—*D. indica* Raf. Phlomis do L. &c.

784. Heptrilis Raf. (7-3lip) cal. campan. bilabiato, lab. sup. 7dentato, lab. inf. 3dent. aristatis, cor. lobo medio ad lab. inf. majus obcordato—*H. glabrata* Raf. Phl. do W. Leucas Br.

785. Dictilis Raf. (net lip) cal. campan. bilabiato, labis integris, supero ovato acuto, infero dilatato membranaceo reticulato undulato non dentato—*D. molucoides* Raf. Phl. do Vahl. W. P. Leucas Br. Clinopodium fruticosum Forsk. fol. ovatis, vertic. multifl, bracteis setaceis. Arabia.

786. Vleckia Raf. 1808 (bot. Van Vleck) Lophanthus Benth. 1828! non Lophanthus Forst. 1780. This G. was ascertained by me in 1802, Bentham long after not knowing of my name, gave it that of Lophanthus already employed by Forster, whose genus had wrongly been united to Waltheria by Wild. Many types, *Vlechia chinensis*, *multiflora* (Nepeta.) *nepetoides*, *scrofularif. anisata*, *urticifolia*, all Loph. of B. besides my N. sp. *Vl. cordata*, *alba*, *parvifolia* see my new flora: united to *Nepeta* and *Hyssopus* by L. distinct by lab. infero dilat. crenato, stam. divergens, antheris loculis paralelis.

787. Hemistegia R. (half over) Labiate, Salvian—cal. urceol bilab. sup. integro. infero bifido. Cor. tubul bilab. galea recta integra, labello. patulo apice pandurato 4lobo, lobis subeq. stam. 2 elongata, appendice plano. stylo apice barbat. stig. lateralis acuto. Ovarium su-

pra semitecto lobo ovato intus septifero ad medio, sem. 4 semitectis—Type *H. mexicana* Raf. Salvia do L. auct. on which I have ascertained this singular structure of Ovary upon the living plant. Many other sp. probable possess the same new Organ, which is similar to a septiferous valve of half a capsule, being a passage to the capsular structure. Something similar was found by Bentham in his N. G. Physostegia but reduced to a clavate gland. All the sp. of Salvia must be now examined to ascertain if thoy possess it, or what kind of disk.

788. Salvia Raf. non L. The *S. officinalis* and sp. agreeing with it must form this reduced G. 200 sp. of Sages have been united to it, that have nothing in common except the appendages to the stamens, which form a good character for a family, not for a Genus, which must agree in all parts of fructification! The G. Sclarea, Jungia, Glutinaria, Schraderia of Heister must all be restored and properly fixed. I had formed 17 Genera out of Salvia, as early as 1810, I shall now give some striking types out of them like my Hemistegia and the next G. till 800.

789. Codanthera Raf. cal. tubul. bilab. 3 fido. cor. longe tubulosa galea integra, labello brevis 3lobo. stam. 2 elong. appendices clavatis, antheris campanulatis ¡ *frutic. fl. term.*—striking G. by the singular anthers. Types 1. C. *glabra* Raf. Salvia strictiflora Hook. b. m. 3135. suffrut glabra, fol. ovatis cordatis obt. serratis, vertic. paucifl. Tucuman. 2 *C. biflora* Raf. Salvia do R. P. tubiflora Sm. frutic. villosa, fol. villosis cord. obt. serratis, vertic. bifloris. Peru.

790. Belospis Raf. (arrow ap.) cal. colorato

tubul. bilab. sup. major integro, inf. vix bident. cor. fusiformis, galea concava integra, label. subeq. 3lobo. filam. dilatatis planis, appendices sagittatis, stylo pubescens. *fl. racemosis bracteatis*—Type *B. levigata* Raf. Salvia do Kunth t. 147. spr. Salvia involucrata Cav. W. b. m. 2872, b. reg. 1203 fol. ovat. acum. serr. bracteis coloratis deciduis, vertic. 6fl. Mexico, scarlet fl. and bracts.

791. PIARADENA Raf. (thick gland) diff. 787. cor. ventricosa, labello trilobo, appendicis spatulatis, disco antice glandula magna munito, stylo villoso---Here we have a glandular disk instead of the valved one of Hemistegia. Type P. fulgens Cav. W. b. reg. 135. s. Cardinalis Kunth t. 152 seen alive.

792. LASEMIA Raf. (hairy half) cal. tubul. 2 lab. 1 et 2 dent. cor. brevis, tubo inflato, basi intus bidentatus, galea fornicata, integra, lab. 3lobo, lobo medio magno flabellato emarg. appendices parvis, stylus subtus villosus, glandulis nullis---Type *L. coccinea* Raf. Salvia grahami, Benth. bot. reg. 1370. frutex, fol. pet. ovat. obt. crenatis, racemis verticil. Mexico, fl. scarlet. This G. is well marked by style, lip and tube: seen alive.

793. AITOPSIS Raf. (n. gr.) cal. camp. bilab. 1 et 2 lobo. cor. brevis. galea erecta integra, labello 4lobo pandurato obcordato ut 787. stam. erectis flexuosis, appendices clavatis, stylo glabro, sem. triquetris levis---near 787 by Corolla, but calix, tube, app. style and seeds different. Type *A. foliosa* Raf. Salvia do Benth b. reg. 1429. fol. petiol. ovato serrat. pubesc. racemo vertic. Mexico, fl. azure.

794. CALOSPHACE Raf. (subg. Benth) near last diff. cal. tubul. striatus, galea ooncava.

This includes the many narrow leaved sp. blended and confused as *S. angustif. virgata. reptans, azurea, acuminata* &c, of which I possess many, see my new flora.

795. KIOSMINA Raf. (n. gr.) cal. tubul. 3 dent. eq. cor. brevissima, galea acuta villosa, labello vix 3lobo---Type *Salv. hispanica* and akin sp.

796. MELLIGO Raf. (n. lat) cal. tubul. 3fido vix bilab. galea emarg. labio trilobo. filam. basi connatis ! appendices glanduliformis—-Type *Salvia amena* and akin sp.

797. LARNASTYRA Raf. (cells cross) cal. camp. angul. bilab. sup. 3dentato. inf. 2fido; cor. tubulosa, galea ovata emarg. labio trilobo, medio emarg. filam. cruciferis, antheris loculis 2, valde separatis, uno interdum sterile, appendiculis nullis, sem. uniangulata—Types *L. lyrata, claytoni, verbenacea, urticifolia, indica* ? and other akin species of Salvia.

798. FLIPANTA Raf. [nymph] cal. tubul. 10 gonus, brevi 5dent. subeq. spinulosis : cor. galea compressa villosa, labio trilobo, medio concavo emarg. sem. 2-4---Type *Fl. ovata* Raf. Salvia spielmani Scop. del. t. 15. Vitm. caule rigido ramoso piloso, fol. ovatis crenatis rugosis, fl. vertic. nudis. Africa, flowers violet.

799. ENIPEA Raf. [nymph] cal. urceol. trilobo subeq. cor. galea recta compressa barbata, labio dependens villoso trilobo, medio vix major emarg.---Type *E. formosa* R. Salvia do Lher. t. 21. Wild. Curtis b. m. 376. Salv. nodosa fl. peruv. &c, suffrutic. fol. subcord. fl. axill. et vertic. Peru, fragrant shrub.

800. ELELIS Raf. [Salv. grec.] cal. bilab. 5 dent. 3fido et 2fido, galea compressa integra, labio cuculato subrot. emarg. lobis lat. falcatis,

stam. 2 exerta divaricata, appendices calcariformis marginatis, disco carnoso---Type *E. austriaca* Raf. Salvia do L. auct. often figured with akin sp. that may offer the same striking characters in corolla and stamens: the thick disk approximates to the glandular disk of Piaradena.

APPENDIX.

These axamples are sufficient to evince how many fine Genera are involved in Salvia, nearly as many as in all the other diandrous Labiate. To regulate the whole tribe will be a task for Bentham or Decandole, since the flowers of nearly all must be examined alive to detect the disk and forms of appendages. Although I have 70 sp. in my Herbarium, I find that it is not easy to determine the Genera in the dry state: yet I will indicate for further study some of the main essential distinctions of other new Genera, or subgenera of mine,

1. Oboskon cal. bipartitis, stylis 2! *Salvia cretica.*

2. Hematodes. Galea compressa falcata, labio lobo medio saccato emarg. *Salvia hematodes, indica* &c.

3. Glutinaria. cal. trilobus, galea falcata, labio lobo medio crenato. *Salvia glutinosa* et alia sp.

4. Crolocos cal. camp. membranaceo 3lobo. *Salvia aurea, colorata, pomifera, calicina.*

5. Megyathus cal. camp. patens 5dent. ineq. galea bifida, labio trilobo. *S. acetabulum* &c.

6. Ormiastis cal. ovato inflato subintegro, cor. brevis, *fol. pinnatis. S. pinnata.*

7. Rhodormis cal. camp. ringens, cor. la-

bio undulato, *fol. pinnatis. S. rosefolia.*

8. Sobiso cal. bilab. 5dent. cor. ringens, *fol. pinnatis.* Salvia *japonica* Th.

9. Sclarea. cal. camp. 5dent. ineq. spinosis, galea brevis compressa emarg. labio lobis lat. deflexis, medio bilobo crenato *Salvia spinosa, sclarea, tingitana, triloba* &c.

10. Terepis. Galea falcata bifida, labio 4 lobo pandurato, *subscaposu.* Type *S. forskalei, &c.*

11. Ormilis. cal. reflecto in fructo! . . . *S. horminum, viridis.*

12. Pleudia. Galea brevissima emarg. labio concavo ut Nepeta, stam. plerumque 4 fertilis! *S. egyptiaca* &c.

13. Euriples. cal. camp. stam. appendices foliosis. Type *E. rugosa Raf.* Salvia sibthorpi fl. gr. t. 22. caule ramoso subaphylo, fol. radic. cord. lobatis crenatis rugosis. Zante.

14. Epiadena. cal. camp. bilab. 3dent. et bifido, galea falcata compressa, labio trilobo saccato emarg. reflexis, filam. arcuatis supra glandulis insertis, et basi appendices malleatis, disco glanduloso et semitecto. Type. *E. bicolor* Raf. Salvia do Desf. t. 2. Parad. lond. t. 93. fol. cord. obl. repandis dentatis hirsutis rugosis, fl. racemosis vertic. 6fl. Atlas, beautiful flowers blue and white.

15. Addition to 415—*Polygonum arifolium* of Japan is totaly different from the N. Amer. being a subgenus of *Helxine*, only difference stam. 7. I call it Tasoba from the Japanese name, and the *P. sagittatum* of Thunberg, not Linneus, belong to the same—1 *Helxine* (Tasoba) *arifolia* Raf. Ramis heterogonis aculeatis. fol. hastatis acum. villosis strigosis, stipulis ciliatis truncatis, fl. glomeratis alternis. 2 *Hel-*

xine (Tasoba) *sagittata* Raf. ramis 4gonis scabris, fol. sagittatis subtus pallidis, stipulis bifidis inflatis, fl. capitatis globosis, bracteis ovatis acutis. Both in Japan, see Thunberg fl. Jap.

16. Addition to 418—*Polygonum filiforme* of Japan is not a *Chulusium*; but another N. G. according to Thunberg's description. I will call it SUNANIA FILIFORMIS, dedicated to Sunan a Japanese Botanist. cal. 4part. ineq (ut in Tovara) stam. 5 ineq. stylis 2, sem. compressa subtriquetra. Habit of Tovara,stam. and seeds different. Fol. ovatis, stipulis ciliatis inflatis, spicis filiformis.

17. Addition to 770—BLEPHILOMA Raf. (cil. edge) cal. tubulosus membran. glaber, non angul. subinfl. subincurvus, apex obliquatus 5 dent. ineq. subul. margine et dentis ciliatis. cor. incurva, galea concava emarg. villosa, margine dense fimbriato, labello brevis 3lobo medio emarg. stam. glabris. *Herbaceus, fol. cord. fl. vertic.*—This may well be a Genus of itself likewise rather than subg. The type is a new N. Amer. plant, while no other Phlomis has been found in this continent. Bl. *amplifolia* Raf. fol. inf. amplis petiolatis cordatis deltoideis crenatis obtusis glabris, fol. floralis sessilib. parvis ovatis dentatis acutis, verticillis multifl. bracteis cal. eq. linear. ciliatis. In Texas and Arkanzas, 3 to 4 feet high,lower leaves 8 to 13 inches long, 6 to 10 broad, corolla white incarnate: seen alive in gardens.

END OF THE THIRD PART.

INDEX OF THE GENERA, &c.
IN CENTURIES 5, 6, 7, 8,

Families are in Capitals, Synonyms in Italics.

FLORA TELLURIANA

CENTUR. I.--XII.

MANTISSA SYNOPTICA.

2000

N. ORD.—N. GEN.—N. SP.

PLANTARUM

IN ORBIS TELLURIANUM.

Determ. coll. inv. obs. et. descr.
Ann. 1796—1836.

Auctore C. S. RAFINESQUE, Bot. Prof.

PHILADELPHIA.

1836.

Les noms font les choses.

Names realize Entities.

Plus nos noms sont generaux, plus non idees sont incompletes.—Plus nous avons de noms, plus elles se completent. Lamark, Leach, &c.

FLORA TELLURIANA

PARS IV ET ULT.

FOURTH AND LAST PART

OF THE

SYNOPTICAL FLORA TELLURIANA,

CENTURIES IX, X, XI, XII.

With new Natural Classes, Orders and Families: containing the 2000 new or revised Genera and Species of Trees, Palms, Shrubs, Vines, Plants, Lilies, Grasses, Ferns, Algas, Fungi, &c, from North and South America, Polynesia, Australia, Asia, Europe and Africa, omitted or mistaken by the Authors, that were observed or ascertained, described or revised, collected or figured, between 1796 and 1836.

BY C. S. RAFINESQUE, A. M.

Prof. of Botany, historical and natural sciences—member of many learned Societies in Paris, Vienna, Bruxelles, Bonn, Bordeaux, Zurich, Naples, &c. Philadelphia, New York, Cincinnati, Lexington, &c.

To observe and compare, to correct or approve
By good names and new facts that convince and improve.

PHILADELPHIA.

PRINTED FOR THE AUTHOR

By H. Probasco, No. 119, *N. Fourth St.*

1836.

NOTICE.

This fourth part of the Flora Telluriana will conclude the work. It had been intended to divide it into 6 parts; but even these could not contain all what I have to add or correct on the Orders, Genera and Species of the whole world and all the classes of Vegetation: therefore it is better to limit this Work to Plants and Lilies chiefly; while I mean to publish separate Works additional to this on the Trees and Shrubs or a SYLVA TELLURIANA, on the Ferns and Grasses, Fungi and Algas, with perhaps Monographs of some peculiar Families of great interest, and probably a complete account of my New Class of the NANTIANDRES, having stamens alternate to calix or opposite to corollas, contrary to the usual order.

The price of this work will still be $5 or $40 for 10 copies, only 160 copies were printed, which makes it high, as but few copies can be sold in America, where Botanists cannot duly appreciate it, and they must be sent to Europe, to be often exchanged instead of sold.

PREAMBLE.

TO THE FOURTH AND LAST PART.

In the process of this work I have met with many interruptions and disappointments. It is neither easy nor agreeable to stem the current of botanical errors and blunders, and whoever swims against the streams of scientific prejudice may reckon on difficulties. I have met such in all my attempts to increase and correct knowledge; but I persevere nevertheless, and write for posterity rather than the actual Schools. I feel that my weary labors are not now appreciated except by a few, but am confident that in 50 years hence they will be more valued. Of this I have received already some assurances, when young and skilful Botanists have partly approved and adopted my views.

Meantime I must again repeat that whatever I now state or correct, had been mostly done by me between 1806 and 1815 chiefly, when I had matured my botanical reforms as stated in my Analysis of nature 1815. I then possessed the ample materials of all the works of Wildenow, the great dictionary and illustrations of Lamark and Poiret, Martyn's large edition of Millers in 4 volumes Folio, and the New Dictionary of Natural History in 24 vol. 8vo . . . besides many rare and valuable works . . . which were lost with my Mpts. in my Shipwreck of 1815. Having thereby been thrown back upon the world and entered new paths of life, I could only gradualy collect again my materials, and restore my labors imperfectly. Yet I have since then consulted and studied many other

modern labors similar to mine, without finding the same accuracy and perspicuity of Generic reform. While it is with the utmost difficulty I can obtain *even for money* some late works of similar tendency, although I try to correspond direct with the Authors.

Therefore I distinctly state here again, that my feelings being of the most liberal and friendly kind for all Botanists and Naturalists, all over the Earth, if my labors ever interfere with theirs it must be accidentaly and unknowingly, either because my Genera were those established by me between 1806 and 1815, or because I have not obtained yet their works, although willing to buy them or exchange them with mine, unless they be too costly like Audubon or Jacquin—I hereby call publicly upon all synoptical and improving Botanists (and even Zoologists and Oryctologists) such as Agardh, Decandole, Endlicker, Schreber, Sprengel, Fries, R. Brown, Lindley, Hooker, Don, Sweet, Arnott, Bentham, Nees, Fischer, Link, Tenore, Ledebour, Blume, Martius, St. Hilaire, Bory, &c . . . with others unknowu to me by name as yet, to send me their works in exchange of mine and also to exchange specimens. I have been permanently established in Philadelphia again since 1826, and shall probably ever continue here, although I may become connected with various literary institutions, particularly the Central University of Illinois of which I am one of the founders. Books sent me for the University will be free of duties, and equaly received in exchange.

When I have accumulated all the latest Materials or Genera, and the great work of Decandole is completed, I may then revise the

whole, connect naturaly the scattered Genera, and add the needful corrections. I have been called already a Veteran in Natural Sciences even by my foes, I hope to become the Nestor of Botany like Adanson was, and if my zeal does not abate, to publish in 1850, a real Mantissa of all Botanical Genera till then.

Meantime I proceed with my *New Flora* and *New Sylva of North America*, and am now preparing a peculiar work on the Ferns of North America and other parts. I am going to reprint all my early essays on Botany and Zoology, as my Amenities of Nature. I have begun my *Mantissa of Zoology*, or new or revised Genera of all classes, many also framed previous to 1815.

My Historical and Philosophical Works are also proceeding, I shall publish my *Celestial Philosophy*, and my *Genius or Spirit of the Hebrew Bible*, preparing afterwards my *good Book of Knowledge and Wisdom* to be probably issued periodicaly, and including the restoration or increase of much knowledge on all Sciences whatever. These vast labors, besides those of private life, in order to obtain the means to produce my works, at my own expense chiefly (since they are too good and too learned for the vitiated scale of our publishers) have partly induced me to curtail the actual work, and conclude it here; but to continue it in another form or reproduce the additions as a *Sylva Telluriana* and otherwise.

Although the articles are now only 1200, yet they include with the species and subgenera, orders &c, 2000 or more added or revised objects and groups.

FLORA TELLURIANA.

CENTURIA IX MONOCOT.

Number 801. Otosma Raf. (ear scented) diff. from 679, spatha lato cuculata basis convoluta, spadix clavato, apice nudo, pistillis inf. subrot. stylosis, antheris truncatis sup. baccis 1 loc. 6-12 sp. sem. teret. oculatis. *Scaposa, fol indiv. spathis amplis albis odoratis.*—I continue here the Aroides, Lilies, and other monocotyles. This Genus blended with *Colla of L.* is totaly unlike, see my *Provenzalia* 679, and New Flora N. A. 481 to 485.—Type *O. ethiopica* R. Calla do. L. auct. fol. cord. sagit. cuspidatis, lobis obt. well known plant of Africa, often cult. seen alive since 1806.

802. Spirospatha R. Spatha spiralis clausa, spadix obl. pistillis mixtis trilobis, stigma sessile concavo trifido, antheris ad bas, mixt. ad ap. solit. baccis 3lobis 3locul-polysp.—Still more unlike *Calla* with flat spatha, no style, berries yellow uniloc, Type *Sp. occulta* R. Calla do Loar. Sm. fol. ovat. cord. petiolis canaliculatis. —From Anam. Perhaps the *Arum Spirale* of Retz Vitm. Sm. is a 2d sp. with lanceol leaves and sessile flowers.

803. Pleurospa R. diff. from *Caladium* and *Colocasia* by the flowers unilateral on one side of the spadix, and *stem frutescent.*—The singular structure of spadix requires attention, perhaps several Genera and Species blended as *Arum arborescens* L. Types 1. *Pl. reticulata* R. fol. sagittatis, spadix reticul. the linnean sp. of South America, stem 6pedal, leaves pedal, flowers white inside green outside, base dark

purple.—2 *Pl. cordifolia* Raf. fol. cordatis, spadix non reticul. Madagascar, flowers fragrant.

804. Doxosma R. (glorious smell) diff. *Epidendrum*, anthera 4 loc. pollinis 4 unident. columna teres margine auricul. stigma trilobo. *Terrestris*, *Acaulis fl. racem. fragrantissimis.*—Probably several sp. Type *D. gracilis* R. Ep. do bot. reg. 1765. fol. lanc. et ensif. racemo longissimo, sepalis cuneatis, labello trilobo, lobo medio obov. dentato costato—Beautiful plant of Antilles, scape 3 feet high, fl. yellow. Lindley translated *gracile* graceful instead of slender! *Ep. odoratissimum* is probably a 2d sp.

805. Synadena R. (united gland) diff. *Epidendrum*, sepalis ineq. 2 later. orbicul. 3 ovatis minor, label. tripart. medio hastato bifido, basi liber. unguic. glandula magna bifida gerens ad apice columna connexa. *Acaulis scapo ramoso.*—Type *S. amabilis* (Ep. do. L. auct.) fol. lato lanceol. carnosis. Molucas, figured by Rumph. 6. t. 43. large white fragrant flowers.

806. Xaritonia R. (nympha) diff. *Epidendrum*, sepalis 4 ineq. patens, labello bifido incluso. *Parasitica acaulis racemosa*—Type *X. elegans* Raf. Epid. 4petalum Jaq. am. 142, pict. 216. Vitm . . . fol. subul. carinatis, scabropunct. racemo sub-10fl—Jamaica &c. fl. fragrant variegated of purple and yellow. The whole G. *Epidendrum* requires revision as it was quite artificial: this G. deviates even from the usual Orchidea having only 5 sepals besides the lip. See other G. below.

807. Taumastos R. (Iris gr.) Cal. 3sepalis carinatis, Cor. petalis 3 unguicul. cord. retusis. stam. 3 basi monadelphis, stig. 3 simpl. cetera

ut *Iris* et *Sysir*.—Quite a peculiar Genus near to my *Olsynium* new fl. Type *T. compressus* Raf. Libertia iridea Grah. in bot. mag. 3294. Caule compr. folioso, fol. gladiatis uninervis acutissimis. From Magellania, fl. white. Of nat. family Galaxidia while Libertia belongs to Irides by free stamens and Corolla 6parted.

808. Aulica Raf. diff. *Amaryllis*. Cor. sepalis 6 ineq. ringens, ineq. stam. ineq. declin. glandulis angul. ad basi stam et stylo, stig. 3 acutis,caps 3gona. *Scapo tereto 2fl.*—Although the G. Amaryllis has been so much reformed by the English botanists, it includes yet many anomalous sp. since Hooker in 1834 gives it 6 variable characters *Cor. subeq. vel. ringens* ! *fauce nuda vel squam*! *stam. declin vel recta* ! what absurdity ! The *Am. aulica* and akin sp. must form a peculiar group, of which I will give 2 types. 1. *A. latifolia* R. fol. latis ligulatis obt. Brazil, large scarlet flowers. The Amar. aulica of Hook. b. m. 3311—2. *A. striata* Raf. fol. angustis glaucis viridi—striatis. fig. bot. mag. 2983—*A. platypetala* fig. by Lindl. 1038 is a 3d sp.

809. Plectronema R. (spur fil.) cor. basi tubul. limbo 6part. subeq. stam. 6 subeq. fil. curvis basi intus calcaratis, antheris lanceol. stylo declinato, stigma trilobo. *Scapis 1fl*—The G. *Zephyranthes* taken from Amaryllis must itself form 5 Genera, the real *Zephyranthes* with smooth stamens. 2. *Atamasco* Ad. with short tube, equal fl. and stam. 3d. *Pogonema* with bearded filaments, type *Z. or P. carinata*, and 4th this with spured filaments. Type *P. candida* (Z. do sims b. m. 2607. Amar. do bot. reg. 724) fol. lin. canal. crassis. Buenos Ayres. The 5th G. is the next.

810. Mesochloa *R.* diff. *Zephiranthes*, cor. campanul. 6partita sine tubo, basi connivens, stam. 3 longior subeq. 3 minor, antheris renif. stig. 3 clavata—Type *M. canaliculata* R. (Zeph. mesochloa Herb. in bot. reg. 1361.) fol. canalic, acutis, spatha lanc. ad artic. scapo, ovario turbin . . . Buenos Ayres, fl. white, bulb black.—The G. *Haylockia* of Herbert differs by 3 stamens only on sepals, fl. tubular at base: it thus belong to Irides instead of Amaryllides, type *H. pusilla* of B. Ayres, fol. lin. filif. fl. radicalis ochroleucis.

811. Trisacarpis Raf. diff. *Amaryllis*, cor. 6part. ineq. tubo breviss. ad basis intus corona calyptrata supera, stam. declin. ineq. filif. stig. 3 capsula magna triloba ad basis triscata, sem. dupl. series plana alata, *scapo 2floro.*—Very singular and distinct *G.* so much blended with Amaryllis that a sp. of it was called *A. aulica*! 3 types at least. 1. *Tr. Falcata* Raf. (A. calyptrata, bot. reg. 164 &c) fol. falcatis lanceol. calyptra triangularis. Cape, fl. green.—2 *Tr. rubra* R. (A. aulica ker. bot. reg. 444!) fol. lanc. rectis, calyptra cuculata, sepalis rubris lanc. 2 ovatis acum. infero involuto. Brazil—3 *Tr. psittacina* (A. do. auct.)

812. Eusarcops Raf. diff. *Amaryllis*, cor. campanul. ineq. basi tubul. stam. adscendens ineq. stigma clavato. caps. baccata 3loc. sem. baccata paucis globosa nigra in arillis rubris involutis. *Scapo multifl. umbell*—Type *E. reticulata* R. (Am. do L'her red. 424. Andr. 179. b. m. 657. b. reg. 352) fol. cuneatis basi canalic. medio albo vittatis, umb. multifl. bract. obl. fl. nutans roseis reticulatis. Brazil, a striking G. by the fruit, yet often figured as an Amaryllis.

813. Laticoma R. diff. *Amaryllis*, cor. 6 part. unilateralis, stam. declin. remotis filif. stig. 3loba polysperma. *Scapo fl. umbellatis*—Type *L. compressa* Raf. (Am. laticoma E. b. reg. 497.) fol. loricatis, scapo compresso scabro, umb. multifl. S. Africa fine sp. with habit of Brunsvigia, fl. incarnate, sepals with a red nerve. This G. is akin to the *Lycoris* of Herbert, the *L. or Am. radiata* has also unilateral petals (only 5! undul. in the fig. b. mag. 596.) but the stamens are cuneate &c, is it also a N. G? *Pleurastis* Raf.

814. Heroion R. diff. *Asphodelus*, stam. declin. ineq. filif. incurvis, 3 superis brevior, stylo incurvo declin.—Il. *filiformis* Raf. (Asph. tenuior bot. mag. 2626) caule folioso, fol. filiformis, fl. luteis. Akin to *A. luteis*, but with quite different stamens. Mt. Caucasus.

815. Ifuon R. diff. *Asphodelus*, Cor. tubular 6fid, not 6parted nor spreading. Type *I. nutans* R. Asph. liburnicus Scop. t. 12. Vitm. W. P. &c. Caule basi folioso, fol. setaceis subtrig. fl. pendulis laxis flavis—In Istria, singular G. akin to *Borboya* 606. Both Ifuon and Heroion were old grecian names of Asphodelus.

816. Eutereia R. (well divided) diff. *Dracontium*, spatha cucul. spadix tereto undique florifero, cal. campanul. 8-9partitus, stam. 8-9, anth. biloc. biporosis, bacca 3loc. 3sp. *Rad. tuber. scaposa, fol. divisis.*—Type *E. nigricans* R. Drac. polyphylum L. auct. Scapo breviss. genic. tuberc. fol. laceris, foliolis 3 part. pinnatif.—South America, with blackish spathas oft. figured. It is strange that Linneus and all authors should have joined this and the next G. to Dracontium, differing by habit and calix, ber-

ries &c. The scandent sp. appear the type of *Dracontium*, which Adanson changed to *Monstera* perhaps a better name.

817. Spathyema Raf. 1803 described 1808. *Ictodes* Bigelow 1818, Amer. Authors Dracontium L. &c. Pothos of others. *Symplocarpus* Sal. 1815, Beck 1833. Spatha ventricosa, spadix pedunc. ovato florifero, cal. 4part. persistens, lobis cucul. crass. spongiosis. stam 4. stylo 4gono pyram. baccis uniloc. oligosp. in spadix immersis. *Radix crassa, acaulis, fol. simpl. spathis radicalis*—Very distinct G. shuffled into many, I restore the best and first name given to it in 1803 as soon as observed, meaning *winter spatha*. There are 3 types at least see my monogr.. N. fl. 1. *Sp. latifolia* R. Drac. fetidum L. oft. fig. fol. subrotundis subcordatis, spatha ovata acum. macul. North America—2. *Sp. angusta* R. fol. ovatis lanceol. spatha angustata. N. Amer.—3. *Sp. lanceolata* Raf. Drac. camchatense L. fol. lanceol. spatha lanceol. apice plana. In Sibiria.

818. Strepsanthera Raf. (turned anth.) Raf. diff. *Pothos*, spatha reflexa plana, spadix tereto elongato, apice masculifero, cal. 4part. crasso truncato ineq. persistens,stam 4 ineq. antheris bilobis reversis (dorso ad pist. opp.) pist. obov. 4gono trunc. stig, sess. punctis. bacca 2loc. 2 sp. sem. tuberc. *Parasitica, acaulis, fol. simpl.* —Type *Str. macrophyla* Raf. fol. cord. obt. undul. lobis divaric. spatha lanceol. undulata South America, often figured and shuffled in 3 genera. Pothos macrophyla Sw. W. bot. m. 2801. P. grandifol. Jaq. ic. 610. Arum acaule Burm. 36. Dracont. cordatum Aubl. Plum. t. 51, 63 &c.

819. Pothos L. non Ad . . This Linnean G.

includes many sp. of different habit, the flowers of which have not been well described, and must be examined again, I have taken 3 G. out of it already and more may be blended. Pothos derived from P*otha* ceylonese name of some,the sp. with cal. 4part. 4equal stam. and 2 seeds will belong here; but *Pothos* of Adanson meaning desire in Greek, was the G. Polyanthes.

820. Tapanava Ad. Raf. diff. *Pothos*, spathis ovatis carinatis, spadix globoso florifero, cal. 3-4squamoso, stam. squamis 3-4obovatis intus 2polliniferis, stigma sess. umbilic. Bacca 1loc. 1sp. *scandens*, *fol. simpl. disticha*, *spathis axillaris*.—Several Asiatic sp. blended in P*othos scandens* belong here, of which I will give 2 types. 1. *T. indica* Raf. fol. lanc. striat, petiolis elongatis alatis, spathis pedunc. reflexa. Ceylon and Malabar—2. *T. chinensis* Raf. (Pothos scandens bot. mag. 1337) fol. lanceol. acum. falcatis, petiolis, brevis obovatis, spathis subsess. acutis brevis. In China, the spadix is yellow and fragrant.

821. Podospadix R. diff. P*othos*, spatha reflexa ovata undulata, spadix peduncul. tereto florifero, cal. truncato 4fido, lac. ineq. coalescens, stam. 2-4eq.. antheris exertis peltatis, bacca 1 sp.? A*caulis*, *fol. simpl. nervosis*—Type P. *reticulata* Raf. Pothos crassinervia Jaq. ic. 610. W. P. fol. oblongis cuneatis acum. subtus reticulatis, nervo medio angul, striato, scapo sulcato—South America, Caracas, singular smooth plant, *seen dry*, in my specimen leaf semipedal on short petiol, scape slender, spatha small undate like a bract, flowers fuscate, on a spadix quite removed and raised on a peduncle.

822. AMIDENA Ad. diff. *Orontium*, cal. 6part. 3 alt. latior, stig. sess. drupa oliveformis sp. nucleo cordato. *Scaposa spica term. fl. distinctis bracteatis.*—Type A. *japonica* R. Oront. do. L. auct. fol. convol. venosis scapo brevior, bracteis membr. subrot. Quite distinct from our *O. aquaticum* cal. spong. eq. baca spongiosa 1sp. sem. cornea in spadix immersa.

823. TILCUSTA Raf. cal. 6part. stam. 6, stig. sess. bacca 3locul, 3-6sp. *Habit of Amidena*—Type *T. nepalensis* R. fol. convol. bract. elongatis fl. multo longior. Mts. of Nipal: indicated by Buchanan and Smith under the native name of Tilcusta, akin to next G. Tupistra.

824. TUPISTRA Wal. spadix nudus multifl. cal. 6fidus, antheris 6 sessiles cal. inserta. stylo sulcato, stigma peltato umbil. 3lobo, bacca 3loc. 3sp. *Rhizoma fol. et scapis ferens, fl. distinctis bracteatis.*—Two types *T. nutans* b. reg. 1223, b. mag. 3054, fol. ovatolanc. acum. spadix obl. nutans. cal. camp. Sylhet in India, fl. fulvous with brown dots.—2. *T. squalida* b. reg. 704. b. m. 1655. fol. lanceol. acutis, scapo brevi spadix recto, cal. urceolato. Amboyna and Molucas, fl. cineroaus. The G. A*spidistra* and *Macrogyne* very akin in habit, differ from this by lack of spadix, and solitary radical fl. but the pistil being free cannot belong to Asarides, they are Monocotyle linking the Acorides and Asparagoides.

825. EMPROTIA, THE AROIDES. This order of Monocotyles as reformed by me in 1815 contained 2 sub orders and 6 families, which I now will enumerate here with their Genera. The presence of a spadix is the main character of all.

1. GYMNADIA flowers without perigone.

First family, EQUISETIA, type Equisetum.

2d Fam. SAURURIDIA, no spatha, types Saururus, Aponogeton &c.

3d Fam. ARISARIA, a spatha, G. Arisarum 661, Homaida, 662, Desmesia 663, Megotigea 666, Alocasia 668, Dracunculus 669, Peltandra 670, Colocasia 671, Caladium 672, Arosma 673, Telipodus 676, Kunda 305, Provenzalia 679, Otosma 801, Spirospatha 802, Pleurospa 803 . . . Zostera, Ambrosinia &c.

II S. O. Calicinia flowers with a perigone or calix.

4th Fam. POTHIDIA, the Pothides a spatha, G. Seguinum 677, Dracontium, Eutereia 816, Spathyema 817, Strepsanthera 818, Pothos 819, Tapanava 820, Podospadix 821, Houttuyna &c.

5th Fam. ACORIDIA, the Acorides, no spatha, G. Acorus, Orontium, Amidena 821, Tilcusta 822, Tupistra 823.

6th Fam. TYPHACEA, types Typha and Sparganium.

To which I may add my new family of Unisemides as a 7th which I united doubtfully to Asparagoides in 1815, and is another link of those orders, see 6.

826. Nemampsis R. (fil. curvis) diff. Dracena perig. basi inflato, tubo filif. 6fido, lac. filif. curvis ad faux lac. eq. stylo filif. curvo, stig. capit. Type *N. ternifolia* R. Drac. surculosa L. auct. b. reg. 1169, surculis teretis annulatis subaph. fol. ternis ovatobl. acum. racemis term. corymbosis, bract. subulatis brevis. In West Africa, fl. white. Quite distinct from Dracena.

827. Euphyleia R (well leafy) diff. Dracena, Perig. corollato persistens urceol. 6part. stam. 6 subulata, stylo, stig. 3, bacca 3loc.

polysp. *Arbor, fol. imbricatis, fl. panicul.*—Type *E. odorata* Raf. Drac. australis Forst. W. P. bot. m. 2835. Dr. obtecta Grah. fol. confertis imbric. lanc. acutis planis basi dilat. panic. compos. spicata. In Australia, fine simple tree, quite leafy with habit of Yucca, fl. white fragrant, berries white.—How unlike Nemampsis and my Clintonia, both united to Dracena once! Dracena ought to be spelt *Drakaina* and the type is *Dr. draco.* The *Dr. marginata* forming the G. *Phylloma* of Ker. bot. mag. 1585 chiefly differ from Euphyleiu by habit and stamens filiform.

828. Clintonia Raf. 1817 not Clintonia of Lindley 1829 which is my Gynampsis 1833. Beautiful G. of mine shuffled into Dracena, Convallaria, Smilacina . . . by the Genera shufflers! see my monograph of it in New Flora 426 to 448, including 20 sp. and var. under 2 subgenera *Cuscumia* and *Onyxula.* Quite distinct from all akin by berry 2loc. and stigma bilobe, from *Styrandra* by 6 sepals and habit. The G. *Convallaria* was one of the worst, having *no characters at all*, and I have reformed it into 8 Genera, in 1817 and 1830, see med. fl. and below till 831.

829. Siphvalis R. (tube bottle) diff. *Convallaria*, perig. ovato. basi ventricoso, phialiformis 6dent. stam. 6. antheris sagitt. inclusis, stylo, stig. 3fido villoso. *fol. oppositis, umbellis axillaris.*—Type, *Siph. nitida* Raf. caule tereto, fol. opp. brevi pet. obl. acum. nitidis, umbellis pedunc. nutans 3-10floris. Mts. of India. Conval. oppositifolia, Walich, Lod. 640, Hook. ex. fl. 125, b. mag. 3529.

830. Flugea Richard, Ophiopogon Gawler and engl. bot. Perig. corolif. 6part. persistens.

stam. 6, anth. lin. snbsess. stig. obt. bacca 1loc. 1sp. *Habit of Convalaria*—2 types blended as Conval. japonica by Th. L. auct.—1 *Fl. angulata* Raf. fol. rad. plura linearis 3gonis bipedalis apice planis striatis recurvis, scapo apice 4 gono, fl. racemosis secundis 2-6fasciculatis.—2 *Fl. anceps* Raf. fol. rad. membr. involutis linearis acutis palmaris incurvis, scapo anceps—both in Japan with white flowers and blue berries.

831. Globeris Raf. med. fl. 1830, diff. *Convallaria*, perig. corol. globoso 6fido, stam. brevis disco insertis, antheris ovatis, pistil. 6striat. capsula 3loc. 6sperma.—Type *Gl. autumnalis* Raf. *Conval. spicata* Thunb. auct. fol. rad, lin. striatis, scapo brevior striato, fl. racemosis subspic. agregatis ebracteatis. In Japan, flowers violaceous. If this plant has realy a capsule as stated by Thunberg it is not even of Asparagoides family, but of Asphodelides.

The other genera blended in Convallaria are the real Convallaria of which *C. majalis* is the type—2. Sigillaria or Axillaria Raf. 1837, Polygonatum of Tourn. and Desf. Evallaria of Necker: we may choose either except *Polygon-atum* same as *Polygon-um*, Sigillaria from Solomon Seal the vulgar name would be the best, if the fossil *Sigillaria* is modified into *Sigillites*.—3 Mayanthemum Pers. Smilacina Desf. (same as Smilax!) Tovaria Necker not of Adanson—4 Styrandra Raf. 1817, types the *Conv. bifolia* and others with 4 stamens, 4 sepals, 2 cells.

832. Daiswa Raf. diff. *Paris* and *Trillium*, cal. 5sepalis, petalis 5, Stam. 10, stylo tereto trifido stig. 3, baca 3loc. *Fol. verticill. caule* 1fl.—Type D. *polyphyla* R. Paris do Sm. &c.

fol. 8-10lanceol. trinervis petiolatis. Nipal, the flowers vary with ternary and quaternary parts, but the style is permanent. It is therefore a link between Trillium and Medeola. If not admitted as a G. *Paris* cannot neither, that has quaternary parts, but 4 reflexed styles and 4loc berry, leaves 4 ovate sessile trinerve acute. All belong to my family Trillidia differing from Asparagides by several styles or stigmas, and habit often whorled.

833. Abapus Ad. Papiria Th. not Lam. diff. *Gethylis*, perig. limbo 8-18part. stam. 8-18, stig. 3lobo, bacca 3locul.—Types *A. spiralis* Raf. Pap. do. Th. Gethylis afra auct. b. reg. 1016. fol. lin. spiral. glabr. S. Africa. The real Gethylis has only 6 stamens, and berry uniloc. both have habit of Colchicum, and the ovary partly adherent forming with *Hemanthus* &c, the family of Gethylides differing from Narcissides as do the Asparagoides from Asphodelides, by having berries.

834. Leucodesmis Raf. diff. *Haemanthus*, perig. cor. infund. limbo 6part. erecto stam. 6 exertis ineq. filif. stig. 3fido, bacca 3loc. 3sp.—Type *L. pubescens* R. Haem. do Ait. L. b. reg. 382. albiflos Jaq. W. b. mag. 1239. fol. obov. ciliatis puberis, invol. 5phyl. ineq. ovatis viridis, fl. albis congestis. S. Africa.—The African G. Haemanthus contains several anomalous sp. merely united by the habit: the real has stam. equal erect, cor. tubular.

835. Scadoxus R. (umb. glor.) diff. *Haemanthus*, cor. limbo patulo, stam. ineq. adscendentibus. *Umbellis multifl. pedunc. articulatis*—Type *Sc. multiflorus* R. Haem. do L. auct. often figured. fol. ellipt. acutis concavis, invol. fl. brevior. West Africa.

836. Perihema R. (around bloody) diff. *Haemanthus*, cor. infund. basi 6gibbosa inflata, stam 6. filif. equalis exertis. stig. obtuso, *Capsula* 3loc. 3sp. *fol. binis, invol. urceol.* 8*part. ineq. colorato, fl. inclusis.*—Type P. *coarctata* R. Haem. do Jaq. W. b. reg. 181. fol. ellipt. obt. scapo crasso punctato, invol. rubro amplo, lac. ut foliis. S. Africa, fl. incarnate, anthers yellow ovate. This G. and the next having capsules instead of berries do not even belong to the same family of Gethylides, but to Crinides.

837. Serena R. (Nymph) diff. *Perihema*, cor. turbinata 6fida, stam. 6 eq. stig. 3lobo,*capsula* 3loc. 3sp. *fol. binis, invol. spathaceo, umbella brevior.*—Types 1. *S. carnea* R. Haemanthus do Ed. b. reg. 509. fol. subrot. hirsutis, spatha sphacelata reflexa, stam. inclusis, cor. carneis, obl. obt. R.—2 *S. lancifolia* R. Haem. do. Jaq. sch. 80. W. auct. fol. lanceol. glabris ciliatis, spatha brevis, stam. exertis, corolla patens. Perhaps a sub G. both of S. Africa.

838. Narcissus Raf. non auct. This beautiful G. included a crowd of sp. with very variable cup or inner corolla, that must form at least 6 G. I restrict the real Narcissus to those with—cup campanul. 6fid. including *N. odorus, pseudo, minor &c.*—Several monographs of the linnean Narcissus have been given by Bellendeu, Salisbury, Ker, Smith, Lamark &c, which see for sp.

839. Autogenes R. diff. *Narcissus*, cup rotate membranose, entire or crenate—such as *A. poeticus, angustif, biflorus, tenuior* &c.

840. Jonquilla R. diff. *Narcissus*, cup campanulate plicate crisp or crenulate—such as *J.*

odora (Narc. jonquilla,) *tazetta*, *bicolor*, *major*, *incomparabilis*, *trilobus*, *viridiflora &c.*

841. CALATHINUS R. diff. *Narcissus*, cup campanul. crenate stam. 6 ineq. 3 brevior—such as 1 *C. cernuus* (Narc. do Sal. pyrenaicus Pers. triandrus L.) 2 *Serotinus*, 3 *multiflorus*, N. calathinus auct..

843. MOSKERION R. diff. *Narcissus*, cup. cylindrical sulcate crenate—Type 1. *M. moschatum* Raf. Narc. do auct. 2 *hispanicum* Narc. do Gouan. Vitm. Erion, Calathinus, Autogenes were Greek names of Narcissus.

844. CODIAMINUM R (Plinius name) diff. N. cup large funnel form, petals linear, stamens and style declinata.—Very distinct G. types 3 sp. blended in *Narc. bulbocodium* by Authors. C. montanus, C. minimus &c, see Salisbury.—The G. *Barbacenia* and my *Pleurostima* 368 are very near to Narcissides, connecting with the section of Pancratides that have stamens monadelphous or united to the cup.

845. PANCRATIUM Raf. non auct. This Linnean G. was equaly inconsistent as Narcissus and 3 Genera have already been removed from it *Abapus*, *Ismene*, *Eurycles*. I shall divide it into 9, and my real Pancratium has the cup or Nectary or inner corolla campanulate with 18 equal teeth, 6 stamens alt. with 2 teeth rising from those opposite to petals.—Such are *P. maritimum*, *carolinianum*, *zeylanicum*, 4 *liriosme* Raf. fl. lud. 5, *amenum* Sal. And. rep. 556 which is P. declinatum Jaq. &c. The linnean Pancratium only differed from Narcissus by the cup bearing the stamens, both form the real family of NARCISSIDES with a double corolla, the akin G. with a single corolla form the

family of CRINIDES, and those with unequal or irregular stamens the AMARYLIDES, all of the Natural Order YMNODIA.

846. NEMEPIODON R. cup. campanul. 12dentate, 6 alt. teeth bearing the stamens—such as *N. mexicanus, caribeum, speciosum* Sal. Red. 156 (N. carib. b. m. 826.)

874. ISMENE Herbert, diff. *Pancratium*, cor. with a long tube, cup campanulate 12lobed, crenulate, stamens declinate inserted inside.—Type *I. amancaes*, Narcissus do R. P. 283. Pers. Pancrat. do bot. reg. 600. fine G. of S. Amer. quite distinct.

848. EURYCLES Sal. 1812. Proiphis Herb. 1821, Stemonix Raf. 1833. diff. P*ancratium* cup 6parted, dentate, stam. inserted inside—several sp. of Polynesia and Australia blended as P. amboinense L. Crinum nervosum Lher. Amaryllis rotundif. Lam . . . Hooker reckons 3 sp. *E. australis, sylvatica* and *Cunninghami* figured in b. mag. 3399.

849. ZOUCHIA Raf. diff. P*ancratium*. cup. with 6 bifid segments, stamens in the sines —Type *Z. illyrica* Raf. Pancr. do auct. often figured. Zouchi is the illyrian name.

850. TOMODON R. (cut teeth) diff. P*ancratium*, cup rotate or camp. 6lobed multifid, teeth unequal irregular,style declinate.—Types 1. *T. rotatum* Raf, Pancr. do b. mag. 827 Sm. &c 2. *T. floridanum* R. rotatum Lec. 3 *T. riparium* Raf. P. mexic. Lec. 4 *coronarium* Raf. Pancr. do Lec. 5 *pratense* Raf. P. occid. Lec. see my monograph of this G. in New Flora.

851. SIPHOTOMA R. (tube cut) diff. P*ancratium*, cup cylindrical multifid, stamens unequal, 3 alt. shorter.—Type *S. calathina* Raf. Pancr. do. b. mag. 1561. Sm. &c.

852. Braxireon R. (short Ireon) diff. *Pancratium*, cup quite cuplike short 6fid as in Narcissus, but bearing the stamens.—Type *Br. humile* R. Pancr. do Cav. 207. Pers. &c.

853. Troxistemon R. diff. Pancratium, cup rotate 6dentate, teeth bearing the stamens, sinusses emarginate or undulate, petals narrow recurved.—Types *Tr. littorale* and *fragrans*.

854. Liriamus R. (sand lily) diff. *Crinum*, sepalis unguic, Ovario infero, filam. stam. basi gibbosis, *fl. umbel.*—Type *L. 5florus* Raf. Crinum arenarium Hook. b. mag. 2531. fol. striatis, scapo 5floro. Australia. The G. *Crinum* had also been widely mistaken, since *Agapanthus* with free ovary had been united to it, besides this G. and the next.

855. Scadianus R. atl. J. 1833 (blue umbel) diff. *Agapanthus*, cor. tubo fusif. limbo camp. 6fid. lacinis canalicul. 3 latior obt. 3 angustior acutis. stam. 6 ineq. incurvis filif. tubo inserta. ov. libero obl. stylo filif. recto, stig. obt.—Type *Sc. multiflorus* Raf. fol. ligulatis planis acum. scapo tereto, umbella multifl.—Fine plant seen alive in our gardens, native of Florida and Louisiana, it is the blue Crinum of Bartram, *Cr. americ.* Pursh &c not L. the *Agapanthus* of our Gardeners, quite different from this African genus. Leaves pedal, one inch broad, fl. inodorous uncial azure blue. The G. Abumon of Ad. differs only by long tube, he quotes the Crinum 4 L. and figures of Commelin, Breyn, Plukenet which must be verified. Is it the Agapanthus? Of family Aloides (not Crinides) with all the Narcissides that have a free pistil.

856. Scaduakintos R. (umb. hyac) cor. campanul. 6partita, stam. 6. filam. alt. mem-

branosis insertis apex segm. cor. ovar. stipitat. stigma . . . caps. 3loc. polysp. *Facies* A*lliacea, scaposus umbella multifl. cerulea.*—Type *Sc umbellaris* R. Brodiea grandiflora Pursh, Nuttal Eat. &c, which has been proved by Hooker to be quite different from the Br. grandifl. of Smith, not even of same Genus! but it is not a *Milla* as surmised by him. Of Family Aloides called the Missouri Hyacinth.

857. Brodiea Sm. &c. Hookeria Sal. Cor. tubulosa 6fida, stam. 3, squamis 3 alt. ad tub. inserta. Ovar. stipit. style filif. stigm. 3 caps. 3loc. sem. centralis. *scaposa, bulbosa, fl. umbellatis.*—Type *Br. grandiflora* Sm. b. reg. 1183. b. mag. 2877. fol. lin. elong. canalic. acum. umbella 5-8flora. In Origon, fine large blue flowers. Type of a new family with *Sowerbea, Xiphidium and Leucoryne* 657 &c akin to Xyrides and Commelines,which may be called XYPHIDIA, it differs from them by Corolla equal, from Aloides by 3 stamens, from Irides by ovary free. Does *Wachendorfia* belong to it?

858. Conanthes R. (cone fl.) diff. *Pitcairnia,*flowers conical, cal. 3part. Petalis 3 undul. longis nudis stam. 6 ineq. 3 longior, stylo elongato, stig. 3fido. *Parasita, scaposa, racemosa.* —Type C. *albiflos* R. Pitc. do Hook. b. m. 2641. fol. lin. lanc. integris acum. scapo racemoque simplex. Brazil, fl. white.

859. Hexalepis R. (6 scales) diff. *Tillandsia*, cal. 3part. scariosis colorat. convolutis, cor. tereta 3part. convol. squamis 2 ad bas. petalis alt. ad stam. 6, sed ovario circondans, stigma 3lobo fimbriato. *fol. imbric. fl. spicatis*—Type *H. psittacina* R. Till. do Hook. b. m. 2841. fol. ligulatis acutis basi inflat. spica rachi flex.

bract. color. fl. eq. In Brazil. fl. bicolor red end yellow. Nearer Pitcairnia than Tillandsia by the scales. All these G. belong to my family Aechmidia 1835 with Guzmania, Aechmea, Lachenalia, Eucallis below 862 &c.

860. Dendropogon R. (tree beard) Neog. 1825. diff. *Tillandsia*, stam. 3 (non 6) stylo, stig. 2-3lobo, caps. 2-3loc. *Parasitica, ramosa, fl. axill.*—Type the *D. usneoides* and probably other sp. In fact the G. Tillandsia is in utter disorder, it includes several Genera; those with unilocular capsule must form the G. *Karagnata* of Adanson.

861. Eriostax R. (wooly spike) diff. *Bromelia*, ovar. 3alato, cal. globoso 3lobo, petalis 3 rigidis linearis, stam. 6 ineq. 3 brevior epipetala, stigma dilat. 3lobo. *Fol. imbric. spica clavata, lanata, florib. in lana immersis.*—Type *E. glauca* Raf. Bromelia *melanantha* E. b. reg. 766. fol. imbric. lanceol. marg. spinosis, spica albo lanata, cal. lutesceus, petalis atropurp. Antilles. Is the fruit a capsule as in the next G ?

862. Eucallias R. diff. *Bromelia*, ovar. 3 gibboso, cal. 3part. undulato, basi tubuloso glanduloso. cor. 3part. apice spiralis, squamis 2 ad medio petalis, stam. 6 filif. 3 inter sq. insertis antheris filif. stylo 3gono, stigma 3fido. caps. 3 loc. polysperma. *Parasitica stolonif. fl. spicalis bracteatis*—Type *Euc. versicolor* Raf. Bromelia zebrina Hook. b. mag. 2686. fol. lanceol. canalic. obt. dent. spinosis, subtus glaucis, albo transverse zonatis, caule albo nutans, bracteis longis lanceol. roseis. Beautiful plant of Brazil, flowers versicolor, calix white, petals and stamens yellow. Quite distinct from Bro-

melia by capsule and scales on petals as it Pitcairnia and Hexalepis. The sp. of *Bromelia* with unilocular berry form the G. *Pseudomelia* of Necker.

863. Rhizemys R. (root turtle) *Testudinaria* Burchell b. reg. 921. diff. *Dioscorea* stylis 3 coalitis, *Radix amplissima epigea.* Hardly different from Dioscora, generic names derived by *aria* cannot stand. Very singular huge roots edible like yams called Hottentot Bread. 2. types. 1. *Rh. elephantipes* R. Tamns do W. P. fol. renif. planis, racemis axill—2. *Rh. montana* R. fol. cord. subt. glaucis nervosis. Both from S. Africa.

864. Ruscus L. auct. this G. must be carefully revised, as it has many anomalies, the G. *Danae* of Mœnch and Persoon for the *R. racemosus* must be adopted, differing by habit, corolla and fruit. The real *Ruscus* bears the flowers on the leaves that are perhaps enlarged expansions or peduncles. The *R. androgynus* is not a Danae, but includes 2 distinct sp. 1. *R. latifolius* Raf. androg. W. Dill. t. 250. Hook. b. m. 3029. fol. subcord. ovatis ocum. fl. subsess. in capitulis multifl. congestis. Madeira, fl. yellow white in a notch of the leaf.—2. *R. anthopus* Raf. androgynus Sims b. mag 1898. fol. ovatobl. acum. fl. solit. pedicelis fl. eq. Canary Ids.—Both must form the S. G. *Gurenias* (Diosk) by fl. marginal, corolla 6parted rotate, anthers sessile in a central tube or nectary. The G. *Peliosanthes* of R. Brown differs by cor. tubulose, nectary globose staminiferous.

865. Siraitos R. (n. jap.) diff. *Abalon*, fl. hermaphr. petalis 6 obl. obt. stam. 6 filam. subul. brevis, antheris 4gonis, ovar. ovat. stylis 3 revol. caps. unica 3locul.—A Genus blended

with the American *Abalon* by Thunberg and others although quite distinct, but habit similar. —Type *Sir. aquaticus* Raf. Melanthium luteum Th. fl. jap. who quotes Veratrum luteum of Lin. caule teres flex. striatus, fol. lanceol. integris, fl. spicatis luteis. In Japan in waters.

866. ABALON Ad. 1763. Raf. N. fl. 1836. Chamalirium Wild. 1809? Gray Sub G. Ophiostachys Red. 1808? Diclinotrys Raf. neog. 1825 —A very distinct G shuffled into 7 G. by the linneists &c, well described as the first G. of my New Flora N. Am. and again by Gray as *Helonias dioica*. Adanson's name is the first and best meaning *not in a ball*. Ophio-stachys and Chama-lirium are bad compound names of *Stachys* and *Chama*.

Having just received the Monograph of Gray on the Melanthacea or rather my HELONIDIA, of North America, I will revise them in my New Flora. I merely state here that his G. *Leuco-crinum* must be changed into *Leucrinis* Raf. that his *Leimanthium* of Wild. is my *Evonyxis* 83—that his *Stenanthium* S. G. of Veratrum is my G. *Anepsa* 89—that his *Amianthum muscotoxicum* was my *Crosperma laeta* of 1825 a plant shuffled into 3 Genera till made one of by myself since 1804 see G. 100—that his *Schæno-caulon* will be my *Skoinolon* Raf.—For his Tofieldas, with 5 other names Triantha, Hebelia, Isidrogalvia, Leptilix, &c, see *Abama* of Adanson 1763 in my New Flora with 4 sp. and 2 akin Genera of which I shall write a monograph.

867. BAIMO R. (n. jap.) diff. *Uvularia*, petalis 6 obl. stam. 6 hypogyna, stylus 1, stig. 3 reflexa. *caule artic. fol. cirrhosis*—Type *B. cirrhosa* Raf. Uvularia do Th. auct. caule te-

res artic. fol. sessilib. geminatis linearis cirrhosis, pedic. axill. 1fl. reflexis. In Japan, fl. yellow, stamens white. Baimo is as good as Plantago.

868. Simira R. (n. jap.) diff. *Ornithogalum* petalis 6 lanceol. eq. stam. 6 subul. 3 latiora alt. stig. obt. capsula ovata villosa 3gona 6striata—Type *S. japonica* Raf. Orn. do Th. auct. scapo striato longo racemoso, fol. linearis planis. Japan, fl. purplish, perhaps only a subgenus. Simira is a pretty japanese name.

869. Stypandra R. Br. another G. akin to Skilla with filiform stamens diff. by filaments retrocurved and anthers with glands, *stem foliose, fl. paniculate:* thus more different by habit than characters. Several sp. from australia. 1 *St. glauca* fol. glauc. tortilis, 2 *St. propinqua* Cun. b. mag. 3417. fol. gramineis &c.

870. Arthropodium R. Br. diff. Skilla and Anthericum by petals reflexed, stamens villose, style declinate, *roots fasciculate*—several sp. from Australia. *A. panicul. A. minus* &c.

871. Chlorophytum R. Br. diff. *Skilla*, stam. connivens, capsula 3loba polysp. 4 sp. from Australia. G. admitted although less distinct than some of mine.

872. Podonix R. (bearded claw) diff. *Tulipa*, petalis ineq. 3alt. lanc. minor, 3 ovatis major unguiculis barbatis, stam. ineq. basi barbatis, stigma 3poroso, caps. globosa 3loba. *Acaules* —Type P. *albiflora* Raf. Tulipa biflora L. auct. often figured, b. reg. 535. fol. 2 linearib. scapo 1-2floro. Near Caspian Sea, flowers small and white. Near to G. Liriopogon 113 to which I once referred it, but distinct.

873. Pharium Herb. cor. 6part. subeq. stam.

6 monadelphis ad basis membrana coalitis, stylo fistul. recto, stig. perforatum capit. *Facies alliacea.*—N. G. near the Kepa &c, but stamens united. Type *Ph. fistulosum* H. b. reg. 1546. fol. fistul. teretis, scapo umbellato, umb. paucifl. invol. 3 subrot. fl. cernuis, stam exertis Mexico.

874. Praskoinon R. diff. *Pharium*, petalis sulcatis, stam. subulatis basi coalitis, stylo filif. stig. acuto, caps. 6sp.—Type *Pr. longifolium* Raf. Allium do Sprengel, b. reg. 1034. Schenoprasum do Kunth. fol. lin. canalic. longissimis, scapo striato subanceps basi folioso, umbella sub 8fl. congesta. Mexico, fl. purple. Forming a subf. Pharides with the last and *Spiranthera* 885, by united stamens.

875. Eucrosia Edw. diff. *Amaryllis*, stam. basi monadelphis. Type E. bicolor b. reg. 207. fol. ellipt. glaucis, umb. 4fl. 4bracteata. S. America, fl. greenish purple, bracts white.—These Genera with united stamens appear to indicate new families. This will be type of subf. Eucrosides in Narcissides.

876. Phaiophleps R. (brown veins) diff. *Sisyrinchium*, cor. infundib. 6fida eq. stam. 3 filam. monad. in tubo elongato. *Scaposa.*—Family Galaxidia near G. *Galaxia*—Types 1. *Ph. odoratissima* R. Sisyr. do Lind. b. reg. 1283. fol. angustiss. glaucis equante ad scapo teres, spatha univ. convol. 4-6fl. pedic. nutans. Patagonia, fl. white with brown veins.—Sisyr. flexuosum is a 2d sp.

877. Pogadelphia R. (beard brother) diff. *Sisyrinchium*, stam 3 basi monadelphis pilosis, stylis 3 basi coalitis, ovario piloso—Types 1. P. maculata Raf. caule flex. tereto, fol. amplex. brevis lin. obt. spathis 2 lanc. subeq. acutis 2fl.

petalis ovatis obt. flavis basi macula atropurp. Chili, only deemed a var. of the next in b. reg. 1915. var. pumilum.—2. P. graminifolia Raf. Sisyr do. b. reg. 1067. diff. fol. caule longior sessilib. acutis, spathis ineq. lanceol. petalis obovatis luteis, macula fusca ad medio. Chili.

878. Olsynium Raf. new fl. 1 p. 72. diff. *Pogadelpha*, cor. petalis 6 campanul. non patulis, stam. 3 elongatis liberis, basi coalitis coarctatis glabris, stylo elongato, stig. 3 acutis.—Type *O. grandiflorum* R. Sisyr. do b. reg. 1634, b. mag. 3599. Caule compresso, fol. brevis acutis, spatha ineq. fl. binis nutans purpureis. Origon at falls Oakanagan, large purple flowers—2d sp. *O. luteum* Raf. Marica californica Ker. b. m. 983, caule alato, fol. lin. petalis obov. luteis. California, many G. have lately been blended in Sisyrinchium, even the next with free stamens!

879. Orthrosanthes Sweet, diff. Sisyr. petalis 6 ineq. 3 ext. angustior, *stam. 3 liberis.*—3 sp. of Australia, nearer to Marica than Sisyrinchium. One of them is the *Sisyr. ixioides* Forst. or *Ferraria do* W. or *Morea* do Th. thus put in 3 Genera.

880. Eveltria R. (well free) diff. Sisyr. petalis 6 equalis, obovatis, stam. 3 liberis—Type *multiflora* Raf. Orthrosanthes do Sweet, Sisyrinchium cyaneum Lind b. reg. 1090! fol. cespitosis linearib. longiss. spathis 2 ovatis subeq. petalis ceruleis obov. obtusis. Australia—The G. *Marica* chiefly differs from this by petals unequal and stamens alt. to stigmas, the G. *Cipura* besides by stigma petaliformis. *Bobartia* is also an akin Genus.

881. Phaianthes Raf. (brown fl.) diff. *Morea*, petalis ineq. 3 alt. quadruplo major basi

conc. apex planis, 3 pet. minor planis, stam. 3 subconnatis, stig. 3 lin. planis bidentatis.—This was nearer to Sisyr. by stam. but referred by habit to Morea! Type *Ph. lurida* Raf. Morea do Edw. b. reg. 312. Uniflora papiilosa, fol. 2-3 linearib. caule eq. petalis acum. fucis. South Africa.—How different from *Pardanthes chinensis* of Ker or Belamenda Red. which was the type of Morea! same as Morus!

882. Haemodora Lab Sm. ovar. inf. petalis 6, stam. 3 antheris sessilis petalis insertis, stylo, stig. capit. caps. 3 loc. 6 sp.—This G. has been made the type of family *Haemodoracea*, very near to Irides; but the next G. is not of same family: nor is the G. *Anigozanthes* differing by cor. tubular unilabiate 6dentate and 6stamens, nor my *Pleurostima* 368.

883. Phlebocarya R. Br. Ovar. inf. petalis 6, stam. 6 epipetalis antheris sess. stylo, stigma capit. caps. 1loc. 3sp. ad abortu Nux monosp. coronata—Type *Phl. ciliata* Br. Sm. fol. distichis fimbriatis, fl. panicul. Australia. Altho' the insertion of stamens is similar to the last, their double number and fruit makes this type of a subfamily in the family of Dioscorides.

884. Eustrephus R. Br, Petalis 6, internis 3 fimbriatis, stam. 6 liberis, ov. lib. stigma trigono, caps. pulposa 3loc. 3valv. valvis septiferis polysp. *Frutescens, fol. alt*—Type *E. angustifolius* Br. Sm fol. lin. lanc. fl. fascicul. nutans. This G. has the habit of *Smilax*, and forms a link between Smilacea and Asphodelides.

885. Spiranthera Raf. diff. *Eustrephus*, stam. basi monadelphis, antheris apice spiralis —*Sp. ovata* Raf. Eustr. latifolius Br. Sm. fol. ovatis fl. fascic. pedic. nutans. Australia. The

union of the stamens is akin to G. *Ruscus*, yet this must be referred to the subf. of *Pharides* in family Asphodelides. See 874.

886. Elegia L. auct. based on the *Restio elegia* since made *E. juncea* by Linneus; now having several sp. requiring reform, and becoming type of the family Elegides differing from Juncides by 3 stamens instead of 6.—The real G. Elegia has cal. 6glumis ineq. stam. 3, stylis 3, Gaertner says caps. 6loc. 6sp. Smith says 3loc. polysp. it is so at least in E. *racemosa* if not in *E. thyrsifera* once *E. juncea*.

887. Tristemon Raf. 1817. diff. *Juncus*,cal. 6glumis ineq. 3 ext. aristatis, stam. 3, stylo 1, stig. 3, caps. 3loc. polysp.—This includes all the *Juncus* with 3 stamens, nearer *Elegia* and same family, such as *Tr. marginatus*, *odoratus*, *polycephalus*, *conglomeratus* &c see my monograph in New Flora.—The family of Juncides with 6 stamens includes only *Juncus*, *Luzula*, *Aphylanthes*, *Rapatea*, *Pollia* and a few others.

888. Baloskion Raf. (Ball rush) diff. *Restio* capitulis globosis, fl. fem. 4 valvis, stylis 2, capsula 2loc. 2sp.—Type *B. dichotomum* Raf. R. 4phylus Lab. P. Sm. Br. dichotome, foliose, spicis panicul. Australia. This as well as *Calorophus* Lab. also belong to Elegides instead of Restides.

889. Abbotia Raf. diff. *Triglochin*, cal. 3-4 glumis deciduis, stam. 3 sessilis. interdum 1-2. pistillis 3-4coalitis, stigmas sess. glandulosis fissis. capsulis 3-4coalitis monosp. *Acaulis*, *fl. racem.*—This G. containing 3 sp. *Ab. filiformis*, *palustris*, *pumila* is described in the monograph of my New Flora I p. 36. It belongs to Elegides, and is the link with the G. *Triglo-*

chin.—Thus the ELEGIDES include *Elegia*, *Tristemon*, *Calorophus*, *Baloskion*, *Abbotia* and perhaps other Genera; they are very near to XURIDES 17, differing by no real internal corolla.

890. CHONDROPETALON Rotb. diff. *Restio* cal. ineq. 3 internis major cartilagineis—Type. *Ch. tectorum.* Restio do L. auct.

891. LEIENA Raf. (one less) diff. *Restio* stam. 2. stylis 2. all the sp. with 2 instead of 3 stamens and styles belong here. The RESTIDES or Restiacea family differ from Juncides by fruit monosperm, and besides these 3 Genera include others from the Southern Hemisphere.

892. PHYLIDRUM Gaertn. Sm. Garciana Lour. Perigono 2phylo corolliforme, stam. 3 ad uno petalo inserta. Ovar. libero, stylo filif. stig. capit. caps. 3loc. 3valv. polysp. *rad. fibrosis*, *fol. ensatis*, *fl. spicatis.*—2 sp. *Ph. lanuginosum and pygmeum.* Of family XURIDIA, but type of a subf. Phylidrines.

893. NEMITIS R. (fil. pl.) Apteria Nut. 1834. Ov. inf. cor. tubul. camp. 6dentatis alt. minor, stam 3 in tubo, stylo filif. stig. 3 cuneatis, caps. coronata monoloc. polysp. placentas 3. *Rad. fibr. caule squamoso.*—Type *Nemitis setacea* Raf. Apteria do Nut. ic. caule filif. 1-4fl. squamis remotis brevis sphacelatis. Florida, Alabama and Missouri! minute annual plant, fl. white.—Nuttal makes a new family of this with *Tripterella*, it differs from it as Luzula from Juncus; but *Burmannia* with 6 stamens cannot belong to it. All the monocotyle with 3 stamens are essentialy different from those with 6. In fact the staminate numbers are of greater importance in Monocotyles than in

Dicotyles, which some Botanists are not aware of. I had to change the name of Apteria which is a class of insects!

894. Sowerbea Sm. petalis 6. stam. 3 fertilis, antheris bilobis disjunctis, stam. 3 sterilis castratis, caps. 3loc. 3-6sp. *Facies Alliacea*—Type *S. juncea* Sm. ic. b. mag. 1104, andr. rep. 81. fol. canalic. linearib. scapo umbella multifl. pedic. articul. Australia, fl. rosate. family of Xiphidia see Brodiea 857.

895. Sparaxis Ker. diff. *Iris*, cor. tubulosa 6fida regularis eq. stam. 3 patulis, stig 3 oblongis, *spatha 2valvis lacera.*—Several species *Sp. anemoniflora*, *fragrans*, *tricolor*, *grandifl.* *bulbifera*, *fimbriata* &c; but those with irregular corolla must form the next Genus.

896. Anactorion R. (glad. diosk) diff. *Sparaxis*, cor irregularis, segmentis connivens, vel uno patulo, stam. erectis—Type 2 Sp. An. *bicolor* R. Sp. do Ker.—2 *An. galeatum* R. Sp. do Ker. Gladiolus do Jaq. W. P. perhaps a subg. by bilabiate corolla, *Pasganon* Raf. Of family Gladiolina differing from Irides as Amaryllides from Crinides by the irregular corolla or stamens.

897. Paneguia R. diff. *Marica* and *Sisyr.* petalis basi coalitis campanul. stylo trifido.—Types 1. P. *striata*. R. Sisyr. do Sm. ic. 9, Red. 66. S. spicata Cav. *Marica* striata Ker. b. m. 701. fl. fascic. 1 spathis bract. membr. ad pedic corollis mucronatis.—2 P. *palmifolia* R. Sisyr. do L. Morea do Th. fl. panicul. corymbosis. Perhaps 2 subg..

898. Priopetalon R. (saw pet) diff. *Alstroemeria*, ovar. globoso 6costato, petalis 6 patulis serrulatis, 3 ext. eq. dilatatis, 3 int. an-

gustior 2 sup. minor. Stam. 6 declin. 2 sup. antheris brevior.—Type *Pr. pallidum* R. A. do Grah. b. mag. 3040. fol. sparsis lin. lanc. denticul. subamplex. fl. umbellat. 2-5petalis acum. ext. obov. int. ellipt—Chili, fl. incarnate, the figure represents the style clavate entire while the description tells it is 3 gone with 3 stigmas! —While the G. Amarylis has undergone such a revision and division the akin G. Alstroemeria has been left untouched, although presenting striking anomalies, I therefore present this and the 2 next reformed Genera out of it, but there are probably more.

899. Lilavia R. (bird lily) diff. *Alstroemeria*, cor. campan. subeq. petalis 3 internis angustior brevior, stam. 6 subeq. rectis, antheris 3 alt. major ellipt. stigma 3, caps. 3gona.—Type *L. psittacina* R. Alstr. do. Lehm. Sweet t. 15. b. mag. 3033. Caule flexuoso, fol. cuneat. obovatisque obt. tortis, umb. 4-5fl. involucrata, petalis cuneat. acum. Mexico, fine red flowers with purple spots, and greenish tips.

900. Dodecasperma R. diff. *Alstr.* cor. camp. petalis connivens subeq. 3 int. unguicul. stam. inclusis subeq. ovar. semisupero, stylo basi incrassato recto, stigma 3. caps. plana apice trivalvis, valvis septif, septis ad utrinque latere 2sp. sem. 12 globosis coccineis.—Type *D. acutifolia* R. Alstr. do Link t. 29. b. mag. 3059. Volubile, fol. petiol, lanceol. acum. subtus pubescens, fl. umbel. bracteis lanceol. petalis ext. obl. croceis, internis spatulatis flavis. Mexico disc. by Deppe. Certainly quite unlike the two above in habit and characters.

CENTURIA X MONOCOT.

ORCHIDES or Synarmia. This fine Nat. Order of plants shall be continued here; having already given many Genera of it, see 1, 117 to 138, 183 to 186, 201, 214, 220, to 228, 318 to 344, 372 to 377, 382 to 385, 804 to 806. It is now become one of the most interesting and prolific orders, evincing the vast progress of modern Botany. Linneus had only 9 Genera of it, Adanson only 7 although he had *Vanilla* omitted by Linneus, Necker in 1790 had 17 Genera, Jussieu, Swartz, Richard, Thouars had vastly increased them,(Persoon had 30) and now Lindley has over 200 Genera; but 100 have been or will be added by myself. The single Genus *Epidendrum* which was a confuse medley has furnished 30 Genera, and even as reformed lately it contains 10 or 15 more as I have shown. Necker had 3 which I could not ascertain as he gave no typical sp. but I give here their characters that they may be ascertained and restored.

901. Phadrosanthus Neck. 1474. Petalis 4-5patulis ineq. undul. label. basi tubul. quadrato dilatato ad apex, anther. 2. stig. infundib. *Scaposa*—This must include several Dendrobiums, and Necker intimated that like Epidendrum, it had many anomalies.

902. Eydisanthema Neck. 1475 petalis 5 linear. subeq. Label. basi tubul. columna amplectens, anthera cuculata 4loc. pollinis 8. stylo tubo adnato, stigma infundib. caps. ventricosa contorta. *Caulescens.*—Is it the Octomeria? of late Authors.

903. Abrochis Neck. 1470. diff. *Orchis*, petalis 5 ineq. label. resupinato ad basi galei-

forme calcarato, antheris 2 cuculatis. Ovar. contortum. *Scaposa.* Necker only says this includes 10 of the linnean *Orchis*, different from his *Dactylorhiza* with fasciculated roots, a subg. of Orchis. It must include some Habenaria.

901. Coilostylis R. (hollow St.) diff. *Epidendrum.* Petalis 5 eq. patulis, label. ad col. inserto, 3 part. lateralis ciliatis latis, medialis nuda linearis. columna vel stylo clavato, apex infundib. labiato bialato, stig. antherisque inter cavitas inclusis. *Terrestrial, subcaulescens, fl. racem. amplis.*—Two types blended as *Ep. linearis L.* 1. *Coil. obtusifolia* Raf. fol. 2. bigulatis obt. connatis, petalis linearib, cuspidatis, columna campanul. dentata, lab. lac. media, elongata. In Antilles, root clavate, flowers triuncial petals greenish, lip and column white.—2 *Coil. emarginata* R. Ep. ciliare b. m. 463 non L. *Ep. cuspidatum* Lod. 10. b. reg. 783. fol. ternis bigulatis emarg. petalis lanceol. Antilles. fl. large yellow, the column white.

905. Orxera R. diff. *Aerides*, label. infundi bulif. calcar conico incurvo, col. rostrata, anthera rostrata basi 2loc. pollen 2 *Parasit. caulesc. fl. spicatis.*—Type *O. cornuta* R. Aerides do Roxb. b. reg. 1485. fol. ligulatis apice obliq. emarg. spicis pendulis racemosis—India, fl. white incarnate, smell of tuberose. The Aerides or air flowers differ from *Epid.* by a spur.

906. Sulpitia R. (Nymph) diff. *Epid.* Labello libero 3lobo, disco callo magno obl. sulcato, col. auric. stigm. cavo cordato, anthera nuda terminalis. *Parasit. bulbis terrestris bifoliatis, spicatis*—Type *S. odorata R.* Epid. do. b. reg. 1415, Encyclia patens Hook. b. m. 3013.

Macradenia do Lod) bulbis ovatis sulcatis, fol. 2. ligulatis carinatis, sp. racem. paucifl. bract. breviss. sepalis obov. subeq. labello brevis. Brazil, green fragrant flowers. This like the next has been shuffled in various alien Genera.

907. Orniostema R. (necklace stem) diff. *Epid.* petalis subeq. ovatis, 3 ext. basi gibbosis coalitis, labello conformi cuculato ovato acuto basi scrobiculato. *Caulib. clavatis, articulis tumidis monilif. fol. distichis extr-axillaris*—Types 1. *O. purpurea* R. (Epid. monilif. L. Dendrobium do Sw. W. b. reg. 1314.) fol. obl. obliq. emarg. obt. petiolis dilat. amplex. China, fl. purple—2. *O. albiflora* R. Epid. monile Thunb? diff. fol. acutis, fl. albis. Japan.

908. Jensoa R. (Jap. bot.) diff. *Epid.* petalis obl. 2 internis, label. obl. basi cucul. apice deflexo obt. col. curva antice concava, stigm. obt. antheris 2 anticis, caps. teres tortilis. *Scaposa, genic. fol. ensatis.*—Type *I. ensata* R. (Epid. do L. Limodorum do Th) fol. gladiatis, scapo tereti genicul. bract. vagin. lanceol. Japan, fl. yellow, spicate?

909. Jimensia R. (Jap. bot.) Petalis ovatis concavis, 2 internis, label. trifido emarg. basi callis 2 obl. medio concavo, col. filif. incurva, stig. bifid. concavo, antheris 2 dorsalis, capsula clavata. *Scaposa, fol. gladiatis, fl. spicatis*—Type *J. nervosa* R. Limodorum striatum Th. fl. jap. scapo angulato, fol. rad. glad. nervosis, fl. cernuis, bracteatis. Japan, fl. yellow. The G. Limodorum contained many anomalies also, sp. with or without spurs, beards or no beards, many kinds of pillars or styles or clinandres &c. The shapes of capsules will afford good characters in Orchides too much neglected heretofore. The Japanese, Chinese, Hindu and Arabic bo-

tanists deserve comemoration like ours.

910. Didothion R. (2 warts) diff. *Epid.* Labello tripartito basi bicalloso, lac. media unguic. ovata acuta, col. clavata, cap-ula filiformis. *caule artic. clavato, bifoliato, scapis squam. imbric. fl. spicatis*—Type *D. clavatum* R. Epid. do L. &c. bot. reg. 1870. fol. term. lanceolatis binis, petalis lin. cuneatis acutis. Cumana, fl. green, lip white.

911. Dicropilla R. (bicol. fol.) petalis 3 superis galeatis coalitis basi gibbosis, 2 inferis patens, labello oblongo basi bullato didymo adnatoque, longe unguic. canalic. Anthera operculata 2loc. 2pollen. *Scaposa, rhizomata, fl. spicatis*—Type *D. elegans* R. Goodyera discolor E. bot. reg. 271. fol. ovatis ellipt. cuspid. subtus margineque rubris, scapo spathaceo. Brazil, fine sp. rhizoma violet, fl. white, very long claw to the lip.

912. Iebine R. (Jap. name) petalis resupinatis ungnicul. ovatis, 3 externis, labello supero ovato basi bicalloso apice galeato, col. semiteres, antheris 2 sess. caps. filif. tortilis. *Scaposa fl. spicatis*—Type *I. nervosa* R. Ophrys do Th. fl. jap. fol. rad. ovatobl. nervosis sulcatis, scapo nudo angulato. Japan, spike of purplish incarnate flowers. Unlike any of the G. removed from Ophrys, habit of Spiranthes and Goodyera.

913. Dothilophis R. (wart crested) diff. *Epid.* sepalis 3 lanc. petalis 2 ovatis, labello conforme ovato acum. integro concavo, basi callo sulcato cristato, ad col. adherens. *caulescens fl. spicatis amplis bracteatis*—Type *D. purpurea* R. Epid. Skinneri Lindl. b. reg. 1881. fol. amplex. lato lanceol. acutis bract. obl. brevis. Guatemala, fine large purple flowers,

another blended G. the warts or glands of the lip afford excellent generic characters.

914. Psychilis R. (butterfly lip) diff. *Epid.* petalis eq. labello unguicul. libero, latere bialato, disco incrassato lobato, apex obcord. *Bulbis terrestris trifoliatis, scapo vaginato fl. thyrsoideis*—Type Ps. *amena* Raf. (Epid. bifidum Aubl. Sw. W. Red. 64, b. reg. 1879) Bulbis obl. artic. striatis, fol. term. 3 ellipt. obt. trinervis fl. laxis, petalis obl. acutis. South Amer. beautiful and strange flowers, petals green dotted purple, the lip tricolor white red and yellow.

915. Psychopsis R (butterfly form) diff. *Oncidium*, petalis bilabiatis, 3 ext. eq. lin. erectis, 2 internis recurvis falcatis undul. labello 3 lobo, disco crista triloba, Col. bialata fimbriata glandul. anthera term 2loc. goleata 4pollin, *Balbis terrestris unifol. scapo artic. pauciſl.* —Type P. *picta* R. Oncidium papilio Lind. b. r. 910, H. b. m. 2795. Bulbis violaceis, folia ovata fusca, viride picta, scapo anceps. Trinidad, quite distinct G. near the last, large flowers 3 or 4 inches wide, variegated of yellow and orange.

916. Gynizodon R diff. *Oncidium*, petalis eq. labello truncato mucron. sinuato, disco lamellis sinuato dentatis truncatis, Col. bialata, gynizus bident. *Bulbis ter. fol. subtus et supra bulbis, scapis pauciſl*—Type G. *russelianum* R. Onc. do Lind. b. reg. 1830. Bulbis ovat. angul. fol. lanceol. petalis ovatis acum. label. obovato. Brazil, large flowers fuscate, lip with purple spots. What different G. from the last!

917. Lophiaris. R (thick crest) Petalis carnosis conformis, labello pandurato, disco crista triloba carnosa, Col. alis carnosis, anthera

cristata. *Acaulis,scapo ramoso*—Type *L. fragrans* Raf. (Epidendrum! lanceanum Lind. b. reg. 1887) fol. lato obl. nervosis carnosis, fl. confertis, petalis ovatis undulatis. Guyana, fl. yellow with purple spots, lip purple, fine smell like Aerides and Pink. Genus nearer to Oncidium and the last than to Epidendrum!

918. DITULIMA R. (2 warts stig) diff. *Dendrobium*, pet. ext. ovat. connatis, 2int. minor, lab. unguicul. cuneato emarg. sine callo, stigma bicalloso inter cavitas, anthera pedicel. pollen 4 didyma libera. *Caule articul. fol. distichis, fl. axil.*—Type D. *anceps* R. (Dendr. do Sw. W. b. reg. 1239.) caule compresso, articulis cuneat. truncat. fol. lanceol. ensatis fl. nutans, lab. crenulato. Bengal, Pegu, fl. greenish.

919. PIERARDIA R. diff. *Dendrobium*, pet. 3 ext. lanc. 2 int. latior, lab. spatulato, unguic. lato invol. basi saccato calcarato. *caule parasit. artic. fol. alt. fl. spicatis*—Type *P. bicolor* R. (Dendrob. pierardi Lod.750, Hook. b. m. 2584) fol. lanceol. patulis, labello obovato acuto. Bengal. petals white, lip yellowish base purplish. How different from last genus!

920. PANSTREPIS R. (quite twisted) petalis omnis diffformis angul. tortilis, 2int. minor, lab. stipit. basi et apice saccato, medio plicato, col. bicornib. 2 tubul. mellifluis, *Bulbis ter. unifol. scapo unifl.*—Type P. *paradoxa* Raf. bulbis costatis, folia lanceol. 3nerva, scapo pendulo, bract. tortilis, ovario sulc. non tortilis. Caraccas, flower yellow with purple dots, lip orange, a most singular flower which Hooker could hardly describe and has wrongly united to 2 Genera, being his Gongora and Coryanthes macrantha, b. misc. 80, b. mag. 3102. Lind. b. reg. 1841.

921. Plectrelminthus R. (spur worm) diff. *Angrecum*, pet. eq. lanc. acum. lab. obov. rostrato serrato, calcar longissime vermiformis flexuoso apice bilobo, col. basi angul. rostellata, pollinis 2 caudatis. *Rad. fasc. teret. fol. imbric, scapis divisis.*—Type *Pl. bicolor* R. Angr. caudatum Lind. b. reg. 1844. fol. canal. emarg. scapis pendulis flexuosis 4fl. West Africa fl. green, lip white, spur 9 or 10 inches long—Angr. sesquipedale of Thouars is perhaps a second species.

922. Onkeripus R. (swelled beneath) diff. *Maxillaria*, cor. basi saccata, petalis subeq. connivens, lab. integro undulato, basi bituberculi. pollinis 4 ineq. binis anticis brevior. *parasit. bulb. ter. scapis radic.*—Type *O. pallidus* R. (Maxill. pallidifl. Hook. b. mag. 2806.) bulbis teretis, fol. lato lanceol. trinervis, scapo breve, bract. linearib. St. Vincent Antilles, fl. pale yellow. Maxillaria is another heterogenous G. of 40 sp. requiring revision, Lindley unites Colax and Xylobium to it wrongly, no constant characters even in pollen! compare Dendrobium and Xylobium squalens with this Genus.

923. Pentulops R. (5 warts like) diff. *Maxillaria*, sepalis 3 ext. longior liberis, petalis 2 minor basi coalitis, labello cuculato, integro, basi callis 5 paralelis cristeformis. *Bulb. ter. unifol. scapo squamoso paucifl.*—Type *P. discolor* R. (Maxil. do Hook. b. m. 1549. Xylobium Lindl.) Bulbis ovatis levis, folia ovata ellipt. acum. multinervis, Jamaica &c flowers ochreleucos few on short radical scaly scapes. Quite unlike the last G. except in habit.

924. Tulexis R. (warts outside) petalis patulis tuberculatis, lab. undul. carinato truncato,

col. erecta antice bident. postice 3dent. ciliata, anthera 8locul. capsula tereta tuberculata. *Terrestris, rad. fibr. carn. scapis artic. unifol. unifl.*—Type *T. bicolor* Raf. (Brassavola tuberculata Hook. b. m. 2878) folia crassa graminea acum. supra sulcata, pet. lin. lanceol. Brazil, fl yellow with red spots, lip white.—The type of the G. Brassavola was Epidendrum cuculatum b. m. 543 or Cymbidium do Sw. W. with undivided ciliated lip with flat claw and smooth petals, capsule &c. Cymbidium included many G. the C. *echinocarpon* and *muricatum* must be compared with this.

925. Lysimnia R. (Nymph) diff. Brassavola and Tulexis, petalis eq. linearib. levis, lab. cordata acum. integro unque longior, col. integra postice calcarata, capsula clava levis. *Epiphyta rad. vermic et bulb, unifoliata scapo squamoso pauciflоro.*—Type *L. bicolor* R. (Brassav. cordata Lindl. b. reg. 1914. folia ang. lanceol. carinata, scapo sq. remotis paucifl. Brazil fl. green, lip white, small round bulbs mixt with the worm like roots. Thus quite different from last G.

926. Dilomilis R. (2 brim lip) diff. *Octomeria*, petalis eq. patulis lin. labello libero ligulato vix trilobo, disco bialato vel cristatis 2 longitud. crassis, anthera opercul. 8loc. 8pol. *caulescens, fol. distichis, fl. spicatis*—Type D. *serrata* R. (Octom. do Hook. b. mag. 2823) fol. lin. lanceol. apice dentic. serratis, spica laxa paucifl. Brazil, fl. whitish. Quite distinct in habit and characters from the real Octomeria with adnate lip, type Dendrob. angustif. W.

927. Enothrea R. (nymph) diff. *Octomeria*, petalis subeq. connivens ovatis acum, lab. conforme basi bilobo tuberculis 2 oblongis, col. se-

miteres, anthera ovata, 2loc. poll. 8 in fasciculis 2 coalitis. *Rhizoma repens squam, scapis unifol. fl. axil.*—Type *E. graminifolia* R. scapis setosis, folia lanceol. pedunculis axillaris geminata. Antilles. Wrongly put into 3 G. Epidendrum graminif. L. Dendrobium do W. Octomeria do Hook. b. m. 2764. All these G. with 8 stamens or pollen form the group Octomerides with many Genera.

928. Frosculа R. (Nymph) petalis 5 lanceol. supero fornicato, 2 lat. cum columna adnatis, desinens cum labello in calcar conico, lab. cucul. infundib. dentic. Col. brevis cava biloba, anthera 2loc, opercul. pollen sulcato bipartibilis caps. flexuosa. *Caulescens paucifl.*—Type *Fr. hispida* R. caulib. erectis hispidis flexuosis, fol. lauceol. obt. apice, oblique emarg. fl. 1-3 term. sess. bracteis ovatis brevis calcar rigido obt. Mts. of Nipal, fl. white, lip with yellow streaks. Quite a peculiar G. although it is *Dendrobium longicornu* Lindl. b. reg. 1315. More akin to G. *Pedilonum* of Blume, but the type of it is *Dendr. secundum* of Sumatra, with petals equal secund like fingers, all coalescent with lip entire into a spur, stem articulate &c.

929. Hecabe R. (nymph) diff. *Bletia*, petalis 5 patulis, lab. calcarato 3lobo, lobis invol. crenato undul. col. libera semiteres, anthera ad apice immersa, pollen 4 bilobis. *Bulbis ter. foliosis, scapis later. artic. spicatis.*—Type *H. lutea* R. (Bl. woodfordi Hook. b. m. 2719) bulbis striatis, caule folioso sterilis, fol. lanc. acutis plicatis macul. scapis radicalis floriferis. Trinidad, fl. yellow. Very distinct G. the Genera *Pachyne* Sal. or *Phaius* Lour. *Spathoglotis* Blume,—*Gyas* Sal. or my *Anthogyas*, have

all been blended in Bletia by Hooker &c.—Also my Hexalectris, see 940.

930. Cochleanthes R. (shell fl.) petalis connivens ovat. undul. lab. cochleato bilobo, basi crista cochleata (ut pecton plicata,) calcar col. clavata, anth. 2loc. 2labiata, pollinia 4eq. *caulescens, fl. axillaris*—Type *C. fragrans* R. fol. lanceol. 5nervis, pedic. 1fl. axillaris. Trinidad. fl. ample fragrant white, lip purple. It is Zygopetalum cochleare Lindl. b. reg. 1857, but quite a different G. from *Z. makai* H. b. m. 2748, with petals secund, lip flabellate with a spur, anther calciform, 4 uneq. pollen. The Z. rostratum b. m. 2819 is probably another G. *Menadenium* Raf. no spur, pillar winged, lunular gland &c. The *Epid. fragrans* and *emulum* appear to form a subg. near these, Bulbodictis Raf. by petals free equal, lip cochleate entire bulbs reticulate &c.

931. Cypripedium L. auct. This fine Genus has lately been increased by many sp. and some appear the types of peculiar Genera or subg. at least. One of them forms my G. *Criosanthes* established since 1817. I propose the following subgenera or rather Genera: for the N. Amer. sp. see my new flora.

932. Sacodon R. (bag toothed) diff. petalo infero bident. lab. saccato orifice dentato, col. obl. incurva, 2 anth. calcaratis ad basis, appendice ovali obt. sulcato Caulescens.—Types 1 C. ventricosum W. Sweet t. l. pet. 2 int. angustis longis, orif. emarg. dentis parvis—2 C. macranthon W. Sw. Hook. b. m. 2938, pet. 2 int. subeq. ovat. basi villosis, lab. reticul. orif. parvo.—Both from Sibiria with red fl. smooth unifl. leaves ovate undulate nervose.

933. Stimegas R. (stig. large) diff. petalis

ineq. sup. renif. cuculato, 2 int. ciliatis cuneatis obt. labello pandurato basi cucul apex calciforme, col. apex dilatata in stigma trilobo,anth. 2 ad basis lateralis. *Scapo unifl. fol. rad. distichis*—Type *St. venustum* R. Cypr. do H. b. m. 2129. Lindl. b. reg. 788. fol. lanceol. obl. acum. canalic. enervis macul. scapo villoso.—Fine sp. of Nepal, leaves with purple dots beneath, fl. varied of purple and green.

934. Cordula R. (nymph) diff. pet. sup. fornicato emarg. 2 lat. ellipt. undul. lab. brevi saccato integro non fisso, col. obcord. sine app. dorsalis, filam. 2 pendulis antheriferis ineq. bilobis. *Scapo unifl.*—Type C. *insignis* R. Hook. ex. fl. 34. b. mag. 3412, Lod. 1321 fol. ligulatis, scapo piloso, bractea obl. obt. fl. eq. Also from Nipal, large green fl. with purple spots and veins.

935. Menephora R. (moon bearing) diff. lab. basi canalic. apex auricul. saccata, append. lunato. *Scapo unifl.*—Type *M. bicolor* Raf. fol. obl. acut. macul. scapo pubescens, pet. sup. ciliato margine revoluto, ceteris obl. undulatis. Borneo and Java, seen alive in gardens, fl. dull purple, but upper petal white broader ovate.

936. Criosanthes Raf. 1817. Arietinum Beck 1833. diff. petalis 5 (non 4,) 4 linearis, 1 supero latior, labello parvo obconico inflato acuto, *caulescens*—Type Cr. *parviflora* R. 1817. Arietinum Americanum Beck 1833. Cyprip. arietinum. Pursh and Amer. bot—fol. lanceol. pet. sup. ovatobl. acuto pet. 2 inf. deflexis, lab. reticulato. Canada and Mts. of Vermont &c. fl. small, greenish brown, having the aspect of a Ram's head whence my name. This G. even lack the character of 4 petals, I

have it in my herbal. *Cordula* lacks the appendix, yet these 2 characters were the main of the Genus, that must therefore be reformed. They are the types of my family of DIPLANTHERES established 1815 in order of ORCHIDES.

937. THECUANIA Raf. (Birm. name) diff. *Epidendrum*, petalis 3 ext. lanceol. obt. binis inferis gibbis coalitis, 2 internis ovatis major, lab. cuculato basi carinato, apice bicorne, col. adnata inter cornib. enata, antheris 2. stig. fovea melliflua desinens in tubo ovario penetrans, capsula longissima teres. *Fruticosa scandens, articulata, fol. alt. distichis.*—Type *Th. moschata* Raf. Epid. do, Buchanan ic. in Symes travels. Ramosa sulcata, fol. bifaria lanceol. obt. spicis laxis oppositifol. In the Birman empire, fl. yellow very fragrant. purple spots on lip, bracts striated. I thus add another beautiful G. near Vanilla, same habit, but also akin to Dendrobium, different from all by lip and stigma.

938. ISOTRIA Raf. 1808. pet. ineq. 3 ext. eq. longis linearib. canalicul. 2 int. ovatolanceol. dimidio brevior, lab. trilobo, lobo medio undul. emarg. disco glandula magna tubercul. cristata. subtus sulcata, col. subquadrata, stigma fossula scabro, anthera term. mobilis operc. pedicelata quadrata, caps. filif. clavata. *Rad. fascic. fol. term. vertic. caule unifl.*—Types 1. *Is. verticillata* Raf. Arethusa and Pogonia do auct. fol. 5 obl. lanceol. acum. petalis internis ovatis obtusis. Swamps from New York to Georgia says Beck, fl. fuscate outside, pale inside, 2. *I. medeoloides.* Arethusa do auct. fol. 5 obov. acum. petalis internis acutis, Woods of New Jersey &c, podal, fl. fuscate purplish outside inner petals yellow, lip dull yellow, gland yellow.

Under the names of Arethusa medeoloides and vertic. the American Authors have blended 2 or 3 plants, of same habit, very unlike the other Orchides, but hardly of same Genus, which I noticed since 1804, see my new flora for other particulars. All quite distinct from Pogonia ophioglossoides in habit and flowers. Many G. were blended in Arethusa, the A. ciliaris L. else Orchis pectinata W. is the Bartholinia do of Brown akin to Blephariglotis but habit unlike unifoliate.

939. Odonectis Raf. 1808. Pet. ineq. 3 ext. lanceol. acut. 2 int. cuneatis emarg. lab. cuneat. 5dentato, capsula clavata. *Cetera et facies ut Isotria*—Type *O. verticillata* R. fol. 5-6 rotatis obl. lanceol. fl. 1-3termin. sessilib. Mts. Alleghany, disc. 1804, pedal. perhaps a subg. of last.

940. Hexalectris Raf. 1825 neog. diff. *Bletia*, lab. ecalcarat. 6cristato, col. clavata, antheris 2 fissura dehiscens. *Bulbosa, aphyla, scapo squamoso fl. racemosis*—Type *H. squamosa* Raf. Arethusa spicata Walt. Bletia aphylla Nuttal &c. Scapo tereto, squamis ovatis imbricatis, labello divaric. trifido venoso. Florida &c, pedal, fl. brownish purple. Quite distinct by habit from all the Bletias, also by lack of spur and not 4 anthers.

941. Anistylis Raf. 1825 neog. Liparis sp. Lindl. diff. petalis patentib. 3 ext. lincarib. 2 int. filiformis, lab. obovato integro, basi melliflua, apice bialata involvens anthera opercul. bilocul. capsula tortilis, *bulbosa, bifoliata. fl. spicatis.* —Types the American sp. of Malaxis, blended even with M. lilifolia and loeseli of Europe, although not even of same Genus. 1. *A. convallaria*, 2. A. *lutea &c*, My subg. *Diphryllum*

1808 differs by internal petals bifid. The real G. Liparis or rather my *Mesoptera* (since there is a G. of fish Liparis) differs by 2 lateral wings to the middle of the pillar and bilobed lip. The G. *Listera* of Brown differs by wingless column. All have the same habit, see my monograph in New Flora.

942. Dituilis R. (2 wart lip) diff. from Listera and Liparis by 2 warts on the lip, parasite plants. Type D. *nepalensis* Raf. Liparis bituberculata Lindley.

943. Acroanthes R. 1808 (uncolored fl.) Microstylis Nut. 1818. This G. was once a Malaxis, I published it ten years before Nuttal in my remarks on Am. Gen. See my Monograph in New Flora, but Lindley has added many sp. to Microstylis some of which require revision.—I could still increase my N. G. of Orchides by other types, but these surely evince how much remained to be done in revising them. The lips, spurs, crests, pillars (also called clinandre, androphore &c) glands, capsules &c, offer good characters often neglected for the anthers and pollens. The uniflore *Disa* like *D. grandiflora* are the type of the Genus, *D. cornuta* and other spiked sp. must form my G. *Gamaria*—Eria and Stenia of Lindley worst of his names are my *Exeria* and *Stenopolen*—His Sophronia or Sophronitis, name preoccupied is my *Lophoglotis &c.* His Georchis is inadmissible unless Orchis be abolished, it is my *Geobina.* His Mon-Acanthus is my *Cuculina &c.* I now conclude the Orchides and shall end the Monocotyles by a few G. of Drimirhizes.

944. Endocodon R. (in bell) diff. *Maranta*,

cor. triplex. ext. 3part. eq. media 3part. ineq. interna 3part. ineq. 2 segm. latior. 1 labellif. cucul. anthera unica 1loc. ferens, stylus filif. basi coalito, stigma infundib. capsula 3loc. 3sp. *Scaposa, fl. congestis panicul. in spatha campanulata.*—Type *E. zebrinum* Raf. Maranta do bot. mag. 1926, bot. reg. 385. fol. longe petiol. ellipt. obt. maculatis, scapis fol. brevior, spathis erosis 2-3fl. Brazil, singular habit akin to Calathea.

945. Zelmira R. (nymph) diff. *Calathea*,cal. 3sepalus, cor. duplex. infundib. limbi 3part. lacinia 1 major difformis cuculata cornuta, filam. bilob. lobo unico antherifero, stigma fistulosum rostratum, caps. 3loc. 3sp. *caulescens, fl. capitatis, spathis concentricis.*—Type *Z. violacea* Raf. cal. do Lindl. b. reg. 961. fol. ovatis petiol. capitulo ovali multifloro. Brazil. The real G. Calathea has corolla regular, 3 petaloid stamens, 2 sterile, style curved, stigma concave, type C. grandifl. C. longibracteata, unless the G. *Calla* and *Thea.* become Provenzalia and my *Theaphyla* 1830, this will be an erroneous compound.

946. Siphotria R. (tubes 3) diff. *Alpinia*, cal. duplex utrinque tubulatis bilabiatis vel. ineq. 3lobo, labio 1-2dent. cor. tubulosa labio incluso, stam. sessilis. *Caule folioso diviso ad scapo squamoso.*—Type *S. squamosa* Raf. Alp. tubulata Edw. b. reg. 777. fol. lanceol. undul. acutis, scapo radic. brevis squamoso. Guyana, fl. redish. Quite distinct from Alpinia by tubular perigones.

947. Bojeria R. (bot.) diff. *Alpinia*, cal. 3 fid. ineq. stylo filif. pubesc. basi glan da biloba, stig. capit. fissura transv. caps. 3loc. sem. pyrif. in pulpa.—Type *B. magnifica* R. Alp. do. Ros-

coe, Hook. b. mag. 3192 who says it ought to be a Genus. Mauritius Id. If Bojer had a G. already, we may substitute DOXANTHES meaning glorious flowers. Brown has wrongly united Renealmia of L. to Alpinia, and framed a N. G. Renealmia my *Ezcria* near my Olsynium differing by unequal petals, but his R. pulchella with 3 inner petals subeq. unguic. and free stamens is probably an Orthrosantes.

948. ILYTHURIA R. (nymph) diff. *Thalia*, cal. 3part. eq. acum. cor. tubo trigono, limbus duplex, ext. 3fid. eq. undul. intern. 3fid. ineq. uno segm. cuculato, filam. petaloid. bipart. anthera unica clavata adnata, stylo teres incurvo, stig. concavo, drupa uniloc.—Type *Il. cannaformis* Raf. Thalia do, Forst, Pers. Buch. ic. in Symes travels, dichot. fol. ovat. ellipt. acum. petiolis spathaceis, pedic. artic. furcatis multifl. fl. alt. spathis lanc. from Pegu to Polynesia.—The Thalia geniculata of America agrees in nothing but the fruit a drupe stated to be bilocular by L. the corolla has 5 petals only, the 2 internal urceolate, the filament is lanceolate &c. It is the type of Thalia.

949. SPIROSTYLIS R. diff. *Thalia*, cal. 3sepalis subeq. ovatis acutis, cor. duplex. 6petala, pet. 3 ext. obov. eq. 3 int. ineq. filam. petaliform apice concavo, basi ferens anthera 1loc. longe pedunc. filif. stylo spiralis, stig. magno labiato concavo; fructus obov. levis nux flexilis 1loc. 1 sperma. *Acaulis*, *fl. panic. spathis 2valvis 2fl*—Type *Sp. biflora* Raf. Thalia dealbata Rosc. Pursh. El. &c fol. petiol. ovatis, fl. panic. spathis 2fl. subeq. convol. Florida and Carolina, seen alive, fl. purplish binate small sessile. Nearer to Ilythuria by fruit and corolla, but

distinct by petals, style, anther. I had called it Malacarya in 1817.

950. Xyphostylis R. diff. *Canna*, cor. basi tubulosa, segm. 3 int. ineq. undul. filam. ineq. bipart. anthera adnata, stylo ensiformis, stig. lin. involuto—Types 1. *X. lutea* Raf. Canna flaccida Rosc. and Amer. Authors, fol. ovatobl. fl. luteis—2. *X. angustif.* R. Canna do W. auct. fol. lanceol. fl. rubris, cor. segm. int. rectis emarg. Both from Florida to Louisiana. The real G. *Canna* (root of Canna-bis) or rather *Katubala* of Adanson has style clavate, stigma obtuse and other differences.

951. CRATODIA Raf. 1815. This order of mine distinguished from Orchides by a calix and fruit commonly multilocular, was the Nat. family Scitaminea of Linneus; but this name has been restricted to the G. Musa, Heliconia and akin with berries &c by Ventenat. The Gingembres of Adanson or Cratophytorum of Necker included also the Bromelides properly separated by Jussieu. But many Nat. families are included in the Cratodes, besides Scitamines, such as

Drymirhizes of Ventenat, Types Amomum, Maranta, Alpinia, &c *Curcumides* a subfamily with several stamens.

Stratides Raf. 1815, types Stratiotes, Hydrocharis &c, and perhaps Aspidistra with Macrogyne.

The Valisnerides and Pistides with unilocular fruit, may with the Cratodes that have such a fruit, be formed into a link with Orchides, as a Sub Order of either, or perhaps a peculiar order Synarmes Raf. 1815. To revise all the akin Genera would be a task, at present I shall merely indicate two old Genera of Adan-

son and Necker that appear to have been forgotten. It has been properly stated that notwithstanding the labors of Roscoe and others these families require as much correction as the Orchides.

952. Psydaranta Necker 1488, diff. *Maranta*, cal. 3sepala caduca, cor. tubulosa 5part. 1 lac. bifida, anth. obl. tubo insidens pedic. stylo clavato basi adnato, capsula ovata 3loc. polysp. *Scaposa, spathis bifar.* Type *Ps. comosa* Raf. Maranta do L. auct. which L. intimated was a peculiar Genus, the caulescent types of Maranta have a drupe 3loc. 3sp. stig. trigone, cal. 3part. cor. ringent &c.

953. Zingiber Ad. diff. *Amomum*, cal. tubul. 3fid. cor. duplex, ineq. bilab. lab. sup. integro, inf. bipart. cor. interna 3loba &c. This G. Ginger must be restored, it includes several sp. and the Am. zerumbet; but A. zedoaria is perhaps a Genus *Zedoaria* Raf. The G. *Pacoseroca* of Adanson was *Amomum* L. with equal corolla. The *Costus echinatus* W. P. must form a G. *Acinax* Raf. diff. from Costus by capsule baccate echinate. The G. Hellenia same as Helenium L. must be changed into *Allagas* Raf.

954. Melorima R. (honey pits) diff. *Fritillaria*, petalis 6 campanul. 3 int. obov. latior, omnis basi ext. gibbosis, intus fossula melea, stam. 6 glabris filif. anth. lin. stig. 3. *Fol. opp. et vertic. cirrhosis, fl. axill.*—Type *R. cirrhosa* R. Frit. do Grah. Imperialis leucantha Fischer. Fol. inf. oppos. ovatis, sup. vertic. lin. lanceol. carinatis cirrhosis, fl. paucis axill. pendulis. Altaic Mts. fl. white. Add this G. to the Lilies near my G. Baimo 867, with same habit, and my *Hexorima* of 1808 sp. of Streptopus.

DICOTYLES.

(Peripetalic.)

955. Veronica L. I begin the revision of this fine series of plants by a Genus that I had divided into ten groups before 1815: few Botanists have seen the necessity of this, and except Hebe hardly any have been attempted ever since, except *Leptandra* of Nuttal which was my *Calistachya* of 1808. Yet this G. contains over 100 sp. offering the greatest anomalies of good characters. I shall now reform it into 14 Genera and 8 subgenera quite distinct, that form quite a peculiar family my VERONICIA of 1815, with Pederota, Solomonia and all the diandrous G. wrongly united to Pediculares by Jussieu or Scrophularides by others. They are easily known by corolla subregular, 2 stamens, one stigma, capsule bilocular, partition contrary to valves &c. The real G. Veronica will be yet very prolific and known by *calix 4partito ineq. 2minor. corolla subrotata, 4loba subeq. 1 minor, stam. 2 glabris filif. stylo filif. capsula compressa. 2 locul. sub 4valv. oligosperma.*—It contains 7 subg. at least.

1. *Becabunga* R. caps. obcord. compressa, cal. ineq.—Types almost all the sp. Ver. *becabunga, anagallis, arvensis, digitata, precox, reniformis, pectinata*, and many other sp. but the Authors seldom notice the differential characters.

2. *Isonica* Raf. capsula obcord. vel. biscutata, compr. cal. 4part. equalis.—Types V. *chamedrys, peduncularis, urticifolia, biloba, verna, pinnata, scutellata, complicata* &c.

3. *Fimbrula* R. caps. biscutata, cal. ineq.

ampla fimbriato.—Types *V. agrestis, calycina,* and akin species.

4. *Orbonica* R. caps. orbicul. compressa,cal. obov. amplo—Type *V. arguta* &c,

5. *Dodecula* R. cal. 4part. subeq. cuneatis trifidis—Type *V. glauca* Sm. fl. gr. 17. procera, fol. cord. serrat. ped. 1floris.

6. *Alponica* R. cal. bracteato cil. caps. obov. emarg. stylo persistens, stig. capitato.—Types *V. alpina, Wormskioldi,* &c.

7. *Endasia* R. cal. 4part. corolla 4part. undulata, crenata faux villosa. caps. ovata semi 4 valv.—Types *V. maritima, spicata, spuria, crenulata, elliptica* &c.

8. *Meionica* R. cal. 4fidus subeq. caps. orbiculata vel truncata—Types *V. montana, taurica, pedunculata* &c.

956. Odicardis R. (2 teeth heart) diff. *Veronica,* cal. diphyllo. sepalis magnis cordatis serratis bidentatis. Capsula biscutellata 2 loc. 2sp. marg. dehiscens, sem. concavis pendulis rugosis (in V. plerumque planis levis)—Type *Od. cristagalli* R. Ver. do Stev. Sm. fol. ovatis serratis sess. fl. solit. axill. Mts. Caucasus.

957. Panoxis R. 1830 m. fl. diff. *Veronica,* cal. 4part. eq. cor. tubulosa 4fida eq. caps. obl. acuta.—Types V. *salicifolia, cataracta, macrocarpa* &c, compare with 960.

957. Derwentia R. diff. *Veronica,* cal. 4 part. eq. cor. vix rotata bilabiata, lab. sup. integro erecto lanc. acut. lab. inf. trilobo, stylo declinato—Types 1 D. *suaveolens* R. (Ver. derwentia Andr. rep. t. 531. V. labiata Br. Sm. H. b. m. 3461.) fol. lato lanceol. acum. serratis, racemis axill. elong. Australia fl. white fragrant 2 *D. perfoliata* R. (V. do Br. b. mag. 1936)

fol. ovatis connatis 5nervis acutis, racemis gracilis. Australia fl. blue. Probably many other sp. of Oceania.

959. Ponaria R. 1330 m. fl.—calix 5part. subeq. cor. 4loba subeq.—Types *Ver. pona*, *latifolia*, *laciniata* &c. The G. Amphianthus Torrey differs by cor, tubular infund. stam. included, stig. bifid.

960. Eustaxia R. 1817. Calistachia R. 1808 not of Vent. Leptandra Nut. 1818, diff. *Veronica*, cal. 5part. subeq. cor. tubulosa, apex 4lob. ineq. filam. exertis filif. stylo similis. caps. ovata acum. 2loc. polysp. apex bivalvis, valvis inflexis, placenta contrario. *Fol. vertic. oppos. fl. spicatis.*—Fine G. first distinguished by myself in 1802, published 1808, hardly of family Veronicia like the two next. Several American and Asiatic Sp. see my monographs of 1820 of Med. fl. 1830, and of New Flora: E. *alba*, *purpurea*, *villosa*, *oppositifolia*, *sibirica*, *japonica* &c. It belongs to family Lilacines? with Lilac, Nyctanthes, Hebe &c, the capsular Jasminides.

961. Hebe Com. Jus. diff. *Veronica*, cal. 4 part. cor. hypocraterif. limbus 4lobus, caps. ovalis biloc. valvis 2 invol. placenta centralis, stipitato. *Frutex. fol. opp. racemis*, *panic.*—Removed by Jussieu to the Jasminea, akin to Lilac—Type *H*, *magellanica* Juss. fol. perennantib. ellipt. integris, racemis axill. called Veronica decussata by W. P. and nearly all the Authors.

962. Allopleia R. 1830, diff. *Veronica*, cal. campan. 4-5fid. cor. rotata 4-5fida ineq. stam. 3-4incurvis, stig. truncato, caps. obcordata. *Caule artic. fl. axill.*—Type A. *rotundifolia* Raf. Ver. do RP. fol. subrot. 1-3 ad articulis.

Peru. Although the capsule is quite like Veronica, the extra number of stamens render it a doubtful G. of the family.

All the Genera of capsular peripetal flowers with 2 stamens ought perhaps to form a peculiar order ARINEMIA, and then the families VERONICOIDES, JUSTICOIDES, LILACINES &c, should belong to it, as well as GRATIOLIDES with unilocular capsules—CLYTHRELIA Raf. 1815 with spurs, types Pinguicula and Utricularia—CALCEOLIDES, types Calceolaria, Bacola, Jovelana, Pederota, Wulfenia &c. This would be a very distinct natural order, although some may contend that as in Labiates, 2 or 4 stamens are not essential, why not as much as valves and placentas?

963. YGRAMELA R. 1833 atl. J. diff. *Limosella*, cal. camp. 4fid. ineq. cor. camp. subeq. 5 loba, 2 erectis, 3 patulis inf. stam. 2, stylo brevis, stig. bilobo, caps. globosa uniloc. bivalv. polysp. sem, centralis, *fol. radic, scapis unifl.* —Type *Y. maritima*, R. fol. filif. obt. glabris, scapis fol brevior. Sea Shores of N. Amer. in New Jersey, cespitose, uncial, fl. bluish white. —Limosella silesiaca and capensis having two stamens are probably 2 other sp. but if they have the calix 5fid as in Limosella, they must form a subg. or G. *Mutafinia* Raf. This with the next G. is of family GRATIOLIDES. Limosella with 4 stamens and cal. 5fid, was wrongly put among *Lysimachides* by Jussieu, it must belong with Besleria, Maturea and many G. akin to Gratiola by uniloc. capsule, to the family of MESOPHORES, that have 4 unequal stamens.

964. PELTIMELA R. 1833 (small pelt. stig.) diff. *Limosella*, calix 3 dent. cor. 4partita, stylo incurvo, stigma peltato, stam. 2.—Type P. *cun-*

eata R. Limos. diandra L. &c. fol. lin. cuneatis, scapis equante—India. Quite distinct G. although habit similar, belonging to GRATIOLINES as well as Hemianthus, Micranthemum &c.

965. ILYSANTHES R. 1820 annals. This includes the American sp. of Lindernia, with cor. tubul. bilab. 2fertile stam. and 2sterile, stigma bilam. caps. uniloc. myriosperma, placenta free central. Many sp. see their monograph and that of our Gratiolas in my new flora. Gratiola includes also several Genera, and the subg. *Psidiola*, without calicule.

966. AMBULIA Ad. diff. G*ratiola*, cor. tubul. vel urceol. limbo 4lobo subbilab. inf. 3lobo. stam. 4 fertiles in tubo. stigma bilobo.—Type A. *alata* R. 4gona Hook. b. m. 3134. glabra, caule 4gono 4alato, fol. lanceol. serrat. subauricul. fl. subspic. sess. cor. lobis retusis. cal. 2 bract. B. Ayres, fl. blue—2. *A. rigida* R. (Gr. do fl. tex. 5. Gr. acuminata Walt. El. &c) glabra rigida, caule 2-4gono, fol. rhomboideis, basi cuneatis, apice serratis obtusis, fl. axill. ped. cal. ebract. cor. lobis subdent. Florida to Texas. Subg. *Aotilix* by no calicule. Some asiatic sp. belong here. This G. by 4 stamens belongs to my family ANTIIOSTOMIA 1815 which has many subfamilies *Celsides*, *Digitalides*, *Antirhinides* besides *Herpestides* to which it belongs with 4 G. blended in Herpestis, Monniera, Habershamia, Macuillamia, see my Neogenyton 1825 and new flora, where all akin G. are rectified. The G. Bramia of Ad. only differs by upperlip bifid forming a 5lobed corolla.

967. ISOLOBA R. diff. *Pinguicula*, cal. camp. subeq. 5lobo, cor. camp. equalis 5loba, lobis emarg. calcar subul. stam. 2 connexa, antheris peltatis adnatis, stig. sess. petaloideus bilab.

caps. globose 1loc. 4valvis?—Types 1. *I. lutea* R. (Ping. do Walt. Vahl, Mx. E. &c. campanulata Lam. Pers. &c.) pubescens, viscidula, fol. ovat. obt. fl. luteis, calcar brevis recto. Carol. Florida &c—2 *I. pumila* R. (Ping. do Mx. P. E. &c,) pumila, pilis capitatis, fol. ovat obt. fl. pallide cerul. cal. et caps. villosa, calcar tubo eq. Carol. Florida—3. *I. recurva* R. (Ping. edentula Hook.) pubescens, fl. nutans luteis, calcar recurvo cor. brevior, fol. sess. ovatis acutis.—4. *I. elatior* R. (P. do Mx. P. E.) fol. spat. ovatis obt. viscidis, scapo basi villoso, fl. purpuro striatis, corolla tubo ventric. calcar compr. obt. Is the *P. acutifolia* Mx. a real Pinguicula or same as Is. recurva? *Ping. lusitanica* appears another sp. of Isoloba, the cor. having 5 lobes eq. emarg. stig. conc. bilab. but the spur is only saccate—The real European G. Pinguicula differs by cor. bilabiate, capsule oblong or obcordal. P. cristallina fl. gr. t. 11. has spur saccate, capsule globose.

968. Justica Necker, Justicia! L. auct. Adatoda Tourn. Ad. &c. The tropical regions swarm with plants referable to this group, rather than Genus. Linneus had 37 sp. with Dianthera, Persoon had 100 in 8 sections, each real Genera. Vahl and Vitman had 117 and now we know nearly 200. Dianthera was improperly united by some botanists; but Necker had 2 detached G. Geunsia and Roslinia; he properly stated that *Justicia* like *Veritas* or *Prudentia* could not be generic names without modifications. Few Genera offered so many distinct characters for good Genera, as stated by R. Brown, 40 such will be afforded when all the sp. will be well revised: meantime Crossandra, Apelandra, and Elytraria have been separated.

I will now offer 28 typical Genera, two of which were in first part 311, 378. The real JUSTICOIDES have all 2 stamens, and are a group very near to VERONICOIDES, while those with 4 stamens are nearer to Ruellia in the family of ACANTHIDES.—The real G. Justica will still contain all the sp. with *calix simplex*, *5part. ineq. cor. tubul. bilab. sup. emarg. vel bident. inf. trilobo*, *vel 3fido antheris monoloc.* sp. 19 to 42 of Persoon; but even this affords subgenera, such as.

1. *Ecbolia* Raf. cor. tubo filif. incurvo, lab. sup. lin. bifido reflex inf. ineq. trifido—Types *J. ciliata* or *Ecbolium* L. with most of the Justicia 19 to 32 of Persoon.

2. *Gandarusa* Rumph. cor. tubo recto, *fl. verticillatis*, Types *J. gandarusa*, *vertic.* and others akin.

3. *Pulcolia* Raf. (n. ind.) cal. parvus, tubo cor. filif. lab. sup. linearis angusto integro? reflexo, inf. eq. 3fido. stam. exerta. Type *J. nasuta* L. and akin sp. a link with next Genus.

4. *Hirselina* Raf. cor. pubescens, filam. hirsutis, capsula compr. marginata. Type *J. paniculata* L. and akin.

5. *Loncotoma* Raf. (cut lance) cal. foliaceus ineq. lab. sup. recto lanceol. bifido.—Type *J. carthaginensis* L. &c—See till 990 for the revised Genera. The G. Elytraria chiefly differs. by habit scapose, cal. 4parted, cor. subeq. 5lobo The G. Nelsonia of R. Brown, very akin to this differs by no sterile stamens, Australian G. of 2 sp. N. rotundif. campestris. *Aphelandra* of R. Br. chiefly differs by habit, 4gone bracteate spikes, lower lip subentire.

969. ADATODA Raf. diff. *Justica*, cor. ringens, lab. sup. recto concavo integro.—Types *A.*

arborea R. (J. adatoda L.) A. *betonica*, *repens?* &c.

970. Stethoma R. (pectoral) diff. *Justica*, cal. camp. eq. 5part. cor. campanul. lab. sup. brevis integro fornicato, lab. inf. dilatato equalis 3lobo—Type *St. pectoralis* R. (Just. do Vahl. Sw. Jaq. 3 t. 3, Vitm. W. P. b. reg. 796.) fol. ov. lanc. brevipet. spicis gracilis panicul. Antilles, fl. small red, balsamic: perhaps other sp. akin. Put among the Diantheras by L. and some botanists, but others say anthers uniloc.

971. Geunsia Necker, Hypoestes R. Brown, diff. *Justica*, cal. duplex ext. 4part. interno tubul. 4fido. Cor. resupinata tubul. lab. sup. trident. infero integro, nectario ad disco campanul. postice fissum, bisetoso, caps. loc. 2spermis —Type G. *fastuosa* Raf. (Just. do L. auct. panicul. Forsk) frutic. ramis teretib. fol. petiol. ellipt. fl. panic. thyrsoideis. Arabia, India. Certainly a very peculiar G. perhaps the sp. 2 to 8 of first Section in Persoon belong to it, but the flowers must be verified. Hypoestes a posterior name may be applied to J. Forskalei and floribunda as a subgenus.

972. Adeloda R. (n. ind.) diff. *Justica*, cal. duplex vel. calicul. sep. 2. cor. tubul. bilab. utrinque integris, antheris 2loc. divisis ut Dianthera.—Types 1. A. *serrata* R. fol. ovat. serratis. Malabar fl. white, figured by Rheed. 9. t. 43—2 A. *integra* R. fol. ovatolanceol. integris. Meganesia fl. red, fig. Rumph 6. t. 22. Both blended in Just. bivalvis L. &c, habit similar fl. ped. axil. 6fl. bracts ovate.

973. Kuniria R. (n. ind.) diff. A*deloda*, calic. 2 ineq. cor. lab. sup. falcato (emarg?) lab. inf. 3lobo.—Types *K. falcata*, *malabarica*, &c Just. do auct.

974. Carima R. (n. ind.) diff. A*deloda*, cal. duplex utrinque 4part. cor. villosa, labiis .... *fl. spic. vertic.*—Type *C. sulcata* R. Just. et Dianth. do auct.

975. Marama R..(n. ind.) diff. *Justica*, cal. parvus camp. urceolat. eq. 5dent. cor. ringens, lab. sup. incurv. emarg. inf. patens 3fid eq. faux cor. inflata.—Type *M. picta* R. Just. do L. beautiful asiatic sp. often figured, bot. reg. 1227. Shrub with red fl. and leaves yellow in the middle, ovatoblong acum.

976. Lustrinia Raf. diff. *Justica*, cal. 5part. eq. cor. tubulosa tereta recta, labis parvis angustis, sup. integro, inf. 3crenato—Type L. *geniculata* R. Just. do b. m. 2487. fol. ov. lanceol. acum. paniculis laxis cernuis, bract. subul. Antilles, fl. scarlet. Is it a subg. of Adatoda? are the anthers uniloc?

977. Dianthera L. diff. *Justica*, stam. antheris 2locul. loculis remotis sepe ineq.—This contains the sp. 43 to 54 Pers. but has several anomalies yet, affording subg. and G.

1. *Eupodanthes* R. cal. 5part. subeq. cor. tubo ventric. lab. sup. reflexo emarg. inf. trifido. stigma bilobo, capsulis substipitatis.—The various N. Amer. sp. blended in D. and J. americana, pedunculosa, ensiformis, humilis &c, see their monograph in New Flora.

2. *Oximula* R. cal. 5part. subeg. cor. incurva, lab. sup. bident. inf. trident. stig. acut. *fl. involucr.*—Type *D. eustachiana* L.

3. *Osmularia* R. capsula 4gona. Type D. *odora* Forsk, &c compare with Sarcanthera 982.

4, *Uranthera* R, antheris caudatis.—Types D. *secundifl. ciliata*, *appendiculata* of R. P. and Peru.

5. *Dothieroa* R. cal. 5part. ineq. cor. lab. sup. bifido, inf. 3fido subeq. antheris ineq. Type D. *guttata* R. Just. do Wal. b. reg. 1334. fol. obl. subcren. fl. spic. ochroleucis rubro guttatis. India.

978. Emularia Raf. diff. *Adatoda* by anthers as in Dianthera. Types sp. 69 to 79 of Persoon. J. secunda Vahl. has galea linear.

979. Flavicoma R. diff. *Dianthera*, cal. 5 part. subeq. setaceus cor. tubulosa, ringens, galea emarg. lab. 3part. anth. loculis 2 paralelis, stigma clavato bilobo caps. substip. *Herb. fl. capit. bract.*—Types 1. *Fl. capitata* R. Just. flavicoma Lind. b. reg. 1027. fol. petiol. lanc. acum. undul. bract. imbricatis subul. Brazil, fl. yellowish.—2 *Fl. paniculata* R. (Just. calytricha Link. Hook. ex. fl. 212, b. mag. 2816) fol. longe pet. obl-lanc. basi subcord. repandis acutis, paniculis congestis. Brazil, fl. yellow. very large 3 inches long.

980. Janasia R. (nymph) diff. *Dianthera*, cal. 5part. calic 3sep. cor. tubo brevi compresso gibboso, limbo ventricoso camp. 5fido subeq. stam. incurvis. Antheris loculis eq. paralelis, stig. clavato.—*Dichotoma, fl. spic. bract.*—Types 1. J. *Rosea* Raf. (Just. 4angularis Sims. b. mag. 1440, b. reg. 1340.) dich. 4ang. fol. ovato lanceol. acum. subdent. bract. subul. Sylhet Mts. fl. rosate.—2 J. *rubra* Raf. (Just. 4 angul. Hook. b. m. 2845 non Sims) caule artic. 4ang. fol. petiol. ovatolanc. acutis serratis, bracteis ternis. Madagascar, fl. red. 2 sp. in bot. mag. under same name!

981. Ethesia R. (nymph) diff. *Dianthera*, cal. tubulosus 5fidus, cor. tubul. galea elongata emarg. lab. inf. 3lobo medio brevior. Stam.

apice uncinatis, antheris reniformis 2loc. equalis—Type *Eth. carnea.* Raf. (Just. do Lindl. b. reg. 1397) fol. pet. ov. lanc. acum. subcren. spicis obl. densis, bract. lanceol. Brazil, fl. incarnate.

982. Sarcanthera R. (thick anth) diff. *Dianthera*, cal. parvus camp. eq. 5dent. cor. tubul. ad medio angustior, limbo camp. bilab. labis subeq. bifido et trifido. Antheris carnosis ad basis gerens loculis 2 linearib. eq. capsula 4 gona.—Type *S. venusta* Raf. (Just. do Wallich, Lind. b. reg. 1380) frut. fol. ovat. acum. pubesc. fl. panic, laxis. Pandua Mts. of Bengal, fl. small dark purple.

983. Meiosperma R. diff. *Dianthera*, capsula monosperma! thus not even of this family, are the cells monosperm? the cor. is bilabiate but undescribed. Type D. *debilis* Forsk. Vitm.

984. Panemata R. (all bloody) diff. *Dianthera*, cor. tubulosa, subtrifida, lac. 2ineq. lanceol. Type *P. zeylonica* R. Just. sanguinolenta Vahl, Vitm. &c repens fol. obl. obt. petiol. pedunc. axil. 1floris. Ceylon, whole plant bloody color. Compare Adatoda repens.

985. Calasias R. (cal. hairy) diff. *Dianthera*, cal. duplex, ext. 2sep. internus camp. 5fido villoso. cor. tubul. longissima. lab. sup. latior.—*C. bracteata* R. (D. trisulca Forsk. J. biflora Lam &c) frutex brachiato. fol. obl. integris coriaceis, pedunc. axill. 2-3fl. bract. lanc. flavis Arabia, fl. orange color.

986. Crateola R. diff. *Justica*, cor. hypocraterif. tubo brevis basi inflato, limbo plano 5 lobo vel 5partito equalis. Types the J. *vincoides*, J. *parviflora* Ortega non Retz, &c, pubesc. lanceol. fl. subvertic. bract. subul. Mexico.

987. Oplonia R. (weapons) diff. *Justica*, cor.

hypocraterif. tubo tereto, limbus 5lobo, bilabiato, lab. sup. bilobo plano. Type *Opl. spinosa* R. Justicia do L. auct. Prickly shrub, and probably all the prickly American sp. J. microphyla, armata, acicularis &c.

988. CROSSANDRA Sal. Harrackia Jaq. diff. *Justica*, cor. infundib. tubo filif. limbo amplo, lobis 5, infimo major. Stam. 4.—Type *Cr. undulata* Sal. b, reg. 69. fine plant shuffled into 4 Genera, Just. infundib. L. &c. Ruellia do Andr. rep. 542. Harrackia speciosa Jaq. ecl. 33.—J. sinuata is probably a 2nd sp. Not even of Justicides group, but akin to Ruellia in ACANTHIDES.

989. AMATHEA Raf. Roslinia Neck. not Mench (see 495) cal. 5part. cor. ringens, tubo, compr. faux ampliata, galea erecta bifida, lab. 3fid. media major lanc, deflexa. *Stam. 4 subeq. frutic. fl. spic. bract.*—Type *Am. pulchra* Raf. Justicia do Jaq. pict. 259. Lin. &c, fol. ovat. pet. acum. subt. tom. spicis 4gonis, bract. cordatis. South Amer. fl. red large. Quite a distinct G. akin to my *Dimanisa* 310, that differs by double calix and unequal stamens, besides habit. These 2 G. belong to the *Acanthides*,

990. RUELLIA L. auct. This G. chiefly different from Justica by 4 stamens subequal, but had fewer anomalies, the corolla was commonly subequal camp. 5lobed. Persoon had 60 sp. Smith refers here the *Justicia gangetica* L. which I suspect to be a Crossandra, or a peculiar subg. *Canirama* Raf.—He says that R. *depressa* is not even of same family: while R. *blechum and anisophyla* with equal calix form the G. *Blexum* Br. Jus. *R. barbata* has beard-

ed stamens and anthers aristate, perhaps not of this G. *R. strepens* has the filaments connected by membranes, thus a subg. *Hemelosia* Raf. The *Gerardia tuberosa* real type of Gerardia has been united to Ruellia by Swartz but wrongly. Gaissomeria differs by cor. tubulose and curved, Lepidagathis besides by regular limb.

991. Intrusaria Raf. diff. *Ruellia*, cor. lac. infima intrusa fornicata, caps. loculis dispermis. —Type *Intr. bicolor* Raf. R. intrusa Forsk. Vahl. Vitm. W. P· &c. Arabia, and perhaps R. macrophila Vahl, is a 2d sp. with unequal lobes and same fruit.

992. Anthelema diff. *Ruellia*, cal. ineq. lac. supera major. cor. tubulosa filif. bilabiata, lab. sup. 2fido, infer 3fido eq.—Type Anth. *paniculata* R. Ruellia do L. auct. and Browalia alienata L. put in two Genera! Akin to the G. Phaylopsis, is it the same? *R. imbricata* Forsk is a 2d sp.

993. Hygrophila R. Br. Sm. diff. *Ruellia*, cal. basi tubul. 5fido ineq. caliculatus, cor. tubul. camp. limbo rlngens ineq. 5lobo—Types 1 *H. malabarica* Raf. (R. ringens L. auct.) 2 *balsamica* L. 3 *angustif.* Br. 4 *ocymoides* Cav. t. 416.—5 *H. oblongifolia* Raf. R. do Mx. It is of this plant that Leconte (the opponent of botanical improvement) has said it was a wonder that the Genera manufacturers had not separated it from Ruellia! The G. to which it realy belongs had been noticed long ago! and since fixed by Robert Brown,no contemptible improver and Genera maker!

994. Upudalia Raf. (n. ind.) diff. *Ruellia*, stam. 2 fertiles, 2 steriles.—Type *Up. pulchella* Raf Ruellia varians Vent. cels. t. 48. P. Eran-

themum pulchellum Andr. t. 88. Thus another link with Justica.

995. GERARDIA Plumier non L. nec auct. diff. Ruellia cal. 5fid, cor. tubul. bilab. galea erecta emarg. labio inf. 3lobo refl. lat. emarg. medio bifido. Caps 2loc. valvis non septiferis &c. Not of family ACANTHIDES, but the real Personates of my family ANTHOSTOMIA having partitions paralel to valves. I have proved (following Smith) in my new flora that this is the real original G. Gerardia, and I have given the monograph of 40 N. Amer. sp. blended with it, but belonging to the G. Aureolaria, Panctenis, Agalinis, Tomanthera, Dasistema, Seymeria, Dasanthera, Pagesia, Ovostima, Russelia, Macranthera &c, see 360 to 408. The African Gerardias are the G. Melasma, the Asiatic the Genus Lophanthera with crested anthers and camp. corols. Meantime the types of Gerardia are *G. tuberosa*, *G. rupestris* (Ruellia do Sw. P.) *G. scabrosa* (Ruellia do Sw. P.) and probably other blended tuberose sp. of Ruellia &c.

996. PLEUREMIDIS R. (side half 2) diff. *Thunbergia*, cal. simplex spathaceo fisso univalvis bifido, cor. ineq. 5fida—Type *Pl. grandiflora* R. Thunb. do Roxb. b. reg. 492. fol. opp. pet. cordat. angul. pedic. axill. 1fl. India, large blue flowers.

997. ENDOMELAS R. (inside black) diff. *Thunbergia*, cal. simplex, bipart. lac. cordat. trinervis carinatis, cor. tubo curvo, 5lobis rotatis subeq. flabellatis—Type *E. alata* R. Thunb. do Sims b. mag. 2591. Scandens, fol. cord. deltoideis sinuato dentatis, 5nervis, petiolis alatis, subtus tomentosis, ped. axil. 1floris.—Zanzibar in East Africa, fl. yellowish, tube inside

blackish.—The real G. Thunbergia has a double calix, the inner camp. multident. cor. camp. The Th. repens or Septas repens of Loureiro is probably a peculiar Genus *Septilia* Raf.

998. Disteira Raf. (2 ster.) cal. 5fidus ineq. ext. bibract. coloratus, cor. ventricosa hians 4 loba, lobo inf. latissimo, stam. 2 fertilia, 2 sterilia, stig. 2 clavatis. *Facies Thunbergia.*—Type *D. angulosa* Raf. Martynia do Lam. Mart. diandra W. P. often figured, fol. opp. cord. angul. ped. axil. multifl. Mexico.—Of family SESAMIDES Raf. 1815 with capsule 4locular, several G. Seramum, Martynia, Craniolaria, Basonca, Dysosmon &c. Craniolaria of L. wrongly united to Martynia differs by a double calix, the inner tubular spathaceous. *Cran. annua* L; but his *Cran. fruticosa* has been united to Gesneria! while it forms a G. of Gesnerides *Petrannia* Raf. Basonca Raf. has tubular cor. base of tube gibbose around, type B. longiflora, Martynia do Ait.—M. perennis has become the G. Gloxinia, and thus every sp. of Martynia was the type of a Genus! my Dysosmon fl. ludov. differs from them and Sesamum, by corolla unilabiate.

999. Almana Raf. (nymph) cal. tubul. 5fidus, cor. infund. limbo camp. ineq. 5lobo. Stam. 4. didyn. Ovario immerso glandulis 5, stig. capit. umbilic. caps. uniloc. 2 placeatas later. *Scaposa* —Type *Alm. hirsuta* Raf. Gloxinia do Lindl. b. reg. 1004, fol. ovat. rugosis hirsutis crenatis, scapis agreg. 1fl. Brazil, fl. blue. Of family Pedalides differing from Gratiolides by seeds not central. Totaly unlike Gloxinia of family Gesneridis, that has calix superior 5parted, nearer to Cyrtandra that has 2 sterile stamens: while habit and capsule like Ramonda 1068.

1000. Rothecа R. (n. ind.) cal. 5dent. cor. subbilab. vel 5 lobis ineq. 5 deflexis, infero parvo, cetera ut Clerodendron.—Types 1 *R. bicolor* Raf. Clerod. macrophyl. Sims b. m. 2536. fol. oppos. latis ovatis acum. sess. serrat. subt. toment. fl. panic. Mauritius fl. yellow, lower lip. blue.—2 *R. ternifolia* Raf. Volkameria serrata L. auct. Rheed. 4 t. 29. fol. ternatis ovat. serrat. fl. concolor Malabar. See Egena 317.

CENTURIA XI.

DICOTYLES—PERIPETALIC.

1001. Convolvulus. This G. and Ipomea have been so blended and perplexed by botanists that they are still in utter confusion; nearly 250 sp. belong thereto, (166 sp. are in the monograph of Convolv. by Desrousseaux and Smith which are constantly shuffled from one to another there being *no distinction between them*! although they offer 50 good characters to distinguish 50 Genera out of them.—*Calix single or double, equal or unequal, corolla rotate or campanul. or infund. or hypocr. or tubular, entire or dentate or lobate, stamens quite unequal or subequal, stigmas* 1 *or* 2, *capitate or lobed, capsule* 1-2-3-4*locular, cells* 1 *to* 4 *seeds* &c.—Necker began a reform by proposing the G. Milhania, Apomea, Stevogtia . . . others have added Calystegia, Pharbitis, Murucoa &c. I proposed between 1808 and 1820 Stylisma, Diatrema, Ornithosperma, Rhodoxylon and see my Stomadena 11, Coiladena 12 in this flora. I will now still increase them to 48 Genera with 30 subgenera and thus reform this fine group of Genera, refering 175 typical sp. to them.—The real G. Convolvulus Raf. has *calix simplex*

5part. ineq. cor. campan. subintegra, stam. 5 *ineq. filam. filif. antheris linearib. stigm.* 2 *linearib. vel.* 2*lamellaris caps.* 2*locul.* 2 *valvis* 4 *sperma*—It has many subgenera yet.

1. Talanelis R. (n. ind.) cal. lac. 3ext. sagittatis. Type C. *medium*, &c.

2. Ballela R. (n. ind.) cor. sub 10crenata. Type *C. repens* &c.

3. Lacara R. (many heads) fl. capitate involucrate or bracteate. Types *C. capitatus* Vahl. 2 *subtrilobus*, 3 *villosus*, 4 *scabra* Raf. (capitatus Raf. fl. lud.) 5 *saxatilis*, &c.

4. Scadiara R. fl. umbellate involucrate. Types *C. ruber*, C. *cneorum*, &c.

5. Pentanthus R. cor. camp. subrotate, edge 5angular, stamens subequal, base bearded, stigmas reflexed. Type C. *pentanthus* Jaq. W. &c. Also C. *violaceus* with reflexed stigmas.

6. Lizeron R. the true Convolv. lacking the above distinctions, as C. *arvensis*, *persicus*, *verticillatus*, *chinensis*, *tricolor* &c with many other species perhaps. The deeply biparted stigma almost 2 and linear ought to be found in all however.

1002. Stevogtia Neck. 642 diff. C*onvolv.* cal. 5fidus, caps. 2loc. 2sperma, *folia composita*—Types not mentioned, but C. *platicarpos* Cav. with racemose fl. and capsule compressed may be one, and also *C. tomentosus?*

1003. Sanilum Raf. (n. egypt) diff. *Convolv.* corolla 5fida, stigma capitate?—Types 1 *S. copticum*, 2 *S. humile* Jaq. 5pentaloides Lin. 3 *bracteatum*, 4 *bicolor* &c, as Convolv. and probably others. But C. *parviflorus* L. has 2 revolute stigmas, and forms subg. *Exostreps* Raf.

1004. MILHANIA Neck. 645. Calistegia RB. diff. Convolv. cal. duplex. persistens, ext. bipart. major, internus 5part. subeq. stigm. 1 capit. obl. s. glob.—Types C. *sepium*, 2 *riparia* Raf. 3 *involucrata*, 4 *bracteata*, 5 *pentaphyla* (*stig. bilobo*, *cor.* 5 *loba*,) 8 *spithamea*, 9, 10 *villosa and mutabilis* Raf. Fl. ludov. 11 *Catesbiana*, with many others.

1005. TIRTALIA R. (n. ind.) diff. Convolv. cal. equalis, vel. subeq. stig. capit. bilobo—Types *T. striata* 2. *angustif.* 3 *emarginat.* 4 *maxima*, 5 *Sibirica* &c all Convolv. of Authors. C. *filicaulis* with stigma simpl. obtuse is probably a subgenus *Aplimia* Raf.—A 3d subg. PHAESTIS has cal. unequal, such as C. *domingensis*, *gemellus*, *triflorus*, *hispidus*, *anceps*. *triqueter*, *macrorhiza*, *Vitifolius*, *dissectus*, 5 *lobus*, *umbellatus* with villose seeds &c, *malabaricus* with villose corolla &c, *panduratus* with costate calix and stigma &c.

1006. TURPETHUM Raf. diff. Convolv. cal. subtriplex, ext. caducus bracteis 2 magnis, internus persist. 5part. ineq. 2 major ext. involvens, 3 int. minor eq. corolla infundib. 5loba emarg. plicis oppositis, stam. 5 subeq. antheris spiralis. stig. capit. caps. didyma 2loc. 2-4sp.—Types 1. *T. indicum* Raf. Ipomea et Convolv. do Auct. Herm. t. 178. bot. reg. 279. Villosa, fol. obl. vel deltoideis repandis cuspid. ped. 2fl. Ceylon, Malabar &c. fl. white.—2 *T. australe* Raf. Ip. turp. R. Br. fol. cord. acutis integris, ped. multifl. caule angulato. Australia and Tahiti. Probably other sp.

1007. PHARBITIS Choisy, diff. Convolv. stig. capit. granulato 3-4lobo stellato, caps. 3-4loc. 3-4valv. 6-8sp.—All the Convolv. with bell flowers, capitate stigma and more than 2 cells be-

long here and they are numerous. C. *hederacea*, *aristolochif*.. Miller Sm. *Ip. punctata* also and many others.

Scamonia is a subg. of it by capsule 3-4loc. calix dilatate emarg. *Ph. scamonia.*

1008. Diatrema Raf. 1808, diff. Convolv. cor. 5loba, stigma capit. subintegro, capsula uniloc. basi biloc. 4sperma—Types the C*onv. purpureus*, and blended sp. with others akin thereto, not C. *nil* as once stated. 2 types at least, *D. purpurea*, fol. subrot. fl. purp. 2 *D. alba*, fol. cordatis fl. albis, both American figured by Dillen. *D. muricatus* probably a 3d sp.

1009. Ornithosperma Raf. 1817 diff. Convolv. cor. subinfundib. stigma elliptico integro, capsula monoloc. 3sperma.—Type *O. autumnalis* Raf. Ipomea avicularis fl. lud. 145. Volub. fol. cord. 3lobis, acutis, ped. 1fl—Louisiana banks of rivers, fl. white small. This and the last G. deviate by the monolocular capsules, quite a striking character, type of a new family Aplarnia R. with Ramondia 1053.

1010. Apopleumon Raf. (n. grec) diff. Convolv. cal. campanul. 5fido ineq. cor. tubulosa infund. limbo 5lobo crispato, stigma bilobo.—Type *Ap. bignonioides* Raf. Ipom. do bot. mag. 2015. tuberosa scandens, fol. cord. trilobis, lobis imbric. angul. repandis subt. pallidis, ped. nutans multifl. South Amer. fl. violaceous white 2 inches long.

1011. Samudra Raf. (n. ind.) diff. Convolv. cal. imbric. subeq. cor. tubo apex ventricoso, limbo plano 5plicato, disco glanduloso 5lobo, stylo flexuoso, stig. 2lobo.—Type *S. speciosa* Raf. Conv. do W. Ipomea do Pers. C. nervosus Lam. Burm. t. 20. Rheed 11 t. 61, bot. mag. 2446. fol. cord. acutis subt. argenteis, ped. mul-

tifl. bract. cordatis. India.—*Conv. cuneatus* W. is probably a 2d sp. with swelled tube,leaves cuneate, axillary corymbs.

1012. Isypus Raf. (eq. under) diff. Convolv. cal. camp. 5fid equalis cor. 5loba, lobis crenatis apiculatis, stam. ineq. stig. capit.—Type *I. ochraceus* Raf. Conv. do Lind. b. reg. 1056. volub. piloso, fol. cord. acum. integris, ped. 1fl. West Africa, fl. yellow. Akin to Stevogtia 1001 by 5fid calix yet equal, but stamens unequal.

1013. Kolofonia Raf. (n. grec) diff. Convolv. cor. infundib. limbo plano 5lobo, lobis obcord. stella plicata ad sinub. oppos (in Conv. altern) stig. capit.—Type *R. albinervia* Raf. Conv. do Lind. b. reg. 1116. fruticosa, scandens tuberc. fol. cord. repandis rugosis subtus retic. fl. term. solit. bract. binis lanceol.—S. Africa Algoabay, fl. large white, tube and star strawcolor.

1014. Murucoa Aublet, diff. Convolv. cal. turb. 5part. eq. cor. infund. limbo patens 5lobo, *stam. 5 eq. lobis oppositis*, disco ovar. cingens, stig. 2lamel. caps. 2-3loc. 2-3sp—Type *M. violacea* Aubl. t. 54. Conv. macrospermus W. &c, frutex scandens, fol. ovat. acut. rigidis, fl. axill. corymbosis. Guyana, fl. blue.—This is perhaps not even of family Convolvulides which ought to have *alternate stamens*, and will belong to Gentianides! all the Conv. with equal and oppos. stamens must be removed in the natural orders.

1015. Adamboe R. (n. ind.) diff. Convolv. cal. duplex, ext. 2phyl. orbic. cor. camp. 4loba, lobis ineq. uno emarg.—Type *A. bicolor Raf.* Ipomea campanulata L. Rheed 11. t. 56. repens piloso, fol. cord. ped. multifl. Malabar, fl. red

and white. By the irregular corolla hardly of this family, the stamens stigmas and fruit must be examined.

1016. Ipomea Raf. diff. Convolv. cor. infundib. tubo longo, limbo camp. stigma capit. caps. 3locul. 6sp.—Types all the sp. having these characters, several subgenera yet—*Ip. punctata* has a 3lobe stigma.

1. Pullis R. tubo cor. 5angul. Type *Ip. hepaticifolia* L.

2. Lomalix R. cal. patulus marginatus, type *Conv. œnotheroides* L.

3. Kemopsis R. (ivy form) cor. indivisa, stam. exsertis longissimis. Type *Ip. hederifolia L.*

4. Hemilasis R. cal. inequaliss. cor. limbo 5plicato 5dent. filam. basi barbatis. Type *Ip. heterophyla* Ortega, perhaps a Genus.

5. Sericosperma Raf. cor. tubo longo tereto caps. vel. sem. sericeis, types Conv. sericeus and eriospermus of authors.

1017. Quamoclita Raf. (n. Amer. diff. Conv. cor. hypocraterif. tubo longo, limbo plano stellato 5dent. stigma capit.. caps. 2loc. 4valvis, 4sp. —Types *bipinnata*, *cordata*, *hybrida*, *lacunosa*, *rubra*, *coccinea*, *solanifolia*, *denticulata*, R. Br. &c chiefly Ipomeas of Authors, with many akin in 5 subgenera.

1. Apomea Necker, leaves pinnate.

2. Tulotropis Raf. calix carinate, keel warty. Type *Ip. verrucosa* Ortega.

3. Troxula R. tubo camp. limbo rotato 5lobo, caps. sericea, type *Conv. literalis.*

4. Melasis Raf. capsule membranose sub 4gone, 4seeded. Type *Ip. tuberosa L.*

5. Lomiptia R. (edge reversed) cor. limbo

integro.revoluto, stigma ovatum integrum. Type *Ip. bracteata* Cav. perhaps a Genus.

1018. Gynoisia Raf. (fem. hairy) diff. Convolv. stam. basi vill. ovar. villoso, stigma globoso indiviso, capsula vill. 4loc. 4sp.—Type *G. carolina* Raf. Conv. and Ip. do or trichocarpa L. et auct. see my new flora. Different from Pharbitis by cells monosperm. *Conv. quinque folius* L. is probably a 2d sp. with corolla 5dentate.

1019. Euryloma R. (broad edge) diff. Conv. cal. 3segm. internis major, cor. infundib. limbo profunde 5lobo, lobis latis rotundis, stam. exsertis subineq. stigma bilobo—Types 1 *E. grandiflora* Raf. Conv. do L.—2 *E. latiflora* R. Conv. do Poiret, Ip. do RS. bot. reg. 889. Ip. grandifl. Andr. b. rep. 403. fol. cord. acum. glabris, ped. 3fl. Antilles, large white flowers—3 *E. leucantha*? Conv. do D. Sm. Ipomea do Jaq. Scop. t. 4. Vitm. fol. cord. subangul. acum. glabris subtus rubris, ped. 2fl. America,fl. white small, capsule brown.

1020. Doxema R. (glory bloody) diff. Convolv. calix urceolatus, lac. 5ineq. filif. basi membr. coalitis, cor. infund. tubo curvo clavato, limbo inflato 5dent. stam. exserta ineq. arcuata, stylo arcuato, stylo arcuato, stig. capitato—Type *D. sanguinea* R. Ipomea do W. P. bot. reg. 9. Quite unlike the other Genera by curved tube, stamens calix &c.

1021. Modesta R. (nymph.) diff. Convolv. calix imbric marginato, cor. hypocrat. tubo crasso limbo plano 5fido, lobis dilat. emarg. stam. basi barbatis, stig. didymo, caps. 2loc. 4valvis, semina lanata—Types *M. paniculata* R. (Conv. do L. Ipom. do b. reg. 62. Ip. mauritiana Jaq.) fol. palm. 3-5fidis, lobis ovatis acut. undul. inte-

gris, pedunc. paniculatis. East Indies &c—2. *M. insignis* Raf. Ipomea do Andr. rep. 636. bot. reg. 75. fol. cord. repando lobatis acum. fl. cymosis. E. Indies, fl. rosate.—3 *M. macrorhiza*, R. Ip. do Mx. &c.—This G. has 3 subgenera somewhat different *Decaloba*, *Caulotulis* and *Gomphipus*.

1022. Decaloba Raf. diff. cal. subeq. cor. 10loba vel 10emarg. stig. capit. emarg. granulato. Types 1 *Mod. mutabilis* Raf. Ipomea do bot. reg. 39. frutic pub. fol. cord. integris 3lobisve acum. supra villosis scabris, subt. toment. ped. cymosis. South America.—2. *M. congesta* R. Ip. do bot. reg. 333. caule tuberc. fol. palmatis lac. cuneatis acutis, ped. 1-4fl. Buenos Ayres, fl. incarnate.—4 *M. coriacea* R. Conv. hypocraterif. Desr. Lam. Rees 55, frut. fol. cord. coriaceis, ped 1fl. sepe geminis. E. Indies.

1023. Caulotulis Raf. diff. cal. segm. 3 ext. cordata major, cor. infund. 5fidis, lobis dilat. cuspidatis plicis oppositis.—Types *M. tuberculata* R. (Ip. do bot. reg. 86. Convolv. digit. Roxb.) frutic. ramis tuberc. fol. pedatis 5-9fidis, lac. obl. ped. 3-4fl. East Indies—*Ip. dasycarpa* Jaq. is perhaps a 2d sp. Both perhaps akin to Ipomea, but calix,stamens, stigma, capsule as in Modesta.

1024. Gomphipus R. (club under) diff. exactly like *Decaloba* except corolla semi 5fid, not 10lobed. Type *M. setosa* R. Ipom. do bot. reg. 335. setosa hispida, fol. cord. trilob. dent. acum. pedunc, multifl. pedic. clavatis. Brazil, said to be akin to Ip. batatas and platanifolia, are they of same group? I never could meet Ip. batatas in bloom.

1025. Idalia R. (nymph) diff. Convolv. calix

infundib. 5fido ineq. ciliato, cor. rotata camp. 5fida, stam. 5 subeq. in tubo, stylo brevi, stig. 2 linearis. caps globosa 2loc. 2sperma.—Type *Id. albiflora* Raf. (Convolv. elongatus W. P. bot. reg. 498) fol. subsess. cord. acut. pilosis pedunc, elongatis 1-2fl. bracteis subulatis vestitis. Canary Ids. Near to G. Stevogtia and Turpethum by 2seeded capsules.

1026. Bonanox R. diff. Convolv. cal. connivens margine membranaceo, cor. hypocrat. tubo longo clavato, limbo rotato integro vel 5fido, stam. ineq. ad apex tubo, stigma capit. 4lobo, capsula 2loc. 4sperma—Types 1 *B. riparia* Raf. Ip. bonanox L. auct. bot. mag. 752. Caule scabro, prostr. fol. cord. angul. acum. cal. aristatis. Antilles and Florida, fl. large and white, forming with the 2 next the subg. Mundavalis Raf. by corolla entire.—2 *B. orbiculata* Raf. Ip. do Elliot, caule scabro prostrato, fol. orbic. emarg. venosis glabris, ped. subtrifl. cal. ovat. mucron. Florida, fl. purple—3 *B. indica* Raf. Ip. bonanox L. Rheed 11 t. 50. caule scandens aculeato. fol. cord. acut. integris, ped. tortuosis 2-3fl. India, large violet flowers—2d subg. Gomphula Raf, corolla 5fid. 4 B. *muricata* R. Convolv. do L. auct. Ip. bonanox bot. reg. 290. caule muricato, fol. cord. acum. pedunc unifl. clavatis, cal. acum. East Indies, fl. blue.

1027. Cleiemera R. (morning glory) diff. Convolv. cal. subeq. connivens subul. hisp. cor. infund. limbo 5angulis, vel 5dentatis, plicis ad dentis opp. stam. vix ineq. stig. capit. 2-3lobo, caps. 2-3loc. loculis 2sp.—Types the various sp. blended as Conv. and Ip. nil, at least 6—1. *Cl. hederacea* R. (Ip. do Jaq. col. t. 124, bot. reg. 85. Ip. barbata Roth, Ip. nil Pursh, Conv. nil Mx.) fol. subtrilobis hirsutis, ped. brevis trifl.

North Amer. fl. blue—2 *Cl. hirsuta* R. Ip. nil Elliot. Dillen f. 92. Hirsuta, fol. cord. acum. nonulis 3lobis, ped. brevis 1-3fl. cal. hirsutissimis muricatis longe acum. Carolina, Kentuky &c—3 *Cl. cuspidata* R. Dillen f. 96.—4 *Cl. peruviana* R. Ip. do RP. 119—5 *Cl. guinensis* R. Dillen f. 93—6 *Cl. indica* R. Ip. nil L. bot. mag. 188. Dillen f. 91.

1028. Plesiagopus Raf. (near goat foot) diff. Convolv. cor. infundib. vix 5loba, stam. omnib. ineq. filam. subul. villosis, stig. capit. emarg. caps 2loc. 4valv. 4sperma.—Near to G. Modesta including all the sp. akin to Conv. pescapra, Types 1 *Pl. sovana* Raf. C. pescapra L. &c, Rheed 11 t. 57. Rumph 5. 159 &c, fol. bilobis carnosis lucidis, ped. 1fl. India fl, bicolor, rosate, bottom dark purple—2 *Pl. maritima* R. Ip. do bot. reg. 319. fol. obcord. bilobis basi truncatis. Tropical sea shores.—3 *Pl. rotundifolia*, R. Ip. marit. R. Br. fol. ovato subrot. emarg. sepe obliquis ped. 1fl. Australia fl. rosate—4 *Pl? brasiliensis* R. Conv. do L. plum. t. 104. fol. subrot emarg. nitidis, basi bigland. ped. 3fl. Brazil, fl. purple, this is stated to have caps. 3loc. 3sp. and would thus be a *Latrienda*. 5 *Pl. cuneifolia* R. Ip. do Lam. fol. cuneat. emarg. ped. 1fl.

1029. Kethosia R. (nymph) diff. Convolv. cal triplex, ext. bipart. medio bipart. major. eq. internum 3part. ineq. cor. hypocrat. tubo brevis, limbo rotato 5angul. faux coronata intus 10dentatus, stam. subeq. filam. planis alatis membran. antheris inter dentes corona, stig. 2 divaric. capsula uniloc. basi semibiloc. 4sperma.—Type *K. involucrata* R. Convolv, do W. P. b. reg. 318 &c, fol. cord hast. pub. ped. elongatis sub 3fl. Mauritius and Africa, fl. yellow white,

mouth red. A very singular and distinct G. capsule as in Diatrema, calix near Millhania, stamens and crown quite peculiar, of family APLARNIA, see Ramonda 1053.

1030. PODALETRA R. (foot mealy) diff. Conv. cal. teres erectus, cor. infundib. tubo 5gono, limbo 5fido, filam. ad tubo toto adnatis, disco glanduloso, stig. 2oblongis, caps. 4loc. 4sp.—A very distinct G. fruit as in Gynoisia, but 2stigmas and thus nearer to Stylisma, but corolla quite different, yet same family. Type *P. farinosa* R. Conv. do L. auct. fol. cord. acum. repandis rugosis, caule farinoso volub. ped. farin. 3floris.

1031. AMPHIONE R. (nymph) diff. Convolv. cor. tubulosa 5dent. stig. bilobo didymo—Types 1 *A. lobata* R, Ip. 3loba L. Conv. sub trilob. Sm.—2 A. *chenopodia* R. Conv. do D. Sm. fol. ov. dent.—3 *A. asarifolia* R. Conv. do D. Lam. Sm. fol. renif. ped. 1-2fl. Senegal—4 *A. tiliefolia* R. Conv. do Com. Sm. frut. fol. cord. ped. 1fl. S. Africa, fl. triuncial, forming a subg. by calix rotate, cor. with a short tube and long tubular limb—5 *A. cymosa*, Conv. do D. L. fol. cord. obl. acum ped. cymosis E. Indies—6 *A. venosa*. Conv. do D. Vahl. &c

1032. BREWERIA R. Br. diff. Convolv. cor. infund. 5plicata, stylus bifidus, stig. 2capit. caps. 2loc. 4sp.—3 types each with deviations, 1 *Br. linearis* fol. lin. cal. eq. stylo bipart—2 *Br. media* cal. eq. stylo bifido ineq.—3 *Br. pannosa* toment. cal. ineq. stylo bipart. ineq. all from Australia, near to Evolvulus chief diff. the corolla only.

1033. RHODOXYLON Raf. 1815, diff. Convolv. cal. subeq. cor. plicata stigma capit? capsula uniloc. monosp. basi dehiscens 10valvis! *Fru-*

tescens, fol. angustis, fl. racemosis vel thyrsoideis—A fine G. indicated by Ventenat, long ago proposed by me, it is the Rosewood as the name implies, capsule quite peculiar,type of the family APLARNIA with Ornithosperma, Melascus, Turbina, Diatrema, Kethosia, Ramonda,&c all with uniloc. capsules—2 sp. Rhod. floridum and scoparium Raf. Conv. do L. auct.

1034. CLEIOSTOMA R. (shut mouth) diff. Conv. cal. ineq. cor. tubulosa tereta, apex 5fida clausa, antheris sagittatis, stig. capit. caps. 2loc. 2sp. *fl. capit. invol. periantho campanul.* 12*part. ineq.* 10-12*fl.*—Type *Cl. villoso*, Raf. Conv. agregatus Lour. Mart. Rees. caule scandens villoso, fol. palmat. 7lobis ovatis. Anam, large white flowers, quite distinct G. by habit and corolla, near Amphione 1031.

1035. NEMANTHERA Raf. (filif. anth.) diff. Convolv. antheris filiformis spiralis, capsula 2loc. 2sp.—*N. bufalina* Raf. Conv. do Lour. Mant. Rees, frutic. fol. cord. sagitt. pedunc. multifl. Anam.

1036. MELASCUS R. (membr. box.) diff. Conv. cal. ineq. 2 internis major, cor. hypocraterif. limbo plano sinuato, stig. 3-4lobo, capsula membranacea unilocul. 3-4sperma turbinata—Type *M. latifolius* Raf. Conv. do Desr. Lam. Rees, fol. cord. glabris, ped. 3fl. South Amer. fl. white ample, 5 inches in diameter: family APLARNIA.

1037. EXOCROA R. (out col.) diff. Convolv. cal. eq. 5phyl. scariosus coloratus, cor. infundib. antheris sagitt. stig. cap. striato—Type *E, egyptiaca* R. Conv. cairicus and egypt. L. auct, 1p. palmata Forsk. fol. pinn. palm. serrat. ped. filif. panic. Perhaps *C. arenarius* is a 2d sp. having a membranose calix,

1038. Lobake Raf. diff. Convolv. cal. eq. cor. 5loba, lobis *acuminatis*, stig. 2 reflexis, capsula villosa—Type *L. guyanensis* R. Conv. do Aubl. t. 52 auct. ciner. toment. fol. ovatobl. fl. capitatis. Akin to *Exotreps* subg. of *Sanilum* 1003, differs by cal. equal &c.

1039. Emulina R. diff. Convolv. cor. 5fida, capsula 4locul. 4sp.—Type *E. parviflora* R. Conv. do D. Lam. not L. solanifol. Rees, fol. cord. obl. ped. multifl. Antilles. Akin to Gynoisia 1018, but different corolla, stamens and probably stigma! L.

1040. Latrienda R. diff. Conv. or rather Pharbitis by stigma capit. capsula 3locular. sepe trigona, 3sperma—Perhaps only a subg. of Pharbitis but the cells are monosperm and constantly 3. Types 1. *L. soldanella* R. Conv. do L. auct. cal. double, a subg. with the next 2 *L. imperati* R. Conv. do auct. 3 *L. multiflora* R. Conv. do Miller, Martens, Rees.—4 *L. palmatus* R. Conv. do of same authors.—5 *L. brasiliensis* R. Conv. do L. auct. see 1028.—The *C. 5folius* Miller not L. is stated to have 2 seeds in each 3 cells, and thus would be a *Pharbitis 5folia* Raf, fruticosa, fol. 5part. Mexico, large purple fl. and fruit like an apple!

1041. Turbina R. diff. Convolv. capsula turbinata, uniloc. membranosa, 2-3sp.—Type *T. corymbosa* R. Conv. do L. auct. Genus near Melascus and Ornithosperma, but cor. regular campanul. how is the stigma? family Aplarnia.

1042. Camonea R. (nymph) diff. Convolv. cal. equalis, cor. infundib. limbo 5lobis acutis, stig. capit. bilobo.—Type *C. bifida* Raf. Conv. do Vahl. auct. fol. cord. obl. acum. mollis, ped bifidis multifl. Java &c.

1043. NEMOSTIMA R. (fil. stig.) diff. Convolv. cal. equalis, cor. subrotata plana, stig. 2 filiformis, vel stylo bifido. stig. acutis—Types 1 *N. canariensis* R. Conv. do L. auct. frutic. villosa fol. cord. ped, multifl—2 *N. camtabrica* R. Conv. do L. auct. Erectus, fol. linearib. ped. multifl. Spain and Maroco—Besides two subg. TRICHIMA R. cor. rather campanulate fl. not involucrate Types *Conv. hystrix, lineatus, spicafolius*, of authors—PERIEXA R. cor. camp. fl. involucrate, 6phyl. 3 alt. major, cal. linearib. 2bract. stylo bifido. stig. acutis—Type *Conv. lanatus* L. (cneorum Forsk.)

1044. CALIXNOS Raf. (slender cal.) diff. Conv. cal. subeq. setaceus. cor. subinfund. stig. capit. bilobo, *fol. oppositis*!—Habit quite peculiar,no other Convolv. has opposite leaves. Type *C. trinervius* Raf. Conv. do L. auct. glabra volub. fol. pet. cord. obl. acum. trinervis, fl. axil. subsess. sepe binis. Japan fl. purple: they must offer additional characters, fruit unknown!

1045. DISTIMAKE R. (2 ac. stig.) diff. Convolv. cor. infundibul. limbo 5lobo, stigm. 2 longis acutis.—This has the corolla of Ipomea and stigmas of Nemostima, type *D. glaber* Raf. Conv. do Aubl. t. 53 and authors. Volub. glabra, fol. digit. fl. axil. racemosis.—Guyana,large white fl. thick root, a milky plant.

1046. EVOLVULUS L. This G. has also been blended with Convolvulus, and forms many distinct G. the main differences are the *rotate corolla* and *split style*, yet 20 sp. with those characters are put in Convolvulus even quite lately. I shall describe 7 Genera of them some of which by the equal or opposi-e stamens do not even belong to CONVOLVULIDES. I have dry in fruit a doubtful sp. of this G. *E. cneifolius*

Raf. with cal. eq. caps. monoloc 1-2sp. 2 styles, stig. obt.—fol. sess. lin. cuneatis, pedunc. 1fl. pilosis bibract. caps. cal. longior pilosa. New Jersey, probably a N. G. PLESILIA Raf.

1047. FRAXIMA Raf. (separ. stig) diff. Convolv. cal. subeq. cor. camp, infundib. limbo integro, filam. ineq. basi barbatis, stigm. 2 globosis divisis, et stylus interdum. caps. 2loc. 2valv. 4sp. —Types 1 *Tr. sagittifolia*, 2 *umbellata*, 3 *quinquefolia*, 4 *tridentata*, 5 *mindanensis* Raf. Conv. spherostigma Cav. P. 6 *Sherardi* Raf. Calystegia paradoxa Pursh, 7 *ebracteata*, C. do Lam. &c all ranged in Convolvulus, the generic character is chiefly from the first, all must be fully described: this is the first link with Evolvulus.

1048. EXALLOSIS R. (out different) diff. from Traxima by calix very unequal, sepals all different, 3 cordate, cor. 5fid. 15lobed. *E. biflora* Raf. Ip. and Conv. do aact. fol. obl. cord. pubesc. ped, geminis. China.

1049. SYMETHUS Raf. (flum. sic) diff. Convolv. calix duplex, ext. 2partito amplo, interno 5fido ineq. 3 ext. major, corolla rotata 5fida, stam 5 ineq. stylo bifido, stig. 2 linearis. caps. glob. 2loc. 4sp.—Types *Sym. siculus* Raf. Convolv. do L. auct. b. reg. 445. prostratus flexuosus, fol. ovatis delt. pedic. 1fl. bract. lanceol. Sicily, fl. bluish small, seen alive 1809.

1050. STYLISMA Raf. 1817. diff. Conv. and Symethus. cal. subeq. simplex, cor. campanul. subintegra sub 10dent. filam. 5 equalis villosis ad basis cor. antheris sagitt. disco glanduloso annularis, stylo bipart. stig. 2 globosis. caps. 4loc. 4sperma—Types 1 *St. tenella* Raf. Conv. do Lam. W. P. trichosanthes Mx. P. &c—2 *St. aquatica* Raf. Conv. do Walt. El.—3 *St. sher-*

ardi Raf. Conv. do P. E. and some other sp. see my new flora, all North American. Certainly as near Evolvulus as Convolvulus! capsule like Gynoisia 1018.

1051. THYELLA R. (nymph) diff. Convolv. and Symethus. cal. simple subeq. cor. campan. 5 dentata, filam 5 ineq. stylo bifido, stig. 2 globosis, caps 4gona 2loc. 4sp.—Types 1 *Th. tamnifolia* R. Ipom. do L. Conv. do El. forming a subg. *Microla* Raf. by cor. 5dent. eq. to calix, fl. capitate involucrate.—2 *Th. obtusiloba* Raf. Conv. do Mx. P. E. another subg. *Ocripha* Raf. by cor. large with a tube, filaments tomentose at base, ped. 1fl. 2stipulate—C. *lanuginosus* and *incanus* probably belong to this Genus.

1052. DITEREIA R. (twice cut) diff. Conv. and Evolvulus, calix campanul. 5fido subeq. cor. rotata 5loba, *stam. 5 eq. lobis oppositis*! stylis 2 bipart. stig. 4 capit.—Type *D. parviflora* R. Evolv. latif. Edw. b. reg. 401. suffrut. villos. fol. sess. obl. cord. acum. axillis 3floris. Brazils, small white flowers. Not of this family, but probably of GENTIANIDES, are other akin Genera with similar stamens? compare *Dichondra*, *Cuscuta &c.*

1053. BUCHAREA Raf. (bot. Arab) diff. Conv. and Evolv. cal. 5part. subeq. imbric. cor. rotata integra, vix 5emarg. plicis ad emarg. opp. stam. 5 subeq. basi pilosis, stylo brevis bifidus, stig. 2 clavatis, caps. 2loc.—Type *B. maderensis* Raf. Convolv. suffruticosus Dryander, bot. reg. 133 (non Desf. nec P.) caule levi, fol. obl. subcord. acutis, ped. 1-3fl. Madeira—2 *B? atlantica* Raf. Conv. suffrut. Desf. t. 48. P. caule villoso, fol. lanceol. ped. 1fl. elongatis Mts. At-

las, fl. rosate and white. These 2 shrubs appear to form a very natural Genus, near Evolvulus and next. Dedicated to Buchar a great botanist and traveller of Malaga in the 10th century.

1054. PERIPHAS Raf. (around cup) diff. Conv. and Evolv. cal. basi camp. limbo 5fido rotato. cor. rotata 5angulata, plicis opp. angulis. stam. 5 equalis! filam. subul. pilosis, antheris incurvis extrorse dehiscens, nectarium cupularis in disco carnoso ovario cingens stylo bifido, stig. 2 clavatis—Type *P. pannifolius* Raf. Convolv. do Salisb. par 20, bot. reg. 222. Volub. pilos. fol. cord. obl. ped. 3-5fl. bract. lanc. remotis. Canary Ids. fl. pale violaceous. Quite a distinct G. by calix and nectary, probably not of this family. Near to Phacelia, Ellisia &c or rather of CUSCUTARIA family with Evolvulus, Hydrolea &c.

1055. ECHIDIA Raf. 1815, pronounce *Ekidia.* This family of mine is perfectly distinct from the Labiates by 5 stamens, and from Borragines or Trachytes by irregular or labiate corolla with 5 unequal stamens, the G. Lycopsis appears by its curved tube to form a link between them and also the Verbenacea. They all belong to the natural order LOBOGYNIA with lobed ovary and one central style. The G. belonging to ECHIDES are 1 ECHIUM with oblique campanul. corolla, stigma bifid, calix 5parted unequal. 2 EXIOXYLON Desf. P. Raf. with cal. 4parted and cor. bilabiate, 3 ISORIUM Raf. see 219 with equal cor. but unequal stamens, besides the 6 next Genera till 1061.

1056. TRAXARA R. (rough head) diff. *Echium* cor. infundibulif. limbo campanul. 5 lobo eq. stam. longissimis filif. ineq. stylo declinato, stig-

ma bifido. *Frutic, fl. capit. corymbosis*—Type *Tr. capitata* Raf. E. do L. auct. Hispida, capitulis term. S. Africa.

1057. Isoplesion R. (nearly eq.) diff. *Echium* cor. infundib. fere regularis stam. ineq. declinata 2 longior—Types, Is. *italicum, giganteum, pyrenaicum, rubrum*, &c all Echium of Authors.

1058. Oplexion R. (armed E.) diff. *Echium*, cor. hypocraterif. tubo brevi, limbo patulo 5lobo subregularis—Type *Op. ferox* R. Ech. do Andr. t. 39. P. fruticoso aculeato, fl. spicatis. S. Africa.

1059. Larephes R. (much covered) diff. *Echium*. cor. campanulata subregul. non obliquata, calice inclusa, stam. brevis ineq. inclusis, stylo bifido—Type *L. parviflorum* R. Ech. do Roth, Mench. P. Poir. &c. Dichotom. fol. ovali-obl. Africa.

1060. Argyrexias R. (silvery E) diff. *Echium*, cal. equalis 5part. cor. subbilab. lab. 2-3lobis eq. stam. exertis declinatis ineq. stig. obtuso.—Type *A. candicans* Raf. Ech. do L. auct. bot. reg. 44. fruticoso, fol. lanc. racemis panicul. secundis. Madera.

1061. Penthysa R. (5 fimbr.) diff. *Echium*, cal. subbilab. 2-3part. cor. camp. 5loba ineq. basi appendices 5 fimbriatis villosis 5lobis clausa, stam. declin. omnis ineq. stig. bifido.—P. Types 1 *P. strigosa* R. Ech. fruticos. L. auct. oft. figured, bot. reg. 36. frut. fol. lanc. strigosis avenis,—2 *P. glauca* R. Ech. do Jaq. Andr. 325 &c, frutic. fol. lanc. glabris glaucis avenis—3 *P. levigata* R. Ech. do L. auct. suffrut. levis, fol. lanc. marg. scabris, fl. spicatis, sem. muricatis. All from Africa, the *E. glabrum* Thunb. is probably a 4th sp. This G. is very distinct by the nectary. All the Echiums forming thus 9 Gen-

era had been united together and to Borragines by mere rough aspect!

1062. NOLANIDIA Raf. 1815. another nat. family of mine of same order LOBOGYNIA, differing from Borragines by the 5lobed ovary and 5 nuts or capsules. Nolana has the calix so different in all the sp. as to indicate several Genera; I had united Siphonanthus to it, but it appears the type of another family. *Nolana prostrata* has calix sagittate, *N. coronata* calix cordate, *N. spathulata* calix spath. *N. inflata and revolata* have calix ventricose, they will form the subg. *Iohypa*, *Periesta*, *Spatulina*, *Gastrina*.

1063. PERILOBA R. diff. *Nolana*, cal. carinatis 3 vel 5angul. non sagitt. cor. camp. 5loba, lobis trilobatis, disco 5lobo, caps. 5 monosp.—Type P. *paradoxa* R. Nol. do Lind. b. reg. 895, b. mag. 2603. prostrata fol. pet. ovatis obt. Chili, fl. blue.

1064. SIPHONANTHIA Raf. this nat. fam. differs from Nolanides and Borragines by cor. 4fid, stam. 4, berries 4 as in Prasium: it is thus nearer Labiates, but the corollas are quite equal. The habit of Siphonanthus with ternate leaves and racemose fl. is also like Labiate. Is it a subfamily of them? do any other akin types exist? Falkia and Coldenia differ by several styles. But Jussieu mentions a Coldenia of Peru with 1 style, corolla 5fid, 5 stamens which is either a Nolana or a N. G. of Siphonanthia, *Monomesia* Raf—But *Perama hirsuta* Aubl. (or Mattnschkea W. P. &c) is another G. of this family, having same habit, although it has 4 seeds instead of berries, and the flowers agregate as in Globularia. The G. Monniera, Ra-

putia, &c form another akin family MONIERIDES, differing by irregular corolla and stam. from Nolanidia.

1065. POLIMIA Raf. 1815. This nat. order. of mine next to the LOBOGYNIA is easily known by *one ovary, several styles or stigmas, fruit without seminiferous valves.* I shall give here the 5 families of it as established then, although there may be one or two others, to mention all the G. belonging thereto, would be a task, but several of my N. G. out of Convolvulus belong here.

1. DICONDRANIA R. 1815. Ovary lobed, lobes 1seeded. Types Dicondra, Coldenia, Falkia.

2. STATICIA R. Statice, Armeria &c, fruit monosperm.

3. CUSCUTARIA R. fruit capsule multilocular. Types Cuscuta, Kadula R. Kadaras R. Evolvulus, (and all my revised Genera of it) Hydrolea, Eucodon Raf. (Codon Jus.) Sagonea, Ophioxylon, Nama, Sterisia R. &c.

4. CRESSARIA R. capsule monolocular Cressa, Aldea R. P. Porana &c.

5. ILEXIA R. fruit berry or drupe. Types Cordia, Ehretia, Menais, Varronia, Schrebera, Ilex, Nemopanthes R. and akin Genera.

The next order EPICLIA with seminiferous valves included the Gentianides and Chironides, with Orobanchides that have irregular corolla; but these last must be removed to the next order CHASMANTHIA or Personate, while EPICLIA will belong to the class NANTIANDRIA by stamens opposite as in LYSIMACHIDES. While the real CONVOLVULIDES were removed to order DARYNIA near to Epacrides by having a regular corolla, although their unequal stamens con-

nect them with many other families, and they ought now to form with VERBASCOIDES a peculiar order or suborder PENTANISIA with 5 unequal stamens.

1066. VERBASCUM, this G. is the type of a large family well distinguished from SOLANIDES by a capsule and unequal stamens, corolla irregular; from SCROPHULARIDES by 5 stamens; as from CONVOLVULIDES, by corolla irregular. Hyoscia-mus, Blenocoes 716 till Stimenes 722 belong thereto; but Nicotiana and Datura with their reformed Genera with regular corolla, belong to CONVOLVULIDES.—Verbascum must also be reformed and includes 4 Genera: the real VERBASCUM has *cal. 5part. cor. rotata patens 5loba ineq. stam. 5ineq. filam. inclinatis lanatis antheris conformis, stylo, stig.* 1. *caps. 2loc. 2valv. polysp. sem. centralis.*

1. THAPSUS, R. fil. basi lanatis. *V. thapsus, thapsoides, montanum, nigrum, pulverulentum, mucronatum, lychnitis, blattaria, sinuatum, floccosum, pheniceum* &c.

2. LASIAKE R. fil. apice villosis, *V. plicatum* sm. fl. gr. 226.—*V. lyratum.* has calix 5phylous serrate. Subg? *Prionula* R.—3. 1. FLOMOSIA R. (Diosk) diff. *Verbascum*, antheris difformis ineq. 3 renif. 2obl—Types *Fl. phlomoides, condensata, nemorosa* &c. Verbasc. of Authors, probably a Genus.

1067. LEIOSANDRA R. (smooth st) diff. *Verbascum*, stam. glabris, antheris ineq. difformis 2 oblongis—Types *L. crassifolia* and *cuspidata* Verbasc. do Authors.

1068. RAMONDA Richard (not of Mirbel which is Lygodium) diff. *Verbascum*, cor. 5partita regularis, stam. approx. antheris apice perfora-

tis, capsula 1locul. polysp. placentas 2 parietalis. *Scaposa*—Type *R. pyreanica* Rich. Pers. Verbascum myconi L. auct. fol. rad. ovalib. crenatis tomentosis. Mts. pyrenees, fl. blue. Hardly of this family, probably type of a new family with those Solanides and Convolvulides that have a capsule unilocular, such as Diatrema &c, APLARNIA see 1009; but akin to GRATIOLIDES differing by 5 stamens.

1069. CUSCUTA L. auct. This G. was based upon mere habit with capsule; Cassytha ought to have been united to it by these principles! it includes at least 8 Genera! my real G. Cuscuta has cal. 4-5fidus, cor. camp. 4-5fida persistens, appendices nullis, stam. 4-5alt. stylis 2, stig. acutis, caps. pyxidium, 2loc. 2sp. *Aphylla, filamentosa, volubilis, fl. subsess.*—Type only *C. vulgaris* or europea of L.

1070. KADULA R. (Diosk) diff. Cuscuta, cor. ovatis 4fidis, stam. 4, stigm. 2 capitatis. *fl. pedunc corymbosis*—Type R. *corymbosa* R. Cusc. do RP. t. 115. P. Peru.

1071. ANTHANEMA R. (fl. sine fil.) diff. *Cuscuta*, cal. membr. 5part. cor. urceolata 4-5fida, stam. 4-5, stylis 2 longissimis, stigm. capit. *Acaulis, parasitica, caulib. evanescens, fl. glomeratis densis*—Types 1 A. *paradoxa* Raf. (*s. verticillata*) Cusc. do Raf. annals 97, glomerulis amplectens, verticillatis, cor. subtub. 4fidis. Kentuky—2 *A. capitata* Raf. acaulis 98 annals, fl. glomer. capitatis. cor. subcamp. 5fidis. Kent. Illinois.

1072. PENTAKE R. (5 points) diff. *Cuscuta*, cal. angulato magno cor. eq. 5fido, cor. conica 5dentis corniculatis, stig. 2 capit. *fl. paniculatis—P. chinense* R. Cusc. do Lam. W. P. Vitm.

1073. KADURIAS R. (Diosk) diff. *Cuscuta*, cor. 5part. reflexa, *fl. racemosis—K. reflexa* R. Cusc. do Roxb. cor. t. 104. P. India.

1074. NEMEPIS R. (on filaments) diff. *Cuscuta* cal. 5part. cor. camp. vel. urceol. 5fida, stam. 5, appendices squamis 5 opp. stam. fimbriatis, stig. capit. *Caulib. ramosis, fl. varis disp.*—Types 1 N. *odorata* R. Cusc. do RP. t. 105. P. fl. congestis sessilib. cor. camp. Peru, fl. with purple dots—2 *N. americana* R. Cusc. do L. auct. fl. congestis pedunc. cor. urceol. filis croceis, fl. albis. North America—3 *N. prolifera* R. Cusc. Amer. nonnulis, surinamensis Schill. Vitm. fl. fascicul. proliferis, cor. tubul. lac. patulis, filis flavis, fl. viridescens. Antilles and S. Amer.—4 *S. africana* R. Cusc. do W. P. &c. americana. Thunb. pedunculis unifl. bracteatis.

1075. LEPIMENES R. (scale lunular) diff. *Cuscuta*, cal. 4part. cor. infundib. 4fida, stam. 4, squamis 4 opp. lunulata crenata, stigm. 2 acutis—Type *L. epithymum* R. Cusc. do Sm. W. P. europea Lam. fl. sessilib. rubellis. North of Europe.

1076. APLOSTYLIS Raf. diff. *Cuscuta*, cal. 4fidis cor. ovata 4dent. stam. 4, append. nullis, stylo unico capit. *fl. racemosis*—Type *A. lupuliformis* R. Cusc. do Krok. Sil. t. 36, monogyna W. P. Sm.—This G. by the single style is not even of the same family and nearer CONVOLVULIDES; but should the stam. be opposed to corolla as in Cassytha, it will be a link with that G. and of same family.

1077. CASSYTHA L. a genus widely mistaken by all botanists, with habit of Cuscuta and Viscum! of doubtful aff. in Jussieu, deemed by him and Necker akin to Laurus! which might be if it is dicotyle, but it is rather monocotyle and

akin to Olax, Bassia—cal 3part. cor. globosa 6fida, stam. 6 fert. segm. opp. 6 interna sterilia, stylus 1, stig. sub 3fid. caps. glob. 1sp. ad corolla subbacata tecta.—Types C. *filiformis* L. filif. verrucosa, fl. spicat. India—2 other subg. or Gen. not yet well descr. belong here, all the sp. of *Viscum* L. without leaves belong here according to Smith and probably form a peculiar akin Genus. Most of the Botanists have given different characters to this Genus! hardly 2 or 3 agree which indicates several sp. or G. most of them unite Volutella to it or ascribe its character to Cassytha. The Cassutha cornea of Rumph, or C. *corniculata* L. has never been well described, having spines, leaves linear lanceolate and horned flowers, it must probably form a G. perhaps the Collodion of Loureiro ?—While the Cuscuta 5. t. 184 of Rumph. which is the Cassyta zeylanica Gaertn. t 27, &c ought to form another G. Rumputris Raf. diff. by stam. 6 ineq. 3 shorter alt. 3 longer biglandulose at base, 1 style, 3 stigmas, nut longer than baccate corolla. Type *R. fasciculata* Raf. fol. paucis fascicul. tenuis.

1078. Ozarthris Raf. diff. Cassytha fl . . stylo tereto persistens, *caulib. artic. aphylis* flowers to be described . . . types 1 *O. opuntioides* R. artic. compr. 2 *O. triquetra* R. artic. 3quetris (V. artic. Burm)—3 *O. capense* R. artic. teretis baccis opp.—4 *O. paradoxa* Raf. (Visc. vertic. L. sine fol.) râmis teretis, baccis confertis: all those united to Viscum by L. &c *O. opuntioides* is besides *Cactus pendulus* ! Ait and *Cassytha baccifera* Sal. thus put in 3 Genera!

1079. Spironema R, Volutella Forsk. Vitm. (n. mal. ad Voluta) diff. Cassytha, cal. 6phyl. deciduus, cor. ineq. 6part. 3 ext. basi intus cor-

niculatis, anth. 9 sessiles, 3 int. steriles glandulif. stig. capit.—*Sp. aphyla* R. V. do F. V. filif. striata, villosa, fl. spicatis. Arabia—If these G. do not belong to OLAXIA and are monocotyle they may form a peculiar family CASYTIDES by the corolla persistent and baccate, but they agree with Olax and akin G. by the fruit and corolla anomalous, some sterile stamens &c. I add the 3 Genera blended in Olax.

1080. OLAX L. J. &c. cal. integro, cor. infund. 3loba, stam. 3 fert. lobis opp. 4 steriles, styl. 1, stig. 1, fruct. 1sp. *frut. volub. ramis flagelif. fol. alt. avenis—O. scandens* Roxb. zeylanica L. fol. pet. ovata, ped. axil. ramosis. E. Ind. and Ceylon, put in Sapotilles by Jussieu, while he puts the next G. in Aurantia! while Smith deems them of same Genus!

1081. FISSILIA Com. Jus. diff. Olax. cor. 3part. stam. 3 fertiles gerens, 3 sterilis furcatis, stig. 3lobo, drupa 1sp. *arbor. fol. alt.—F. psittacina* Jus. Olax fissilis Sm. fol. integris laurinis semperv. racemis. axil. African Ids.

1082. SPERMOXYRON Lab. diff. Olax, cor. 5part. 1-2liberis petalif. 3 coalitis cum stam. 3 opp. stam. 2 sterilia, capsula 1sp. *Aphyla cassythif.—Sp. australis* L. Olax do Sm. flagellis strictis aphylis, probably alt. 3 G. monocotyle.

1083. SYNARTHIA Raf. 1815. This family of mine includes the Dipsacea of Jussieu, which Decandole has ascertained to have a free ovary, together with Globularia, Alypum and akin Genera. They are distinguished by *corollas irregular, single seeds, stamens commonly 2 or 4, flowers capitate, often with a perianthe.* It is a family of nat. order. OLISPERMIA, where belong also Pyrenaria, Verbenides, Vitexides &c. The G. Opercularia, Cryp-

tospermum and Evea must be added to Dipsacea; but the Valerianides of Dec. are quite a peculiar family. The G. *Scabiosa* L. the most numerous in species offered a crowd of anomalies and yet has been left nearly untouched except by Vaillant and Necker; the linneists blending to this day 16 fine Genera into Scabiosa, which I have distinguished since 1815, and shall now enumerate, having verified most of them alive or dry.

1084. Scabiosa Necker, Raf. non L. nec auct. Periantho multipartito, patens ineq. phorantho piloso, corollis 5fidis ineq. radiatis. stam. 4, akena angulata denticulis coronata—Types *Sc. columbaria*, *eburnea*, *argentea*, *atropurpurea*, *prolifera*, *alba*, *grandiflora*, *ucranica*, *cretica*, *graminif*, *pumila*? *indurata*, *maritima* &c.

1085. Astrocephalus Vail. Ad. Chetastrum Neck. diff. *Scabiosa*, Phorantho paleaceo, cor. camp. 4fidis, ineq. akena globosa, coronatis setis 5longis patulis—Types Sc. *sylvatica*, *ciliata*, *rigida*, *tatarica*, *uralensis*, *integrifolia* &c.

1086. Pterocephalus Vail. Ad. Pteropogon Neck. diff. *Scabiosa*, Phorantho nudo, cor. camp. 5fidis ineq. akena globosa, corona duplici ext. marginata, int. papposa, pappus plumosus—Types 1 *Pt. incanus* Raf. Sc. pteroceph L. auct. 2 *Pt. plumosus* R. Sc. plumosa Sm. Knantia do L. this forms a subg. *Trichopteris* Necker by Per. aphyl. pappus 12 pilose.

1087. Succisa Neck. diff. *Scabiosa*, Per. imbricato, phorantho paleaceo, corollis 4fidis subeq. akena ventricosa obl. 4dentata—Types 1 S. *vulgaris* R. Scab. succisa L. 2 *S. ambrosioides*, 3 *dichotoma*, 4 *arvensis*, 5 *ciliata*, 6 *scabra* &c.

1088. Cephalaria Schr. diff. *Scabiosa*, Per. globoso imbric. cor. 4fidis subeq. akenis 8aristatis—Types C. S. *Sc. alpina*, *syriaca*, *attenuata*, &c.

1089. Euptilia Raf. (well feathered) diff. *Scabiosa*, per. glob. imbric. cor. 5fidis ineq. akenis aristatis et papposis—Type *E. cretica* Raf. Sc. papposa involucrata Sm.

1090. Plesiopsora Raf. diff. Scabiosa, per. patens 8-10part. cor. 5fidis subeq. akenis denticulatis—Types *Pl. sicula*, *africana*, *monspeliaca*, &c.

1091. Tereiphas R. (cut cup) diff. *Scabiosa*. Perianthis urceolatis multifidis.—Type *T. urceolata* R. Sc. do Desf.—A. subg. Pentexis Raf. has per. turbin. 5fido, type Sc. *rutefolia* Vahl.

1092. Xetola R. (aristulate) diff. *Scabiosa*, Periantho 5phyllo, fol. longe aristatis, corollis 4fidis subeq. phorantho paleaceo aristato.—Types 1 *X. transylvanica* R. Sc. do L.—2 *X. trenta* R. Sc. do Haquest. Vitm. Sc. haqueti Lam. wrongly united to Sc. leucantha by Persoon.

1093. Lomelosia R. (edge membr) diff. *Scabiosa*, Phorantho globoso, akenis corona membranacea plana rotata orbiculata, integra vel. emarg. nervosa vel scabra.—Types L. *stellata* and *Coronopifolia* Raf. Scab. do auct. L. *palestina* will be a 3d sp. perhaps a subg. by segments of corolla trifid. L. *simplex* a 4th and a subg. by Crown campanulate *Codostelma* Raf.

1094. Leucopsora R. (white Sc) diff. *Scabiosa*, per. globoso imbric. cor. 4fidis subeq. lac. inf. deflexa, akenis trigonis 3dentatis—Type S. *leucantha* Raf. Scab. do L. *Sc. ustulata* is perhaps a 2d sp..

1095. Sixalix R. (carrot cal.) diff. *Scabiosa*,

per. pinnatifido villoso—Type S. *daucoides* R. Scab. do Desf. &c.

1096. Gonokeros R. (angle horned) diff. *Scabiosa*, per. imbricato, cor. 4fidis subeq. akena angulis in cornibus desinentib—Type *G. hungaricus* R. Scab. corniculata Waldst. Pers.

1097. Pentena R. (5 or 1) diff. *Scabiosa*, per. patens multif. phorantho ovato, akenis aristis 1 vel 5 instructis—Types P. *ochroleuca* Scab. do L. aristis 5—2 *P. uniseta* R. Scab. do Savi t. 2, Vitm. arista unica.

1098. Tremastelma R. (perf. crown) diff. *Scabiosa*, pet. 6phylus, akenis corona ext. dilatata 10perforata, 10nervosa, corona int. papposa.—Types 1. *Tr. brachiata* Raf. Scab. do Sm. Knautia palestina L. auct. fol. integris—2 *Tr. sibthorpi* R. Scab. do Sm. fol. pinnatif. Cyprus.

1099. Thlasidia R. (compr. 2) diff. *Scabiosa* cor. 4fid. ineq. radiatis, akenis compressis bidentatis.—Type *Thl. bidens* R. Scab. do Sm.

1100. Diototheca Raf. fl. lud. not of Vaillant which is Morina T, L. diff. *Scabiosa*, per imbric. scariosus, phorantho glob. paleaceo, paleis scariosis, corollis 4fidis irreg. lac. sup. brevis emarg. inf. longior, stam. 2 brevis in tubo cor. akenis ovatis, faux bifida—G. akin to the last, differing by the 2 stamens as in *Morina*. Type *D. repens* Raf. repens pubescens 4gona, fol. opp. petiolatis ovat. dent. scabris, fl. axill. Louisiana.

In all these G. the fruit is a single seed free within a hollow calix perforated at the end, somewhat as in the Carexides, and all have a single style with simple stigma: such fruit ought to be called an *utricule* rather than akena which is a kind of nut.

CENTURIA XII.

1101. Aristolochia, no botanist had thought to revise this Genus, till I partly did in my med. fl. 1828: yet it offers *perigone unilabiate or bilabiate or regular*, 5 *or* 6 *or* 12 *stamens*, 1 *to* 6 *stigmas and many kinds of capsules*! therefore forms a group of plants including 12 Genera—my Aristolochia Raf. has perigono adherens, tubulato, sepe incurvo, unilabiato basi ventricoso, apex lingulato integro, antheris 6 sess. epigynis stigma stellato 6part, capsula 6 gona, 6locular, polysperma—4 subgenera.

1. Clematops, labio oblongo vel ovato, Types *A. anguicida*, *mauroram*, *betica*, *indica*, *clematitis*, *rotunda*, *longa*, *pistolochia*, *sempervirens*! *kempferi*, *punctata*, *barbata*, *pallida*, *hirta* &c.

2. Ertoglossa. labio dilatato spatulato retuso vel cordato. Types *A. surinamensis*, *reniformis*, *odoratissima*, *glauca*, *altissima* &c.

3. Glossura, labio caudato vel appendiculato Types A. *caudata*, *A. peltata*, *A. maxima*, &c.

4. Mestenipius, tubo curvo coarctato apice angulato, labio dentato. Types *A. grandiflora*, *A. fetens* &c.

1102. Hexaplectris R. (6 spurs) diff. Aristol. Perig incurvo 6costato, basi 6 calcaratis, labio dilatato vel cuculato longe caudato, capsula clavata—Types 1 *H. bicolor* R. Arist. do L. b. reg. 1399, fol. cord. 3lobis, longe pet. stip. acuta fl. axill. sess. S. Am. fl. yellow, lip fuscate cuculate, tail pedal—2 *H. fuscata* R. Arist. caudata Booth, b. reg, 1453 (non Jaq. I) fol. reniform. 3lobis brevi pet. nigro macul. stipula obl. labio renif. Brazil, fl. brown, tail pedal.—Per-

haps some sp. of Glossura belong here, if they have spurs.

1103. Plagistra R. (obliqual) diff. Aristol. Perig. tubuloso incurvo, non labiato, apex integro oblique truncato—Types *Pl. cretica* Raf. Arist. do Lam. P.—the *hirta* of L. included this sp.

1104. Tropexa R. (6 keels) diff. Aristol. perig. infundibulif. tubo curvo 6gono, labio spatulato, capsula globosa 6carinata—Type *Tr. biloba* R. Arist. do L. caule scand. fol bilobis.

1105. Einomeia R. (1 less) diff. Aristol. stam. 5 caps. 5locul.—Type *E. bracteata* Raf. Arist. pentandra L. &c.

1106. Ambuya R. (n. Arab) diff. Aristol. perigono sacato inflato, unilab. lab. producto contorto dilatato bilobo.—Type *Amb. labiosa* R. Arist. do b. reg. 689, b. mag. 2545. ringens Link. t. 13 non Vahl. Volub. angul. fol. subrenif. Brazil.

1107. Pistolochia R. diff. Aristol. perig. bilabiato, incurvo, subtrifido, stigma sess. unico magno capit. lobato—Types the various sp. blended in Arist. serpentaria see my med. fl. and new fl. 1. *P. serpentaria* med. fl. t. 10—2 *latifolia*—3 *angustifolia* &c.

1108. Diglosselis R. diff. Aristol. perig. bilabiato, labis ineq, tubo bilobo, caps. obl. striata, stigma caps. 4locul—Types 1 *D. trinervis* R. Arist. bilabiata L. auct. fol. ovatobl. obt. 3nervis.—2 *D. latifolia* R. Arist. ringens Vahl. &c fol. subrot. cord. lab. sup. spatul. inf. lanceol—3 *D. cymbifera* Raf. Arist. do Mart. t. 49. b. reg. 1543. fol. renif. lab. sup. ovato acuto, inf. pandulato emarg. Brazil: the *A. cordifl. gigantea* &c perhaps belong to this G.

1109. Endodeca R. 1828 (12 inside) diff.

Aristolochia, stam. 12, labio plerumque ovato—Types *E. semperrirens* R. Ar. do auct.—2 *E. hastata* R. Arist. do Nut. &c.

1110. Psoriiza R. (false snake root) diff. Arist. perig. bilabiato, stam. 12. stigma unico sess. lobato convoluto.—Type *Ps. undulata* Raf. Arist. serpent. Big. med. fl. ic. fol. obl. subcord. acutis undulat. trinervis, Florida &c. fl. red. one of the sp. blended among our snake-roots.

1111. Pteriphis R. (winged tube) diff. Aristol. perig. tubulosis tripteris trilobis, stam. 6-8, stig. subsessile trilobo, caps 3loc ?—Type *Pt. tripteris* R. Arist. do Raf. fl. lud. 65 sarmentosus, fol. cord. fl. spic. bracteatis. Louisiana, fl. small white, see my remarks in new fl. on possible mistake of Robin.

1112. Siphisia R. 1828. diff. Aristol. perig. tubuloso, apex trilobo subeq. non alato, stam. epistylis, stylo crasso, stig. 3-6—Types 1. *Siph. glabra* Raf. Arist. sipho Lher &c—2 *S. tomentosa* R. Ar. do Sims &c both seen alive.

1113. Hexastylis R. 1825 neog. 24. diff. Aristol. and Asarum, cal. tubular trifid, stam. 12. ovar. semilib. tereto, apex concavo, stylis 6 lateralis erectis, stig. 6 obliquis truncatis bicornis. caps. 6loc. oligosp—Type *H. arifolia* R. Asarum do Mx. El. &c. fol. cord. sagitt. Kentucky to Carolina. Seen alive nearer to Siphisia than Asarum!

1114. Bragantia Lour. non Vand. perig. tubul. ineq. 3fido, patens, corona brevi cyathif. stam. 6. caps. siliquef. 4gona 4loc. 4valv.—Types 1 *Br. racemosa* Lour. fol. lanceol—2 *Br. latifolia* Wal. fol. obl. subcord. caulib. 1-2phylis. Birman.—The Genera Munnickia and Ceramium (bad name employed for a Fucus) tomen-

tosum of Blume. *Br. blumi* Lind. must be verified, near Siphisia.

1115. TRIMERIZA Lind. perig. 5part. stam. 9 in 3 phalanges radiatis, stig. 6dent. caps. ut Bragantia—Type *Tr. piperita*, caule flex. genic. fol, ovatolanc. costatis, subt. reticul. pubesc. racemis paucifl. axil. Ceylon.

1116. STEIREXA R. (6 ster.) Trichopus Gaertn. fil. Lind. (non Trichopus Muller Gm.) Perig. tubul. 6fido, stam. 6fertilis, 6sterilis in foveis stylus 1, stig. 3 bipart. caps. 3quetra 3locul. 3sp. a, loculis 1-2sp. indehiscens—3 types from Ceylon. 1 *St. cordata* R. fol. cord. triang. obt. retusis—2 *St. media*, fol. ovatolanc. acum.—3 *St. angustif.* R. fol. lin. lanc. acum. caps. 1 spermis, an Genus ?—Lindly asserts that all these G. and Aristolochia, have a peculiar anatomical structure of stems different from the Dicotylé plants and shrubs. Perhaps like Cuscuta, Cassytha, Cactus &c.

1117. MEBOREA Aubl. Jus. Vit. Tephranthus Necker. Rhopium Schr. W. P. Perig, 6part. foveis 6. stam. 3 stylis adnatis. ovar. libero. stylis 3, caps 3gona 6loc. 6valv. 6sp. *Frutex, fol. alt. stipulatis. fl. corymb*—Type *M. gujanensis* vel. Rh. citrifolium. fol. subsess. ovat. acut. lucida integra—Very singular G. of doubtful affinities, introduced here to show that it links with Hexastylis 1113, and Steirexa. If all these G. are to be removed by anatomical structure, the ovary free, half free or adherent will be less essential, forming however 3 families ASARIDES, MEBORIDES, CYTINIDES with a berry, that stand in the nat. method at the very end of the Dicotyles, as a transition to the first order of Monocotyles including the Epigyne families, Hydrocharides, Valisnerides, Orchides &c.

Perhaps they are even Monocotyles and Endogenous, as the ternary numbers of organs appear to indicate—The G. Salacia and Strumfia form another akin family SALACIDES having petals besides a divided calix and epigyne stamens—Necker puts this G. Meborea near to Passiflora, and perhaps the stamens are monadelphous as in Passiflora and Sisyrinchium once deemed gynandrous by Linneus.

1118. NEPENTHES L. auct. Bandura Burm. Ad. a wonderful G. of doubtful affinities, which Lindley reduces to Aristolochia ! an egregious absurdity since it is dioical. with a free pistil . . . It is the type of my family NEPENTHIDES, near to SARAZINIDES differing by dioical monadelphous stamens, akin also to the order EPIMESIA or Euphorbides, and the families of it with united stamens like RICINIDES &c chief difference a single large stigma. The G. Aspidistra and Macrogyne are so near to Nepenthes that all must be monocotyle (nay perhaps all the Asarides?) if so they form a peculiar series and link with Sarazinia on one side and Paris on the other by the quaternary number of parts. Many sp. have been blended in N. distilatoria, Jussieu noticed 3, Wildenow had 3 others, there are 7 at least 1 *N. distilatoria* L. oft. fig. bot. mag. 2629. 2798, Lod. 1017 &c caule ramoso, fol. sparsis avenis, fl. racemosis geminatis. India—2 *N. madagascariensis*, W. P.—3 *N. phylamphora* W. P. Genus in Lour simplex fol. app. fl. spicatis—4 *N. zeylanica* Raf. Bandura Burm. zeyl. t. 17—5 *N. indica* Lam. fol. reticulatis—6 N. *cantharifera* Jus. Rumph. Aubl. 5. t. 59—7 *N. scyphus* Jus. Malaca—Perhaps several subg. or Gen. are blended here.

1119. NEPENTHIDES Raf. (monoc? endog?) Perigone and anthers with 4nary parts, a very large peltate stigma, capsule 4loc. habit of Aroides and Methonica. 3 G. at least.

1 *Nepenthes* Dioic. cal. 4part. pers. stam. 12-18 connatis, caps. polysp. *caulescens*, *fol. appendiculatis*.

2. *Aspidistra* Herm. cal. tubul 8fido, antheris 4-6liberis, caps. 4sp. type *A. punctata* E. b. reg. 977.

3. *Macrogyne* Link. Herm. cal. camp. 8fido. antheris 8 liberis, stigma 8gona, caps. 4sp—type M. convalarifolia L. Asp. lurida E. b. reg. 628, b. mag. 2499.

1120. PASSIFLOREA Raf. 1815. This family of mine was established long ago, and I had reduced 12 G. to it, mostly blended in Passiflora by the Linneists, Necker and Jussieu had already 4 or 5. They are but slightly akin to Cucurbitacea as deemed by Jussieu, by the fruit and habit. They are nearer the Strigilidis and Malpighinia by the perigone and united stamens, several styles &c, thus put in my natural order Adelphidia along with them. See till 1134.

1121. Passiflora Raf. non L. This G. was badly understood by the Linneists, but reformed by Jussieu. Mine has *Perigono colorato basi urceol. limbo* 10*partito colorato*, 5 *alt. petaliformis. Corona multipartita. interna nectarif. basi urceol. gynophoro stam.* 5 *gerens basi connatis, stylis* 3, *fruct. bacca vel. pepo* (cysto Neck) *uniloc. polysp. placentas* 3, *sem. arillatis*—Many sp. in 3 subgenera—1 *Granadilla* Ad. no involucre—2 *Maracoa* Raf. fl. involucrate.

1122. TRIPSILINA Raf. diff. Passiflora, fl. involucratis bipinnatif. petalis cal. eq. nect. filif. brevis, capsula inflata, placentas 3 internis seminiferis—Type *Tr. fetida* R. Pas. do L. b. m. 2619, seen alive. All the capsular sp. must be divided of course from the baccate kinds.

1123. XEROGONA Raf. diff. Passifl. petalis brevior, corona brevi, nect. int. duplice cupula. 6gona plac. 3 int. seminif.—Type *X. biloba* Raf. Pas. capsularis L. auct. Dec. b. mag. 2868. 3 var. fol. bilobis, fol. bifidis, fol. maculatis.

1124. MODECA Rheed. Jaq. diff. Passifl. dioica, cal. tubul. 5fido. petalis 5, nect. sq. 5-10, stam. 5 liberis, ov. vix stipit. capsula 3valvis polysperma—Several Sp. 6 in Jaq. deviating by the free stamens and valvular capsule. Blended in India with the Convolv. called also Modeca, compare with the Euphorbides.

1125. MACROPHORA Raf. diff. Passifl. cal. tubo brevi, gynophoro longissimo, nect. dupl. series, stam. dilat. planis basi coalitis, antheris magnis —Type *M. sanguinea* Raf. Pass. do Sm. &c fol. 3lobis serratis acutis egland. cal. et ovar. toment. Antilles.

1126. MEIOPERIS Raf. diff. Passifl. cal. 5part. petalis nullis, corona duplex, nect. sepe simplex planum—Types *M. peltata, suberosa, minima pallida, multiflora, angustif. pannosa, hederacea* &c, all Passifloras.

1127. MURUCUIA T. Jus. Pers. Erndelia Necker, diff. Passifl. cal. basi urceolatus, nect. tubuloso truncato—Type *M. ocellata* Pers. Pas. murucuia L. auct.—Persoon had 3 sp. in this G. each being types of Genera.

1128. BLEPHISTELMA R. (cil. crown) diff. Passifl. cal. tubuloso, petalis brevis, nect. tubul. lobato ciliato—Type *Bl. aurantia* Raf. Muru-

cuia do P. passifl. do Forst. W. Sm. Andr. rep. t. 295. fol. glabris 3-5lobis obt. New Caledon.

1129. Peremis Raf. (around half) diff. Passifl. no petals, calix globular—Type *P. orbiculata* R. Murucuia P. Passifl. Cav.

1130. Synactila Raf. (un. rays) diff. Passi . no petals, rays of nectary united at the base in a cyl. crown inserted on the tubular 5parted calix.—Type *S. viridiflora* R. Pass do Cav. W.

1131. Tacsonia Juss. diff. Passifl. cal. tubul. 10fidus, coloratus, corona glandulis, gynophoro elongato—Many sp. in 4 subgenera. 1 *Perimna* Raf. invol. nullis—2 *Tristegia* Raf. invol. 3phylo—3. *Siphostegia* Raf. invol. tubuloso—4 *Balostis* R. Cal. globoso, type P. glauca auct. is it a Genus? how is the crown?

1132. Odostelma Raf. (toothed crown) diff. Tacsonia, corona dentata non glandulosa, stam. filam. planis—Types *O. pedunculata* and *adulterina* Raf. Tacsonia do auct.

1133. Erndelia Raf. non Necker, diff. Tacsonia cal. et cor. apex reflexa, corona duplice concentrica—Type *E. reflexiflora* Raf. Pas. do Cav. Tacs. do Pers.

1134. Pericodia R. diff. Passifl. cal. campanul. lac. subul. petalis dilat. nect. plicato—Type P. *perfoliata* Raf. Passifl. do L.

1135. Sanamunda Clus. Ad. Passerina L. ad Passer! This G. includes 6 blended: the real hardly differs from Daphne except by fruit a nut instead of berry. All the sp. with 2 stamens only are the G. Pimelea. Necker applied Sanamunda to the Daphnes with tubular flowers, not funnel shaped. All have 8 fertile stamens in 2 rows on the tube of coroliform calix.

1136. Belvala Ad. diff. cal. longe tubul. 4fido, extus caliculo diphylo, intus 8dent. vel

stam. steriles 8, fertiles 4 eq. capsula membran. 1sp. utriculus. *fol. oppos. fl. axil. spicatis.*—Type 1 *B. spicata* Raf. Passerina dodecandra L. omitted by many botanists.

1137. Trimeiandra Raf. diff. Sanam. cal. 5 fidus, stam. 5 eq. unica series—Type *Tr. spicata* Raf. Pass. pentandra Th. W. P. auct. fol. ovat. hirsutis, spicis ovatis terminalis. S. Africa.

1138. Steiroctis R. (8 ster.) diff. Sanam. Stam. 16, 8 steriles glanduliformis superis, 8 fertiles inferis in tubo—Types *St. capitata* and *uniflora* Raf. Passerina do auct.

1139. Pausia R. (olea lat.) diff. S. cal. tubo campanul. ut olea, utriculo baccato—nearer to Daphne by fruit, type *P. orientalis* Raf. Pass. do L. auct. fol. lanceol. obt. fl. axil.

1140. Balendasia R. (ball inside hairy) diff. S. cal. globoso 4dent. intus hirsuto, utriculo baccato—Type *B. ericoides* Raf. Pass. do L. auct. fol. lin. imbric, glabris. S. Africa.

1141. Gastrilia R. diff. Daphne, dioica, cal. basi ventricoso limbo 4fido—Types 1 *G. geminata* Raf. Daphne dioica L. Vitm. Gouan t. 17. fol. imbric. lin. lanceol. fl. axil. geminis. S. Europe, fl. ochroleucos, blended with Passerina hirsuta by some botanists—2 *G. umbellata* Raf. Daphne occid. Sw. P. fol. alt. lanceol. glabris, fl. term. subumbelatis. Antilles.

1142. Tumelaia R. (n. grec.) Sanamunda Necker non Ad. diff. Daphne, cal. tubuloso, apex 4fido erecto non infundib.—All the sp. of Daphnes with tubular flowers.

1143. Octoplis R. diff. Daphne, cal. hirsuto, intus nect. 8 vel petalis 8 minimis, *fol. sparsis fl capit. bracteatis*—Type *O. polistachya* Raf.

Gnidia do Berg, Vitm. &c. fol. linear. capitulis panicul. bract. ovatis, obtusis. S. Africa, near to G. Steiroctis 1138, but petaliform nectaries.

1144. Nemoctis R. (8 fil.) diff. Daphne cal. villoso, limbo 4part. stam. 8 exertis, filam. capillaris, petalis 4 ut in Gnidia, *fol. sparsis fl. capit. involucr.*—Types 1 *N. buxifolia* Raf. Gnidia filamentosa L. auct. Lachnea buxif. Lam. P. fol. sessil. ovalibus—2 *N. angustifolia* Raf. var. prec. auct. fol. sess. lanceol. both S. Africa. Lachnea differs by unequal cal. stam. and drupaceous nut.

1145. Dessenia Raf. diff. Gnidia, cal. filif. limbo 5part. petalis 5, stam. 10, 5 exerta, *fol. sparsis, fl. capit. involucr.*—Genus medial between Gnidia and Dais. Dessenia was Adanson's name for Gnidia. Types 1 *D. lanceolata* Raf. Gn. capit. L. auct. fol. lanc. fl. term. invol. 8phylo. S. Africa.—2 *D. daphnefolia* R. Gn. do L. &c fol. obl. cuneatis glabris, capit. ped. invol. 5ph. Madagascar—3 *D. hirsuta* Raf. var L. fol. obl. spatul. hirsutis canis, invol. 5ph. Madagascar—Subg. Xaiasme Raf. diff. by no petals, seeds rostrate not baccate *fl. umbel*—Type *X. bicolor* R. Stellera chamajasme L. auct. fol. lanc. fl. albo purpureis. Sibiria. Stellera is octandrous.

1146. Scopolia L. supl. not Forster (*Griselinia*) nor Smith (*Todalia*) diff. Daphne, antheris connatis in duplice columna alteram posita, *fol. alt. fl. axil. capitatis, involucris diphylis.*—Type *Sc. pendula* Raf. composita L. Vitm. Daphne pendula Sm. W. P. Arborea, fol. pet. obl. acum. pedunc. pendulis axil, 1floris. Java—Wrongly put in Gynandria octandria by L.

1147. Nestronia R. new fl. 503, Dioica, cal. camp. 4fido, stam. 4 fil. brevis lin. drupo 1sper-

mo. *fol. oppos. pedunc. multifl.*—See my long account of this new G. in my new flora. Types 1 *N. umbelluta* R. 504. fol. ovat. rhombeis integris planis glabris, ped. axil. umbellatis 3-5fl.—2 *N? undulata* R. 505. fol. lato lanceol. undulatis, drupis ped. solit—Both frem Florida and Georgia, small shrubs. Of family DAPHNIDIA like all the preceding since 1135.

1148. CLYTHRELIA Raf. 1815. LENTIBULARIA Rich. Lind. This family based on Utricularia and Pinguicula, will now contain 20 genera. It is a very distinct group, which was very improperly annexed to PRIMULACEA by Jussieu because the fruit is somewhat alike, but there is not a single affinity besides. I put it next to GRATIOLIDES; but have now my doubts about it, and have been led to consider this family as rather belonging to Monocotyles and Endogenous, when it would widely change place and come near the COMMELINES with irregular corollas. Nay these aquatic plants like many others partake somewhat of the Cellular structure, very evident in the vesicular organization of Utricularia. We have no positive evidence of the seeds being dicotyle and even if they are, they may like Juncus be exogenous notwithstanding. Yet here the calix alone is persistent, while the corolla is very deciduous, not at all marcescent.

1149. UTRICULARIA L. Lentibularia Ad. This aquatic G. of only 9sp. in Linneus has been increased to nearly 80 lately, the tropical climates abound with unnoticed sp. Brown found 24 new ones in Australia, in North America nearly 20 have been detected, see my monograph, Leconte had already 13, Vahl and Poiret described 36sp. the fine monograph of Smith in Rees

contains 62 sp.—But out of so many, disparities occur and several Genera are indicated thereby, which I have endeavored to distinguish. The real original genus has *calix bivalvis eq. persistens*, *cor. ringens calcarata*, *bilabiata*, *labis clausis integris*, *faux gibbosa*, *stam.* 2 *inclusis in tubo*, *St. stig.* 1, *caps. globosa vix valvata uniloc. polysp. sem. centralis.* Facies aphyla, vel. fol. squam. scaposis, radicib. sepe fluitans utriculatis.—The types are *U. alpina*, *vulgaris*, *obtusa*, *furcata*, *cerulea ?* and 40 more; but the flowers of each must be examined again.

1150. Lentibularia Raf. (or Xananthes,*open fl.* if prefered) diff. Utric. corollu hians pervia, faux non gibbosa, calcar obsoleto carinato decurens—Type *L. minor* Raf. Utr. do L. auct. Lentibularia of Gesner was applied to the whole G. by Adanson and since to the whole family by Richard, whence my 2 names.

1151. Trixapias Raf. diff. Utric. calcar globoso, capsula subulata—Type *Tr. capillacea* R. Utric. do V. Sm.

1152. Askofake R. (box lent) diff. Utric. capsula lenticularis bivalvis non globosa—Type *A. recurva* R. Utr. do Lour. Sm. This and the last deviate so much in the capsular shape quite globular in all others, that this indicates other characters to be sought for.

1153. Stomoisia R. (hairy mouth) diff. Utric. cal. ineq. ovat. lab. inf. dilat. deflexo trilobo, palato villoso—Type *St. cornuta* R. Utric. do Mx. &c, seen alive see my flora.

1154. Meionula R. (minute) diff. Utric. cal. inequalissimo, fol. inf. magna concava carinata, infructo inflata—Type *M. parviflora* Raf. Utric.

minutissima V. Sm. scapo capillaris 1-4fl. squamis acutis, calcar subul. Malaca, fl. minute blue.

1155. HAMULIA R. (n. Arab.) diff. Utric. cor. lab. sup. concavo emarg. infero orbicul. integro calcar obt. curvo, capsula stylosa membranacea subplurivalvis, ad basi cal. inflato coalita.—Types 1. *H. alba* Raf. Utr. inflexa Forsk. Sm. fl. albis—2 *H. flava* Raf. Utr. stellaris Sm. fl, flavis—very difl. from that of L. of next G.

1156. LEPIACTIS R. (sq. stel.) diff. Utric. corolla sine calcar, lab. inf. saccato, *caule squamis vertic. rad. sine utriculis*—Type *Lep. stellaris* R. Utric. do L. W. P. caule filif. apice ramoso, squamis 4-6nis ovatis ciliatis. India, very distinct if realy without spur.

1157. MELONEURA Raf. (membr. nervose) diff. Utric. cal. membr. ineq. fol. sup. magna orbiculata nervosa emarg. cor. lab. inf. bifido, caps. membr.—Type *M. purpurea* Raf. Utric. striatula Sm. fol. petiol. conc. scapo 3-4fl. West Africa, fl. purple.

1158. NELIPUS R. (n. ind.) diff. Utric. cor. lab. inf. bifido vel bilobo, ad 1157 cal. equalis—Types *N. bifida*, *limosa*, *spiralis*, *biloba* Raf. all Utric of Sm. in monograph.

1159. VESICULINA Raf. diff. Utric. cor. labio inf. trilobo, lobo medio sepe emarg.—Types V. *saccata*, *setacea*, *purpurea*, *gibba*, *albiflora*, *compressa*, *graminifol. tenella*, *pygmea* &c. all Utricul. of authors see Sm. and Lec.

1160. ENSKIDE R. (one split) diff. Utric. cor. lab. sup. bifido, lab. inf. 3-5lobo. palato sepe barbato.—Types 1 *E. barbata* R. scapo paucifl. calc. subul—2 *E. flava* R. fl. sparsis congestis 3 *E. chrysantha* R. fl. 3bracteatis, lab. inf. 4lobo, all from Australia and Utricul. of R. Brown, Sm.

1161. Cosmiza R. (fine split) diff. Utric. cor. lab. sup. trifido lac. subul. labio inf. 3lobo, lobis omnis emarg.—Type *C. coccinea* Raf. Utric. multifida Sm. fol. spatulat. scapo bifloro, calcar obt. compr. Australia, scarlet flowers.

1162. Megozipa R. (large branched under) diff. Utric. cor. lab. sup. trilobo, inf. integro.—Types *M. macrorhiza*, *fornicata*, *longirostris*, *integra* Raf. &c all Utric. Lec. &c.

1163. Trilobulina Raf. diff. Utric. cor. lab. sup et infero subeq. et ambi trilobatis vel crenatis.—Types *Tr. fibrosa*, *striata*, *crenata* Raf. all Utric. of Walter, Lec. Sm.

1164. Personula Raf. diff. Utric. cor. lab. sup. emarg. inf. integro, palato magno eminens bilobo. *fl. racemosis*—Type *P. grandiflora* Raf. Utr. personata Lec. E.

1165. Plesisa R. (near eq.) diff. Utric. cal. ineq. sub 3part. vel lobo inf. bipart. cor. lab. subeq. subintegris—Type *Pl. bipartita* Raf. Utric. do Elliot.

1166. Plectoma R. (cut spur.) diff. Utricul. cal. subeq. conc. nerv. inf. emarg. cor. lab. inf. trilobata ineq. calcar bifido, stam. 2 submonadelphis, stigma bilab. ineq. capsula ovata bivalvis. *fluitans fol. vertic. artic. ramosis inflatis fl. racemosis flavis*—Types Pl. *inflata* Raf. 2 Pl, *stellata* Raf.—both blended as Utric. inflata or ceratophyla by authors, a very distinct Genus, see my new flora.

Thus it appears that Utricularia as it stood, included sp. with calix equal or unequal, cor. with lips, entire or with 2, 3 or more lobes, different stigmas and spurs, capsule with one, or 2 or more valves, globose or lenticular or ovate or subulate! . . such is congruity of botanical

genera! The sp. are yet in utter confusion by their simplicity and will never be properly known till refered to my Genera; the stamens and stigmas must also be noticed, and the color of the flowers is very essential in this series of plants.

1167. EUPHORBIDES Raf. is a family of the order EPIMESIA or the TRICOCA (Euphorbia of some) based chiefly on the G. *Euphorbia* of L. or Tithymalus Ad. which was a jumble of nearly 30 good Genera! easily known by having a perianthe with many male flowers around a female and commonly without calix, which L. had mistaken for dodecandria! The other families of this extensive order are easily distinguished—CYRTOSIDES by lack of perianthe, fruit dicocus, type *Mercurialis*—TRAGIDES by flowers separate, type *Tragia*—PHALARSIDES by stamens monadelphous and determinate, type *Sapium*—RICINIDES by stamens united and many, type *Ricinus* &c. I mean here chiefly to revise in part the G. Euphorbia, left uncorrected by all except Necker who made 5 G. out of it, and Persoon who divided his 156 sp. in two subg. Tithymalus and Esula. A few akin G. have lately been admitted, but the 200 sp. now known afford a crowd of good characters, while the old greek names of these plants afford many good names for them.

1168. EUPHORBIA Necker, periantho duplex, ambi globosis truncatis integris, fl. masc. paucis sepe 5, monandris, gynophoro pistilo ferens, stylis 3, stig. 6 caps. tricoca, trisperma. *Caulib. perennis carnosis, aphylis, spinosis, fl. sparsis*—Type *E. antiquorum, mamillaris, officinarum* &c and akin sp. but the flowers of all must be verified. The smooth sp. will form the

subg. ALSKEBRA arabic name, the spinose the subg. SADIDA.

1169. ATHYMALUS Neck. diff. Euph. periantho ext. turbinato cavo lobato, interior 5sepalis, cuculatis furcatis alternans. fl. masc. plura 15-20. —I do not know which of the leafless Euphorbias belong here as Necker omits the types; but observers will easily ascertian.

1170. TORFASADIS R. (n. afric.) diff. Euph. periantho clauso dentib. 5, externe 5sepalis carnosis obtusis—Type *T. canariensis* Raf. E. do L. and probably several other sp.

1171. DACTYLANTHES Haworth diff. Euph. per. simplex 4-5sepalis tubulatis bilabiatis, lab. sup. brevi trilobo, inf. longior palmato tridactylo—Types *D. anacantha, tuberculata, medusa* and akin sp. many blended in E. medusa, also D. *globosa* H. Euph. do bot. mag. 2624. Perhaps 2 subg. *Anacantha* and *Medusita*, this with sepals oft. 4parted not tubular.

1172. TIRUCALIA R. (n. ind) diff. Euph. per. simplex ventricoso, 4-5lobo lobis planis rotatis integris coloratis fl. masc. pluris . . . *caulescens, fruticosa, foliosa, fl. non umbel*—This answers to the Tithymaloides of Tournefort and includes the *T. indica.* Enph. tirucali L. with many akin sp. but the flowers must be well described in all, as several form peculiar genera.

1173. ADENORIMA Raf. (gland. pit) diff. Euph. periantho tubuloso, apex 4dent. glandulis 4 magnis umbilicatis alt. fl. masc. insertis ad per. latere, bract. subul. antheris ineq. bilobis, stylo trifido, stig. acutis. *frutic. foliosa, fl. umbel. bracteatis.*—Type *Ad. punicea* Raf. E. do Sw. W. P. bot. reg. 190. fol. lanc. cuneat. subt. glaucis, umbellis 5fidis, invol. lanceol. pedic 1fl. bracteis

2 obov. coccineis ad floribus. Antilles.

1174. PLEURADENA Raf. 1833 atl. journ. Poinsetia Grah. 1836. diff. Euph. periantho urceol. carnoso apice sub 8lobo, ad latere glandula magna transversa unica concava melliflua, phorantho villoso alveolato, fl. masc. paucis inclusis, antheris planis 2loc. stylis 3 bifidis. *frutic, foliosa, fl. umb. involucratis*—Type *Pl. coccinea* Raf. atl. j. p. 182. Euph. poinsetiana et pulcherima Hortis. Poinsetia pulcherima Gr. b. mag. 3493. fol. ovat. subang. acutis, umbella depressa corymbosa, invol. bracteif. obl. coccineis. Mexico, akin to the last G. described and named by me 3 years before Graham. Poinset was no botanist, he merely sent the seeds to our gardens where seen alive.

1175. DESMONEMA R. 1833 (fasc. fil.) diff. Euph. periantho duplex, ext. tubul. 5dent. vel 5part. connivens, per. int. 5 petaloideis membranosis cuneatis emarg. stam. vel fl. masc. fasciculatis ad gynophoro insertis, plurimis filif. vix artic. interdum castratis. Gynophoro trigono elongato, ovar. 3lobo, stylis 3 simplices. *Herbacea foliosa, fl. umbel. invol.*—Type D. *hirta* Raf. atl. j. 178. fl. tex. 19. caule simpl. striato scabro, apice hirto, fol. opp. petiol. ovat. obt. hirtis dentatis, imis alt. ovatolanc. acum. invol. triphylo lanceol. sess. From Texas to West Kentucky very rare, pedal, fl. green, petals white not glued to the perianth as in the others. G. akin to Tragia, a link with the Tragides.

1176. LEPADENA R. (scaly gland) diff. Euph. periantho simplex urceol. limbus 8fidus, 4 alt. brevis barbatis, 4 alt. major subrot. coloratis, ad basis ferens squamis magnis carnosis glanduliformis concavis dilatatis, phorantho aristato vel fl. masc. castratis mixtis, gynophoro tereto, stylis

3 trifidis, stig. 9. *herbacea, foliosa umbel. invol.* —Type *L. leucoloma* Raf. Euph. do Raf. fl. tex. 11. atl. j. fol. sparsis obov. integris acutis, umb. trifida, invol. fol. similis albo marginatis. Arkanzas and Missouri, seen alive in our gardens, where it has some varieties, *simplex*, *elatior*, *cuneifolia* &c. When much handled it produces a kind of numbness.

1177. Kanopikon R. (n. grec.) diff. Euph. per. duplex, ext. bilobo plano, interno urceol. ad margine 4 glanduloso, fl. masc. 4 omnis bifidis diandris, gynophoro brevis, stylis 3 bifidis, caps. globosa. *Frutic. inermis umbel. invol.*—Type ***R. atropurpureum*** Raf. Euph. do W. b. mag. 3321. fol. imbric. reflex. glaucis cuneatis, umbellis sessilis 4fidis, invol. 4 obov. Flowers dark purple, glands yellow.

1178. Aklema R. (n. grec.) diff. Euph. per. simplex, lobis subrot. crenatis, stylis connatis, stig. 3. *Frutic. inermis, fl. cymosis nudis.*— —Type *A. nudiflora* R. Euph. do Jaq. rar. t. 499. P. &c. Subtrichot. fol. ovat. integris undulatis.

1179. Tumalis R. (n. grec.) diff. Euphorbia or rather my G. Lacanthis 356 by—Per. cupularis, 5 dent. glandul. 5 alt. fimbriatis, fl. et fruct. pedunc. cum gynophoro.—Type *T. bojeri* Raf. Euph. do Hook. b. mag. 3527. fol. cuneat. coriaceis retusis, ped. axil. cymosis dichotomis, bract. 2. semiorb. coccin. basi coalitis. Madagascar. Habit of Lacanthis, less spinose, the bracts almost an outer perianth. These with Kanopikon, are remarkable by the androphores realy diandrous.

1180. Vallaris R. (nom. lat.) diff. Euph. per. lobis 10, 5 alt. major scutellatis crassis planis. phoranthio setoso, androphoris vel fl. masc. in 5

phalangis 4-6andris. *Herbacea, fol. oppos. fl. varis, sepe dichotomis.*—Types all the Euphorbias, with fimbriate calix not already mentioned, and they are numerous, such as *V. ipecacuana, portulacoides, uniflora, missurica, fimbriata &c*, and many others.

1181. XAMESIKE R. (n. grec.) diff. Euphorbia per. simplex campanulatus 4lobo, lobis parvis integris vel crenatis. *Herbacea dichotoma sepe diffusa, fol. oppos. fl. axil. fasc. vel dichot.*—A very extensive G. easily known by habit, fl. not very different from other genera, but several must be separated and better distinguished; for many new Sp. of N. Amer. see my new flora. Probably several subg. must be established. *Xamesike vulgaris* (Euph. chamesyce L.) has crenate lobes, *X. scordifolia* serrate lobes, *Xamobala* has entire lobes.

1182. TITHYMALUS Ad. Necker, Raf. diff. Euph. periantho simplex, ventricoso, sepe 5lobo lobis scutellatis equalis planis crassis subrot. integris, dentib. interjectis alt. obsoletis, fl. masc. sepe 12 ineq. *frutic. et herb. fol. sparsis, umbellis compositis, involucratis.*—The most numerous in sp. divided into 5 subgenera.

1. PARALIAS R. capsulis glabris. Such as T. or E. *maritima* (paralias L.) *gerardi, dendroides, linearis, rosea, helioscopia, paniculata.* and many more.

2. TULOCARPA R. capsulis verrucosis, such as T. or E. *spinosa, carniolica, palustris, platiphylos, hiberna, micrantha, literata, angulata, &c.*

3. TULOISIA R. caps. verrucosis pilosisque. T. or E. *verrucosa, pilosa &c.*

4. XARAKIAS R. caps. villosis vel lanatis. T or E. *characias* vel *serotina* Raf. *granulata. coralloides* caps. lanatis.

5. Pythiusa R. caps. echinatis vel setosis. T or E. *dulcis*, *pythiusa vel fuscata*, *epithymoides*, *obtusata* &c.

1183. Allobia R. (diff. lobes) diff. Tithymalis, perianthis monoicis, masculis lobis integris, femineis lobis lunatis, capsulis angulis muricatis —Type *A. portlandica* Raf. Euph. do L. auct.

1184. Keraselma Necker. diff. Tithym. perianthis lobis lunatis vel bicornis, capsulis sepe glabris.—Many sp. in 3 subgenera.

1. Esula R. lobis sepe 5 emarg. vel bicornis: such as L. or E. *falcata*, *esula*, *lucida*, *diversifolia*, *sylvatica*, *retusa*, &c.

2. Lathyris R. lobis 5 lunatis. K. or E. *lathyris*, *peplus* vel *oleracea*, *genistoides*, *provincialis*, *segetalis*, *cyparisias*. *squamosa*, *pallida*, *leptophyla*, *corifolia* &c.

8. Karuites R. lobis 4 lunatis. K. or E. *exigua*, *rubra*, *seguieri* &c.

1185. Murtekias R. (n. grec.) diff. Tithym. periantho tubuloso ore serrato multifido, lobis scutellis 4 lunulatis—Type *M. myrsinites* Raf. Euph. do L. auct.

1186. Nisomenes R. (uneq. lun) diff. Tithym. per. lobis 4 lunatis ineq. 2 oppositis duplo major capsula glabra—Type *N. diffusa* Raf. Euph. do L. auct.

1187. Lophobios R. (crest cobios) diff. Tithym. pet. lobis cristatis vel lobatis crenatis, caps glabra.—Types *L. cristata*, *terracina* R. Euph. do auct. Kobios was a grecian Tithymalus.

1188. Agaloma R. (pretty border) diff. Tithym. perianthis sepe dioicis, cupularis vel campanul. lobis 5 eq. membranaceis rotatis integris dilatatis corollatis, ad basis glandulis 5 oppositis planis, fl. masc. filam. fascicul. clavatis, antheris 2locul. capsulis glabris, *fl. umbellatis vel dichot.*

—A very pretty genus based on the *E. corollata* and blended or akin sp. such as *E. angustif. graminif.* &c. See my monograph.

1189. Pedilanthus Necker 1790, Kunth, Edwards, Crepidaria Haworth, diff. ad Euphorbia, Periantho caliculato vel bracteis binis ad basis, irregularis calceiformis angul. gibbosis hians, lobis 4 fornicatis ineq. stam 12-16 exsertis. *Frutic. fl. corymbosis* &c.—Very striking G. lately adopted by many; types the *E. myrtifolia, tithymaloides* &c of Authors, also *Ped. canaliculata* Raf. Crep. do Haw. Euph. do Lod. 727. E. carinata Don b. mag. 2514. fol. ellipt. subt. carinatis, fl. term. corymb. fascic. nutans coccineis. Trinidad.

1190. Cyathophora R. diff. Euphorbia, periantho tubul. tereto apex multifido vel laciniato dentato, dentis 5 major linearibus. phorantho papilloso, fl. masc. sepe 10. *Herbacea, fol. sparsis, fl. termin. fascicul.*—Types 1. *C. picta* Raf. E. cyathophora Scop. del. t. 3 Vitm. Auct. fol. lyratis et panduratis oblongis integris, apice coccinea et alba picta, sepe lanceol. ped. fascic. sepe 3floris. Florida &c, seen alive in gardens—2. *C. ciliata* Raf. E. heterophyla Jaq. W. E. cyathoph. bot. reg. 735. petiolis ciliatis, bl. ovatis serratis acum. fl. subcorymb. bract. basi coccineis—3 *C. heterophyla* Raf. E. do L. auct. fol. petiol. difformis, ovatis lanceol. panduratis serratis glaucis, fl. pedunc. term. S. Amer.

1191. Synexemia Raf. neog. 1825, Mascalanthus Nut. 1835. Monoica, cal. 6partito eq. cor. o, stam. 6 basi coalitis, fl. fem. stylis 3 bifidis, stig, 6 capsula 6valvis 6sperma. *Herba, fol. alt. distichis, fl. axil. sepe geminatis.*—The Phylanthus carolinianus of North America and sp. blended therein, are the types of this G.

which Nuttal has published 10 years after myself. under another name. It contains 4 or 5 sp. see my monograph. The *G.* Phylanthus, Croton, Tragia &c, and others akin to Euphorbias contain many neglected G. partly given in my Neogenyton and New Flora.

1192. STAEHELINA Raf. this linnean G. was merely distinguished from Serratula by the bisetose anthers as in Inula: while Serratula has long ago been reformed, and Vernonia, Liatris &c separated, this had been left untouched, except by Necker, although offering many more irregularities: which I will endeavor to correct. My STAEHELINA has *Periantho imbricato, inermis sepe ovato multifloro, flosculis eq. phorantho paleis multifidis, antheris basi appendiculatis, sem. glabris obov. pappus plumosus* —F*rutic. fol. sparsis, fl. term.*—Even 3 subg. must be distinguished that might be as many genera: I have them dry.

1. CHAMEPEUCE R. (pr. Xamepeuke) diff. sq. phoranth. multi-aristatis, antheris biaristatis, pappus non digitatus.—Type *St. chamepeuce* L. auct. or *Ch. imbricata* Raf. fol. imbric. longiss. lin. revol. fl. term. 2-3. Creta, Grecia.

2. ANAXETON Raf. (gnaph. diosk.) diff. sq. per. apice scariosis reflexis, sq. phor. multif. stylo bifidus, pappus basi connato palmato vel polyadelpho, antheris basi biplumosis.—Type *St. squarrosa* R. Leysera do Th. P. Steh. gnaphaloides L. auct. (non Leyseria do) fol. filif. toment. obt. basi subampl. fl. paucis toment. S. Africa.—Leyseria has radiate flowers!

3. STAEHELINA (veris) diff. flosc. nonnulis neutris, sq. phor. multif. pappus ramoso plumoso (Lin.) scabro palmato (Sm.)—Type *St. arborescens* L. auct. fol. pet. oval. subt. arg. fl.

corymb. puniceis. Cretâ, Grecia. *St. fruticosa* and *spinosa* probably belong here, altho' flowers not well described, *spinosa* has hairy seeds.

1193. Roccardia Necker, diff. Staehelina, Periantho tereto scarioso, 8-10flosculosis. antheris bibarbatis ad basis, sem. 4gona, *pappus simplex* basi connatus palmatus.—Type *R. purpurea* Raf. Staehel. dubia L. auct. fol. lin. dentic. fl. 2-3glomer. sq. per. lanceol. Italy, Spain. Linneus deemed it medial between 3 G. Staehel. Serratula and Gnaphalium! the down not plumose is the main generic feature. how is the phoranthe?

1194. Aplina R. (nymph and simplicity) diff. Staehel. Periantho tereto scarioso, *flosculo unico gerens*! antheris basi biplumosis barbatis, sq. phor. simpl. pappo digitato plumoso.—Type *Apl. fuscata* Raf. Staehel. unifloscula Sm. fl. greca 846. fol. ovat. acut. dent. subt. canis, per. fuscato. Mt. Parnassus. G. akin to the last, very singular by the florets reduced to unity!

1195. Alkibias R. (n. arab.) diff. Staehel. per. tereto turbin. sq. carinatis, phorantho subnudo, sem. villosus, pappus subsimpl. apice dentato.—Type *A. hastata* R. Staeh. do Vahl, Pers Sm. Chrysocoma spatulata Forsk. Vitm. probably the other Arabic fruticose chrysocoma belong here, *Chr. mucronata*, *ovata* of Forsk. The real Chrysoc. have the per. hemisph. phoranthe naked, down quite simple.

1196. Tuloclinia R. (warty bed) diff. Staehel. per. turbin. *phorantho nudo verrucoso*, *pappo subplumosus*.—Type *T. imbricata* R. Staeh. do L. auct. fol. subul. subt. toment. fl. binatis S. Africa. How are the appendages?

1167. Plectreca R. (10 spurs.) diff. Staehel.

per. hemisph. paucifl. phorantho nudo celluloso, antheris basi bicalcar. pappus paucisetis scabro non plumoso—Type *Pl. corymbosa* R. Staeh. do L. auct. fol. cuneat. dent. toment. fl. corymb. panicul. S. Africa.

1198. Ocneron R. (n. grec.) diff. Staehel. per. hemisph. lanato, sq. phor. rigidis 2-3dent. antheris biaristatis, pappo scabro non plumoso. *frutic. fol. petiol. opp. et. sp. fl. panicul. luteis* Types 2 sp. blended in St. ilicifolia L. disting. by Smith 1. *Ocn. cordatum* R. fol. oppos. cord. dent. obt. supra lucidis subt. toment. S. Amer.—2 *Ocn. aquifolium* R. St. do Sm. plum. ic. 123. fol. sparsis subrot. dent. spinosis, subt. lanatis. Antilles. Thus quite an American Genus. Ocneron was a Greek name for Ilex or Ruscus.

1199. Lachnospermum Wild. diff. Staehel. periantho tereto, phorantho villoso, sem. villis involutis.—Type *L. ericifolium* Wild. Staehel. fasciculata Th. Pers. &c, fol. fascic. ter. subul. tomentosis, ramis divaricatis rigidis.—It thus appears that L. and others threw into this G. all the shrubs akin to Serratula! even that G. requires further revision, and I shall conclude here by another G. out of it.

1200. Tulakenia R. (warty seed) diff. Serratula &c, periantho squarroso arachnoides, sq. setaceis planis, phorantho aristato, sem. 4gona obverse pyramid. tubercul. pappo rigido ineq. scabro. *Unifloris*—Types 1. *T. mollis* Raf. Carduus do Jaq. W. Cirsium do Scop. Serratula simplex Poir. Dec. Sims b. mag. 2482.—2 *T. blanda* R. Serrat. do auct.—3 *T. cyanoides* R. Serrat. do auct. &c.

ADDITIONS AND CORRECTIONS.

1201. My Omonoia 351 has since been called Chryseis by Lindley, who has thus acknowledged that *Esch-scholtzia* was a wrong name! but my name is previous and better, Chryseis being nearly the same as Chrysis a genus of flies.

1202. For Hexastylis 706 substitute Stylexia Raf. having had another G. Hexastylis since 1825, see 1113.

1203. *Rupifraga cusculeformis* Raf. Saxifraga do Lod. Cab. 186, bot. mag. 2631, a second sp. of this G. see 243, differing from *R. sarmentosa* by small size, leaves smaller, flowers larger less unequal, shoots filiform. scapes biflore. China.

1204. *Piaropus undulatus* Raf. Pontederia azurea Lunan. hort. Jam. non alis. Another fine sp. of this G. see 301, proving my assertion that many sp. exist—fol. subrot. acum. undulatis. Lunan describes the flowers with upper lobe of corolla larger ovate, anthers hastate, ovary trigone, style filiform, stigma clavate. Jamaica &c.

1205. Einadia R. (1 or 2) diff. Chenopodium, cal. 5fido baccato, stam 1 vel 2, stylis 2.—Type *E. linifolia* Raf. Rhagodia do R. Br. Sm. frutescens decumbens, fol. lin. lanc. integris. Australia.—The *Chenop. baccatum* of Labillardiere was the type of the G. Rhagodia of R. Brown, who has added many sp. to this G. *billardieri*, *crassifol.* *hastata*, *nutans*, *spinescens* &c, which have all 5 stamens, instead of 1 or 2. Both G. belong to my family Basellides 571.

1206. For my Lunania 7 substitute Triexastima (3-6 stig.) Raf. since I perceive a previous G. Lunania in Decandole, although mine was

established since 1830, what is the date of the other?

1207. Streptylis Raf. (twisted style) diff. Commelina. cal, et cor. eq. stam. 3 villosis ad basis, sterilis 3 nectarif. ciliat. antheris glandula, stylo et stig. spiralis persistens—Type *Str. bracteolata* Raf. Com. do Lam. Com. spirata L. are 2 sp. blended here? This is another G. to be removed from Commelina and is very distinct.

1208. Add to Sarcoperis 23, bacca triloba carnosa ad cor. baccans, intus capsula 3loc. apice 3valvis, sem. 5, uno locolo monospermo.

1209. Add to Heminema 31, stylus brevis crasso, stig. 3 villosis, capsula 3loc. 3sp.—It is also the Tradescantia multifl. of Lunan, quite different from that of Jaquin my Tripogandra 28.

1210. Allosperma R. (different seeds) diff. Commelina, capsula 3locul. *bivalvis*! valva sup. 2loc. 4sp. sem. rotundis rugosis, loc. et valva inf. monosp. semen elliptico lenticularis.—A very strange structure of fruit! Type *A. tuberosa* R. Com. do L. auct. fol. ovatolanc. ciliatis subtus villosis, pedunc. multifl. Mexico. pedal fl. blue.

1211. Add to Dirtea 689. Commelina polygama probably belongs here, and all the sp. blended in *C. communis* said to grow in Asia, Africa and America, but 5 or 6 sp. are blended probably! the African sp. is quite distinct *D. africana* R. fol. nervosis basi ciliatis fl. 2-3 axil. caps. 2loc. 2valv. 4sperma. Probably a subg. *Diclisa* Raf. very different from *Com. africana* of Persoon. The Com. erecta includes also several blended sp. having commonly the capsule trigone trilocular 3sperme: thus another subg. or G. perhaps same as my G. Ananthopus 690.

1212. Dilasia R. (2 villose) diff. Dirtea, cal. 3

lanc. pet. 3 eq. ovatis, stam. 2 fertilis villosis, 4 sterilis nectarif. glabris, stylo recurvo—Type *D. vaginata* Raf. Commel. do auct. fol. linearib. fl. term. involucro convoluto vaginato. India.

1213. Queltia Salisb. diff. Narcissus, cor. tubulosa, limbo patulo, corona tubul. urceolata erosa, stam. 6 eq. inclusis connivens, stigma trilobo.—Thus very near to my Moskerion 843, Type *Q. montana* Raf. poculigera Salisb. Narc. montanus Pyr. Edw. b. reg. 123. fol. planis obt. fl. 1-2 cernuis albis, &c.

1214. Add to Troxistemon 853, the Pancratium littorale and its varieties *driandri, distichum, mexicanum*, which are as many sp. were framed into the G. Hymenocalis by Sims; but his characters of *nect. erosum s. dent. filam. liberis flaccidis*, was very loose and inacurate. It may be a subgenus.

1215. Nesynstylis Raf. (not un. St.) diff. Strumaria, stam. liberis non monadelphis erectis stylis adnatis.—The G. Strumaria was put in 3 linnean classes Monadelphia, Gynandria and Hexandria! the monadelphous sp. belong to Narcissides, the free sp. to Hypoxides, they are *N. filifolia* and *undulata* R. Strum. do auct. the first was put in Crinum and Leucojum by L. and others, thus in 3 Genera! figured in bot. reg. 440, habit Alliaceous, fol. rad. filif. scapo teres, umbella 10-12fl. bract. 2ineq. lin. petalis albis obl. acutis.

1216. Agapanthus *umbellatus* Lher. W. P. bot. mag. 500, bot. reg. 699. Crinum africanum L. Mauhlia Th. Tulbaghia Heist. fol. vittatis angustis bifaris acutis, fl. umbel. nudis ceruleis, cor. infund. 6fidis, 3 alt. apex incrass. uncinatis, stam. declin. stigma trifido.—I have added this to shew its contrast with my G. Scadianus 855.

1217. Vagnera of Adanson is the G. out of

Convallaria, since named Smilacina, Mayanthemum, Tovara &c: being among the additions of Adanson it had escaped my notice; but being the first and best must be restored, see 831.

1218. Add to PODOSPADIX 821, many sp. have been blended in Pothos crassinervia, that probably all belong to this G. I will add 5 other types —2 *Pod. teres* R. Pothos do auct. P. crassinervia bot. mag. 2987, fol. petiol. cuneat. obtusiusc. nervosis, scapo teres, spatha lanceol. spadix triuncialis obl. tereto. Demerara, the sp. of Hamboldt is different by a pedal spadix. *Pod. humboldi* R—3 *Pod. angustif.* R. fol. lanceol. acum. scapo angulato, spadix gracile: this is probably the sp. of Jaquin.—4 *Pod. microphyla* R. Pothos do Hook. b. mag. 2953, fol. ovat. acutis costatis, petiolis apex incrassatis, spatha lanceol. revoluta, spadix obl. brevis. Brazil.—S. *Pod. harisi* R. Pothos do Hook. ex. fl. 211 fol. lanc. magnis, spadix tereto, cetera ut 4.

1219. The G. LUDOVIA Pers. and PHILODENDRON Lindl. just published in bot. reg. 1958 must be added to the Aroides, this last has the habit of Tapanava 820 but is quite distinct by multilocular berries &c: this proves how many fine G. of Aroides were yet concealed in Pothos and Arum,

1220. TREMASPERMA R. (perf. seeds) diff. Bonanox 1026. cor. integra, capsula globosa *baccata* uniloc. cortex coriacea, pulpa fungosa alba 3-4sperma, sem. umbilic. perforatis.—Type *Tr. bonanox* Raf. Ipomea do Lunan. fol. cord. acum ped. 1-2fl. Jamaica, quite peculiar fruit and of family APLARNIA.

1221. TEREIETRA Raf. (cut in 4) diff. Ornithosperma 1009 cor. campan. integra, capsula uni-

loc. 4valvis 4sperma—Type *T. violacea* R. Ipomea do Lunan, Jamaica.

1222. NEORTHOSIS R. (not strait) near Doxema 1020, cal. 5fidus, cor. *tubo curvo*, limbo plicato stam. exerta, stig. 4 sulcat. caps. 4loc. 4sp. sem. angul.—Types *N. coccinea* and *tigrina* Raf. Ipomea do of Lunan Jam. perhaps not of others. G. quite peculiar by curved corolla like Doxema perhaps a subg. of it.

1223. DACTYLEPIS Raf. another G. near Cuscuta and Nemepis.—Type *N. brownei* Raf. Cuscuta do Lunan, ramosissima. fl. aggregatis, cal. 5dent. cor. 5fidis, stam. 5 sq. nect. 5 palmatis 5fidis. caps. 4spermis. Jamaica.

1224. ERONEMA R. (love threads) diff. Cuscuta and Nemepis, cal. colorato 5part. lanc. corolla cupularis, 5dent. stam. 5 antheris didymis, sq. nect. fimbriatis, caps. 4loc. 4sp.—Type *E. robinsoni* R. Cuscuta do Lunan, fl. pedunculatis. Jamaica, called love bush, medical, diuretic, aperitive.

1225. For BRAGANTIA 1114 adopt MUNNICKIA, since there was a genus Bragantia of Vandelli see 534 previous (?) to that of Loureiro.

N. B. Add to Lepadena 1176, it is the Euphorbia marginata of Pursh and North America, not of Kunth and Mexico, which is perhaps a 2d sp. of the Genus.

END OF THIS FLORA.

INDEX OF GENERA &c.

IN CENTURIES 9, 10, 11, 12.

Natural Orders and Families are in Capitals, Synonyms in Italics.

THE END.

NOTICES.

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