Observations on some genera of plants connected with the flora of Guiana

XIV. *Observations on some Genera of Plants connected with the Flora of Guiana.* *By* George Bentham, *Esq.*, *F.L.S.*

Read June 19th, 1838.

1. Symplocos, Ciponima, Stemmatosiphon, Alstonia and Hopea.

In Pohl's *Plantarum Brasiliæ Icones*, vol. ii. pl. 157, 158, and 159, three plants are figured under the name of *Stemmatosiphon*, and referred to *Meliaceæ*, on account of some similarity in the disposition of the stamina and the form of the corolla, if considered as polypetalous. Adrien de Jussieu, however, in a note added to his excellent memoir on *Meliaceæ* (*Mém. du Mus.* vol. xix. p. 152.) adverted to the simple leaves, indefinite stamina, &c., as incompatible with that family; but, misled by several errors in the details of structure figured by Pohl, was unable to point out satisfactorily the group to which it should be removed*. On the occasion of determining the plants collected in Guiana by Mr. Schomburgk, I was struck with the apparent affinity of one of them to the specimens of Pohl's *Stemmatosiphons*, which I had obtained at Vienna, and was led into an examination of that genus, which proved to be identical with the Linnean *Symplocos*, as first constituted, although differing in many points from many of the other species which have since been associated with it.

The genus *Symplocos* was originally founded by Jacquin, and adopted by Linnæus, for the *S. martinicensis*, which was thus characterized by Linnæus in his *Genera Plantarum*: "*Perianthium* monophyllum, semiquinquefidum, parvum, laciniis subrotundis erectis. *Petala* quinque, oblonga, obtusa, erecta, superne patentissima. *Filamenta* plurima, subulata, plana, petalis breviora,

* The remarkable circumstance in particular of a trifid stigmate, with a quadrilocular ovarium, figured in each of the three plates, does not exist in any flower that I have dissected of either of the species.

serie quadruplici corollæ tubo accreta, inferioribus brevioribus. *Antheræ* subrotundæ. *Germen* subrotundum. *Stylus* filiformis, longitudine staminum. *Stigma* capitatum subtrifidum."

The above character will be found in every respect, as far as it goes, admirably adapted to Pohl's *Stemmatosiphons*, as well as to the original *Symplocos*, and to Aublet's *Ciponima*; for although the words *Petala quinque* rather indicate a polypetalous corolla, yet their adherence at the base is plainly indicated by the subsequent expression, *Filamenta . . . . tubo corollæ accreta.*

L'Héritier in the first volume of the Linnean Transactions (p. 174.) first proposed the joining the genera *Hopea* (*Linn. Mant. p.* 14.), *Alstonia* (*Linn. Fil. Suppl. p.* 39.), and *Ciponima* (*Aubl. Plant. Guian.* i. p. 567. t. 226.) to *Symplocos*, of which it became consequently necessary to modify the character in many points, of which the most important are, *Calyx* superus quinquepartitus. *Corolla* . . . . campanulata . . . . petalis s. laciniis 5—10 . . . . basi in tubum longitudine calycis coalitis . . . . *Filamenta* . . . . submonadelpha s. basi inæqualiter connexa . . . . in plures ordines imbricata . . . . *Germen* inferum . . . . *Stigma* . . . . subquinquelobum. To these were also added the carpological characters, Linnæus himself not having seen the fruit of his *Symplocos*.

In regard to the relative situation of the calyx and ovarium (or *germen*, as it was formerly termed,) there is here an inconvenience in expression still adhered to generally by British botanists, although long since adverted to and corrected by continental authors, who speak of the calyx as *free* or *adnate*, instead of *inferior* and *superior*. In *Symplocos* and in all the genera associated with it the tube of the calyx is generally more or less free from the ovary at the time of flowering, but with the development of the fruit it adheres to it more and more, till, at the maturity, the tube of the calyx becomes entirely confounded with the fleshy pericarp, and the segments alone remain free, crowning the fruit at the top,—a circumstance difficult to describe with the old nomenclature, unless on the supposition, that during the maturation the calyx moves from its original point of insertion.

As to the corolla and stamina, L'Héritier's character, intended to apply both to *Symplocos*, Linn., and *Hopea*, Linn., is not so correct as Linnæus's for the former genus, nor does it either apply with accuracy to the latter one, which has scarcely any tube to the corolla, and in which the stamina cannot be said to

be imbricate. The stigma may as well be described as *subquinquelobum* as *subtrifidum*, for the carpellary number varies from three to five in most species. L'Héritier's character of the fruit, as far as it goes, applies to all his species.

Persoon in his Synopsis (vol. ii. p. 74.) adopts L'Héritier's views in uniting *Alstonia* and *Ciponima* with *Symplocos*, but again separates *Hopea*; and Gærtner (*Carpologia*, iii. p. 139. *et seq.* t. 209. *f.* 1, 2, 3.) not only follows Persoon in considering the latter genus as well characterized by a pentapetalous corolla, pentadelphous stamina, and a trilocular drupe, but also re-establishes *Ciponima*, distinguishing it chiefly by the stamina being in a double, not in a quadruple row, as in *Symplocos*, the anthers bilocular, not quadrilocular, the drupe quadrilocular, and the embryo erect, not inverted as in *Hopea*.

Of all these characters, those derived from the corolla and stamina alone appear to be of any importance. The quadrilocular anthers of *Symplocos* are a mistake; the position of the embryo, it is now well known, varies in *Symplocos* in different seeds in the same drupe, and the number of cells of the ovary is very variable, at least in the true species of *Symplocos*.

On these grounds, probably, Bonpland (*Pl. Æquin.* i. p. 180.), followed by Kunth, (*Nov. Gen. et Sp. Pl. Amer.* iii. p. 256.) returns to L'Héritier's opinion, that the four genera form but one. In the first of these works Bonpland adds to the six species then known eight new ones, and commences his monographic sketch with a new character, in which the corolla is described as "disco epigyno imposita, polypetala vel monopetala; polypetala, petalis circiter 10, duplici serie dispositis, exterioribus majoribus, basi in formam tubi arcte cohærentibus, monopetala, tubo brevi, laciniis 10 ut in polypetala dispositis." This is evidently taken from *S. Alstonia* (*Pl. Æquin.* t. 51.) and *S. coccinea* (t. 52.); it is also applicable, with a slight modification as to the number of petals of the inner series, to *S. cernua* (t. 53.), but is completely at variance as well with *S. serrulata* and *S. rufescens*, figured in the same work (t. 54 & 55.), as with the original *S. martinicensis*, Aublet's *Ciponima*, and Linnæus's *Hopea*.

The subsequent additions to the genus consist chiefly of Asiatic species, of which *S. sinica* was figured and described in detail by Ker in the Botanical Register (vol. ix. t. 710.), the *S. Loha*, *Sumuntia*, *theæfolia*, and *cratægoides* were established by D. Don, *Prodr. Fl. Nepalensis*, p. 144., the *S. racemosa*, *spicata*, and *ferruginea*, by Roxburgh *Fl. Ind. Or.* vol. ii. p. 539. None of these

authors, however, appear to have much studied the generic character, which they have taken more or less from some of the above-mentioned botanists, Don observing only "Genus fortè iterum dividendum."

Since the above I am not aware of any modification in the character or species of *Symplocos*, until the publication of the last volume of G. Don's General System of Gardening and Botany, where all the hitherto published species are collected, those merely named in Wallich's Catalogue are described, the genus is retained as established by L'Héritier and Bonpland, but raised to the rank of a natural order, and divided into three sections: *Alstonia*, containing all the American species said to be distinguished by an 8—10-parted corolla, the segments in a double row, stamens in 3 or 4 series, and a half inferior drupe; *Lodhra*, consisting of 17 Asiatic species, to which are attributed a 5-parted corolla, stamens inserted without order, and an inferior drupe; and *Palura*, described as having the same corolla, with stamens in a triple series, and an inferior ovary. Under this section are enumerated two remaining Asiatic species.

These characters, however, by no means correspond with the specific characters given in the same work to several of the species, and will be found on examination still more at variance in many instances with the plants themselves. Thus in the section *Alstonia*, three species at least have a 5-parted corolla, the segments in many of them are not in a double row; the stamens of *S. tinctoria* are arranged as in the Asiatic species, and the calyx is as adherent to the drupe in *Alstonia* as in *Lodhra* and *Palura*. In the latter respect I cannot see any difference between the *S. sinica* and the several plants referred to *Lodhra*; and if there is any greater regularity in the arrangement of the stamina in *S. cratægoides* than in *Lodhra*, it is that they are more decidedly pentadelphous and not biseriate.

Amidst all these conflicting opinions, after a careful examination of a considerable number of both American and Asiatic species, it appears to me that there do exist three distinct groups, which it might be adviseable to consider as so many genera. In the true *Symplocos* of Linnæus the stamina are erect, the filaments are flat, monadelphous at the base, free in the upper part, where they are distinctly imbricated in three or four rows, and suddenly attenuated below the anther; the corolla is erect and adherent to the staminal tube,

often above the middle, and then suddenly expanded; the segments are always in a single row, (though imbricate in æstivation,) nearly equal in size, and 5 in number in the species I have seen, 6, or perhaps more, in some described by Bonpland, and the ovary 3- 4- or 5-celled. Of this group I have examined *S. martinicensis*, Linn., *S. Ciponima*, *S. Arechea*, L'Hér., *Stemmatosiphon platyphyllum*, *nitens*, and *uniflorum*, Pohl., *Symplocos pubescens*, Klotsch, and two new species described below; and, judging from Bonpland's figures, I should likewise refer to it his *Symplocos serrulata* and *rufescens*.

As a second genus, or at any rate as a distinct section of *Symplocos*, I should propose to restore Linnæus's *Alstonia*, characterized by a more campanulate corolla, with an inner row of small corolline segments, which may perhaps be considered as an outer row of sterile stamina. I have only seen one species, the *Alstonia theæformis*, Linn., and of that I could only dissect one imperfect flower, in which the inner row of petals was very irregular, and certainly took the place of some of the external stamina. I should associate with it Bonpland's *Symplocos cernua* and *coccinea*, judging from the figures, and perhaps also *Symplocos tomentosa*, Bonpl., and *S. octopetala*, Swartz. But it would require a re-examination of all these species to determine the importance of the inner row of petals as characterizing a section or a genus.

In the third very distinct genus, *Hopea*, Linn. (not Roxb.), the aspect of the flower is very different; the corolla is almost rotate, constantly uniseriate at the base, though the divisions be imbricate, and 5- or 6-cleft; the stamina are also spreading, their filaments slender, but slightly connected at the base, often somewhat pentadelphous, and usually longer than the corolla. I have also never found more than three cells to the ovary, (in *H. sinica* and *cratægoides* there are but two,) and the species appear much more apt to dry yellow than in the true *Symplocos*. I would refer to *Hopea*, so characterized, *H. tinctoria*, Linn., and the greater number, if not all the Asiatic species. Amongst these the *S. sinica*, Bot. Reg., and *S. cratægoides*, Hamilt., should form a distinct section, as proposed by Don, but characterized by the bilocular ovarium and comparatively slender stigmata. There appears also to be a considerable diversity in the fruit, which is pear- or bottle-shaped, and very small in *S. spicata*, Roxb., *S. polycarpa*, Wall., and *S. laurina*, Wall., small, oblong, and

shining in *S. adenophylla*, Wall., large, oblong, and rough in *S. cerasifolia*, Wall., large, globular, and rough in *S. mollis*, Wall., which appears very near to *S. ferruginea*, Roxb. I have not seen the fruit of the other species, but I have no doubt that, when better known, the carpological characters will afford good sectional distinctions.

Of the remaining published species, the *Symplocos nuda*, *Limoncillo*, and *mucronata*, Humb. et Bonpl. Pl. Æquin., and *S. Schiedeana*, Schlechtendal, (Linnæa, viii. 527.) must remain doubtful, as their corolla has not been seen. *S. pentagyna* of Sprengel must be omitted altogether, having certainly no connexion with *Symplocos*. It would be impossible, indeed, without seeing his specimen, to say what it might be, but at a guess his character reads most like that of a *Vismia*.

The above genera, with *Styrax*, *Strigilia*, and *Halesia*, form a small order, or perhaps a tribe of *Ebenaceæ*, established by Richard under the name of *Styraceæ*, and more or less adopted by most subsequent botanists, but with very different ideas as to its extent. D. Don, followed by some others, established three distinct orders, *Symplocineæ*, *Styraceæ*, and *Halesiaceæ*, the distinctions between which are thus stated by G. Don: *Styracineæ* are "very nearly allied to *Halesiaceæ*, but differ by the decidedly superior ovarium and the more deeply-cleft corolla, and from *Symplocineæ* in the superior ovarium and entire or slightly-lobed calyx, and in the stamens being fewer and monadelphous." (Gen. Syst. of Gard. and Bot. iv. p. 4.) *Halesiaceæ* come "nearest to *Symplocineæ*, from which they differ in the inferior ovarium, in the fruit being a hard dry winged nut, and in the corolla being more decidedly monopetalous." (Ibid. p. 6.)

It is difficult, however, not to agree with Richard in neglecting in this instance, notwithstanding its great importance in other cases, the degree of adherence of the calyx to the fruit: for it will be found that at the time of flowering the calyx adheres to the ovary at its base even in *Styrax*, and is rarely completely adherent even in *Halesia*; whilst in the different species of *Symplocos* and *Hopea* almost every intermediate degree may be observed. The chief difference lies in this: that, as the fruit swells, it is the adherent part of the ovary that is developed in *Symplocos*, *Hopea*, and *Halesia*, and the free portion only in *Styrax*; and it is, I believe, generally recognized, that a

diversity of form in the fruit, arising only during its growth from the state of ovary, is rather a generic than an ordinal distinction.

Besides this difference in the fruit, *Styrax* and *Strigilia* have a definite number of stamens, but their insertion and connexion at the base into a short tube is the same as in *Symplocos* and *Halesia*.

The character of *Halesiaceæ* derived from the winged fruit loses what little importance might have been given to it, when it is considered that it is not the "nut" itself that is winged, but merely the calyx inclosing it, which in its development becomes fleshy in *Symplocos*, and herbaceous and winged in *Halesia*,—a good generic, but no ordinal distinction.

Lindley, in the second edition of his Natural System, besides the above genera, enumerates under *Styraceæ* the five following: *Diclidanthera*, Mart., *Paralea*, Aubl., *Turaria*, Molin., *Morelosia*, Llave, and *Decadia*, Lour. Of these, *Diclidanthera* is the only one which is satisfactorily described, and Martius is evidently right in ascribing it to *Ebenaceæ*; but the separate insertion of the anthers in the throat of the corolla remove it from the tribe or order of *Styraceæ*: *Paralea* and *Decadia* appear also, as far as can be judged from the very imperfect descriptions, to be nearer the true *Ebenaceæ* than to *Styraceæ*: *Morelosia* must be very different, and may very likely belong to *Convolvulaceæ*, where Don places it.

With respect to the affinities of *Styraceæ* as an order, their alliance with *Ebenaceæ* amongst *Monopetalæ*, and with *Humiriaceæ* in the first instance, and in the next place with *Meliaceæ*, and perhaps with *Aurantiaceæ* and *Olacineæ* amongst *Polypetalæ*, has been already pointed out, and have only been confirmed, as far as my observations have led me; but my object not being to give a monograph of the order, I now merely add the characters which I should propose for such of the true *Symploci* as I am acquainted with.

Symplocos. *Linn.*

Calyx basi ovario adhærens, limbo 5-fido, laciniis latis, æstivatione imbricatis. *Corolla* gamo-petala, profunde 5—7-fida, basi erecta, laciniis apice patentissimis, uniserialibus, æstivatione imbricatis. *Stamina* numerosa, 3—4-serialia, erecta, basi in tubum corollæ adnatum coalita; filamenta superne libera, dilatata, imbricata, apice abrupte acuminata. *Antheræ* ovatæ,

erectæ, basifixæ, biloculares. *Ovarium* basi adnatum, apice liberum, 3—5-loculare, loculis sub-4-ovulatis, ovulis pendulis. *Stylus* simplex. *Stigma* capitatum, 3—5-fidum. *Drupa* calyce adnato carnoso inclusa, putamine lignoso, 1—5-locularis. *Semina* in quoque loculo sæpissime solitaria, oblonga, lateraliter affixa. *Embryo* in albumine copioso lineare, erectus, vel inversus.

Arbores mediocres, vel frutices elati, in America calidiore provenientes. *Rami* alterni, patentes. *Folia* alterna, simplicia, petiolata, integra, integerrima, vel serrata, serraturis sæpe glanduliferis, coriacea, supra glaberrima, nitida, subtus glabra, vel pubescentia. *Racemi* breves, axillares, pluri- vel rarius subuni-flori. *Rhachis* et *pedunculus* sæpissime pubescentes. *Flores* in pedunculo sessiles, vel breviter pedicellati, bracteis 2—5 laciniis calycinis similibus suffulti. *Calyces* ciliati. *Corollæ* albæ, vel lutescentes. *Ovarium* apice et *stylus* basi hirta. *Flores* in plerisque speciebus odoratissimi.

1. *S. nitens*, foliis obovato-oblongis obtusissimis integerrimis subundulatis ramisque glaberrimis, pedunculis multifloris petiolum brevem vix superantibus.

   Stemmatosiphon nitens. Pohl! Pl. Bras. Ic. ii. p. 88. t. 158.

   Hab. in Brasiliæ provincia Minas Geraes et Goyaz. *Pohl!*

2. *S. martinicensis* (Linn. Sp. p. 747.), foliis oblongo-ellipticis obtuse acuminatis late undulato-crenatis basi angustatis utrinque ramisque glaberrimis, pedunculis plurifloris petiolum subæquantibus.

   Hab. in Antillis. *Anderson!* in Martinica. *Jacquin.*

3. *S. laxiflora*, foliis oblongis acuminatis basi angustatis margine obtuse serrulatis, junioribus subtus ad venas ramulisque hirtellis, pedunculis petiolo longioribus apice laxe 3—5-floris. Tab. XVIII.

   Hab. in Brasiliæ montibus Serra Orgaõ dictis. *Gardner!* Pl. exs. n. 343.

4. *S. parviflora*, foliis ovatis ellipticisve obtusiusculis basi rotundatis margine serrulatis, junioribus subtus ramulisque hirtellis, pedunculis 1—3-floris petiolum brevem vix æquantibus.

   Hab. in provincia Rio Grande. *Tweedie!*

5. *S. Arechea* (L'Hér. Trans. Soc. Linn. Lond. i. p. 176.), foliis oblongo-ellipticis obtuse acuminatis serrulatis, junioribus subtus ramulisque puberulis, pedunculis petiolo pluries brevioribus dense 3—5-floris.
Hab. in Peruvia. *Mathews!* Pl. exs. n. 2016.

6. *S. serrulata* (Humb. et Bonpl. Pl. Æquin. i. 190. t. 54.). Species mihi ignota *S. Arecheæ* similis videtur, sed foliis subsessilibus facile distinguenda.
Hab. prope Popayan. *Humboldt* et *Bonpland.*

7. *S. rufescens* (Humb. et Bonpl. l. c. p. 192. t. 55.). Nec hanc speciem vidi. Ex icone distinctissima videtur.
Hab. in Monte Quindiu. *Humboldt* et *Bonpland.*

8. *S. pubescens* (Klotsch in Herb. Lindl. MSS.), foliis ovato-ellipticis oblongisve breviter acuminatis serratis basi angustatis supra reticulatis subtus ramulisque pubescenti-villosis, pedunculis plurifloris petiolum subæquantibus, calycibus glabriusculis longe ciliatis corolla subquintuplo brevioribus.
Hab. in Brasilia. *Sellow!*

9. *S. platyphylla*, foliis ovato-ellipticis breviter acuminatis obtusisve serratis basi rotundatis supra bullulatis reticulatis subtus ramulisque pubescenti-villosis, pedunculis multifloris petiolum æquantibus, calycibus villosissimis corolla vix quadruplo brevioribus.
Stemmatosiphon platyphyllum. Pohl! Pl. Bras. Ic. ii. p. 87. t. 157.
Hab. in Brasiliæ provincia Minas Geraes. *Pohl!*

10. *S. Ciponima* (L'Hér. Trans. Soc. Linn. Lond. i. 175.), foliis ovatis oblongisve breviter acuminatis integerrimis serratisve supra lævissimis subtus sparse hirtellis, ramulis pubescentibus, pedunculis brevissimis multifloris, calycibus villosis.
Hab. in Guiana Gallica. *Aublet*; in Guiana Anglica ad flumen Essequebo. *Schomburgk!* Pl. exs. n. 383. (foliis plerisque ovatis basi subcordatis), et n. 276. (foliis plerisque oblongis basi rotundatis).

11. *S. uniflora*, foliis ovatis acuminatis serratis subtus ramulisque ciliato-hirtis, pedunculis unifloris petiolo longioribus.

Stemmatosiphon uniflorum. Pohl. Pl. Bras. Ic. ii. p. 89. t. 159.
Hab. in Brasiliæ provincia Minas Geraes. *Pohl.!*

2. SEGUIERIA.

The circumstance of a polyandrous genus amongst the true *Monochlamydeæ* is of so rare occurrence, that the first impression conveyed by an unknown plant of that description is that of a defective polypetalous one; and accordingly, although some species or other of *Seguieria* occurs in most extensive South American collections, I have usually found it amongst *Swartzieæ* or with *Securidaca*, to both of which the genus bears some external resemblance. For this reason, probably, not only no new species has yet been described since Jacquin and Linnæus published the original *S. americana*, but even of that plant no description has appeared but what has been taken from one of those two authors. The affinities of the genus were entirely unknown, until Brown, who had examined three Brazilian species, associated it (App. to Tuckey, p. 36.) with *Petiveria* as a tribe of *Phytolaceæ*.

The peculiarities of this tribe are there alluded to in the following words: "The lateral stigma, the spiral cotyledons, and want of albumen in *Petiveria*, remove it to some distance from the other genera of *Phytolaceæ*, and at the same time connect it with *Seguieria*, with which also it agrees in the alliaceous odour of the whole plant." The lateral stigma and solitary carpel is very remarkable in all species of *Seguieria*; in the seeds I examined, which were unripe, I found a considerable quantity of mucilage resembling albumen, and a small, somewhat curved embryo, with cotyledons by no means spiral, giving me the idea that they were very similar to the seeds of several true *Phytolaceæ*; it is only when they arrive at maturity, in which state Mr. Brown examined them, that their true structure may be seen. Although my specimens are insufficient in this respect, yet the genus is so little known, and so remarkable in other points, that I have added to the following synopsis of the species known to me, a figure of one, in which the fruit, though immature, has attained its full size.

SEGUIERIA. *Linn.*

Perigonium calycinum, quinquepartitum, laciniis parum inæqualibus, æstivatione imbricativa, 2 exterioribus, 3 interioribus, per anthesin reflexis.

Stamina numerosa, basi perigonii inserta. *Filamenta* filiformia. *Antheræ* erectæ, lineari-sagittatæ, biloculares, loculis rima longitudinali dehiscentibus. *Ovarium* sessile, liberum, uniloculare, ovulo unico erecto. *Stylus* erectus, complanatus, hinc lateraliter stigmatiferus, inde membranaceo-alatus. *Fructus* indehiscens, coriaceus, apice ala longa acinaciformi, uno latere incrassata auctus, et in utraque facie alis 3—4 parvis irregulariter striatus. *Semen* unicum, subrotundum. *Embryo* (*junior*) parvus, linearis, parum incurvus, lateralis, cotyledonibus rectiusculis. *Frutices* scandentes? Austro-Americani, glabri, vel ramulis leviter pubescentibus. *Folia* alterna, integerrima, punctis minutis creberrimis pellucidis conspersa. *Stipulæ* induratæ, persistentes, sæpissime spinescentes. *Paniculæ* axillares vel terminales, irregulariter ramosæ, multifloræ, subaphyllæ. *Flores* flavescenti-virides.

1. *S. parvifolia,* stipulis minimis tuberculiformibus vix spinescentibus, foliis ovali-oblongis herbaceis basi in petiolum angustatis.

   Hab. ad Rio Jaquhy. *Tweedie!*

Folia vix sesquipollicaria, petiolo 3—4-lineari. *Panicula* terminalis, parum ramosa.

2. *S. coriacea,* stipulis longis validis rectis spinescentibus, foliis subsessilibus oblongis obtusissimis coriaceis.

   Hab. in montibus Acurua provinciæ Bahiensis. *Blanchet!* Pl. exs. n. 2908.

Folia 2—3-pollicaria. *Paniculæ* in exemplari meo axillares paucifloræ.

3. *S. longifolia,* stipulis brevissimis recurvis spinescentibus, foliis subsessilibus lanceolato-ellipticis acuminatis reticulatis coriaceis.

   Hab. ad Mathea Barboso in Brasilia. *Pohl!*

Folia $3\frac{1}{2}$—5-pollicaria. *Paniculæ* axillares vel terminales.

4. *S. floribunda,* stipulis minimis tuberculæformibus vix spinescentibus, foliis breviter petiolatis ovatis acuminatis coriaceis, paniculæ rhachide pubescente. Tab. XIX.

   Hab. in Brasiliæ montibus Orgaõ. *Gardner!* Pl. exs. n. 722.

Folia 3—4-pollicaria. *Panicula* amplissima.

5. *S. macrophylla,* stipulis spinescentibus recurvis, foliis breviter petiolatis amplis ovato-ellipticis acuminatis, paniculæ rhachide glabra.

Hab. in Guiana Anglica ad flumen Essequebo. *Schomburgk!* Pl. exs. n. 348.

Frutex scandens. *Folia* 5—7-pollicaria. *Paniculæ* terminales amplæ, axillares divaricatæ. *Flores* majores quam in præcedentibus, luteo-virides.

6. *S. foliosa*, stipulis spinescentibus recurvis, foliis petiolatis ovatis obtuse acuminatis, paniculis terminalibus paucifloris basi foliatis.

Hab. in Guiana Anglica. *Schomburgk!* Pl. exs. n. 661.

Folia $1\frac{1}{2}$—2-pollicaria. *Inflorescentia* ab omnibus diversa.

7. *S. americana* (Linn. Sp. p. 747.), ab omnibus differre videtur, foliis apice emarginatis.

3. ANTHODISCUS.

The genus *Anthodiscus* was established by G. F. W. Meyer in his *Primitiæ Floræ Essequeboensis*, *p.* 193, for a Guiana tree, which he places in *Icosandria* on account of the insertion of the stamina: "annulo calycino germen cingente." He compares it in that class with some *Myrtaceæ*, with *Acacia*, and with *Phytolacca*; but in a natural arrangement it differs widely from the first in its free ovarium, from *Acacia* in its polycarpous structure, from *Phytolacca* by the dichlamydeous perigonium. Since Meyer, it appears to have been generally overlooked, not being mentioned by De Candolle either amongst his *Thalamifloræ* or amongst the polypetalous *Calycifloræ*, and being entirely omitted by Bartling, Lindley and others in their enumerations of genera. Sprengel took it up, however, in his *Systema*, and Meisner introduces it into his Generic Tables as a spurious Rosaceous plant, allied also in its (imperfectly known) fruit to *Phytolacca*.

Amongst Schomburgk's specimens is one which answers so well in external characters to Meyer's description of his *Anthodiscus trifoliatus*, that I have little doubt of its being the same species, more especially, as I find a similar specimen in Dr. Lindley's herbarium, proceeding, I believe, from Mr. Parker's Demerara collection. These specimens differ, however, from Meyer's character in some points of structure, perhaps not much attended to at that time, but which are now of considerable importance in a natural arrangement. The disk from which the stamens arise is hypogynous, not perigynous,—a circumstance that removes the plant at once from *Rosaceæ*; and the general

habit of the plant, notwithstanding its occasionally alternate leaves, and the structure of the stamens and ovarium, show a close affinity to *Rhizoboleæ*. It may, in short, be described, as far as can be ascertained without a knowledge of the fruit, as a polygynous *Caryocar* with cohering petals and leaves often alternate.

It is true that Meyer does not mention the coherence of the petals; but as he speaks of their concavity and the caducity of the corolla, it is probable he had not seen it open, and may possibly have merely separated the petals by force to ascertain their form.

As a second genus of an order consisting hitherto but of five species, I subjoin a figure of the plant and the generic character, referring to Meyer's work for a detailed description of the species.

ANTHODISCUS.

Calyx breviter cupulæformis, margine obscure 5-lobo, persistens. *Petala* 5, concava, arcte cohærentia, disco hypogyno inserta, per anthesin calyptræ more decidua. *Stamina* numerosissima, cum petalis disco hypogyno inserta, basi brevissime monadelpha, interiora breviora, omnia fertilia. *Filamenta* filiformia, tortuosa, minute glandulosa. *Antheræ* ovatæ, biloculares, loculis rima longitudinali dehiscentibus. *Ovarium* liberum, depresso-globosum, radiatim multi- (circiter 14-) loculare, loculis uniovulatis, ovulis peltatis, latere interiore affixis. *Styli* tot quot loculæ ovarii, oblongi, incurvi, stigmatibus oblongis, terminalibus.

Arbor Guianensis. *Folia* alterna, vel opposita, in caule articulata, trifoliolata, foliolis coriaceis lucidis. *Pedicelli* breves, uniflori, bibracteati.

Species unica *A. trifoliatus*. G. W. F. Meyer, l. c. p. 194.

TAB. XX.

Hab. in Guiana Anglica ad ripas fluminum Essequebo et Rupununy. *Schomburgk!* Pl. exs. n. 512.

EXPLANATION OF THE PLATES.

TAB. XVIII.

Symplocos laxiflora.

Fig. 1. Flower.
2. Ditto, with the calyx corolla and removed.
3. Portion of the stamina.
4. Pistillum, with the ovarium cut vertically.
5. Transverse section of the ovarium.
6. Vertical section of the mature fruit.

TAB. XIX.

Seguieria floribunda.

Fig. 1. Diagram of the floral organs.
2. Flower.
3. Stamen.
4. Pistillum, with the ovarium cut vertically.
5. Branch with the fruit.
6. Lower extremity of the seed, with the outer integument removed.
7. Seed.
8. Vertical section of the seed.
9. Embryo.

TAB. XX.

Anthodiscus trifoliatus.

Fig. 1. Flower.
2. Corolla removed.
3. Flower, with the corolla removed.
4. Stamen.
5. Pistillum.
6. Transverse section of the ovarium.
7. Vertical section of ditto.

Trans. Linn. Soc. Vol. XVIII, tab 18.

1

2

3

4

5

6

Miss Drake del.

G. Jarman


5
6
8
9
1
2
3

Mrs. Drake del.

G. Jarman sc.