

HEPATICÆ ELLIOTTIANÆ, insulis Antillanis S^t Vincentii et
Dominica a clar. W. R. Elliott, annis 1891–92, lectæ,
RICARDO SPRUCE determinatæ.

[Read 21st December, 1893.]

(PLATES XX.—XXX.)

THE new species in the following list of the Hepaticæ collected by Mr. W. R. Elliott in the British West Indies during the years 1891 and 1892, on behalf of the Joint Committee of the Royal Society and the British Association for the Exploration of the Natural History of the West Indies, seem not to have been described before. In some of the finest and most conspicuous species of his gathering he had been anticipated by Eggers, Wallis, and others, who had previously found them in other isles of the Antilles, or on the mainland of S. America, in Venezuela and New Granada. Good descriptions of them have been given by Herr Stephani in the pages of 'Hedwigia' for the years 1888 and 1892. Those here described are mostly minute species and include no novel types, but are some of them interesting as adding new forms to groups of which only a few species were previously known.

Since the publication of Swartz's 'Flora Indiae Occidentalis,' vol. iii. (1806), where several West-Indian hepaticæ were described for the first time, and often very incompletely, with some confusion of allied forms under the same name, there has been no attempt at a complete hepatic flora of the whole group. The only island which has been systematically explored for hepaticæ is Porto Rico, where the Kunstmärtner C. Schwanecke gathered them during three years (1847–50); and his specimens, comprising 58 species, were published by Hampe and Gottsche in 'Linnæa' for 1853 (pp. 333–357). Nearly 40 years later (1885–7) Sintenis added largely to this total, and Stephani's enumeration of the entire hepatic flora amounts to 111 species ('Hedwigia,' 1888, pp. 276–302). In 1845 Montagne described the few Cuban hepaticæ known to him in Ramon de la Sagra's 'Historia fisica . . . de la Isla de Cuba,' vol. ix. 1845, and was able to give for the first time a figure of the perfect plant of the curious *Cyathodium cavernarum*. I also gathered this plant, but sterile, in a cave at the foot of the volcano Tunguragua in Ecuador but inadvertently omitted it from my enumeration, "Hepaticæ Amazonicæ et Andinæ," in Trans. Bot. Soc. Edinb. xv. (1884).

[At this point the MS. of Mr. Spruce's preface abruptly ends,
LINN. JOURN.—BOTANY. VOL. XXX.

and within two or three days after he wrote these last words he was taken from us. He intended no doubt to cite the chief papers that treat of the Hepaticæ of the West Indies; and for the benefit of those who are interested in the paper the following notes are added.

Montagne's Cuban list contained 32 species; and some years later additions to it were found among the hepaticæ gathered by the American traveller Charles Wright, which were named by Gottsche and distributed without numbers by Asa Gray after the collector's death in 1885. From Jamaica 38 species are recorded in H. Boswell's list in the 'Journal of Botany,' 1887, p. 49; and 4 more occur in a paper by Lindenberg and Hampe in 'Linnaea,' 1851, pp. 300, 640. From San Domingo 34 species gathered by Eggers are given by Stephani in 'Hedwigia,' 1888, p. 299, and in the same paper 6 are mentioned as coming from Dominica, 3 of which do not occur in Mr. Elliott's collections. The French Antilles—Guadeloupe and Martinique—which are the neighbouring islands to Dominica, have been searched in late years and, in M. Bescherelle's recent list in 'Journal de Botanique,' 1893, pp. 174, 183, present a total of 148 species; but they will probably prove more fruitful than this, for their united area—about 1100 sq. miles—is more than double that of Dominica and St. Vincent, which is only 415 sq. miles and yet has produced, as will be seen in the following list, 162 species, of which 30 are new, and in addition to which several other species are likely to be found by future collectors. The results which have been attained in other islands, such as Trinidad, Barbados, and St. Kitts, must be sought in the 'Synopsis Hepaticarum,' 1844–7, and in the series of monographs of genera which are being produced with such industry by Herr Stephani.

Mr. Spruce's paper has been recast so as to bring the list of species, the descriptions, and the notes into one series. The author left a number of short notes which have been expanded; but a few which were so brief as to defy interpretation have been omitted. A few extracts from his letters have been added. The drawing of the plates has been supervised, and an explanation of the figures prepared. The numbers and localities have been carefully collated with Mr. Elliott's collections and corrected where necessary, and two species which Mr. Spruce had identified but omitted to put in his list have been included. The references to published descriptions have been looked up and inserted.—A. GERR.]

Subordo I. JUNGERMANNIACEÆ.

Tribus I. JUBULEÆ.

Genus 1. FRULLANIA, Radde.

Four species have been recorded from the French Antilles; and of these only one appears in Mr. Elliott's collections. This is *F. atrata*, a not uncommon plant in the mountains of nearly the whole of tropical America. In the Andes I have seen it growing in huge masses half-a-yard long.

1. F. (§ CHONANTHELIA) ARIETINA, Tayl. in *Syn. Hep.* p. 413.— St. Vincent, Richmond Peak (215). Dominica, River Douce Valley (704), Shawford Estate (898).
2. F. (§ METEORIOPSIS) ATRATA, Nees, in *Syn. Hep.* p. 463.— Dominica, Morne Trois Pitons (491), Morne Diablotin (648, 688). Var.— St. Vincent, Richmond Peak (215). Pendulous from trees.
3. F. (§ THYOPSIELLA) SPATULIFLORA, Spruce, n. sp. (Tab. XX. figs. 1-4.)

Monoica, pusilla, prostrata, rufo-badia, caule pollicari vase sat ramoso. *Folia* fragilia, subplana, subdivergentia, inferiora contigua, ramia imbricata, oblique subsemiovata, rotundata, raro abrupte subacuta; *cellulæ* præminutæ, subpellucidæ, æqualiter incrassatæ, trigonis vix ulla; *lobulus* folio triplo fere brevior, cauli parallelus et subcontiguus, breviter conico-cylindricus, obtusus. *Foliola* foliis plus duplo breviora, pallida, tenera, appressa, oblonga, plana, ultra $\frac{1}{3}$ fissa, segmentis obtusis. *Flores* ♀ in caule et ramis terminales; *bracteæ* foliis dimidio longiores, profunde complicato-bilobæ, lobo antico oblique oblongo-rotundato, postico subminore et angustiore, lanceolato; *bracteola* magna, cuneato-obovata, ad $\frac{1}{2}$ biloba, complicato-carinata, lobis lanceolatis conniventibus (arte expansis divergentibus). *Perianthia* emersa, compresso-trigona, spatulata, supra basin obconicam fere quadrata, apice lato retuso vel subobcordato brevirostria. *Androecia* brevia, paucijuga.—*Folia* $4 \times 3\text{--}35$, *lobulus* .15, *cellulæ* $\frac{1}{80}$; *foliola* 18×12 ; *bracteæ* (*lobus*) 6×35 , *bracteola* 8×65 ; *perianthia* $1\text{--}05 \times 8$ mm.
• *Hab.* Ad cortices in situ Laudat, ins. Dominica (ELLIOTT, no. 857, a. 1892).—Florescentia monoica et stipulis planis, præcipueratamen forma perianthii singulari, a plerisque *Thyopsiellis* distat.

4. *FRULLANIA* (§ *DIASTALOBA*) *CAULISEQUA*, *Nees*, in *Syn. Hep.* p. 448.—St. Vincent, Wallilaboo Valley (177). Dominica, Morne Anglais (492). On bark.
5. F. (§ *DIASTALOBA*) *SUBTILISSIMA*, *Lindenb.* in *Syn. Hep.* p. 443.—St. Vincent, Richmond Peak (208). On bark.

Genus 2. *LEJEUNEA*, *Lib.*

There are 66 species in Mr. Elliott's collections; whereas 42 have been recorded from the French Antilles.

Subgenus 1. *OMPHALANTHUS*, *Lindenb. et Nees.*

6. *LEJEUNEA FILIFORMIS*, *Mont.* in *D'Orb. Voy. Am. Mér.. Bot. Crypt.* p. 64; *Omphalanthus filiformis*, *Nees*, in *Syn. Hep.* p. 304.—Dominica, Roseau Valley (62), creeping on *Plagiochila*; Morne Micotrin (66), sine loc. (516).

Subgenus 2. *STICTOLEJEUNEA*, *Spruce.*

7. L. *SQUAMATA*, *Nees*, in *Syn. Hep.* p. 322.—St. Vincent, Bonhomme Valley (93). Dominica, Morne Couronne (225).

Subgenus 3. *NEUROLEJEUNEA*, *Spruce.*

8. L. *PORTORICENSIS*, *Hampe et Gottsche*, in *Linnæa*, xxv. (1852), p. 352.—Frustulum in *Plagiochila carpsi*.
9. L. *BREUTELII*, *Gott sche*, in *Syn. Hep.* p. 324.—Dominica, Roseau Valley (80).

Subgenus 4. *BRYOPTERIS*, *Nees.*

10. L. *LONGISPICA*, *Spruce*, in *Trans. Bot. Soc. Edinb.* xv. p. 114.—Dominica, Morne Diablotin (642).

Subgenus 5. *ACROLEJEUNEA*, *Spruce.*

11. L. *TORULOSA*, *Spruce*, in *Trans. Bot. Soc. Edinb.* xv. p. 117; *Phragmicomia torulosa*, *Lehm. & Lindenb.* in *Syn. Hep.* p. 294.—St. Vincent, Fancy farm (343).—[Mr. Spruce made a note in his MS. of the four species *Acrolejeunea atroviridis*, *torulosa*, *juliformis*, and *polycarpa*; but whether because he considered them all closely allied, I am unable to say. He told me in a letter that one of the main differences of *A. atroviridis* from its nearest ally, *A. torulosa*, is that the perianth of the latter has 7 to 9 plicæ or keels, whereas that of *A. atroviridis* has only 4—2 marginal, 2 postical.—A. G.]

12. LEJEUNEA (§ ACROLEJEUNEA) ATROVIRIDIS, *Spruce*, n. sp.
(Tab. XX. figs. 5-10.)

Dioica, pusilla, late cæspitosa, sordide viridis, nigricans, in ætate sæpe aterrima; caules $\frac{1}{4}$ - $\frac{1}{2}$ -pollicares, e caudice procumbente ramoso orti, simplices vel parum ramosi, æquifoliati. *Folia* imbricata, patentia, subdivergentia, supra basin saccatam transverse oblonga rotundata valde recurvo-concava, medium versus sinuato-complicata, *lobulus* plus duplo brevior, turgidus, quasi-conchæformis, margine tamen planus, apice rectangulus, sæpe reclusus; *cellulæ* parvulae, subconformes, trigonis nullis minimisve. *Foliola* plus triplo breviora, dissita, late cuneato-orbiculata reniformiave, tenuissima, *cellulis* minoribus subquadratis rectangulivis. *Flores* in caule, rarius in ramo, terminales; *bracteæ* foliis paulo longiores, planæ, oblique ovales obtusatæ, lobulo perparvo plano linearie vel anguste triangulari basi auctæ; *bracteola* vix brevior late obovata rotundato-truncata, libera. *Perianthia* emersa, pyriformia, sat compressa, antice subdepressa, postice altiuscula bicarinata, margine carinisque repando-seaberula.—*Folia* $7 \times .6$ (basi) $\times .5$ (ad lobuli apicem), *lobulus* $.3$, *cellulæ* $\frac{1}{3}$; *foliola* $2 \times .3$ - $.35$; *bracteæ* $.8 \times .5$, *bracteola* $.75 \times .6$; *perianthia* $1.3 \times .8$ mm.

Hab. Ins. Sti. Vincentii, Richmond Valley, ad rivuli exsiccati lapides (ELLIOTT, no. 219, Febr. 1802).—Ab *Acrolejeunea torulosa*, L. et L., affini, satis diversa, perianthio præcipue sotum 4-(nec 7-9-)plicato.

Subgenus 6. LOPHOLEJEUNEA, *Spruce*.

13. L. SAGREANA, *Mont. in Syn. Hep.* p. 314.—St. Vincent, Richmond Valley (212).

Subgenus 7. PLATYLEJEUNEA, *Spruce*.

14. L. GRANULATA, *Nees, in Syn. Hep.* p. 311.—St. Vincent, Richmond Valley (221).

15. L. VINCENTINA, *Gottsch., in Syn. Hep.* p. 313.—Dominica, Morne Diablotin (674).—This species has not been noticed among Mr. Elliott's collection from St. Vincent; nor has another species—*L. Hobsoniana*, Lindenb.—which was gathered on Mt. St. Andrews by Hobson in 1822. Stephani indicates *L. transversalis* among Eggers's gatherings in Dominica ('Hedwigia,' 1888).

Subgenus 8. ARCHILEJEUNEA, *Spruce*.

16. *LEJEUNEA XANTHOCARPA*, *Lehm. et Lindenb.* in *Syn. Hep.* p. 330.—Dominica, Morne Trois Pitons (70), Morne Couronne (231), River Douce Valley (710).—This plant, which is absent from equatorial America, occurs in Guadeloupe, Bolivia, and Africa.

Subgenus 9. BRACHIOLEJEUNEA, *Spruce*.

17. *L. BICOLOR*, *Mont. in D'Orb. Voy. Am. Mér., Bot. Crypt.* p. 349; *Phragmicomia bicolor*, Nees, in *Syn. Hep.* p. 294.—St. Vincent, Fancy farm (343).

Subgenus 10. HOMALOLEJEUNEA, *Spruce*.

18. *L. BRACHIATA*, *Nees, in Syn. Hep.* p. 313; *Phragmicomia Guilleminiana*, Nees et Mont. in *Syn. Hep.* p. 293.—St. Vincent, Richmond Peak (210). Dominica, Morne Trois Pitons (764).

Subgenus 11. ODONTOLEJEUNEA, *Spruce*.

19. *L. LUNULATA*, *Nees, in Syn. Hep.* p. 326.—Dominica, Morne Couronne (233), Morne Trois Pitons (760).

20. *L. CHÆROPHYLLA*, *Spruce, in Trans. Bot. Soc. Edinb.* xv.p.147; var. *PAROICA*.—St. Vincent, Mt. St. Andrews (146), Richmond Peak (356). Dominica, sine loc. (516). In foliis vivis.

In the S. American plant described by me (*op. cit.* p. 147) the inflorescence is monoicous (autoicous), the male organs being contained in separate branches from the female. But in the St. Vincent plant similar male branches have a female flower in the terminal bud, which is often fertile, thus constituting a paroicous inflorescence. As I can find no other difference whatever, I must refer both forms to a single heteroicous species.

Herr Stephani has lately referred this plant to *L. Sieberiana*, Gottsch., a Mauritian species, described in ‘*Synopsis Hepatic.*’ p. 328, with “foliis margine supero apiceque minute serrato-denticulatis, infero subintegerrimis;” whereas *L. chærophylla* has the leaves equally and somewhat strongly dentate all round. Moreover, *L. Sieberiana* is said to be sterile, and is therefore probably dioicous; whereas I have never seen *L. chærophylla* without perianths; nor is any mention made of the cordate base of the stipules, so conspicuous in the latter. The plant grows always on living leaves, along with the two following *Odontolejeuneæ*, and sometimes with species of other subgenera.

21. *LEJEUNEÀ CONVEXISTIPÀ*, *Lehm. et Lindenb.* in *Syn. Hep.* p. 328.—St. Vincent, Gibson mtn. (2), Mt. St. Andrews (48, 66, and 145), Morne Garu (54), Richmond Peak (354). Dominica, Morne Couronne (245 and 778), windward road to the Lake (508), and sine loc. (516).
22. *L. PERUVIANA*, *Lehm. et Lindenb.* in *Syn. Hep.* p. 339.—St. Vincent, Morne Garu (55), Richmond Peak (356). Dominica, Morne Couronne (245), and sine loc. (516).
Var. *PARVISTIPULA*, *Spruce*.—St. Vincent, Richmond Peak (354).
23. *L. ACCEDENS*, *Gottsche*, in *Syn. Hep.* p. 339.—St. Vincent, Mt. St. Andrews (84). Dominica, Morne Couronne (516).
24. *L. SURINAMENSIS*, *Mont.* in *Ann. Sc. Nat. sér. II. xv.* p. 110; *et in Syn. Hep.* p. 329.—St. Vincent, Richmond Peak (356).

Subgenus 12. *PRIONOLEJEUNEÀ*, *Spruce*.

The specimens referred to this subgenus are nearly all in small quantity, creeping over other hepaticæ or on living leaves, especially of ferns. In a final revision of my own plants I found several new species of this group, some of them in sufficient quantity to be distributed in my 'Exsiccatæ' (Malton, 1892), and three of these reappear in Mr. Elliott's collection.

25. *L. DENTICULATA*, *Nees*, in *Syn. Hep.* p. 337.—St. Vincent, Richmond Peak (208).
26. *L. VULCANICA*, *Spruce*, n. sp. (Tab. XXI. figs. 1-3.)
Monoica, virescens, flaccida, caule prostrato sesquipollicari inæqualiter pinnato et bipinnato. *Folia* subcontigua vel parum imbricata, late patentia, semicordato-ovata subdimidiata, acuta vel vix subacuminata, toto margine minute crenulata serrulatave, sinuato-complicata, lobulo 4plo breviore, semiovoideo subinflato subapiculato; cellulæ parvæ, subconformes, pellucidæ, trigonis nullis. *Foliola* distantia, obovato-rotunda, profunde bifida, segmentis acutis. *Flores* ♀ in ramulo brevi simplice insidentes; *bracteæ* foliis æquilongæ, oblique lanceolatæ, lobulatæ; *bracteola* anguste lanceolata, ad medium bifida, segmentis erectis acutis. *Perianthia* emersa, late obocordato-cuneata, compressa, margine supero subdenticulata. *Androecia* folio caulino sublongiora, paucijuga.—*Folia* ·6×·4-45, *lobulus* ·125, *cellulæ* $\frac{1}{40}$ - $\frac{1}{50}$; *foliola* ·13; *bracteæ* ·55, *bracteola* ·5×·2; *perianthia* ·7×·5 mm.

Hab. Ins. Dominica, super alias hepaticas repens juxta craterem volcanicum Grande Souffrière dictum, alt. 3000 ped.

(ELLIOTT, no. 875, Dec. 1892).—*Prionol. denticulatæ* (Web.) convenit floresc. monoica, ramulo ♀ simplicissimo, differt foliis solum acutis, trigonis cellularum nullis, foliolis minutis, etc.—*Pr. æmula*, G., sat similis, folia habet grosse serrata et perianthia subciliata.

27. *LEJEUNEA LACINIATO-ALATA*, Spruce, herb.—Dominica, Morne Micotrin (106), on *Plagiochila Breuteliana*. (Chimborazo, R. Spruce, anno 1860.)

28. *L. DISSITIFOLIA*, Spruce, n. sp.

Dioica, rarius monoica, pusilla, pallida, caule semipollicari, prostrato, fragili, vase ramoso. *Folia* dissita, patentia vel erecto-patentia, a basi constricta obovata, apiculato-acuta, raro sub-obtusa, subsinuate-complicata, lobulo vix triplo breviore, ovoideo, inflato, margine toto fere muricato-serrulata; *cellulæ* minutulæ, trigonis vix ulla, ocello nullo. *Foliola* parva, foliis 4pl fere breviore, orbiculata, ultra $\frac{1}{2}$ bifida, sinu segmentisque acutis. *Flores* ramulo brevissimo simplice constantes; *bractæ* foliis æquilongæ, angustiores, lobulo plano, fortius serrulatae. *Perianthia* emersa, obcordato-obconica, compressa, margine supero inæqualiter spinulosa. *Andräcia* terminalia sæpe longispica.—*Folia* $\cdot 4 \times \cdot 25$, *lobulus* $\cdot 15$, *cellulæ* $\frac{1}{60}$; *foliola* $\cdot 125 \times \cdot 125$; *perianthia* $\cdot 6 \times \cdot 4$ mm.

Hab. Ins. Sti. Vincentii, in monte Richmond, supra Trichomanis sp. frondem, *L. Guadalupensi* consociata (ELLIOTT, no. 355 p. p., Feb. 1892).—Plantam ♂ ejusdem speciei possideo ad fluv. Bombonasa a meipso lectam anno 1857, necnon inter hepaticas Bolivianas a cl. RUSBY lectas inventam.

29. *L. DECORA*, Tayl. ?, in *Syn. Hep.* p. 755.—St. Vincent, Richmond Peak (208).

30. *L. TRACHYODES*, Spruce, n. sp.

Dioica, pusilla, rufo-badia, caule pollicari vase ramoso, ramis sæpe elongatis polyphyllis. *Folia* dense imbricata, decurvo-concava, sæpe subsecunda, oblique semicordato-oblonga, acuta, rarius subapiculata, tota facie externa cellulis prominulis tuberculata, margine muricato-serrulata, valde sinuato-complicata, lobulo triplo breviore, turgide saccato, margine inflexo subhorizontali; *cellulæ* minutulæ, subopacæ, trigonis conspicuis. *Foliola* præminuta, caulem vix excedentia, orbiculata, ad $\frac{1}{2}$ bifida, segmentis acutis. *Flores* ♀ ramulo brevi simplice insidentes; *bractæ* foliis sat longiores, patentes, oblique ovales, subacu-

minatae, integerrimæ vel paucidentatæ, late lobulatæ; *bracteola* ovali-lanceolata, ad $\frac{1}{2}$ fere bifida, segmentis subacuminatis.—*Folia* $375 \times .35$ (*cum lobulo*) $\times .25$ (*sine lobulo*), *lobulus* $.125$, *cellulæ* $\frac{1}{55}$; *foliola* $.07$; *bracteæ* $.5$ mm.

Hab. In monte Diablotin insulæ Dominicæ, super alias hepaticas reptans (ELLIOTT, no. 646, Oct. 1892).

31. LEJEUNEA GUADALUPENSIS, *Lindenb.* in *Syn. Hep.* p. 340. (Tab. XXI. figs. 4, 5.)—St. Vincent, Richmond Peak (355), in *Trichomane*. Dominica, Roseau Valley (60), “a meagre variety differing in the nearly equal leaf-cells—not wider and laxer about the middle of the leaf *L. guadalupensis* is the only *Prionolejeunea* with quite entire leaves; but the compresso-trigonus perianths with toothed margins, seated on a short proper branch, declare its affinity with *L. denticulata*, &c.” [Spruce in litt. Nov. 6th, 1893.]

32. L. VALIDIUSCULA, *Spruce, Hepat. Amaz. et And. exsicc.* anno 1892.—St. Vincent, Souffrière (227). Dominica, Morne Micotrin (86).

This plant, which was first found in the Eastern Peruvian Andes, agrees with *L. microdonta*, a common Amazonian species, in the very short fertile ramulus putting forth a minute subfloral innovation, but differs in its abruptly apiculate (not very obtuse) leaves, and its deeply obcordate perianth, which is bordered in the upper half by a narrow incised wing.

33. L. VAGANS, *Spruce*, n. sp.

Dioica, virescens, prostrata, flaccida, caule sæpe bipollicari, crebre sed inæqualiter bipinnato. *Folia* subimbricata, divergentia, decurva, oblique semicordato-ovata, subabrupte acuminata, acuta, e cellulis marginalibus conicis, acutis obtusisve, denticulata, sinuato-complicata; *lobulus* triplo brevior, inflatus, oblique ovato-lageniformis, margine apiceque involutus; *cellulæ* parvæ, trigonis. conspicuis. *Foliola* parva, plus triplo breviora, orbiculata, ad $\frac{1}{2}$ bifida, segmentis acutis. *Flores* ♀ in ramo brevi terminales, innovatione sæpe elongata suffulti. *Bracteæ* teneræ, foliis minores, oblique obovatæ, lobulo linearí auctæ; *bracteola* oblonga, bifida. *Perianthia* alte emersa, obcordato-cuneata, compressa, apice lato retuso subalato, setuloso erosulove. *Andräcia* folio collateralí vix longiora, 3–5-juga, in planta propria.—*Folia* $.5 \times .35$, *lobulus* $.18$, *cellulæ* $\frac{1}{45}$; *foliola* $.15 \times .15$; *bracteæ* $.4$, *bracteola* $.3 \times .15$; *perianthia* $.75 \times .6$ mm.

Hab. Insula Sti. Vincentii, super montem Richmond, in *Plagiochilis* repens (ELLIOTT, no. 203, Feb. 1892).

L. validiuscula (Hepat. Spruceanæ exsicc. anno 1892) affinis, distat floribus monoicis, ♀ ramulo perbrevi, innovatione saepius ♂ suffulto; foliis parvilibulatis, trigonis cellularum vix ullis; foliolis duplo majoribus, profundius fissis; perianthiis apice profunde emarginatis.

34. LEJEUNEA EFFUSA, *Spruce*, n. sp.

Dioica, albicans, caule 2-pollicari, flaccido, fragili, vage ramoso, in matrice repens. *Folia* subimbricata, subdivergentia, decurvo-concava, a basi constricta semicordato-ovata, abrupte apieulata cuspidatave—caulina interdum solum acuta, toto ambitu celluloso-serrulata-crenulatave, valide sinuato-complicata; *lobulus* triplo brevior, turgidus, saccatus, margine apiceque incurvis; *cellulæ* parvæ, subæquales, trigonis minutis vel vix ullis, paucæ (2–4) sub lobuli margine ceteris majores, vacuæ, ocellum sistentes. *Foliola* parva, lobulis subbreviora, subrotunda, ad $\frac{1}{2}$ obtuse bifida, segmentis obtusis rarius acutis. *Andracia* plerumque brevispica. *Flores* ♀ ramulo brevissimo simplice constantes. *Bracteæ* foliis sat minores, serrulatae, lobo ovali-lanceolato acuto, lobulo vix duplo breviore obtuso; *bracteola* obovato-lanceolata, ad $\frac{1}{3}$ fissa, sinu segmentisque acutis. *Perianthia* alte emersa, anguste obcordato-cuneata, compressa, subtus convexa, margine supra medium sparsim denticulata.—*Folia* ·5 × ·32, *lobulus* ·16, *cellulæ* $\frac{1}{50}$; *foliola* ·15 × ·15 mm.

Hab. In monte Chimborazo super *Plagiochilas* repens (R. Spruce, 1860). Situ simili montis Sti. Andreæ ins. Sti. Vincentii legit cl. ELLIOTT, sub no. 83, anno 1892.—A *Pr. denticulata* distat floresc. dioica, foliis haud acuminatis, cellularum trigonis subnullis, etc.

35. L. LEPTOCARDIA, *Spruce*, in *Trans. Bot. Soc. Edinb.* xv. p. 159.—St. Vincent, Mt. St. Andrews (84).

Subgenus 13. DREPANOLEJEUNEA, *Spruce*.

36. L. INCNOATA, *Meissn. in Syn. Hep.* p. 343.—St. Vincent, Mariaqua (22), Richmond Peak (356). Souffrière, forma foliis secundis (227).—Var. PERISSODONTA, *S.*; foliis spina longa margine antico auctis. Dominica, sine loc. (516).
37. L. ANOPLANTHA, *Spruce*, in *Trans. Bot. Soc. Edinb.* xv. p. 189.—Dominica, Basin Will (505).

Subgenus 14. CHEILOLEJEUNEA, Spruce.

38. LEJEUNEA LINEATA, *Lehm. et Lindenb.* in *Syn. Hep.* p. 371.—St. Vincent, Souffrière (48), Mt. St. Andrews (69), Richmond Peak (163). Dominica, Morne Micotrin (90), Morne Diablotin (673). Not infrequent in both the islands, but rarely possessing good perianths. It grows among *Plagiochila*, *Sendtnera*, &c., and is one of the largest and most conspicuous plants in the genus. It is absent from equatorial America, but is found in Bourbon.

Subgenus 15. HARPALOLEJEUNEA, Spruce.

39. L. TENUICUSPIS, *Spruce*, in *Trans. Bot. Soc. Edinb.* xv. p. 170.—St. Vincent, Richmond Peak (211), Richmond Valley (221), mixed with other hepaticæ. (*Anne eadem ac L. oxyphylla*, Nees et Mont., *Syn. Hep.* p. 357, cui tamen stipulæ ademptæ—forsan prætervise?).—[Mr. Spruce wrote *L. longicuspis*, which is unknown; but that he meant *tenuicuspis* I have ascertained by the examination of original specimens which were kindly sent to me by Mr. Slater.—A. G.]
40. L. TRIDENS, *Spruce et Besch.*, in *Bull. Soc. Bot. France* (1890), p. clxxxi, pl. 13. (N.B.—The three teeth or spines are often much longer than they are represented in this plate.)—Dominica, Bouhomme mtn. (80) and elsewhere, but always sterile.
41. L. ASPERRIMA, *Spruce*; *Prionolejeunea asperrima*, Spruce, in *Trans. Bot. Soc. Edinb.* xv. p. 160.—St. Vincent, Morne Garu (53).

Subgenus 16. STREPSILEJEUNEA, Spruce.

42. L. INFLEXA, *Hampe*, in *Syn. Hep.* p. 350.—St. Vincent, Mt. St. Andrews (84).
43. L. INVOLUTA, *Gottscche*, in *Syn. Hep.* p. 350.—St. Vincent, Mt. St. Andrews (48, 67). Dominica, Morne Couronne (233).
44. L. KUNTHIANA, *Lindenb.* in *Syn. Hep.* p. 353.—Dominica, Morne Micotrin (84), in *Bazzania* sp. repens.

Subgenus 17. CERATOLEJEUNEA, Spruce.

45. L. PLUMULA, *Spruce*, in *Trans. Bot. Soc. Edinb.* xv. p. 201.—St. Vincent, Richmond Peak (217).

46. *LEJEUNEÆ SPINOSA*, *Gottsc.*, in *Syn. Hep.* p. 402.—St. Vincent, Mt. St. Andrews (63 & 85—in *Anthurii* folio). Dominica, Morne Diablotin (683), Morne Trois Pitons (769).
47. *L. VARIABILIS*, *Lindenb.* in *Syn. Hep.* p. 399.—St. Vincent, Mt. St. Andrews (85—in *Anthurii* folio, cum *L. spinosa*), Richmond Peak (208). Dominica, sine loc. (516).
48. *L. BREVINERVIS*, *Spruce*, n. sp. (Tab. XXI. figs. 6–9.)

Dioica, elata, nigricans, caule 5 cm. longo pinnatim ramoso, ramis saepe ramulis brevibus pinnulatis. *Folia* subimbricata divergentia late semiovata, apice valide decurvo, abrupte subacuta obtusave, raro rotundata, basin versus sinuato-complicata, lobulo parvo (folio 5plo breviore) horizontali ovoideo inflato, apice incurvo acuto; *cellulæ* parvule leptodermes, 6 axiales, prope folii basin, cæteris cellulæ duplo majores, primum opacæ demum vacuæ, in lineam (nervum simularem) ordinatae. *Foliola* foliis triplo fere—raro solum duplo—breviora, orbiculata, ad $\frac{1}{2}$ biloba, lobis subacutis. *Flores* ♀ in ramo, innovatione simplice continuato, insidentes; *bracteæ* foliis longiores, oblique ovato-oblongæ, apiculatæ, saepe apice obsolete denticulatæ; *bracteola* ovata, ultra medium bifida, segmentis erectis acuminatis. *Perianthia* obovata, obtuse tetragona, angulis in cornua linearis-subulata subobtusa, cætero perianthio subæquilonga, erecto-patula, abeuntia.—*Folia* 1·0 × ·75, *lobulus* ·2, *cellulæ* $\frac{1}{40}$; *foliola* ·35·5; *bracteæ* 1·3, *bracteola* ·8 × ·6; *perianthia* 1·3 × ·5 mm.

Hab. Ins. Guadalupa, ad arbores, *Lejeuneæ filiformi* consociata (L'HERMINIER). Ins. Dominica in monte Diablotin (ELLIOTT, no. 658, 681, a. 1892), in monte Micotrin (ELLIOTT, no. 67, a. 1892).

There are besides two sterile dioicous species, viz. St. Vincent, Morne Garu (54), Grand Bonhomme Valley (86)—*L. cubensi* affin.; and Dominica, Shawford Estate (895)—*L. cornutæ* affin.

Subgenus 18. TAXILEJEUNEA, *Spruce*.

49. *L. SULPHUREA*, *Spruce*, in *Trans. Bot. Soc. Edinb.* xv. p. 217; *Omphalanthus sulphureus*, Lehm. & Lindenb. in *Syn. Hep.* p. 307.—St. Vincent, Mt. St. Andrews (83), Souffrière (146), Richmond Peak (207). Dominica, Roseau Valley (87), Morne Diablotin (673).

This plant is easily recognized by its large size, pale yellowish or white colour, and especially by the large stipules and by the

smooth (epilicate) perianth, dilated at the inflexed and corrugated apex. It occurs in the Antilles, and at the roots of the Eastern Andes, extending as far south as Bolivia. It creeps over ferns and the living leaves of trees.

50. LEJEUNEA GRAMINICOLOR, *Spruce*, n. sp. (Tab. XXII. figs. 1-3.)

Monoica, lâete virens, prostrata, caule pollicari paucirameo. *Folia* subimbricata, plana semicordato-ovato-oblonga, acuminulata, acuta, apicem versus sâpe angulata vel unidentata, subrecte complicata; *lobulus* vix triplo brevior, anguste ovatus, subinflatus; *cellulæ* mediocres, pellucidæ, subæquales, trigonis nullis. *Foliola* triplo breviora, distantia, ovato-orbiculata, ad $\frac{1}{2}$ acute bifida, segmentis peracutis. *Flores* ♀ in ramo innovando quasi-seriati; *bractæ* foliis sat minores angusti oresque, erectæ, integerrimæ. *Perianthia* emersa, obconico-cylindrica, apice subtruncato 5-carinata, lâvia. *Andræcia* brevispica.—*Folia* 8×7 , *lobulus* 3 , *cellulæ* $\frac{1}{28}-\frac{1}{25}$; *foliola* 25×25 ; *perianthia* 1.0×0.4 mm.

Hab. Ins. St. Vincentii, in monte Bonhomme, super *Plagiochilas* repens (ELLIOTT, no. 80, 92, Dec. 1891).

Subgenus 19. MACROLEJEUNEA, *Spruce*.

51. L. SUBSIMPLEX, *Nees et Mont. in Ann. Sc. Nat. sér. II. xix. p. 264; et in Syn. Hep.* p. 391.—Dominica, Morne Micotrin (90), Morne Couronne (217, 227, 233).

The perianth is turgid, 4-5-angled. The plant is common on ferns and the living leaves of trees.

Subgenus 20. HYGROLEJEUNEA, *Spruce*.

52. L. CERINA, *Lehm. et Lindenb. in Syn. Hep.* p. 391.—St. Vincent, Mt. St. Andrews (84). Dominica, Morne Couronne (233).

This species has a wide distribution in tropical America, being found in the Antilles and Bolivia, yet like *L. xanthocarpa* it has not been noted on the Equator. It is replaced in the lower Peruvian Andes by an allied but very distinct species—*L. devoluta* (Trans. Bot. Soc. Edinb. xv. p. 236, tab. 9). The *Hygrolejeuneæ* of South America are chiefly montane in habit. Of a dozen species gathered by me only two descend into the plain. All Mr. Elliott's species belong to the highest regions explored by him.

53. LEJEUNEA FRANGIBILIS, *Spruce*, n. sp.

Dioica, virescens, flaccida, fragilis, caule pollicari prostrato, paucirameo, ramis saepe parvifoliis. *Folia* subimbricata, supra lobulum divergentia, subplana, a basi constricta semicordato-ovato-oblonga vel subrotunda, abrupte acuminulata, rarius solum acuta obtusave, valde sinuato-complicata, celluloso-suberulata; *lobulus* triplo brevior, turgidus, e marginis inflexione late semi-ovatus; *cellulae* parvulae, subpellucidæ, trigonis nullis. *Foliola* foliis æquimagna, transversa tamen, subimbricata, late cordato-orbiculata, ad $\frac{1}{3}$ bifida, segmentis plus minus obtusis.—*Folia* 6×4 , $.5 \times .4$, *lobulus* $2 \cdot 125$, *cellulae* $\frac{1}{15}$; *foliola* $.5 \times .6$, $.4 \times .5$ mm.

Hab. Dominica, in montis cacumine Grande Souffrière dicti, alt. 3000 ped. (ELLIOTT, no. 885, 886, Dec. 1892).—*Hygrol. fulva*, Hep. Amaz. p. 237, distat colore, foliis majoribus, lobulo autem pro ratione minore, omnibus obtusatis; foliolis apice solum ad $\frac{1}{6}$ acute fisis.—Ex habitatione et foliolis magnis obtusilobis eandem speciem censeret ac *Lejeunea Dominicensis*, Mont. Ann. des Sc. Nat. (1848); Syn. Hep. p. 351; cui tamen adscripta sunt caulis rigidus et folia arctissime imbricata. Forsan ejusdem varietas erit.

54. L. CORYNANTHA, *Spruce*, n. sp. (Tab. XXII. figs. 4–9.)

Monoica, majuscula, sordide rufo-viridis, tenerrima, caule sesquipollicari, paucirameo, ramisque arcuato-flexuosis. *Folia* subimbricata, a basi ad plicam rotundata suberecta, ad lobuli apicem sinuato-subdivergentia, valde oblique ovato-oblonga, rotundata, cochleato-concava; *lobulus* duplo brevior, rotundo-quadratus, basi turgidus margine appressus, apice truncato-obtusus; *cellulae* subpellucidæ, leptodermes, superiores parvulae subæquilateræ, mediæ inferiores submajores et oblongæ, marginales anticae basin versus lineares. *Foliola* triplo fere breviora, suborbiculata, ad $\frac{1}{3}$ bifida, segmentis acutis. *Flores* ♀ innovati; *bracteæ* foliis submajores, obovatae, lobulo late linearis, cum bracteola oblonga ad $\frac{1}{3}$ acute bifida utrinque alte connatae. *Perianthia* sat alte emersa, fulva, clavato-cylindrica, *teretia*, solum in apice lato inflexo (cito disrupto) obscure 5-angula. *Andräcia* amentiformia, tenuia, bracteis 5-8-jugis.—*Folia* 65×4 , *lobulus* 3 , *cellulae superiores* $\frac{1}{15}$, *inferiores anticae* $\frac{1}{20}$; *foliola* 25×25 ; *bracteæ* 75 ; *perianthia* $1 \cdot 0 \times 4 \cdot 5$ mm.

Hab. Dominica, in monte Trois Pitons dicto, ad ligna, socio *Drepanol. inchoata* (ELLIOTT, no. 773, Nov. 1892).

55. LEJEUNEA LEIANTHA, *Spruce*, n. sp.

* *Monoica*, pallide viridis, prostrata, caule sesquipollicari flaccido, inæqualiter pinnatim ramoso. *Folia* imbricata, subdivergentia, cochleato-subconcava, a basi constricta oblique transverse oblonga, rotundata, raro solum obtusa, sinuato-complicata, lobulo plus triplo breviore, turgido; *cellulæ* parvulae, subconformes, trigonis nullis. *Foliola* 4plo minora, obovato-rotunda, vix ad medium usque bifida, segmentis obtusis subacutisve. *Flores* ♀ in ramo brevi innovato terminales; *bractee* foliis æquales, obovato-oblongæ, sæpe acutæ, lobulo parvo plano haud complicitæ; *bracteola* linearis-oblonga, breviter bifida, segmentis obtusis. *Perianthia* alte emersa, ovali-cylindrica, subcompressa, *ecarinata*, apice retuso umbonata, demum valde elongata infundibulata, apice semper fere rupta et hiantia. *Andræcia* parva, 4-5-juga, facile caduca.—*Folia* ·5×·5, *lobulus* ·15, *cellulæ* $\frac{1}{40}$; *foliola* ·125; *bracteæ* ·5, *bracteola* ·35×·13; *perianthia* ·8×·3 mm.

Hab. In monte Micotrin, ins. Dominicæ, ad rupes super *Symphyogynam trivittatum* repens (ELLIOTT, no. 86 p. p., Junio 1892).—A *H. corynantha* certe differt foliis brevioribus sed latioribus, lobulo duplo minore magis saccato; foliolis duplo minoribus; cellulis magis æqualibus; bracteis perianthiisque minoribus.

56. L. PATELLIFERA, *Spruce*, in *Trans. Bot. Soc. Edinb.* xv. p. 284.—St. Vincent, Richmond Valley (212),—a few stems creeping on a *Radula*.

57. L. MATTEOLA?, *Spruce*, in *Trans. Bot. Soc. Edinb.* xv. p. 240.—Dominica, Morne Diablotin (646),—sterile.

Subgenus 21. EUOSMOLEJEUNEA, *Spruce*.

58. L. TRIFARIA, *Nees*, in *Syn. Hep.* p. 361.—Dominica, Roseau Valley (72, 80), Morne Couronne (216, 230), Shawford Estate (896),—often forming continuous patches on bark, and reaching a moderate elevation in the mountains.

The name which I gave to this subgenus was suggested by the sweet odour which is a marked feature in all the Amazonian species, some of which, after a lapse of more than 40 years, still give out their fine scent of sweetbriar when moistened. Yet, curiously enough, although the three West-Indian species here enumerated are all found on the Amazon, not one of them has any perceptible odour. Possibly what they originally possessed has

been neutralized by the proximity of numerous specimens of other hepaticæ, thickly coated with a sulphurous deposit, along with which they were packed. They are all species of the plain, save one.

59. *LEJEUNEA CLAUSA*, *Mont. in Ann. Sc. Nat. sér. II. xiv. p. 337;*
et in Syn. Hep. p. 365.—St. Vincent, Kingstown (1), Fancy farm (343). Dominica, Roseau Valley (60, 243?).
60. *L. DURIUSCULA*, *Nees, in Syn. Hep. p. 364.*—St. Vincent, Morne Garu (55); Richmond Peak (213, 217).

Subgenus 22. *EULEJEUNEA*, *Spruce.*

In this group, of which our native *L. serpyllifolia* is the type, out of seven species found by Mr. Elliott three are new. *L. flava*, so common in tropical America and found northward as far as Madeira and S.W. Ireland, was gathered but once.

61. *L. ELLIOTTII*, *Spruce*, n. sp. (Tab. XXIII. figs. 1-5.)

Monoica, pusilla, depresso-cæspitosa, virescens, caule semi-pollicari vage ramoso intricato. *Folia* imbricata, patentia-divergentia, oblique vel subsemi-ovata, obtusata, rotundata, raro abrupte subacuta, margine antico totova celluloso-denticulata, valde sinuato-complicata; *lobulus* triplo brevior, turgide ovatus apice acuto plerumque inflexus; *cellulæ* parvæ, leptodermes, subpellucidæ, marginales subconicæ. *Foliola* minuta, caule velata vel eodem vix latiora, subrotunda, ad $\frac{1}{2}$ bifida, segmentis subacutis basi 4 cellulas latis. *Flores* ♀ in ramo brevi innovato terminales; *bractæ* foliis duplo fere breviores, ovato-rotundæ, lobulatae, cum bracteola biloba alte connatæ. *Perianthia* alte emersæ, obovata, compressula, brevirostria, 5-carinata, carinis papillis subulatis unicellularibus crebre obsessis. *Andræcia* rara, brevispica.—*Folia* 4×25 , *lobulus* 13 , *cellulæ* $\frac{1}{50}$; *bractæ* 25 ; *perianthia* 5×25 mm.

Hab. Insula Sti. Vincentii, monte Mariaqua, alt. 2600 ped., in cortice (ELLIOTT, no. 32, Dec. 1891); etiam in monte Richmond (ELLIOTT, no. 186 p. p., Feb. 1892).

62. *L. PILILOBA*, *Spruce*, n. sp. (Tab. XXIII. figs. 6-8.)

Dioica, viridis, tenerima, prostrata, cæspitosa, pauciramea, caule pollicari. *Folia* majuscula, subimbricata, patentia, plana

oblique ovata, subsemicordata, plus minus obtusa, basi peranguste complicata, e plica lobulum diagonalem, dimidio folio fere æquilongum, filiformem, cellulis 12 in longitudine, interdum uniseriatis vel solum in ipsa basi 2-3-seriatis, rarius sublatiorem et ex p. subulatum proferentia; *cellulæ* parvulae æquilatero-hexagonæ vel subquadratae, leptodermes, subchlorophyllosæ. *Foliola* duplo breviora, subcontigua, ovali-lanceolata, profunde bifida, segmentis erectis angustis acuminatis. *Flores* nullos invenire potui.—*Folia* ·8 × ·6, *lobulus* ·35, *cellulæ* $\frac{1}{40}$; *foliola* ·4 × ·15-·2 mm.

Hab. Dominica, ad saxa murosque in valle Roseau (ELLIOTT, no. 77 et 566, anno 1892).

Eulej. setilobaæ nostræ (Hep. Amaz. 281) proxima; quæ tamen minor est, lobulo foliorum solum 4 cell. longo; foliolis minutis ad $\frac{1}{2}$ tantum bifidis.

63. LEJEUNEA FLAVA, *Gottscche*, in *Syn. Hep.* 373; *Spruce*, in *Trans. Bot. Soc. Edinb.* xv. p. 268.—Dominica, Shawford Estate (897).

64. L. URBANI, *Steph.* in *Hedwigia*, 1888, p. 301.—St. Vincent, Richmond Valley (212). Previously found in San Domingo by Eggers.

65. L. DISJECTA, n. sp. (Tab. XXIV. figs. 1-4.)

Monoica, virescens, caule $\frac{1}{2}$ -1-pollicari, inæqualiter pinnatim ramoso. *Folia* subimbricata, late patentia, subplana, facile caduca, oblique oblonga ovatoe-oblonga, rotundata, basi antica dilatata non autem semicordata, postica subsinuato-complicata; *lobulus* 4plo brevior, inflatus, exciso-acutus; *cellulæ* subparvulae, ubique conformes fere, chlorophyllo parco, trigonis nullis. *Foliola* in uno et eodem caule valde inæquimagna, foliis 2-4plo breviora, ovato-rotunda, ad $\frac{1}{2}$ bifida, segmentis subacutis. *Flores* ♀ in caule ramisque terminales, innovati; *bracteæ* foliis majores, sub-falcato-oblongæ, late patentæ, lobulo duplo breviore oblique cuneato vel subrhomboideo; *bracteola* obovata, ad $\frac{1}{2}$ bifida, segmentis ovatis apiculato-acutis. *Perianthia* emersa, obconico-ovata, compressula, antice carinulata, postice alte bicarinata, margine carinisque repanda. *Andräcia* spicata, paucijuga.—*Folia* ·6 × ·4, ·45 × ·35, *lobulus* ·125, *cellulæ* $\frac{1}{35}$; *foliola* ·3 × ·3, ·15 × ·1; *bracteæ* ·8, *bracteola* ·6 × ·45; *perianthia* ·9 × ·6 mm.

Hab. Super alias hepaticas laxe reptans ad arbores in monte LINN. JOURN.—BOTANY, VOL. XXX.

Mariaqua, alt. 2600 ped., insulæ Sti. Vincentii (ELLIOTT, no. 32 p. p., Dec. 1891), cum *Lejeunea Elliottii*.

66. LEJEUNEA GLAUCOPHYLLA, Gottsche [? an error for *L. glaucescens*, Gottsche, in *Syn. Hep.* p. 378.—A. G.].—St. Vincent, near Fort Charles (199).
67. L. LUCENS, Tayl. in *Syn. Hep.* p. 764; Spruce, in *Trans. Bot. Soc. Edinb.* xv. p. 288.—Dominica, River Douce Valley (708).

Subgenus 23. MICROLEJEUNEA, Spruce.

68. L. ERECTIFOLIA, Spruce. *Harpalejeunea erectifolia*, Spruce, in *Trans. Bot. Soc. Edinb.* xv. p. 173.—St. Vincent, Richmond Valley (212), creeping on a *Radula*.
69. L. MEGALANTHA, Spruce. *Harpalejeunea megalantha*, Spruce, in *Trans. Bot. Soc. Edinb.* xv. p. 172.—St. Vincent, Richmond Valley (212), with the last-mentioned species.
70. L. ATHEATOSTIPA, Spruce, MS.—St. Vincent, Richmond Valley (212), with the two preceding species. (Picked out of Wright's Cuban hepaticæ some years ago.)
71. L. HOLOSTIPA, Spruce. *Harpalejeunea holostipa*, Spruce, in *Trans. Bot. Soc. Edinb.* xv. p. 171.—Creeping over *Odontolejeunea peruviana* and other species, sparingly and always sterile.—St. Vincent, Morne Garu (55), &c.

Subgenus 24. COLOLEJEUNEA, Spruce.

72. L. HETEROMORPHA, Spruce, n. sp. (Tab. XXIV. figs. 5–9.)

Monoica, minuta, tenera, virescens, caule 3 mm. longo vase ramoso intricato. *Folia* dissita, plana vel subcarinata haud complicata, alia ovata obtusa, alia subquadrata retusa vel (superiora præcipue) subbifida, celluloso-subcrenulata; *cellulæ* minutulæ, convexulæ, subæquilateræ, trigonis nullis. *Foliola* nulla. *Flores* ♀ innovati; *bracteæ* foliis sensim majores, laxiusculæ, heteromorphæ, sæpe cuneato-quadratae, rotundatae, retusæ bifidulæve. *Perianthia* subemersa, obovata, brevirostria, 5-carinata, subpapulosa. *Andræcia* spicata; *bracteæ* sub 6-jugæ, majusculæ, imbricatulæ, cymbiformes.—*Folia inferiora* 1, *superiora bracteæque* 2–3 mm. *longæ*; *cellulæ* $\frac{1}{60}$; *perianthia* 3 × 25 mm.

Hab. Juxta viam quæ dicit ad Fort Charles, Kingstown, Sti. Vincentii, corticola (ELLIOTT, no. 199, Dec. 1891).

Subgenus 25. DIPLASIOLEJEUNEA, *Spruce.*

73. *LEJEUNEA PELLUCIDA*, *Meissn. in Syn. Hep.* p. 393.—St. Vincent, Mariaqua (22), Gibson mtn. (9), Richmond Peak (356). Dominica, Morne Couronne (233).

Tribus II. JUNGERMANNIEÆ.

Subtribus i. RADULEÆ.

Genus 3. RADULA, *Dum.*

The species of this genus are fairly abundant. Ten are here enumerated, whereas six are recorded from the French Antilles. In one case (St. Vincent, Richmond Valley (212), on trees) three species grew intermixed; yet they are very distinct from each other:—*R. Fendleri*, Gottsch., *R. angulata*, Steph., and *R. portoricensis*, Steph. The last is a very elegant species, notable for its reddish colour. In this last feature it agrees with *R. subsimplex*, Steph.—rather unhappily named, for the stems are usually pinnate, and one stem I have from Guadeloupe is bi-pinnate. The leaves are nearly always widely incurved at the outer margin; but in *R. portoricensis* gently incurved all round and concave. *R. pallens* occurs repeatedly, but does not vary widely.

74. *R. PALLENS*, *Nees, in Syn. Hep.* p. 256.—Dominica, Morne Micotrin (89, 90, 98), Morne Trois Pitons (724).
? Var.—St. Vincent, Morne Garu (53, 62). Dominica, Morne Trois Pitons (727, 778).
75. *R. TENELLA*, *Gottsch. Mexikan. Leverm.* 1863, p. 149.—Dominica, Morne Couronne (245), on living leaves, often fertile. Occurs also mixed with foliicolous *Lejeuneæ* under other numbers, e. g. 516.
76. *R. ANGULATA*, *Steph. in Hedwigia*, 1884, p. 114.—St. Vincent, Richmond Peak (211), Richmond Valley (112). Also perhaps Dominica, Morne Couronne (227).
77. *R. FENDLERI*, *Gottsch. et Stephani, in Hedwigia*, 1884, p. 146.—St. Vincent, Richmond Valley (212, 221). Dominica, Morne Couronne (216, 227, 233).
78. *R. KORTHALSII*, *Steph. in Hedwigia*, 1884, p. 133.—St. Vincent, Gibson mtn. (2), Richmond Peak (213).

79. *RADULA SUBSIMPLEX*, Steph. in *Hedwigia*, 1884, p. 130.
(Tab. XXV. figs. 1-3.)

Dioica, elata, tota rufescens; caule 5-7 cm. longo, pinnato, pinnis inaequilongis, plerisque brevibus, simplicibus furcatisve, rarius pinnulatis, omnibus subaequifoliatis. *Folia* subimbricata, late patentia, semicordato-orbiculata, plus minus concava, margine externo semper fere late incurvo; *lobulus* 4plo brevior, trapeziformis, ad carinam angulo 50° ascendentem, rectam vel subconvexam inflatus, margine sinuus cum folii margine (explano) fere recte continuus, basi in caule alte incurrens, angulo breviter libero anguste incumbens; *cellulae* minutæ, opacæ, trigonis nullis. *Flores* ♀ terminales, saepe dichotomiales; *bractæ* foliis multo minores, appressæ. *Perianthia* alte emersa, obconico-clavata, e basi longe attenuata subinfundibulata, ore compressa truncata et crenulata. *Andræcia* in ramis terminalia mediave; *bractæ* paucijugæ, diandréa.—*Folia* 1·3 × 1·35, *lobulus* 4-5 (ad carinam), *cellulae* $\frac{1}{60}$ - $\frac{1}{70}$; *perianthia* 2·5-3·0 × 1·0-1·2 mm.

Hab. Dominica, ad arbores in monte Micotrin (ELLIOTT, no. 99), etiam in monte Diablotin (ELLIOTT, nos. 649 et 671, Oct. 1892).—Species insignis colore rufulo, foliisque margine externo late incurvis; in *R. inflexa* tamen folia magis elongata apicem habent late incurvum vel etiam involutum.

80. *R. PORTORICENSIS*, Steph. in *Hedwigia*, 1888, p. 298.—St. Vincent, Richmond Valley (212).

81. *R. SACCATILOBA*, Steph. in *Hedwigia*, 1884, p. 129.—Dominica, Morne Diablotin (no. ?). A solitary stem.

82. *R. INFLEXA*, Gottsch., Steph. in *Hedwigia*, 1884, p. 148.—Dominica, Morne Diablotin (671, 673, 685).

83. *R. TECTILOBA* ?, Steph. in *Hedwigia*, 1888, p. 298.—Dominica, Morne Couronne (216).

Subtribus ii. *PTILIDIEÆ*.

Genus 4. *ISOTACHIS*, Mitt.

84. *I. SERRULATA*, Husnot, in *Rev. Bry.* 1875, p. 2. *Jungermannia serrulata*, Sw. Prod. Fl. Ind. Occ. 143.—Dominica, Grande Souffrière (810, 811, 866, 877), windward road to the Lake 509, Roseau Valley (92, 93), Morne Micotrin (71).

Var. *PURPUREA*, *Jung. serrulata*, var. *purpurea*, Hook. Bot. Misc. i. p. 13, t. 10.—Dominica, Grande Souffrière (812, 813, 814).

Other varieties are Dominica, Grande Souffrière (815, 838, 863, 865, 868).

This species, which is figured in Hooker's 'Musci Exotici,' tab. 88, is represented by the largest number of specimens of any in Mr. Elliott's collection. They were mostly gathered on the Grande Souffrière mountain in Dominica, and at the margin of "the Boiling Lake," at an elevation of about 4000 feet, and are often thickly coated with sulphur and other mineral deposits. In colour they vary from nearly white to the sanguineous hue of var. *purpurea*, Hook. Bot. Misc. vol. i. p. 13, and in the degree of cutting of the leaf-margins from deeply dentate all round to nearly or even quite entire; but I fail to find any characters sufficiently constant to separate them into more than one species; and the four "species" into which the *Isotachis* of the Souffrière of Guadeloupe has been divided are to me unintelligible. It might, however, be interesting to whoever could spare the time and pains to trace out the varieties of this polymorphous species.

In every *Isotachis* the outermost coat of the fleshy perianth is really the essential layer. It exists *ab initio*, and extends to the very apex at maturity. The inner layers, variable in number, vary also in height; but all fail below the summit, which occurs rarely with a narrow free lacinate apex. I went over this question when I was describing *Pleuroclada*, a near ally of *Isotachis*, for my memoir "On *Cephalozia*" (1882). The perianth, usually 5–8 cells thick below the middle (though I found one from the Swiss Alps only 3 cells thick), has exactly the same structure as in *Isotachis*, as I proved by cutting vertical sections of several perianths. Our commoner hepaticæ are apt to have the perianth abnormally thickened when they grow in a cool region, above their normal range. When this happens to *Cephalozia bicuspidata*, it becomes the var. *alpicola* of Massal. et Carestia, "Epatiche delle Alpe Pennine" in 'Nuovo Giorn. Bot.' xii. tav. 10.

A very near ally of *Isotachis* is the minute *Jungermannia laxifolia*, Hook., of our northern rills, on which I founded the new genus *Hygrobiella*—so near, indeed, that I thought of making it a subgenus of *Isotachis*: the underleaves nearly equalling in size the bifid side-leaves, the lax elongate cells, such as exist in every *Isotachis*, the fusiform perianth, narrowed at the apex and nearly closed, triquetrous but not plicate, nor yet constricted by

the folding of a normally truncate perianth as in *Cephalozia*, &c. The perianth, however, is only slightly thickened; and the oblong (not cylindrical) capsule has straight valves, not twisted as in every true *Isotachis*, and the male flowers are 1- (not 2- or 3-) androus.

85. *ISOTACHIS ERYTHRORHIZA*, *Besch. in Journ. de Bot.* 1893, p. 184.—Dominica, Roseau Valley (74, 109), Grande Souffrière (874).

Genus 5. *SENDTNERA*, *Endl.*

86. *S. JUNIPERINA*, *Nees, in Syn. Hep.* p. 239.—St. Vincent, Mt. St. Andrew's (69), Richmond Peak (163). Dominica, Morne Trois Pitons (482, 735), Morne Diablotin (679).—This species appears to be not uncommon on the mountains of both islands. The following species, which I believe to be new, was found only once.

87. *SENDTNERA ELLIOTTII*, *Spruce*, n. sp. (Tab. XXV. figs. 4-10.)
Dioica, cæspitosa, flavo-viridis, basi rhizomatosa intricataramosa, caules assurgentēs, 3 cm. longos, simplices vel paucirameos proferens. *Folia* parvula, densa, patenti-secunda, profunde (ad $\frac{3}{4}$ usque) bifida, basi vaginante quadrata, late flavovittata, margine rude pauciserrata laciniatavē, dentibus 1-4 sursum versis (nec runcinatis); crura subulata, sensim acuminata acuta, insigniter carinata et ad carinas cellulis 4-5-seriatīs flavis vittata; *cellulæ* omnes pachydermes, trigonis magnis, alares mediocres pallidæ, oblongæ, ad vittam duplo majores. *Andræcia* medio caule posita; *bractæ* f. caulinis consecutivæ, turgidiores, diandrac. Planta ♀ abest.—*Folia* 2·0 mm. *longa*, *basis* 5 × 8, *crura* 1·5, *cellulæ* *alares* $\frac{1}{2}$ mm.

Hab. Insula Dominica, in monte Trois Pitons dicto, ad arbores (ELLIOTT, no. 734, Nov. 1892).—*S. runcinata*, Tayl., et *S. acanthelia*, nob. (*Herberta acanthelia*, Spruce, in *Trans. Bot. Soc. Edinb.* xv. p. 344), longe robustiores sunt, foliis basi spinis ciliisve deorsum hamatis armatæ, haec etiam foliorum cruribus longissime acuminatis obscurius vittatis, illa foliis solum ad dimidium bifidis diversa est.

Genus 6. *TRICHOCOLEA*, *Dum.*

I have reinstated the generic name *Trichocolea* for the tropical species with the involucrum quite free from the calyptra, for which I had adopted Lindberg's name *Leiomitra* in 'Hep. Amaz.'

p. 347. There is really no other difference, and the foliage and all essential characters of the fruit are so exactly the same in both groups that it seems unnatural to separate them. Moreover, although the calyptra is not veiled by the adherent involucre, it is in most species bristled over with the persistent sterile styles; so that the name *Leiomitra* can hardly be called appropriate.

Subgenus LEIOMITRA, *Lindb.*

88. TRICHOOLEA TOMENTOSA, *Spruce*, in *Trans. Bot. Soc. Edinb.* xv. p. 348.—St. Vincent, Richmond Peak (218). Dominica, Morne Micotrin (88).

Var. PLATYCLADA, *Spruce* (vel sp. nova).—Dominica, Roseau Valley (91), Morne Couronne (245).

89. T. FLACCIDA, *Spruce*. *Leiomitra flaccida*, *Spruce*, in *Trans. Bot. Soc. Edinb.* xv. p. 349.—Dominica, Morne Couronne (218).

90. T. (LEIOMITRA) GRACILLIMA, *Spruce*, n. sp.

Dioica, alba, tenuissima, caule 5 cm. longo, simpliciter pinnato, prostrato. *Folia* laxiuscula, subsquarrosa, profunde 4-fida, limbo basali pro m. unicam cellulam lato; crura 2 cellulas lata, 1 v. 2 cell. longa, apice trifurca, dein semel bifurca, cellulis furcarum uniseriatis, 5plo longioribus quam latis. *Folia* foliis conformia, sæpe solum tricerura.—*Folia* 0·8, *cellulæ* 0·15 × 0·03 mm.

Hab. In monte Diablotin insulæ Dominicæ, ad arbores (ELLIOTT, no. 684, Oct. 1892).

Subtribus iii. TRIGONANTHEÆ s. HYPOGYNÆ.

§ 1. *Cephalozieæ*.

Genus 7. CEPHALOZIA, *Dum.*

In *Cephalozia* proper there is but one species, found in small quantity creeping over an *Aneura* at the Grande Souffrière of Dominica, but in a good state of fruit, which has enabled me to describe it. It had already been found in Cuba by Wright, and named by Gottsche *Jungermannia Wrightii*. It is interesting from being a close ally of the most beautiful of our British *Cephalozia* (*C. curvifolia*), from which it differs mainly in the presence of marginal teeth or spines, but has the same saccate asymmetrical base.

91. CEPHALOZIA WRIGHTII, *Gottscche, MS.*, var. BICORNIS, *Spruce*.
 (Tab. XXVI. figs. 1-4.)

Monoica et dioica. Pusilla, tenera, virescens, caule 2 cm. longo arcte repente, tenui, flexuoso, ramisque (paucis, longis, siue arcuantibus) aequaliter densifoliis. *Folia* imbricata, assurgentis secunda, oblique oblonga, ultra $\frac{1}{2}$ bifida, segmentis angustis sensim cuspidatis, cuspide cellulis 4-8 uniseriatis constante, circinato-forsicatis et cum contrariis intextis; margine externo medio dentibus sub 3, dissitis armata, sinu praelato semicirculari plerumque dentes 2, longiores monstrante, dentibus omnibus conicis unicellularibus; basi postica in sacculum oviformem ultra caulem exstantem protracta; *cellulae* subparvulae, oblongo-hexagonæ, parum chlorophyllosæ. *Foliola* nulla. *Flores* ♀ ramulo brevi postico constantes; *bractæ* tristichæ, subtrijugæ, foliis triplo fere majores, ovatæ, carinatæ, ad $\frac{1}{3}$ - $\frac{1}{4}$ bilobæ, lobis sensim acuminatis, acentis, margine infero denticulatæ, supero crebre spinulosæ. *Perianthia* magna, bracteas duplo superantia, linearí-prismaticæ, triquetra, medio saepe cingulo purpureo ornata, ore recte truncato crebre setosa ciliolatava. *Andräcia* plurijuga, in caule ramisque basalia terminaliave; *bractæ* foliis subminores, breviter bifidæ, segmentis strictis, acuminatis (cuspide nulla), basi esaccatæ, antice tamen lobulo inflato antheridium solitarium velante auctæ.—*Folia* 5×25, *sacculus* 1·12, *cellulae* $\frac{1}{50}$ - $\frac{1}{40}$; *bractæ* 1·25×0·7; *perianthia* 2·5×65-70 mm.

Hab. Super Aneuram sp., in crateris Grande Souffrière dicti margine insulæ Dominicanæ (ELLIOTT, no. 886, Dec. 1892).

Obs. The typical form of this species was gathered in Cuba by the late Mr. C. Wright, and the specimens were issued after his death, under Gottscche's MS. name by Prof. Asa Gray, in 1886. It differs from the Dominican variety in the leaves being more spinose, the sinus rather shallower and less rounded, and the shorter segments—less incurved and horn-like.

Genus 8. ALOBIELLA, *Spruce*.

92. A. HUSNOTI, *Gottscche, in Rev. Bry.* 1875, p. 3; *Journ. de Botanique*, 1893, p. 187.—Dominica; Morne Anglais (494), Morne Trois Pitons (490, 718).—This species was gathered by me in 1855 in the Peruvian Andes and by M. Husnot in Guadeloupe. Mr. Elliott's specimens possess perfect perianths. The following species is new and very distinct.

93. ALOBIELLA DOMINICENSIS, *Spruce*, n. sp. (Tab. XXVI.
figs. 5-9.)

Dioica, pusilla, tenera, albicans, in plaga lata effusa; *caules* vix semipolligares, assurgentis, parum ramosi, interdum flagelliferi. *Folia* patentia, dissita, florem ♀ versus confertiora majoraque, ovata ovato-lanceolata, obtusata, raro retusula, rarissime obtuse bidentata; *cellulae* pellucidæ pachydermes, inferiores magnæ sublineares, superiores duplo fere minores et breviores. *Flores* ♀ terminales; *bracteæ* obscure tristichæ, 2-3-seriatæ, foliis dimidio longiores, apice sæpe obtuse 3-4-dentatæ. *Perianthia* (immatura) emersa, late linearia, trigona, truncata, ore inæqualiter laciniate-dentata.—*Folia* '65 × '35, *cellulae* inferiores $\frac{1}{12}$, superiores $\frac{1}{6}$ - $\frac{1}{20}$; *bracteæ* '9-1·1; *perianthia* 1·3 × 0·6 mm.

Hab. Dominica, Laudat, in Valle Roseau, ad terram (ELLIOTT, no. 67, 81, 82, Junio 1892).

Genus 9. ODONTOSCHISMA, *Dum.*94. O. PROSTRATUM, *Spruce*. *Sphagnæcetes prostrata*, Nees, in Syn. Hep. p. 149.—Dominica, Morne Diablotin (665, 680), Morne Couronne (233).Genus 10. ADELANTHUS, *Mitt.*95. A. DECIPiens, *Mitt.* Var., *Spruce*, in Journ. Bot. 1876, p. 196.—Dominica, Morne Diablotin (653, 658, 659, 660).

Of this species, first gathered in Ireland by Miss Hutchins, but only the male plant, Mr. Elliott gathered copious and luxuriant but sterile specimens. The fertile plant had been gathered in Cuba by Wright, and in the Quitenian Andes by myself in 1857. The American form has rather rounder leaves, less sharply toothed than the European, but I find no other difference. Mr. Elliott did not succeed in finding a second Dominican species—*A. decurvus*, Mitt. (*Spruce* in 'Journ. Bot.' 1876, p. 199; Hep. Amaz. p. 406), of which the Rev. L. Guilding had gathered the female plant in that island, and I the male plant in the Peruvian Andes in 1855.

Genus 11. KANTIA, *Gray.*96. K. PORTORICENSIS, *Steph.* in *Hedwigia*, 1888, p. 280 (= *K. vincentina*, H. Wright, in Journ. Bot. 1891, p. 106).—

St. Vincent, Mt. St. Andrews (65, 88), Souffrière (45), Richmond Peak (209). Dominica, Morne Diablotin (645), Morne Trois Pitons (764).

§ 2. *Lepidozieæ.*

Genus 12. *LEPIDOZIA*, Dum.

97. *L. PATENS*, Lindenb. in *Syn. Hep.* p. 202.—Dominica, Roseau Valley (59).

Of *Lepidozia* Mr. Elliott gathered but one species—the microphyllous *L. patens*, which occurs also in the French Antilles.

Genus 13. *BAZZANIA*, Gray (= *Mastigobryum*, Nees).

No new species of *Bazzania* was found. Three at least of the following seven species—*B. vincentina*, *B. Breutelii*, and *B. arcuata*—extend along the eastern slopes of the Andes to a few degrees S. of the Equator.

98. *B. VINCENTINA*, Spruce, in *Trans. Bot. Soc. Edinb.* xv. p. 377.—St. Vincent, Mt. St. Andrews (63). Dominica, Morne Micotrin (97, 99), Morne Couronne (218).
99. *B. BREUTELII*, Spruce; Steph. in *Hedwigia* (1888), p. 300.—Dominica, Morne Micotrin (94), Roseau Valley (96), Morne Diablotin (678).
100. *B. SUBFALCATA*, Spruce. *Mastigobryum subfalcatum*, Steph. in *Hedwigia*, 1886, p. 234.—Dominica, Morne Diablotin (678).
101. *B. ARCUATA*, Spruce. *Mastigobryum arcuatum*, Lindenb. et Gottsche, in *Syn. Hep.* p. 718.—Dominica, Morne Micotrin (95), Morne Trois Pitons (728).
102. *B. FALCATA*, Spruce. *Mastigobryum falcatum*, Lindenb. in *Syn. Hep.* p. 231.—St. Vincent, Souffrière (226).
103. *B. KRUGIANA*, Steph. in *Hedwigia*, 1888, p. 300.—(*Exempl. unicum in Plagiochila repens.*)
104. *B. LONGA*, Spruce. *Mastigobryum longum*, Nees, in *Syn. Hep.* p. 231.—Dominica, Morne Diablotin (672).

Genus 14. *MICROPTERYGIA*, Nees.

This genus is represented by a solitary species gathered by Mr. Elliott in several stations in the mountains of Dominica. It had previously been found in Porto Rico by Sintenis and described by Stephani.

105. **MICROPTERYGIUM PORTORICENSE**, *Steph. in Hedwigia*, 1888, p. 294. (Tab. XXVII. figs. 1-4)—Dominica, Morne Micotrin (104), Morne Diablotin (684, 667), Morne Trois Pitons (726), Grande Souffrière (845).

Subtribus iv. **JUNGERMANNIDEÆ.**

Genus 15. **LOPHOCOLEA**, *Dum.*

There are only three species of *Lophocolea*, all rather scanty and meagre. *L. Martiana*, a large and conspicuous species, is widely distributed in tropical America, but exists in the greatest profusion and beauty on prostrate and decaying trunks in the forests of the Amazon, where flakes large enough for a moderate tablecloth may sometimes be torn away in a piece.

106. *L. MARTIANA*, *Nees, in Syn. Hep.* p. 152.—St. Vincent, Richmond Peak (216). Dominica, Morne Micotrin (69, 98), Morne Diablotin (643), Roseau Valley (76) var., Morne Couronne (226).
107. *L. CONNATA* ?, *Nees, in Syn. Hep.* p. 153.—Dominica, Morne Trois Pitons (738).
108. *L. BREUTELII*, *Gottsch., in Syn. Hep.* p. 154.—Dominica, Roseau Valley (76).

Genus 16. **LEIOSCYPHUS**, *Mitt.*

Of this genus Mr. Elliott gathered two species, both apparently new to the Antilles, although one of them, *L. Jackii*, Steph., had previously been gathered on the 'paramos' of New Granada by the late G. Wallis and described by Stephani. It is a fine large species, of a deep red-brown colour, and is notable for its pitcher-shaped perianth and its large and curiously cut stipules. Mr. Elliott got well-fruited specimens in three localities. The second species, *L. ovatus*, is hitherto undescribed. It is a smaller species than *L. Jackii*, of much the same colour except the perianth, which (curiously enough) is always green.

109. *L. JACKII*, *Steph. in Hedwigia*, 1892, p. 21.—St. Vincent, Souffrière (47). Dominica, Roseau Valley (58, 65), Morne Diablotin (657), Morne Trois Pitons (740).
110. *L. OVATUS*, *Spruce*, n. sp. (Tab. XXVII. figs. 5-9.) *Dioica*, rufo-badia, depresso-cæspitosa; *caules* 3 cm. alti, in-

tricati, vase ramosi. *Folia* opposita, subimbricata, subplana, suboblique ovata, late obtusata, repanda; *cellulae* sat magnæ, ovales, convexæ, pellucidae, trigonis angularibus auctæ. *Foliola* duplo breviora, appressa, oblonga vel subobovata, ad $\frac{1}{2}$ bifida, sinu lato lunato, segmentis tenuieuspidatis, utrinque supra basin hastatim unispinis, ipsa basi cum foliis brevissime connata. *Flores* ♀ terminales; *bractæ* laxæ, foliis vix diversæ, paullo breviores et latiores; *bracteola* foliolis conformis. *Perianthia* alte emersa, exacte oviformia, pallida, fragilia, inflata, solum apicem subconstrictum laticrenatum versus subcompressa. *Calyptra* (juvenilis) obovata.—*Folia* $1\cdot5 \times 1\cdot2$, *cellulae* $\frac{1}{6}$; *foliola* 8×4 (*sine spinis*); *perianthia* $3\cdot0 \times 2\cdot0$ — $1\cdot8$ mm.

Hab. Dominica, in monte Trois Pitons dicto, ad arbores (ELLIOTT, no. 772, Nov. 1892).—Affinis *L. Chamissonis* (L. et G.), distineta tamen forma foliorum, cellulis magnis, perianthio turgido, ore constricto, etc.

Genus 17. PLAGIOCHILA, Dum.

Plagiochila, as was to be expected, is in great force. I enumerate 21 species collected by Mr. Elliott, rather more species having occurred in St. Vincent than in Dominica, which is contrary to the proportion in most other genera. Of the whole number only one appears to be quite new, and I have ventured to dedicate it to Mr. Elliott. The rest all occur in other West Indian islands. A very few spread along the Andes to the Equator, but, so far as I know, only a single species reaches the southern tropic.

§ 1. *Spinulosæ.*

- 111. *P. GYMNOCALYCINA*, *Mont. et Nees*, in *Syn. Hep.* p. 32.—Dominica, Roseau Valley (63, 64, 65).
Var.—St. Vincent, Souffrière (46), Mt. St. Andrews (65).
- 112. *P. GUADALUPENSIS*, *Gottsché*, in *Rev. Bry.* 1875, p. 2; *Journ. de Botanique*, 1893, p. 189.—Dominica, Morne Diablotin (655, 670).
- 113. *P. CONFUNDENS*, *Gottsché*, in *Linnæa*, 1852, p. 337.—St. Vincent, Bonhomme Valley (94). Dominica, Morne Couronne (211), male plants.

114. PLAGIOCHILA BICORNIS, *Hampe et Gottsche, in Linnæa*, 1852, p. 338; *Hedwigia*, 1888, p. 296.—Dominica, Morne Micotrin (99).
115. P. BIDENS, *Gottsche, in Ann. Sc. Nat. Sér. IV. viii.* p. 322.—Dominica, Morne Trois Pitons (721, 722), Morne Diablotin (700), a var.
116. P. TENUIS, *Lindenb. in Syn. Hep.* p. 32.—St. Vincent, Mt. St. Andrew's (67), Bonhomme Valley (91). Dominica, Morne Couronne (215)—a var.?
117. P. DIVARICATA, *Lindenb. in Syn. Hep.* p. 30.—Dominica, Morne Micotrin (68), Morne Trois Pitons (723).
118. P. REMOTIFOLIA, *Hampe et Gottsche, in Linnæa*, 1852, p. 340.—St. Vincent, Grand Bonhomme mtn. (92). Dominica, Morne Couronne (213).
119. P. PERROTTETIANA, *Mont. et Gottsche, in Ann. Sc. Nat. Sér. IV. vi.* p. 195.—Dominica, Morne Micotrin (100), and perhaps Morne Diablotin (682).
120. P. SIMPLEX, *Lindenb. in Syn. Hep.* p. 30.—St. Vincent, Morne Garu (51).
121. P. BURSATA, *Lindenb. in Syn. Hep.* p. 33.—Dominica, Morne Diablotin (640).
Var.—St. Vincent, Mt. St. Andrews (64), Souffrière (96).

§ 2. *Adiantoideæ* s. *Grandifoliæ*.

122. P. ADIANTOIDES, *Lindenb. in Syn. Hep.* p. 38.—Dominica, Morne Diablotin (674).
123. P. DOMINICENSIS, *Tayl. in Hook. Lond. Journ. Bot.* vii. p. 270, *et in Syn. Hep.* p. 642.—Dominica, Morne Micotrin (101), Morne Diablotin (655).
124. P. SUPERBA, *Lindenb. in Syn. Hep.* p. 39.—St. Vincent, Bucament Valley (205). Dominica, Morne Micotrin (103).
125. P. ELLIOTTII, *Spruce*, n. sp. (Tab. XXVIII. figs. 1-5)
Dioica, elata, virescens, cæspitosa; *caules* 3-pollicares, validi, semel bisve dichotomi. *Folia* distiche patentia, subopposita vel alterna, basi brevi spatio imbricata, superne dissita, oblique semicordato-ovato-oblonga, apice oblique truncato pauci-(1-4-) denticulata—raro rotundata vel abrupte acuta—marginé antico

leviter recurvo longe decurrentia integerrima, rarius subdenticulata, postico apicem versus 2-4-denticulata vel calva, medio setulis 1-4 armata, basi decurrenti-amplexante recurva crebrius setulosa ciliolatave (setis sub 12); *cellulae* parvulae, subpellucidæ, trigonis vix ullis. *Flores* ♀ in dichotomiis; *bractæ* foliis æquimagnæ, magis ovales, margine postico toto spinulosæ. *Perianthia* (juvenilia) compresso-campanulata, hinc brevi spatio anguste subalata, ore rotundato spinuloso.—*Folia* $3\cdot3 \times 2\cdot0-2\cdot5$, *cellulae* $\frac{1}{36}$ mm.

Hab. Ins. Dominica, ad arbores in monte Micotrin, alt. 2000-4000 ped. (ELLIOTT, no. 102, Junio 1892), in monte Trois Pitons (ELLIOTT, no. 717). Ins. S. Vincentii, in m. Sti. Andreas (ELLIOTT, no. 63, Feb. 1892).—Ab iconе *P. abruptæ* Lindenbergii, Sp. Hepat. p. 106, tab. 20, distat foliis basi postica crebre ciliolatis (nec calvis)*.—Planta *P. Elliottii* e Dominica folia magis dentata habet; Vincentina foliis, basi apiceque exceptis, sœpe integerrimis gaudet. Alia differentia non adest.

126. *PLAGIOCHILA VINCENTINA*, *Lindenb.* in *Syn. Hep.* p. 41.—St. Vincent, Bucament Valley (205), Bonhomme Valley (90).

127. *P. BREUTELIANA*, *Lindenb.* in *Syn. Hep.* p. 41.—St. Vincent, Souffrière, Mt. St. Andrews (225).

Var. *GUADALUPENSIS*, *Gottsc.*—St. Vincent, Richmond Valley (220). Dominica, Morne Micotrin (106).

128. *P. SUBPLANA*, *Lindenb.* in *Syn. Hep.* p. 37, var. *LIGULIFOLIA*, *Spruce*.—St. Vincent, Richmond Valley (222).

§ 3. *Cristatæ.*

129. *P. CRISTATA*, *Lindenb.* in *Syn. Hep.* p. 46, forma pauper?—St. Vincent, Mt. St. Andrews (65).

130. *P. HYPNOIDES*, *Lindenb.* in *Syn. Hep.* p. 45.—St. Vincent, Gibson mt. (3).

131. *P. AFFINIS*, *Lindenb.* et *Gottsc?*, in *Syn. Hep.* p. 644.—St. Vincent, Richmond Valley (206), Richmond Estate (349).

* Mr. Gepp has kindly sketched for me the leaves of an original specimen of Lindenberg in Hampe's herbarium, which shows them narrow and entire at the base; not ciliate, semicordate, and widely overpassing the stem as in *P. Elliottii*; less toothed at the lateral margins and more truncate at the apex.

Genus 18. *Syzygiella*, Spruce, in *Trans. Bot. Soc. Edinb.*
xv. p. 499.

Of *Syzygiella* there is only a single species, a nearly smooth-leaved form of the *Jungermannia perfoliata* of Swartz. I had previously known this species as very rough-leaved, but seeing the leaves scarcely at all tubercular and slightly different in outline, I at first took it for a distinct species. Like every other *Syzygiella* it has extraordinarily large trigones at the angles of the leaf-cells, in which it agrees with *Leioscyphus*—another genus with similar opposite leaves, but differing in the constant presence of large stipules, and in the smooth (not numerously-plicate) perianth, flattened at least towards the truncate apex.

[Mr. Spruce's MS. contains an abbreviated note on synonymy of *Syzygiella*, which I interpret as follows:—*Plagiochila anomala*, Lindenb. et Gottsch. in *Syn. Hep.* (1847) p. 646, was figured by Gottsche in 1863 in his 'Mexikan. Leverm.' t. 7. On p. 63 of the latter work Gottsche says that the leaves appear "interdum bidentata." Mr. Spruce considers the plant to be identical with his own *Syzygiella plagiochiloides* var. *subintegra* described in *Trans. Bot. Soc. Edinb.* xv. p. 501, with the leaves "raro oblique bidentellis"; and he would institute the name *Syzygiella anomala*, Spruce. Further the var. *densifolia* of *S. plagiochiloides* (loc. cit. p. 501) is identical with *Chiloscyphus maurus*, Mont., 'Sylloge' (1856), p. 63, and (?) with *Plagiochila subintegerrima*, Nees, in Lindenberg's 'Species Hepaticarum' (1839), p. 129, t. 28. Mr. Spruce's note goes on to say "fig. 6 ej. tab. aliena, Plag. vera (Nees, Hep. Jav. 79) Mont. f. per paria approx. Java (*Blume*), Bolivia (*D'Orb.*). By this I understand that Lindenberg's tab. 28. fig. 6 represents a portion of an entirely different species, a true *Plagiochila*, which seems likely enough, for the leaves are not subentire but spinoso-dentate, and the perianth is clavato-obovate, and not ovate, turgid, constricted at the apex as in a *Syzygiella*. Indeed I would venture to suggest that fig. 6 belongs to *Plagiochila bahiensis*, Lindenb., which is figured immediately above it on the same plate. It is true that the perianth of that species is omitted in the description (p. 136) as unknown. Perhaps that is another mistake. On the other hand, Montagne describes the Bolivian plant in D'Orbigny's 'Voyage dans l'Amérique méridionale' (1835), p. 80, as "foliis per paria approximatis subintegerrimis, perianthiis ovatis compressis, ore truncato ciliato"—a description which fits Mr. Spruce's

Syzygiella plagiochiloïdes var. *densifolia* except in the compression of the perianth. Possibly the two plants may prove to be the same species. As to Nees's Javan plants, judging from specimens in Herb. Hampe preserved in the British Museum, one is justified in referring them to the genus *Syzygiella*, but not to *S. plagiochiloïdes*, from which *S. subintegerrima* differs widely in habit and in cell-structure. The trigones at the angles of the cells do not attain that remarkable development which is exhibited in *S. plagiochiloïdes*. The perianth is large, turgid, longly elliptical, and at the apex plicate and plurifid. The leaves (and also the male bracts) are as figured in Lindenberg's plate, but at the postical base are rather widely connate, the margin of the connate bases being distinctly reflexed, and beneath them tufts of radicles spring from the stem. It is noteworthy that the plant originally described as *Plagiochila subintegerrima* in 'Nova Acta,' xii. (1824), p. 238, is the var. β of Nees's 'Enumeratio' plant. Crypt. Javæ,' 1830, p. 39, and of succeeding works. There is no specimen of D'Orbigny's plant in the British Museum. I see in 'Hedwigia,' 1893, p. 327, under *Syzygiella manea*, that Herr Stephani considers *S. plagiochiloïdes* and *Chiloscyphus mancus* to be synonymous.—A. G.]

132. *SYZYGIELLA PERFOLIATA*, var. *LÆVIGATA*, Spruce (*S. longicaulis*, Spruce, MS.). (Tab. XXVIII. figs. 6-9.)

Dioica, olivacea, cæspitosa; *caules* 7-8 cm. alti, saepe arcuantes, inferne dichotome ramosi, ramis fastigiatis longe simplicibus æquifoliatis. *Folia* opposita, patentia vel subsecunda, inferiora dissita, superiora imbricatula, fere transversim inserta, utraque basi cum contrariis contigua vel leviter connata, ovato-ovalia rotundata, plana vel subconcava, repanda; *cellulæ* parvulæ, subpellucidæ, convexulæ, trigonis angularibus auctæ. *Flores* nullos inveni.—*Folia* 1·0-1·2 \times 75, *cellulæ* $\frac{1}{36}$ mm.

Hab. Dominica, in monte Diablotin, ad arbores (ELLIOTT, no. 651, Oct. 1892).—*Jung. oppositifolia* nob. in "Hepat. Boliviæ" (Mem. Torrey Bot. Club, i. p. 138), quæ etiam vera *Syzygiella* est, distat a præcedente statura duplo minore, foliis late oblongis, cellulis scabris.

Genus 19. JUNGERMANNIA, Rupp.

Of the three species, one (*J. dominicensis*) is new—a minute species with round leaves, in size and character near the *J. amœna* of Lindenb. & Gottsch., found by Liebmann in Mexico and by

myself in the Peruvian Andes, but differing from this and other species in the truly autoicous inflorescence, every other *Eujungermannia* being either dioicous or paroicous. The third species, *J. schistophila*, is so distinct in habit and in the minute bifid, obtusilobed leaves that I proposed for it in the 'Hepat. Amaz.' p. 511 the subgeneric name *Cephaloziopsis*. Perfect perianths are rare, but are certainly 5-gonous at the apex. In the Peruvian Andes it grows on argillaceous schist, in the Quitenian Andes on mica. Mr. Elliott's specimens grew long drawn-out in a stream and on wet rocks and banks in the crater of the Grande Souffrière, Dominica.

133. JUNGERMANNIA CALLITHRIX, *Lindenb. et Gottsche, in Syn. Hep.* p. 673.—St. Vincent, Mt. St. Andrew's (233).

134. J. DOMINICENSIS, *Spruce*, n. sp. (Tab. XXIX. figs. 1-3.)

Monica, minutula, in plegas latae effusa; caule 3 mm. longo, basi rhizomatoso subdiviso prostrato radiceloso, deinde assurante simplice vel ramum unum alterumve preferente, inferne subaphyllo. *Folia* dissita, luride rufescens, novella virentia, oblique vel transverse fere inserta, recurvo-patula, ovali-orbiculata, apice rotundata raro retusa; *cellulae* subopacæ, minutulæ, æquilateri-hexagonæ, marginales concolores quadratæ. *Flores* ♀ terminales, innovatione (interdum ♂) suffulti, vel non; *bractæ* appressæ, foliis subconformes, duplo tamen majores. *Perianthia* alte exserta, cylindrico-fusiformia, apice acuto 4-5-carinata, laevia. *Andraecia* longispica, plerumque totum ramum sistentia; *bractæ* julaceo-imbricatæ, orbiculatae, concavæ, monandrae.—*Folia* 3×25, 3×3, *cellulae* $\frac{1}{60}$; *perianthia* 1·0×0·3 mm.

Hab. Dominica, Roseau Valley, in terra umbrosa (ELLIOTT, no. 78, Junio 1892). St. Vincent, Richmond Valley (ELLIOTT, no. 174).—*J. crassula*, M. et Nees, in Brasilia et Juan Fernandez lecta, nostræ subsimilis, folia habet ovata concava, et perianthia multo breviora, ovata inflata et obtusa. *J. coniflora*, Schiffn. (Hep. 'Gazelle'-Reise), p. 10, t. 2, habitu etc. nostræ subsimilis, quadruplo major est, foliis triplo majoribus suberectis, perianthiis ecarinatis hinc profunde unisulcis—ad *J. pumilæ*, With., instar, cui affinis videretur.

135. J. SCHISTOPHILA, *Spruce, in Trans. Bot. Soc. Edinb.* xv. p. 513. (Tab. XXIX. figs. 4-6.)—Dominica, Grande Souffrière (858, 859, 860, 861).

Genus 20. *ALICULARIA*, *Corda*?

To *Alicularia* (= *Nardia*, Gray & Lindberg ex parte) I now refer, but doubtfully, the curious *Jungermannia succulenta*, Rich., of which Mr. Elliott gathered numerous specimens, thickly encrusted with the mineral deposits of the Grande Souffrière of Dominica, where it grew along with *Isotachis serrulata*. In the Trans. Bot. Soc. Edinb. xv. p. 519, I proposed for it the subgeneric name *Apotomanthus*, from the truncate, obtusely trigonous, emersed perianth, in which it is certainly very different from the immersed, 5-gonous, microstomous perianth of *Alicularia scalaris*, Cord., and its allies.

136. A. *SUCCULENTA*, Spruce. *Jungermannia succulenta*, Lehm. & Lindenb. in Syn. Hep. p. 84.—Dominica, Grande Souffrière (835, 836, 837, 838, 839, 840, 841, 842, 843, 850, 864, 869).

Genus 21. *TYLMANTHUS*, Mitt.

Of this genus Mr. Elliott gathered all the three species published by Lindenbergs, as species of *Plagiochila*, in the 'Species Hepaticarum.' Unfortunately they are all sterile, and therefore do not show the saccate perianth characteristic of the genus.

137. T. *LAXUS*, Spruce, in *Trans. Bot. Soc. Edinb.* xv. p. 502. *Plagiochila laxa*, Lindenb. in Syn. Hep. p. 35.—St. Vincent, Mt. St. Andrew's (65). Dominica, Morne Diablotin (676).
138. T. *APPROXIMATUS*. *Plagiochila approximata*, Lehm. & Lindenb. in Syn. Hep. p. 49.—Dominica, Morne Diablotin (675).
139. T. *AMPLEXIFOLIUS*. *Plagiochila amplexifolia*, Hampe, in Syn. Hep. p. 49.—Dominica, Roseau Valley (73).

Subtribus v. *FOSSOMBRONIEÆ*.Genus 22. *SCALIA*, Gray (= *HAPLOMITRIUM*, Nees).

140. S. *ANDINA*, Spruce, in *Trans. Bot. Soc. Edinb.* xv. p. 532 (= *Haplomitrium andinum* ejusdem MS. 1856 = *H. mnioides*, Gottsche, in Besch. 'Hépatiques des Antilles Françaises,' 1893). (Tab. XXX. figs. 1–6.)—Dominica, Morne Micotrin (85), Morne Trois Pitons (767).

This fine hepatic, a very near ally of our British *Jungermannia Hookeri*, Sm., but thrice the size, was gathered by me in the Peruvian Andes in July 1856, and named at the time as above.

I can now safely assert that the Peruvian plant and the West-Indian are the same species, Mr. Elliott's specimens gathered in two localities in Dominica agreeing perfectly with mine.

Genus 23. *SYMPHYOGYNA*, *Mont.*

Of the two *Symphyogynæ* gathered by Mr. Elliott, one is new and is remarkable for the costa of the frond being traversed by three dark ligneous bands or threads. Unfortunately it is sterile.

141. *S. SINUATA*, *Mont. et Nees*, in *D'Orbign. Voy.* p. 61, et in *Syn. Hep.* p. 482.—Dominica, Morne Trois Pitons (693, 765).

142. *S. TRIVITTATA*, *Spruce*, n. sp. (Tab. XXX. figs. 7-11.)

Dioica, in ipsa basi ramosa; *frondes* 2½-8 cm. longas, linear-lanceolatas, undulatas, virentes, margine subrufo repando integrimo, plerumque simplices, raro frondulam anticam emittentes, proferens. *Costa* frondis sat valida, sectione lanceolata, filis vittisive tribus—raro superne solum duabus—tenuibus nigrescentibus ligneis percursa; *limbus* unistratus, cellulis magnis æquilateris constans. *Flores* ♀ facie frondis antica orti; *calyptra* (juvenile) cylindrica, apice pistillidia plurima gerens, basi ad *S. brasiliensis* instar involucrata.—*Frons* 5 mm. *lata*, *cellulæ* $\frac{1}{2}$ mm.

Hab. Dominica, ad saxa humida montis Micotrin (ELLIOTT, no. 86, Junio 1892), etiam in monte Trois Pitons (ELLIOTT, no. 774, 887, Nov. 1892), et in Monte Diablotin (ELLIOTT, no. 695).—*S. brasiliensis* minor est, costa frondis solum univittata.

Genus 24. *BLYTTIA*, *Endlich.*

143. *B. LYELLII*, *Endl.* in *Syn. Hep.* p. 475, var.?—Dominica, Grande Souffrière (871, 872).

Genus 25. *MONOCLEA*, *Hook.*

144. *M. FORSTERI*, *Hook. Musc. Exot.* t. 174.—St. Vincent, Richmond Valley (194), on rocks; Hermitage Woods (187). Dominica, Morne Trois Pitons (887), Morne Diablotin (696).

This plant is a curious instance of a large frondose hepatic discovered by G. Forster (on Captain Cook's second voyage, 1772-75) in the Australian Islands, having since been found to

extend throughout the entire length of South America; nor has anyone hitherto been able to separate the West-Indian and South-American from the Australasian plant specifically.

A few years ago some fern-roots from New Zealand reached Backhouse's nursery at York, and on them grew an unknown frondose hepatic. It was sterile but thrived well in its new home. Mr. Webster, the manager, watched it sedulously; but some years elapsed ere it showed signs of flowering and at length produced a single perfect fruit, which he sent to me. This proved the plant to be the *Monoclea leptohymenia*, Tayl., "Hepat. Antarct." in Lond. Journ. Bot. 1844, p. 575 = *Dendroceros leptohymenius*, Synops. Hepat. 1847, p. 580, "Columella tenuissima, nec nisi ope lentis observanda." It is a true *Monoclea*, with all the characters of that genus; involucres, follicular capsule, bi-spirous elaters, &c., all as in *M. Forsteri*, but the frond much broader and thinner. Taylor's description is accurate enough, except as to the "columella tenuissima" &c.; for there is no columella, and what has been taken for one has probably been a thread-like strip split off the edge of the follicular capsule in dehiscence.

Subtribus vi. METZGERIEÆ.

Genus 26. ANEURA, Dum.

Of *Aneura* I enumerate 9 species. Those I propose as new seem distinct enough, but are unfortunately most of them sterile. There may even be two or three additional species, attached to other hepatics, but the plants are too fragmentary to describe.

145. A. FUCOIDES. *Metzgeria fucoides*, Nees, Lindenb. et Gottsche, in Syn. Hep. p. 506.—Dominica, Morne Trois Pitons (741, 761).

146. A. DIABLOTINA, Spruce, n. sp.

Dioica, e rufo olivacea; *frondes* 1–2 cm. altæ, e caudice repente ortæ, bipinnatæ, caule primario exalato, sectione ovali; pinnae pinnulæque oppositæ, late alatæ, costa pinnarum 5 cellulas crassæ; pinnulæ densæ, lineares vel sublanceolatae, alis 4–5 cell. latis, costâ 3–4 cell. operât, 3 cell. crassâ, margine repandæ, apicem versus obsolete denticulatae, apice retusæ vel (superiores præcipue) attenuatæ hamatæque; *cellulae* alarum majusculæ, ($\frac{1}{2}$ mm.) subæquilateræ, pachydermes, trigonis angularibus auctæ.

Flores ♀ binati, sœpe in pinna brevi terminales. Cetera haud visa.

Hab. Dominica, ad arbores in monte Diablotin (ELLIOTT, no. 699, Oct. 1892).—Ab affinibus distat præcipue angulis cellularum incrassatis. *A. pectinata*, Hep. Amaz., huic habitu similis, flores habet monoicos, trigona cellularum nulla, etc.

147. **ANEURA LATICOSTATA**, *Spruce*, n. sp.

Dioica, rufescens; *frondes* 3 cm. altæ, bipinnatæ, trunco primario subplano-convexo, millimetrum lato, medio 12–14 cellulas crasso, peranguste hic illic subulato; *pinnæ* pinnulæque oppositæ, alatæ, hæ lineares vel sublanceolatæ, obtusæ retusulæve, repandæ, costa prælata, cellulæ corticalibus 16-seriatæ operta, medio 5 cell. crassa, limbo utrinque cellulæ unistratæ 4–5-seriatæ æquilateris constante. *Flores* ♀ axiales, binati, lacinia longis involucrati; *calyptra* subtuberculosa (juvenile solum visa).—*Cellulæ alarum* $\frac{1}{2}\frac{1}{4}$ mm.

Hab. Ad trunco vetustos in monte Diablotin insulæ Dominicæ (ELLIOTT, no. 698, Oct. 1892).—*A. diablotina*, in eodem monte lecta, duplo minor est, trunco frondis omnino exalato, costa pinnularum solum 3–4 cellulas lata, cellulæ limbi ad angulos incrassatis.

148. **A. HYMENOPHYTOIDES**, *Spruce*, in *Trans. Bot. Soc. Edinb.* xv. p. 549.—St. Vincent, Richmond Valley (223).

149. **A. SCHWANECKEI**, *Steph.* in *Hedwigia*, 1888, p. 278.—St. Vincent, Richmond Peak (208). Dominica, Morne Couronne (226), male plant (forsan sp. alt.).

150. **A. DISTANS**, *Spruce*, n. sp.

Dioica; *frondes* 5 cm. altæ, bipinnatæ, caule nigro, ovalitereti, vimineo, exalato; *pinnæ* distantes, oppositæ, alatæ, basi tamen subexalatæ; *pinnulæ* paucæ, alternæ, distantes, planæ, anguste lineares, apice sublatiores, retusæ emarginatæve, margine repandæ apicem versus subdenticulatæ; costa pinnarum medio 5 cellulas, pinnularum 3 cellulas crassa, cellulæ sub 4-seriatæ operta; *cellulæ* majusculæ, hexagonæ, trigonis nullis, ad alas 5–7-seriatæ. *Flores* . . . —*Pinnæ* 7–10 mm. *longæ*, *pinnulæ* 2–4 mm.

Hab. Dominica, in monte Trois Pitons dicto, ad arbores vetustos (ELLIOTT, no. 763, Nov. 1892).

151. ANEURA STIPATIFLORA, *Steph. in Hedwigia*, 1893, p. 27.—Dominica, Morne Diablotin (697), Morne Trois Pitons (762, 766).

152. A. PLANIFRONS, *Spruce*, n. sp.

Dioica, plana, matrici adpressa, fronde lata, tenui, pinnata, pinnae dissitis, brevibus, linearibus rotundatis v. superne angustatis; simplicibus furcatiis, tam fronde quam pinnae prælate costatis, costa solum 2 v. 3 cellulas crassa, limbo angusto unistrato, solum cellulis 3-4-seriatim constante, circumdati; cellulae magnæ subæquilateræ, marginales duplo minores. *Flores* ♀ pinna brevi insidente, squamis laciniatis involucrati. *Calyptra* —*Frons* $3 \times 1\cdot0\text{--}1\cdot2$ cm.; *cellulae* *limbi* $\frac{1}{2}$, *marginales* $\frac{1}{4}$ mm.

Hab. Ins. Sti. Vincentii, in monte Sti. Andreæ, ad Musarum vaginas marcescentes (ELLIOTT, no. 145, Febr. 1892).

153. A. DILATATA, *Spruce*, n. sp.

Dioica, sordide viridis; *frondes* vix centimetrum longæ, procumbentes et imbricatae, ambitu late oblongæ, irregulariter breviterque fissæ, interdum subpinnatifidæ, basi 2 mm. latæ planæ, segmentis oblongis cuneatisve, ubique carnosus, 2-5-stratis, præter in ipso apice lato, rotundato, retuso, tricrenatove, cellulis uniseriatim parvulis vacuis quadratis rectangularibusve albido-marginato; ceteræ cellulae paullo maiores, oblongo-hexagonæ, corticales tenues, interiores sat crassæ. Alia segmenta frondis linearia, apice gemmipara, rarius occurunt; flores haud inveni.—*Cellulae marginales* $\frac{1}{2}\text{--}\frac{1}{10}$ mm.

Hab. Dominica, in monte Diablotin, ad saxa (ELLIOTT, no. 683, 694, Oct. 1892); Roseau Valley (ELLIOTT, no. 77). Plantula singularis, facie *Anthocerotis Collematisve* potius quam *Ancuræ*. Forsan *A. albomarginatae*, Amboynensi, a cl. Stephani descriptæ ('Hedwigia,' 1893, p. 17) subaffinis.

Genus 27. METZGERIA, *Raddi*.

154. M. PLANIUSCULA, *Spruce*, in *Rev. Bry.* 1888, pp. 34, 35 (nomen nudum).—St. Vincent, Bonhomme Valley (86, 144). Dominica, Morne Micotrin (105), Morne Couronne (232).

[The fronds are 1·5 mm. or more wide, and absorb water slowly; the margins are crenulate, and, like the midrib, bear root-hairs; cells 0·057 mm. The original specimens in Herb. Spruce have narrower fronds (1·0 mm. or less) with entire margins; Glaziou

no. 7394 (Brazil) has root-hairs scattered over the whole under-surface, and cells 0·028 mm. wide; Balansa no. 4334 (Paraguay) has root-hairs beneath the midrib and margins, but rarely on lamina, cells 0·041 mm. wide.—A. G.]

155. METZGERIA LEPTONEURA, *Spruce*, in *Trans. Bot. Soc. Edinb.*

xv. p. 555.—St. Vincent, Richmond Peak (217).

Var.—Dominica, Morne Trois Pitons (725).

Subordo II. MARCHANTIACEÆ.

Genus 28. DUMORTIERA, *Nees.*

156. D. HIRSUTA, *Reinw.*, *Blume et Nees*, in *Syn. Hep.* p. 543.—St. Vincent, Richmond Valley (194). Dominica.

This species grows along with *Monoclea* in both the islands at a moderate elevation ; as it does also in the Peruvian Andes, where neither species ascends above a thousand metres.

Genus 29. MARCHANTIA, *Mich.*

157. M. CHENOPODA, *Linn. Sp. Pl.* ed. I. 1137—St. Vincent, Kingstown (232). Dominica, Roseau Valley (61).

Though Mr. Elliott's collections contain only this, the common montane species of tropical America, it is probable that other species exist in the two islands.

Subordo III. RICCIACEÆ.

Genus 30. RICCIA, *Mich.*

158. R. GLAUCA, *Linn. Sp. Pl.* ed. I. 1137, var.?—Dominica, Roseau Valley (500).

To this species, as a large form, I refer the only specimens of this genus collected ; but they may be distinct.

Subordo IV. ANTHOCEROTACEÆ.

Genus 31. DENDROCEROS, *Nees.*

159. D. CRISPATUS, *Nees*, in *Syn. Hep.* p. 579.—St. Vincent, Richmond Valley (224), on rocks.

160. D. CRISPUS, *Nees*, in *Syn. Hep.* p. 581.—Dominica, Grande Souffrière (870).

Fertile specimens of both species were gathered. *D. crispatus* is well figured by Hooker in the 1st vol. of his 'Botanical Miscellany,' tab. 27.

Genus 32. ANTHOCEROS, *Mich.*

161. *A. TUBERCULATUS*, *Lehm. et Lindenb.* in *Syn. Hep.* p. 585.—
St. Vincent, Chateau Belair (231). Dominica, Emsol Estate (499).

162. *A.*, sp. (sterilis).—Dominica, Roseau Valley (79).

A. tuberculatus was found in both islands fruiting abundantly. And what seems to be a second species, but sterile and in small quantity, was gathered in Dominica.

EXPLANATION OF THE PLATES.

PLATE XX.

- Fig. 1. *Frullania spatuliflora*, Spruce. Portion of stem, with three perianths and capsule, $\times 27$.
 2. Portion of stem with male spike, $\times 27$.
 3. Lobules and underleaves, $\times 95$.
 4. Marginal cells of leaf, $\times 280$.
 5. *Lejeunea* (\S *Acrolejeunea*) *atroviridis*, Spruce. Portion of plant, natural size.
 6. Portion of stem with perianth and capsule, $\times 27$.
 7. Perianth, $\times 27$.
 8. Leaf, $\times 27$.
 9. Lobule and underleaf, $\times 95$.
 10. Marginal cells of leaf, $\times 280$.

PLATE XXI.

- Fig. 1. *Lejeunea* (\S *Prionolejeunea*) *vulcanica*, Spruce. Portion of plant with perianth and male spikes, $\times 27$.
 2. Lobules and underleaf, $\times 95$.
 3. Apical cells of leaf, $\times 280$.
 4. *Lejeunea* (\S *Prionolejeunea*) *guadalupensis*, Gottsche. Portion of stem with perianth and male spike, $\times 27$.
 5. Apical cells of leaf, $\times 280$.
 6, 7. *Lejeunea* (\S *Ceratolejeunea*) *brevinervis*, Spruce. Portions of stem with perianths, $\times 27$.
 8. Lobules and underleaf, $\times 95$.
 9. Cells from middle of leaf, $\times 280$.

PLATE XXII.

- Fig. 1. *Lejeunea* (\S *Taxilejeunea*) *graminicola*, Spruce. Portion of stem with perianth and male spikes, $\times 27$.
 2. Lobules and underleaf, $\times 95$.
 3. Apical cells of leaf, $\times 280$.

Fig. 4. *Lejeunea* (§ *Hygrolejeunea*) *corynantha*, Spruce. Portion of stem with perianth, $\times 27$.

5. Male spike, $\times 27$.
- 6, 7. Leaves, $\times 27$.
8. Lobules and underleaf, $\times 95$.
9. Marginal cells of leaf, $\times 280$.

PLATE XXIII.

Fig. 1. *Lejeunea* (§ *Eulejeunea*) *Elliottii*, Spruce. Part of plant (from below) with perianth and male spike, $\times 27$.

2. The same (from above), $\times 27$.
3. Lobules and underleaves, $\times 95$.
4. Apical cells of leaf, $\times 280$.
5. Unicellular papille on keel of perianth, $\times 280$.
6. *Lejeunea* (§ *Eulejeunea*) *pililoba*, Spruce. Part of plant, $\times 27$.
7. Lobules and underleaf, $\times 95$.
8. Marginal cells of leaf, $\times 280$.

PLATE XXIV.

Figs. 1, 2. *Lejeunea* (§ *Eulejeunea*) *disjecta*, Spruce. Parts of plant from below and above, with perianths, $\times 27$.

Fig. 3. Lobules and underleaves, $\times 95$.

4. Marginal cells of leaf, $\times 280$.
5. *Lejeunea* (§ *Cololejeunea*) *heteromorpha*, Spruce. Part of plant with perianths, capsule, and male spike, $\times 27$.
- 6, 7. Perianths (from above and below), $\times 95$.
8. Apical cells of leaf, $\times 280$.
9. Elater and apex of capsular valve, $\times 280$.

PLATE XXV.

Fig. 1. *Radula subsimplex*, Steph. Part of plant, natural size.

2. Part of plant with perianth, $\times 27$.
3. Marginal cells of leaf, $\times 280$.
4. *Sentinera Elliottii*, Spruce. Plant, natural size.
5. Part of plant, $\times 15$.
- 6, 7. Diandrous bracts, $\times 27$.
8. Leaf, $\times 27$.
9. Marginal cells of leaf, $\times 280$.
10. Cells of vitta, $\times 280$.

PLATE XXVI.

Fig. 1. *Cephalozia Wrightii*, Gottsche, var. *bicornis*, Spruce. Part of plant with perianth, $\times 27$.

2. Leaves (from the side), $\times 95$.
3. Leaves (from below), $\times 95$.
4. Marginal cells of leaf, $\times 280$.

Figs. 5, 6. *Alobiella dominicensis*, Spruce. Parts of plant with young perianth, $\times 27$.

Fig. 7. Perianth, bracts and archegonia, $\times 27$.

8. Underside of stem, $\times 95$.
9. Apical cells of leaf, $\times 280$.

PLATE XXVII.

Figs. 1, 2. *Micropterygium portoricense*, Steph. Parts of plant with perianths, $\times 15$.

Fig. 3. Leaves and underleaves, $\times 95$.

4. Marginal cells of leaf, $\times 280$.
5. *Leioscyphus ovatus*, Spruce. Part of plant with male spike, $\times 15$.
6. Perianth (from below), $\times 15$.
7. Apex of perianth (from the side), $\times 15$.
8. Underleaves, $\times 95$.
9. Marginal cells of leaf, $\times 280$.

PLATE XXVIII.

Fig. 1. *Plagiochila Elliottii*, Spruce. Part of plant, natural size.

2. Part of plant (from above), $\times 15$.
3. Leaf, $\times 15$.
4. Perianth, $\times 15$.
5. Cells of leaf, $\times 280$.
6. *Syzygiella perfoliata*, var. *lævigata*, Spruce. Plant, natural size.
- 7, 8. Parts of plant, $\times 27$.
9. Marginal cells of leaf, $\times 280$.

PLATE XXIX.

Fig. 1. *Jungermannia dominicensis*, Spruce. Part of plant with perianths and male spike, $\times 27$.

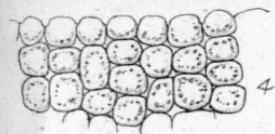
2. Part of stem, $\times 27$.
3. Marginal cells of leaf, $\times 280$.
4. *Jungermannia schistophila*, Spruce. Part of plant with perianths, $\times 27$.
5. Male spike, $\times 27$.
6. Apical cells of leaf, $\times 280$.

PLATE XXX.

Figs. 1, 2. *Scalia andina*, Spruce. Parts of plant (2, with perianths and capsule), natural size.

Fig. 3. Part of plant, $\times 5$.

4. Valves of capsule, $\times 5$.
5. Marginal cells of leaf, $\times 280$.
6. Portions of elaters, $\times 280$.
7. *Symphyogyna trivittata*, Spruce. Plant, natural size.
8. Part of plant showing male bracts, $\times 27$.
9. Transverse section of stem, $\times 27$.
10. Transverse section of vitta, $\times 280$.
11. Marginal cells of thallus, $\times 280$.



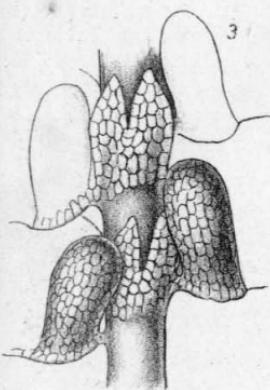
4



1



2



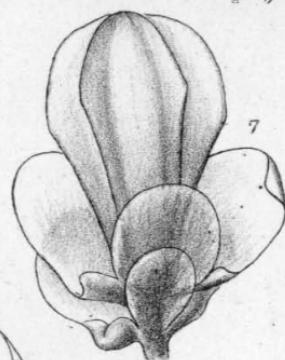
3



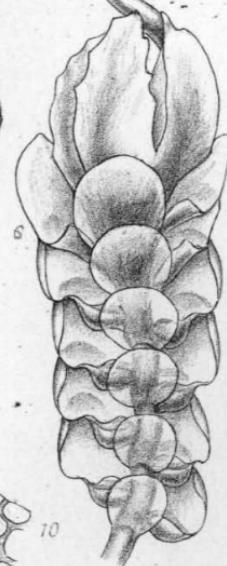
7



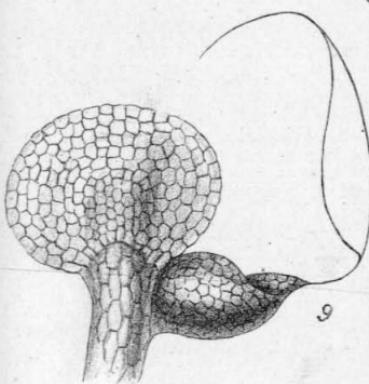
5



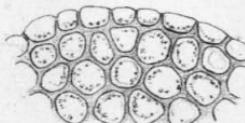
6



8



9

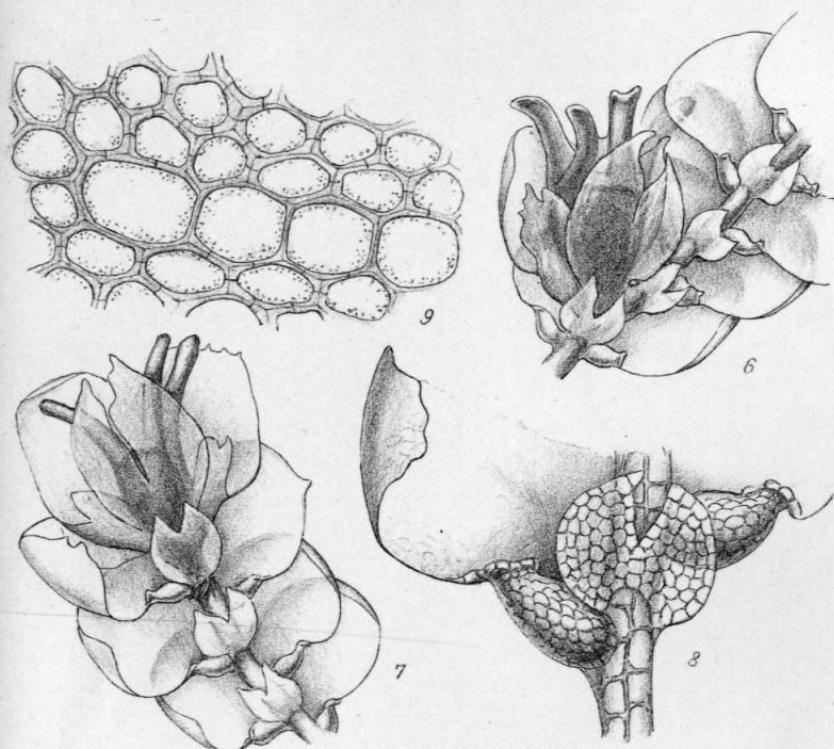
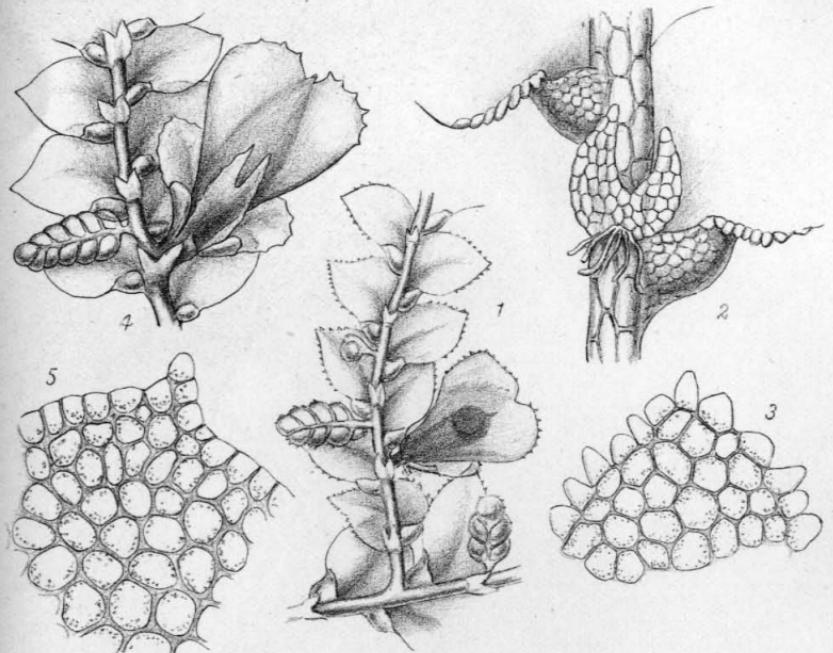


10

Hennart imp.

1-4. FRULLANIA SPATULIFLORA, Spruce

5-10. LEJEUNEA ATROVIRIDIS, Spruce.



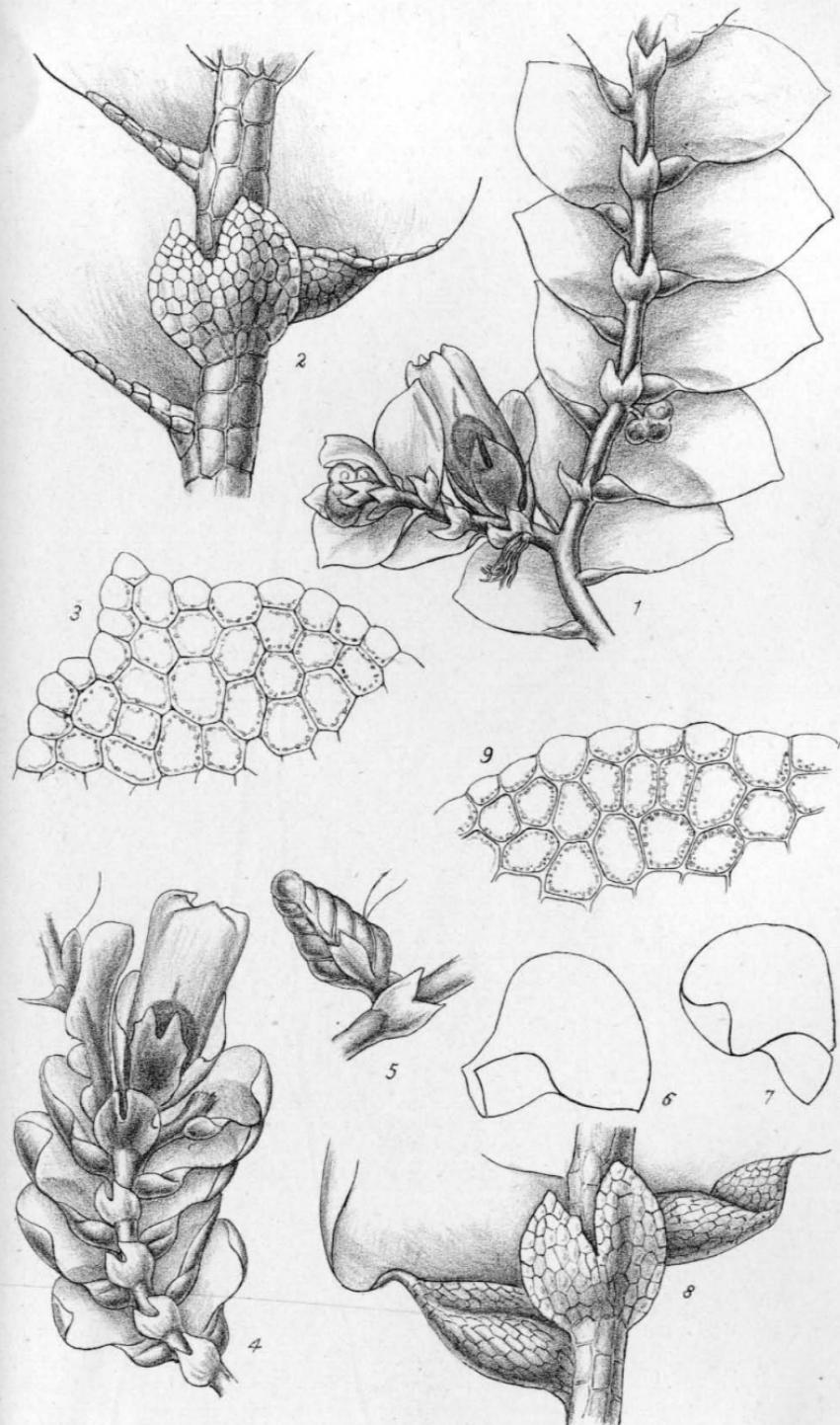
Highley del et lith.

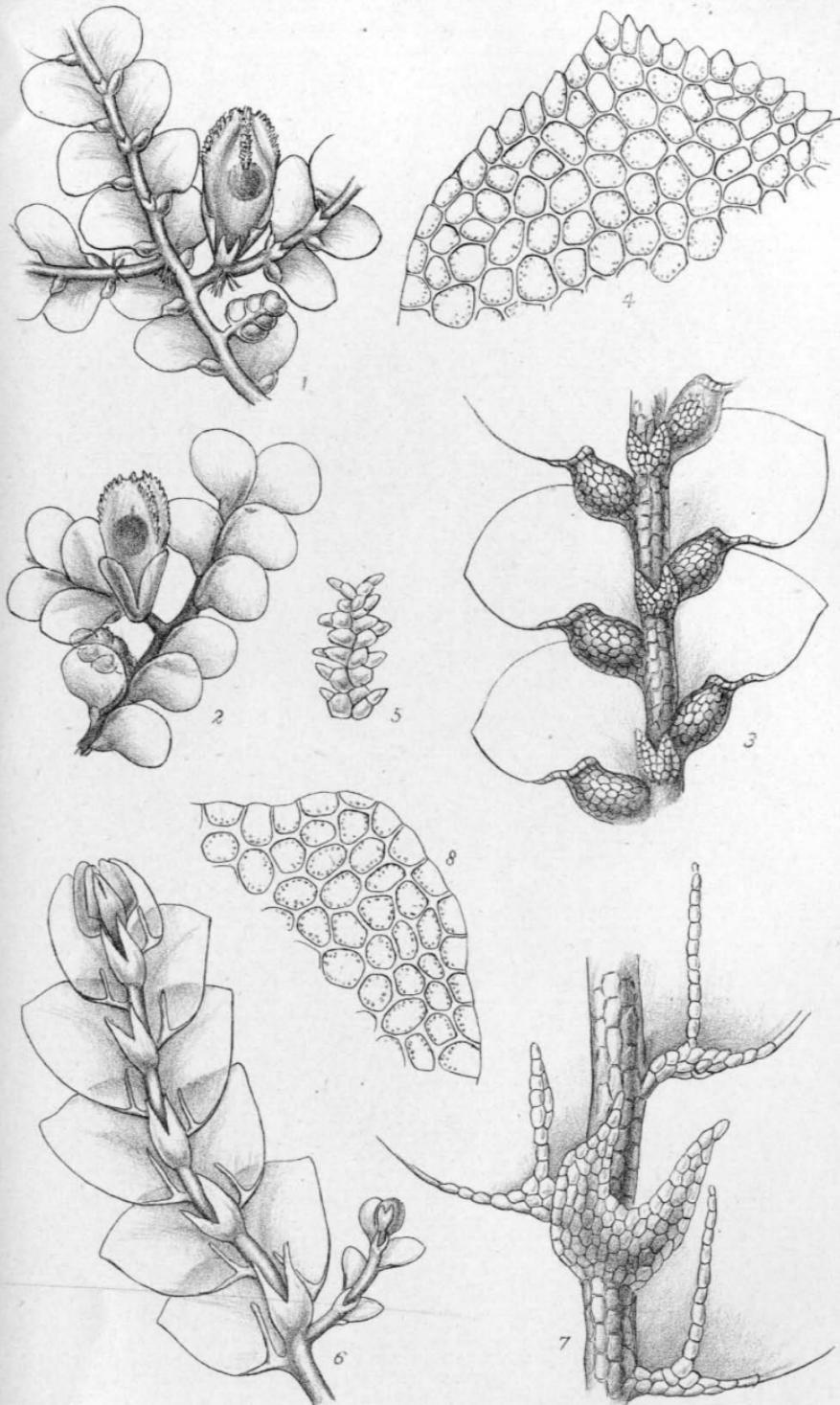
Hanhart imp.

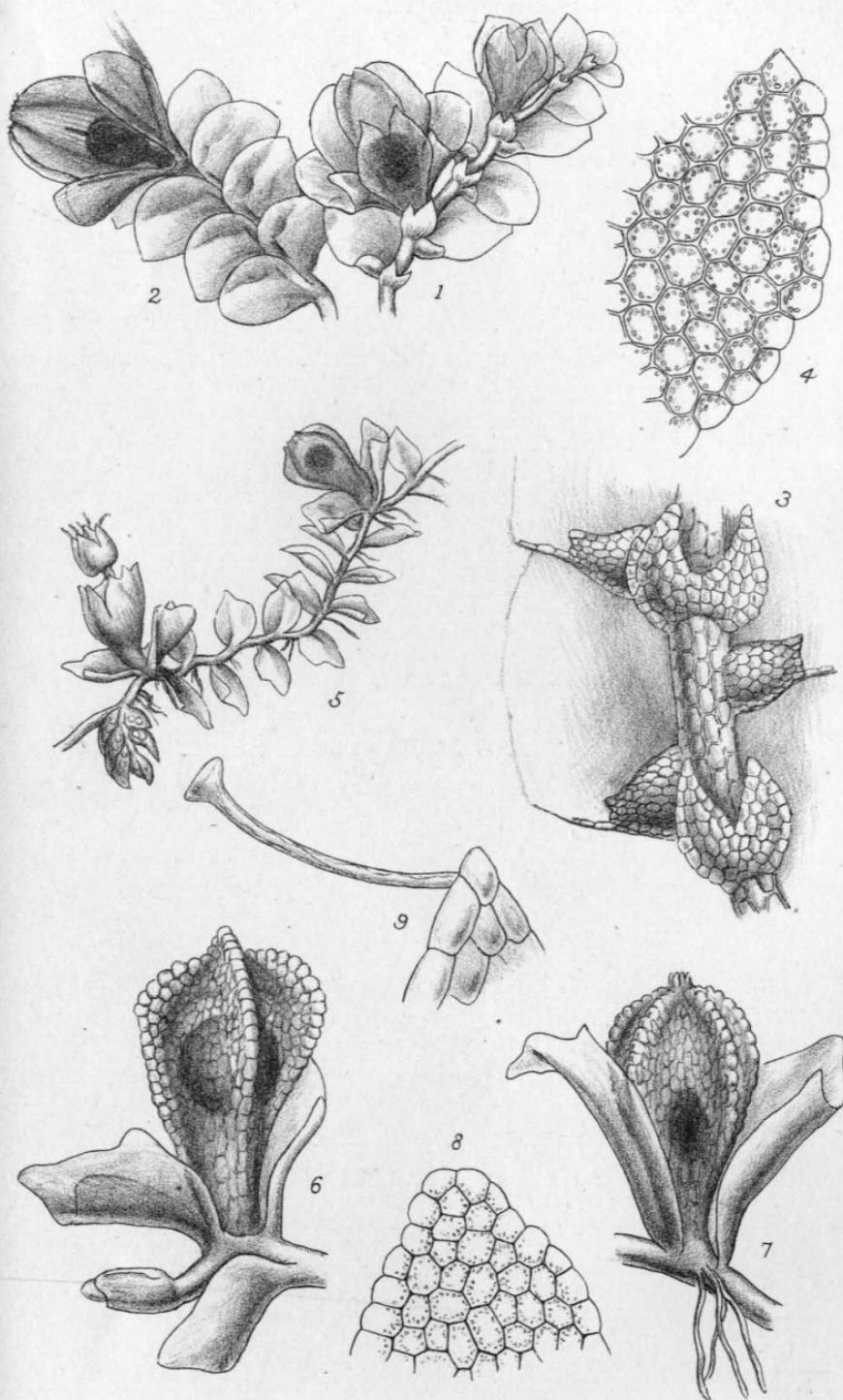
1-3 LEJEUNEA VULCANICA, Spruce.

4-5 L. GUADALUPENSIS, Gotsche.

6-9 L. BREVINERVIS, Spruce.





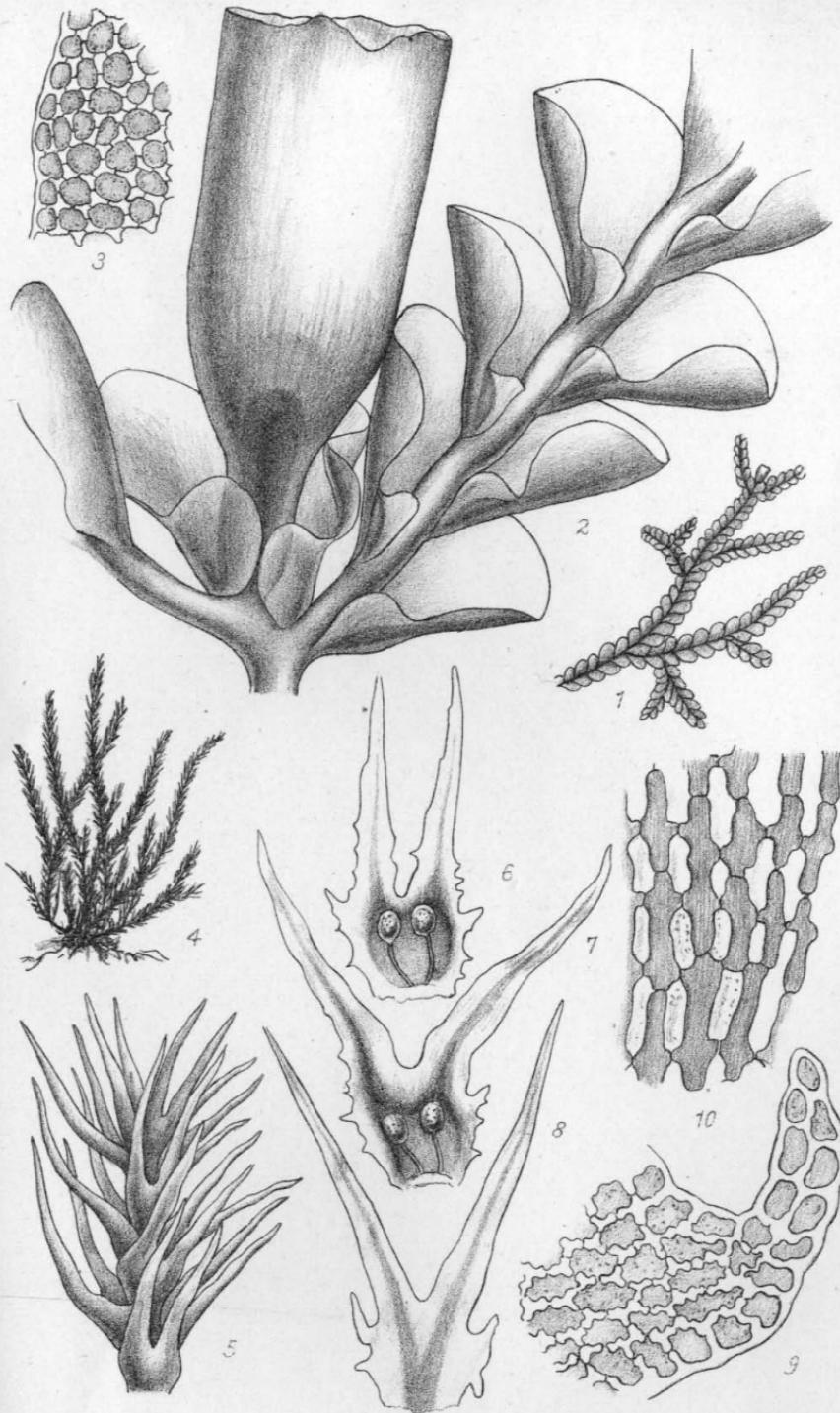


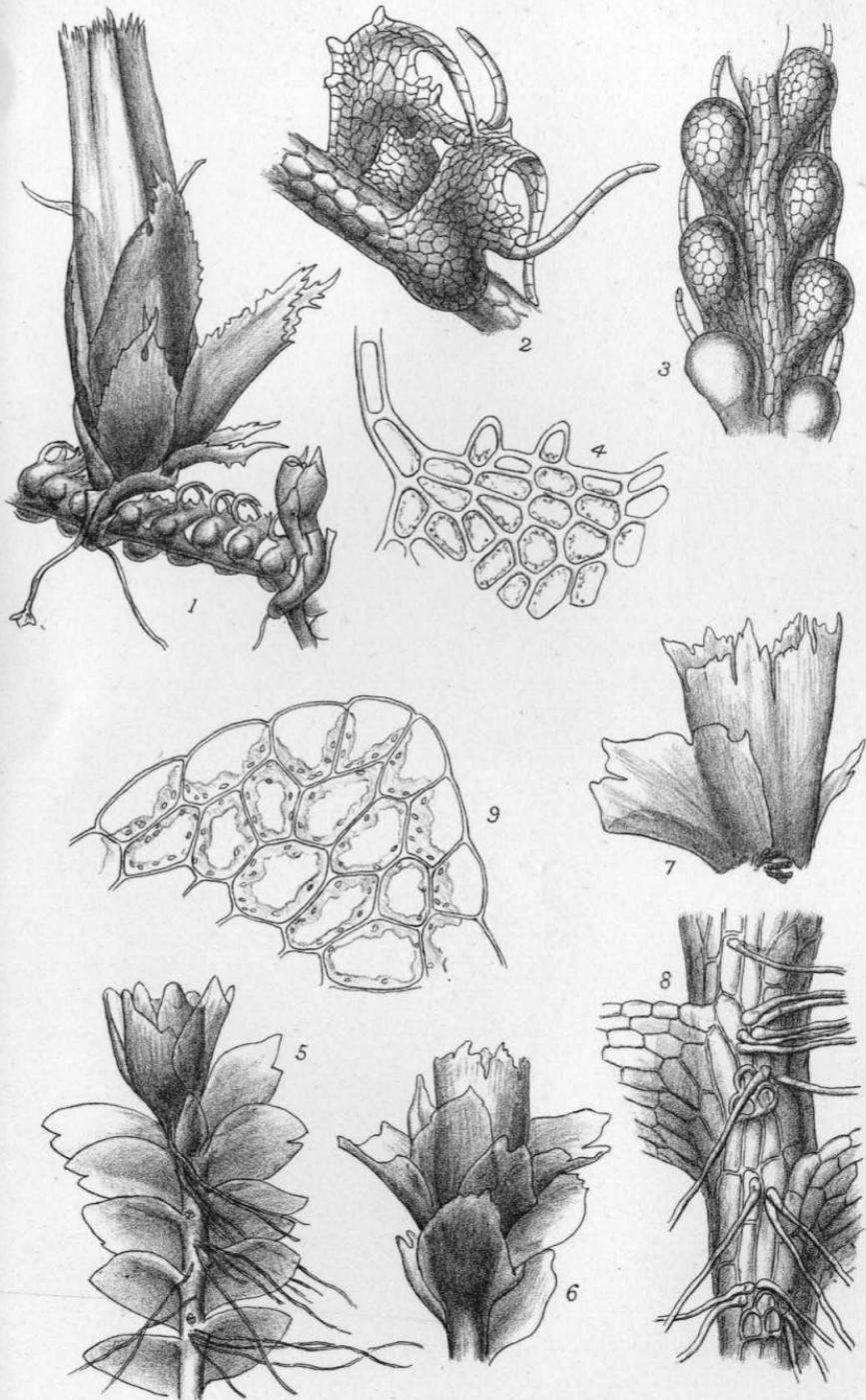
ey del et lith.

1-4. LEJEUNEA DISJECTA, Spruce.

5-9. L. HETEROMORPHA, Spruce.

Hanhart imp.

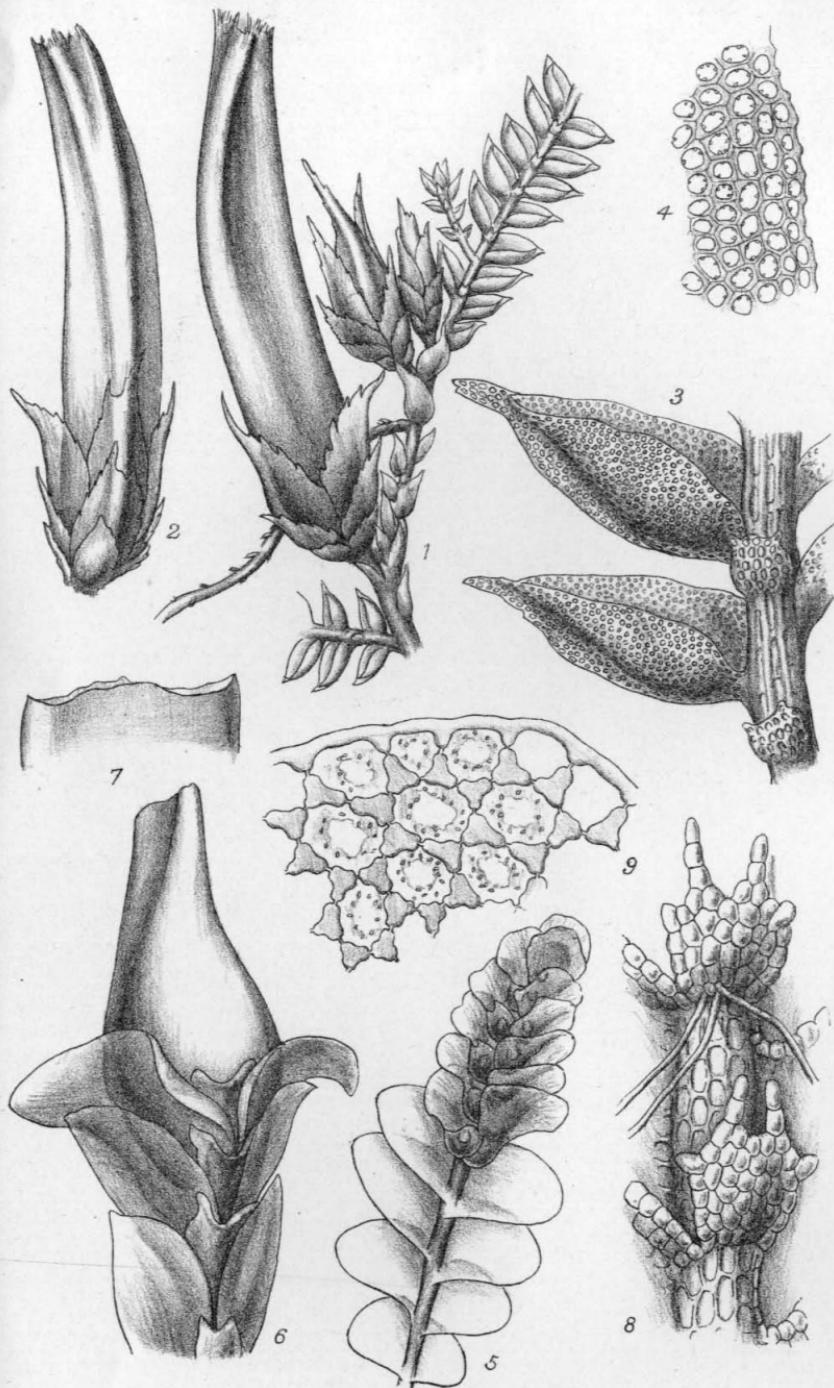


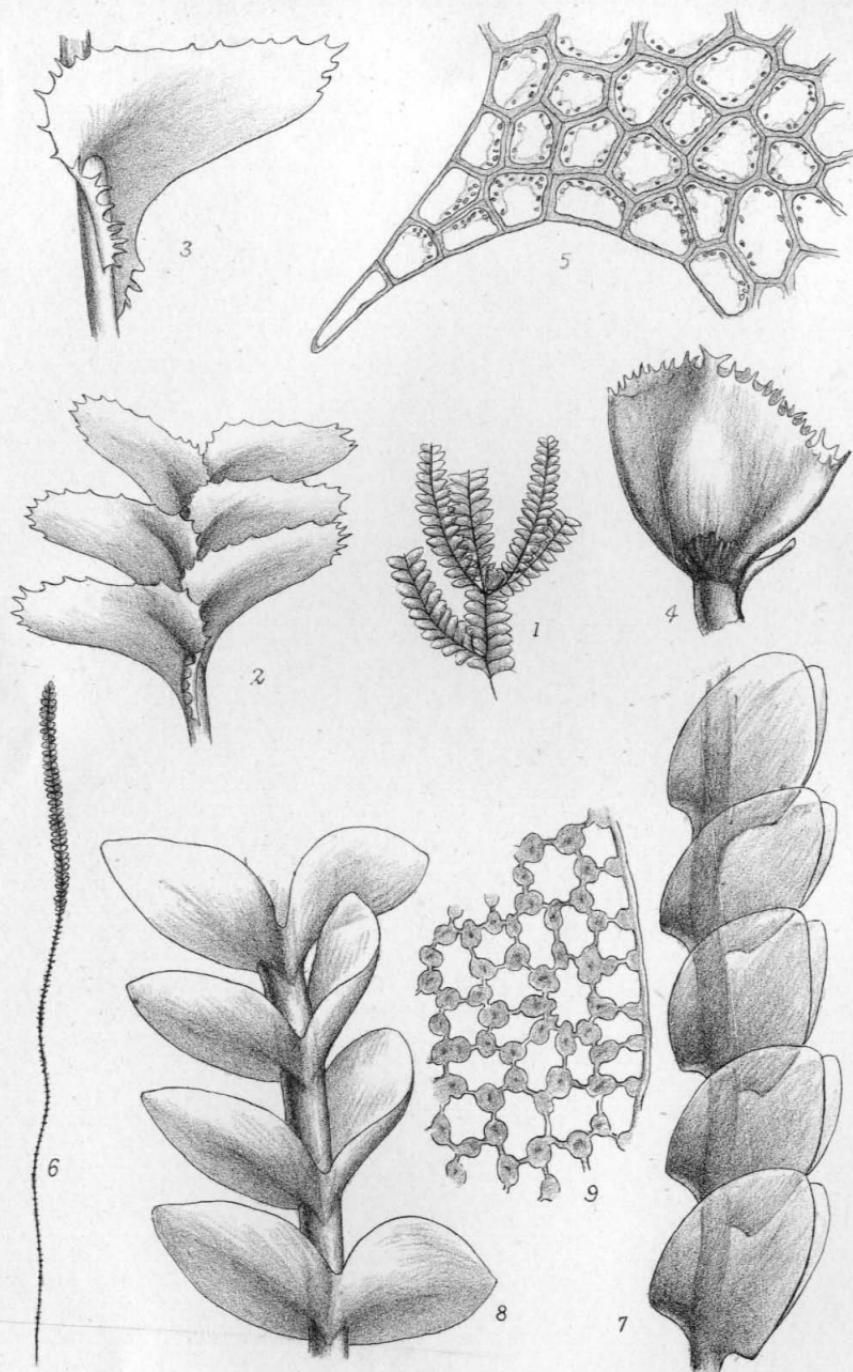


Highley del et lith.

Hanhart imp.

1-4. *CEPHALOZIA WRIGHTII. var bicarinis.*5-9. *ALOBIELLA DOMINICENSIS. Spruce.*





Highley del et lith.

Hanhart imp.

1-5 PLAGIOCHILA ELLIOTTII Spruce

6-9 SYZYGIELLA PERFOLIATA var. laevigata,

