

ment marginal cells, as is so frequently observable among the species destitute of the hyaline limb.

Fissidens brevifrons, *Mitt.*

Caulis brevis oblique ascendens. *Folia* circiter sex juga longitudine increscentia frondem sub-flabelliformem sistentia, superiora anguste linealia apice latiuscule acuta nervo valido pallidior percursa, lamina vera vix mediam folii attingente apice acuta parum inæquale, dorsali ad nervi basin anguste continuata, e cellulis minutis fere opacis areolata integerrima.

Stem a line long. The upper *leaves* one and a half line long, of a glaucous olive green, becoming brown.

On clay rocks. Rare.

Allied to the S. African *F. plumosus*, Hornsch., but with leaves narrower at the points and more opaque.

Fissidens flaccidus, *Mitt. in Trans. Linn. Soc.* xxiii. 56. t. 6, f. xviii.

Sparingly on clay rocks.

The specimens, all of a dark brown colour, agree with those from Western Africa. In this species the nerve vanishes some distance below the point of the leaf, an uncommon circumstance in the genus.

Fissidens Vogelianus, *Mitt. in Trans. Linn. Soc.* xxiii. 54. t. 5, f. x.

With *Anthoceros fuciformis*.

The specimens have the leaves a little wider than in those from the Western Coast of Africa. In other respects they agree closely.

HEPATICÆ.

By WILLIAM MITTEN, A.L.S.

The entire number of the Hepaticæ is eighteen, of which thirteen were obtained with more or less complete fructification and five only were barren. As in the Mosses the genera are all African, but only three of the species are identical with African or Mascarene forms; one only is also found in the Eastern Archipelago, and one *Anthoceros lævis* may be said to be cosmopolitan.

Thirteen of the species appear to be new, of these nine are fertile and four barren.

Lophocolea subrotunda, *Mitt.*

Caulis repens pallidus. *Folia* imbricata alterna explanata marginibus recurvis convexa vel sursum secunda apicibus recurvis ovato-rotunda, apice rotundata sub-retusave, integerrima; amphigastria parva caulem vix latitudine superantia quadrifida, basi uno latere cum folio subajacente anguste connexa, cellulis parvis rotundatis pellucidis areolata, perianthium triquetrum superne latiore, labiis longis spinosis;

angulis ala inconspicua. Folia involucralia apice bidentata cæterum integerrima, basi cum amphigastrio magno dentibus pluribus spinosis elongatis connexa.

Not common. On decayed wood and peaty soil.

Allied to *L. pallida*, Mitt. from Lord Auckland's Islands, in its entire leaves, but although less in size more nearly resembling *L. heterophylla*. No bidentate leaves are observable except the two next the perianth.

Plate 38 C.—1. Plant of the natural size. 2. A portion with leaves and stipule as seen on the dorsal side. 3. Perianth with involucral leaves and stipule: all magnified.

Lophocolea opposita, *Mitt.*

Caulis procumbens. *Folia* explanata imbricata marginibus recurvis convexula, oblongo-ovata, apice truncata sinu obtuso breviter bidentata integerrima, basi antice sæpius cum folio opposito decurrente connexa postice cum amphigastrio quadridentato caule latiore utrinque coalita, e cellulis parvis rotundis areolata, involucralia conformia margine dorsali ventralique dentibus 2-3 brevibus armata amphigastrio ovali apice breviter bi-quadridentato, perianthium triquetrum ala indistincta labiis spinoso-dentatis.

Along with and in same situations as the last. Not common.

In size similar to *L. semiteres* (*Chiloscyphus*), Synops. Hepat. 190, but more pellucid and of a pale whitish green. Among the small species of this genus, to which the present must be placed, it is remarkable for its leaves being united in front, or, as usually written, on the dorsal side of the stems.

Plate 38 D.—1. Plant of natural size. 2. Portion of stem with leaves and stipule as seen on the dorsal side. 3. Involucral leaves and combined stipule removed from the stem. 4. Perianth as seen on the side: all magnified.

Chiloscyphus oblongifolius, *Mitt. in Trans. Linn. Soc. xxiii. 58. t. 6, f. xxii.*

Common on the moist banks of streams.

Stems all barren, a little more robust than the specimens from the Niger; otherwise without difference. This species is found also in Mauritius.

Radula appressa, *Mitt.*

Caulis procumbens parum ramosus. *Folia* dorso imbricata divergentia subobovata ob marginem inferiorem medio sinuatum apice rotundato decurva integerrima cellulis parvis densis obscuris dorso minute papulosis areolata, lobulo subquadrato appresso apice obtuso ad medium usque folii latitudinis protracta basi ad insertionem caulem ad medium tegente.

Very abundant.

A small species resembling *R. buccinifera*, Taylor, and *R. Novæ Hollandiæ*, Hampe.

Phragmicoma emergens, *Mitt.*

Caulis repens ramosus. *Folia* humida fere verticalia divergentia sicca imbricata

ambitu explanata ovato-orbiculata, margine ventrali incurva lobulo semiorbiculari plerumque tridenticulato appresso, cellulis rotundo-ovalibus exterioribus rotundioribus carnosulis areolata, amphigastria transverse oblonga caulem duplo latiora apice late truncata obtusa. *Folia involueralia* magna lobuloque apice rotundato una cum amphigastrio obovato rotundato integerrima. *Perianthium* obovato-oblongum emergens sub-compressum, dorso et ventre tricarinatum, igitur octoplicatum.

Stems and *branches* with the leaves about a line wide. Leaves brown, with cells twice the size of *P. carinata*.

Only in a few places on branches of trees.

Plate 39 A. 1. Portion of plant of the natural size. 2. Part of the stem with leaves and stipule as seen on the ventral side. 3. The same as seen on the dorsal side. 4. A leaf removed, as seen on the under side. 5. Perianth with capsule, with involueral leaves and stipule, as seen on the ventral side. 6. Transverse outline of the perianth: all magnified.

Phragmicoma carinata, *Mitt.*

Caulis repens ramis pluribus irregularibus ramosus. *Folia* subverticaliter patentia sicca imbricata, ambitu explanata ovato-rotundato margine ventrali incurva, lobulo lato appresso semiorbiculari plerumque unidentato, e cellulis ovalibus carnosulis chlorophylloso obscuratis marginem versus rotundioribus areolata, amphigastria caulem duplo latiora subrotunda apice lata subtruncata margine recurva subretusata. *Folia involueralia* majora obovata obtusa angulatave lobulo oblongo, amphigastrium magnum ovale apice obtusum integerrimum margine in medio apicis recurvum. *Perianthium* emergens oblongum dorso planum ventre alte carinatum, igitur triplicatum.

Stems and *branches* with the leaves two-thirds of a line wide. *Leaves* obscure, brown. When dry the older parts are ochraceous brown.

Common on trees. Often on the stem of *Pandanus*.

Plate 39 B. 1. Stem of the natural size. 2. A portion seen on the ventral side with leaves and stipules. 3. A leaf as seen on the under side. 4. Perianth with involueral leaves and stipule: all magnified.

Lejeunia Balfouri, *Mitt.*

Caulis procumbens parum ramosus subsimplex. *Folia* a dorso visa imbricata convexula divergentia oblongo-ovalia rotundata integerrima, lobulo ventrali obsoleto, cellulis rotundis parvis crassiuscule limitatis lævibus areolata. *Amphigastria* cauli triplo latiora rotunda integerrima. *Perianthium* in ramo brevissimo subsessile late obcordatum applanatum læve marginibus superioribus undulato sinuatis rugosis. *Folia involueralia* conformia lobulo parvo transverse oblongo apice obtuso, amphigastrium ovali-rotundum integerrimum.

The *stems* with the leaves a line wide.

Common on the moist clay rocks at the sides of streams. In dull olive brown or blackish patches.

Like *L. Hobsoniana*, Lindenb, from the West Indian Islands, but perianth destitute of wing or teeth, owing to its position near the base of the stems it is very inconspicuous.

Plate 39 C. 1. Branch of the natural size. 2. A portion of the same seen on the ventral side, with leaves and stipule. 3. Perianth with involucreal leaves and stipule seen on the ventral side: all magnified.

Lejeunia abortiva, Mitt.

Caulis vage pinnatim ramosus procumbens. *Folia* divergentia dorso imbricata ovali orbiculata apicibus incurvis planisve integerrima, e cellulis rotundo-hexagonis parietibus angustis nigro-fuscis areolata lobulo obsolete. Amphigastria parva rotunda integerrima caulem vix duplo latiora. *Folia involucrealia* amphigastriumque majora conformia. *Perianthium* obovatum obtusum, dorso planum, ventre bicarinatum. Carinis ventralibus lateralibusque angulato erosis.

Stems with the leaves about half a line wide. Entire plant blackish brown.

Grows in tufts on the clay rocks.

Allied to *L. subfusca*, Nees ab E., but the carinæ of the perianth are not alate nor with elongated teeth. It may be the species mentioned in the Synopsis, p. 315, under *L. subfusca*, as from Mauritius, in which the lobule of the involucreal leaves is stated to be wanting.

Plate 39 D. 1. Plant of the natural size. 2. A portion of the stem with leaves and stipules seen on the ventral side. 3. Perianth with subjacent leaves and stipules as seen on ventral side. 4. Transverse outline of perianth: all magnified.

Lejeunia furva, Mitt.

Caulis procumbens ramosus. *Folia* subimbricata directione patula rotundata integerrima cellulis rotundatis parietibus crassis fuscoviridibus areolata, lobulo minuto quadrato vel omnino obsolete. Amphigastria rotunda parva caulem vix duplo latiora bifida laciniis acutis. *Fructus* ad ramulorum latera. *Folia involucrealia* parva lobulo oblongo acuta. *Perianthium* obovatum obtusum æqualiter quinqueplicatum.

Stem with the leaves half a line wide. Entire plant dull brown, not altered in drying.

Along with Mosses on the moist clays at the sides of streams.

A species with the habit of the European *L. serpyllifolia*, but with round leaves.

Plate 40 A. 1. Plant of the natural size. 2. Portion of the stem with leaves and stipules, with perianth as usual arising from the side of lateral branch, also with the capsule past maturity and empty, seen from the ventral side: all magnified.

Lejeunia surrepens, Mitt.

Caulis repens. *Folia* imbricata divergentia ovali orbiculata lobulo oblongo

apice rectangulato ad medium marginis ventralis producta e cellulis rotundo-hexagonis pellucidis æqualibus areolata. *Amphigastria* rotundata caulem triplo superantia, apice fissa, rarius indivisa.

Branches half a line wide. *Foliage* whitish green.

Not common on tree stems.

This appears to be not different from a specimen, also barren, from Mauritius. The length the lobule continued along the ventral margin renders this immediately distinguishable from the numerous species resembling *L. serpyllifolia*.

Lejeunia angulifolia, *Mitt.*

Caulis repens ramosus. *Folia* alterna patenti divergentia subovata apice angulata subacuta integerrima, lobulo subrotundo saccato, cellulis prominulis papuloso apice acuto, cellulæ foliorum rotundatæ pellucidæ læviæ parietibus crassis obscuris viridibus. *Amphigastria* minuta bifida caulem vix latiora. *Folia involucralia* acutiora lobulo ovato acuto. *Amphigastrium* ovale profunde fissum laciniis acutis.

Stems with the leaves about one third of a line wide. *Leaves* all angled at the apices, and occasionally with one or more angles on the dorsal margin.

On tree stems. Not uncommon.

A small species, less than *L. serpyllifolia*, of a pale green colour. Allied to *L. Nilgiriana*, Mont., but more tender and with a more lax areolation.

Lejeunia minutissima, *Sm.*

Gathered sparingly on stems of trees.

Lejeunia subciliata, *Mitt.*

Caulis repens appressus ramosus. *Folia* imbricata, dorso planiuscula, late ovata apice rotundata, margine dorsali cellulis elongatis hyalinis tenerrimis scarioso marginata, cellulis reliquis rotundo-hexagonis parietibus crassiusculis areolata, lobulo tumido ovale apice apiculo spiniformi terminato. *Amphigastria* nulla.

Nearly related to *L. planissima*, *Mitt.*, from Ceylon, which has the same kind of scarious margin, but is much more closely adherent to bark.

Stem with the leaves scarcely more than half a line wide. *Leaves* whitish green, closely appressed to the bark on which the specimens were growing. The scarious margin is composed of a single row of elongate cells placed side by side, and an irregularity in their length causes the edge to be erose; this hyaline limb of diverse cells is here and there broken off, leaving the margin of the leaf itself entire.

Rare on stems.

Plate 40 B.—1. Stem of the natural size. 2. A portion of the same as seen on the ventral side. 3. Portion of the edge of the leaf on the dorsal edge: all magnified.

Frullania obscurifolia, *Mitt.*

Caulis procumbens repensve ramis vagis subpinnatim ramosus. *Folia* imbricata orbiculata e cellulis angulato rotundis parietibus angustis teneris sed chlorophylloso

obscuris, lobulo ovali dimidium folii longitudinis tegente compresso apice paululum a cauli divergente interdum explanato lacinia minuta interjecta. *Amphigastria* caulem duplo latiora rotundata apice breviter bifida laciniis extus unidentatis. *Folia involucralia* ovalia lobulo lato ovato-lanceolato acuto inferne lacinia dentiformi instructa amphigastrioque profunde bifido laciniis acutis integerrimis. *Perianthium* obovatum obtusum, apiculo brevi, compressum, dorso uni ventre bicarinatum.

Common on trees.

Similar to *F. trinervis*, Lehm. et Lindenb., from S. Africa, but differing in its obscure areolation and the longer lobule of its leaves.

Plate 40 C.—1. Plant of natural size. 2. A portion of the stem with leaves and stipules on the ventral side. 3. Perianth with involucral leaves and stipule. 4. Transverse section of perianth: all magnified.

Frullania squarrosa, Nees ab *E.*

Very common on trees.

Frullania apicalis, *Mitt.*

Caulis gracilis pinnatim ramosus. *Folia* dorso convexa divergentia orbiculata integerrima cellulis parvis rotundatis distinctis sed utriculo collapsis obscuratis areolata, lobulo ovali-cylindraco erecto cauli parallelo lacinia parva interjecta, in ramulorum apicibus lobulo apice ad caulem incumbente, amphigastria obovata bifida laciniis extus unidentatis, folia involucralia acuta lobulo ovato acutiore amphigastrioque marginibus dentatis. *Perianthium* oblongo-obovatum, dorso plano ventre unicarinato.

Common on trees, specially on Pandanus.

In size and colour, as well as in the form and imbrication of its leaves, nearly resembling *F. Capensis*, Gottsche Syn. Hep. 449, but with more the habit of *F. gracilis*, and the leaves of the involucre dentate.

Plate 40 D.—1. Stems of the natural size. 2. Portion with leaves and stipules as seen from the ventral side. 3. Perianth with involucral leaves and stipule: all magnified.

Anthoceros lævis, *Linn.*

Common on moist clay rocks on the banks of streams.

Anthoceros fuciformis, *Mont. in Ann. Sc. Nat.* 2d ser. xx. 296.

Growing along with the foregoing.

This appears to be the same as the specimen from Bourbon. The spores are opaque and echinulate.

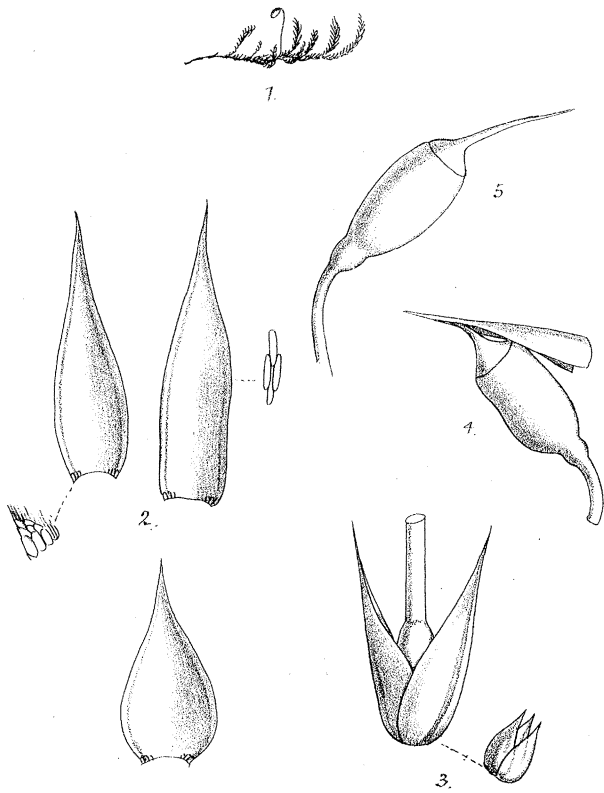
CHARACEÆ.

Chara Commersoni, *A. Braun.*

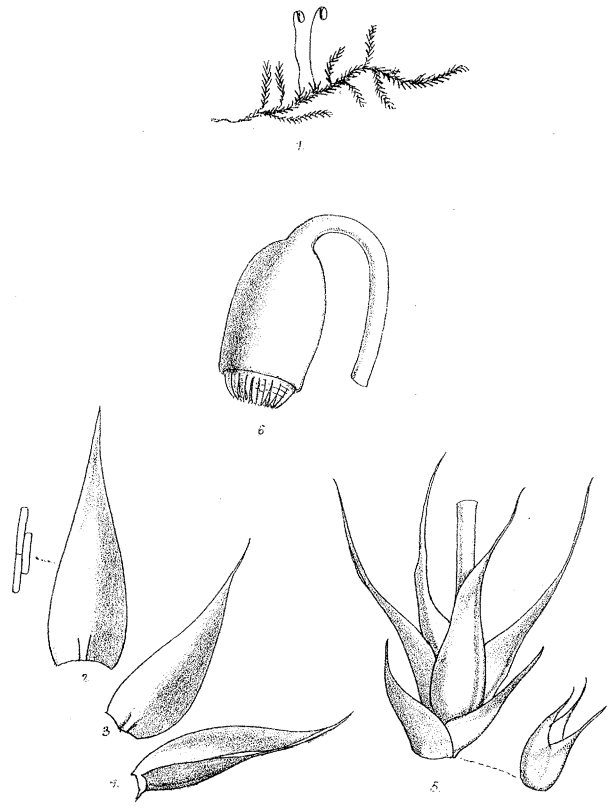
In many streams.

A.

B.



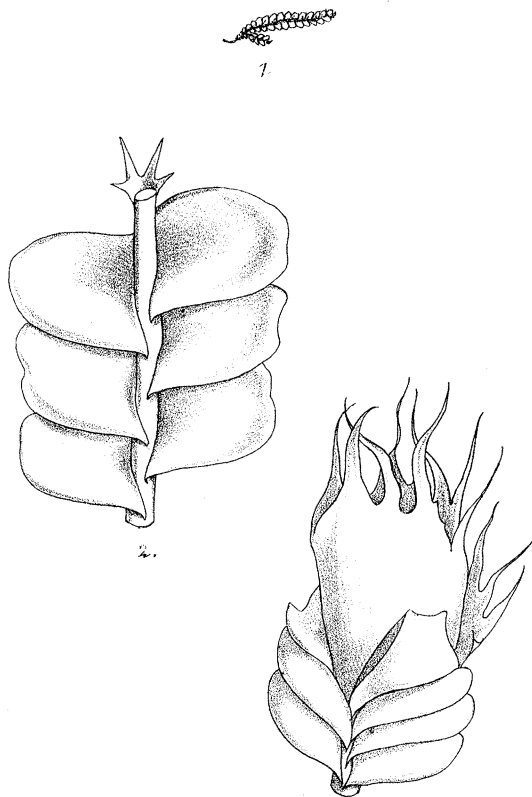
SEMATOPHYLLUM INCURVUM, *Mitt.*



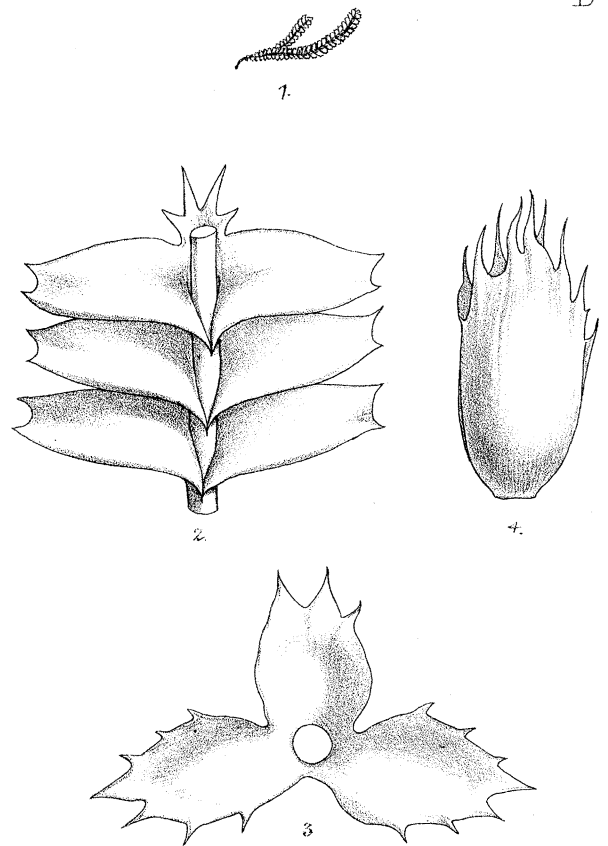
ECTROPOTHECIUM DOLIARE, *Mitt.*

C.

D.

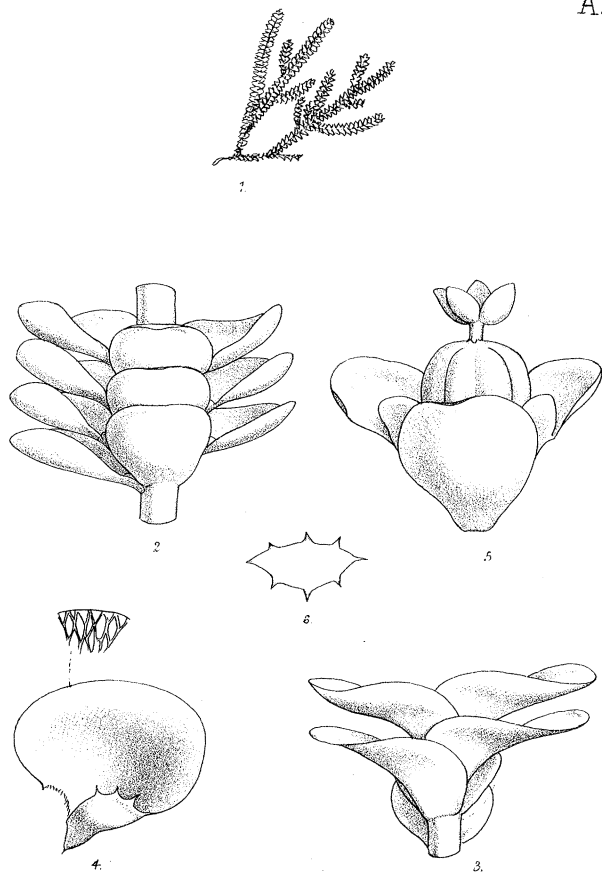


LOPHOCOLEA SUBROTUNDA, *Mitt.*



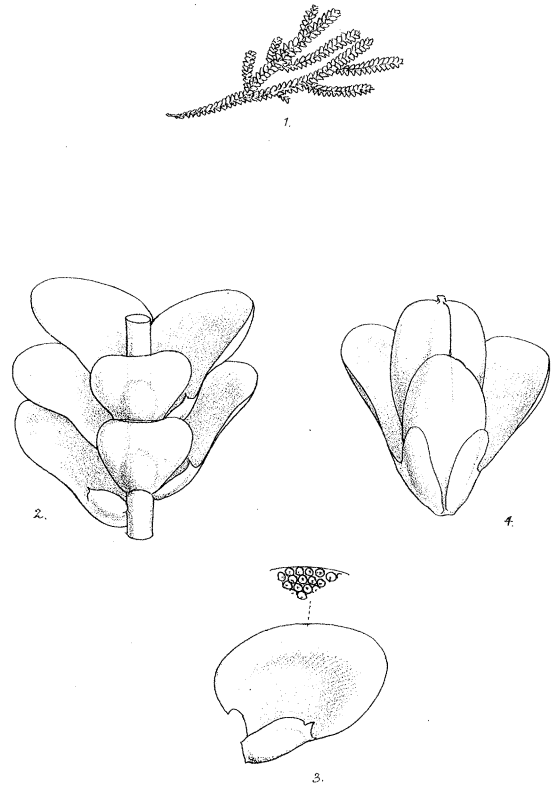
LOPHOCOLEA OPPOSITA, *Mitt.*

A.



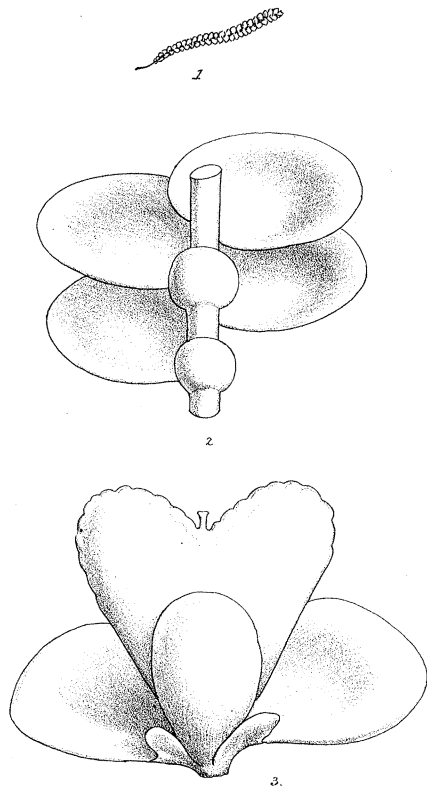
PHRAGMICOMA EMERGENS, *Mitt.*

B.



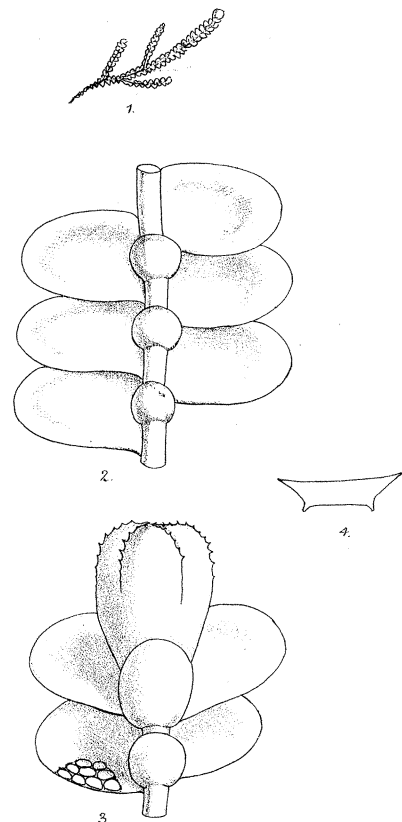
PHRAGMICOMA CARINATA, *Mitt.*

C.



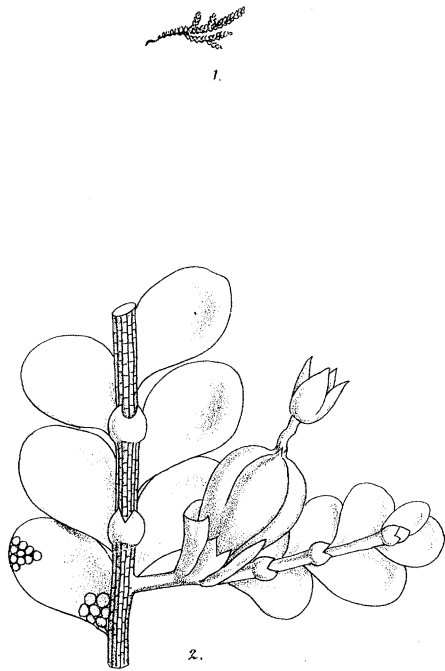
LEJEUNIA BALFOURI, *Mitt.*

D.



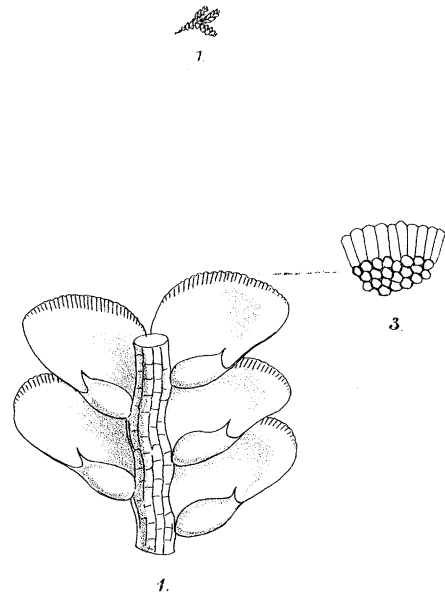
LEJEUNIA ABORTIVA, *Mitt.*

A



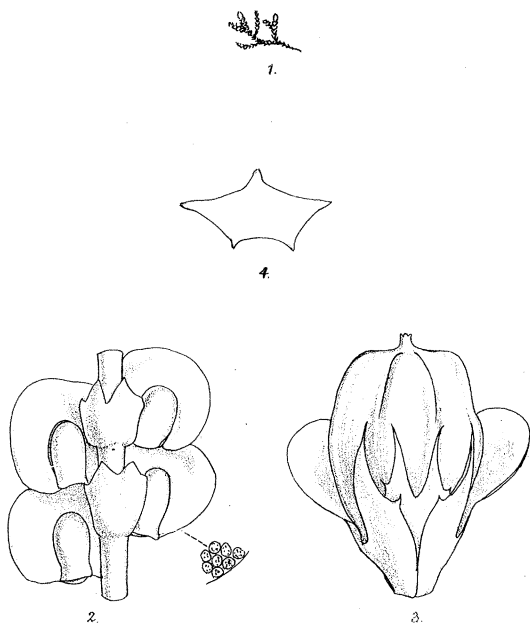
LEJEUNIA FURVA, *Mitt.*

B.



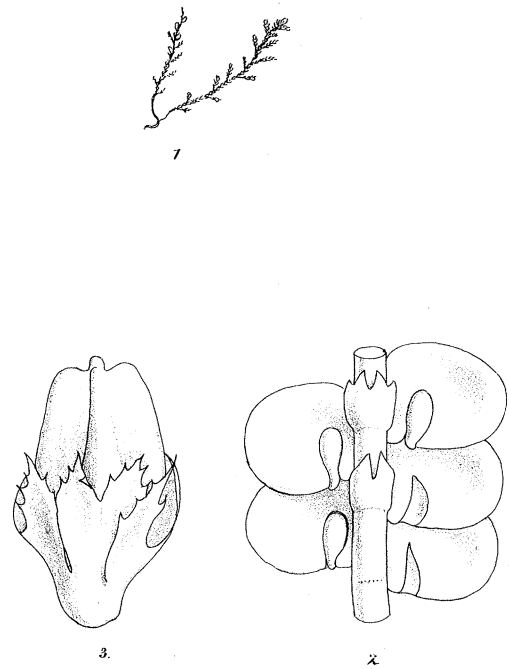
LEJEUNIA SUBCILIATA, *Mitt.*

C.



FRULLANIA OBSCURIFOLIA, *Mitt.*

D.



FRULLANIA APICALIS, *Mitt.*