THE BOTANY

OF

THE ANTARCTIC VOYAGE

OF

H.M. DISCOVERY SHIPS EREBUS AND TERROR,

IN THE YEARS 1839–1843,

UNDER THE COMMAND OF

CAPTAIN SIR JAMES CLARK ROSS, Kt., R.N., F.R.S. & L.S., ETC.

BY

JOSEPH DALTON HOOKER, M.D., R.N., F.R.S. & L.S., ETC.

ASSISTANT SURGEON OF THE "EREBUS," AND BOTANIST TO THE EXPEDITION.

PART III.

FLORA TASMANNÆ.

VOL. II.

MONOCOTYLEDONES AND ACOTYLEDONES.

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   French.—D'Entrecasteaux (Labillardière), Baudin (Leschenault), Freycinet (Gaudichaud), Duperrey (D'Urville and Lesson), D'Urville (Lesson), D'Urville (Hombron and Jacquinot).

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Errata.
Page xxxix, line 6, for tropical read tropic of.
Page cxxviii, in P.S., line 5, for New Guinea read Celebes.
,

KEY* TO THE NATURAL ORDERS OF TASMANIAN FLOWERING PLANTS.
adapted from Lindley's

{Chiefly

Vegetable Kingdom.')

'

DICOTYLEDONS.
I.

A. Polyandrous.
§

Poly pet alous.

Stamens more than 20.

Ovaries inferior.

Leaves simple, usually dotted with aromatic oil-glands
Leaves simple,

XXXI. Myrtace*.

XXXV.

inodorous

fleshy,

Ficoidea,

Ovaries superior.

§ §
1

Leaves

stipulate.

Stamens perigynous,

Carpels many, 1-seeded

free.

Stamens hypogynous,

Carpel

XXVII. Rosacea.

.

Flower papilionaceous

1.

Stamens hypogynous, combined.

.

.

Flower regular

I.

Ranunculacta>.

XXVI. Legumhwsa.
XV. Malvacea.

Carpels more or less combined into a 3-°o -celled ovary.

/3.

Stigmas
2.

.

Carpels several, 1- or several-seeded

free.

Stamens hypogynous.

.

Anthers opening by 1-2

distinct, simple, filiform.

XV.

slits

Malvaceae.

Leaves exstipulate.
Carpel

1,

many-ovuled.

Fruit succulent

Carpel

1,

many-ovuled.

Fruit a legume

Carpels many,

free,

1-ovuled

Carpels many,

free,

2- or more- ovuled

II.

XXVI. Leguminosa
I.

Ovary

Magnoluwere.
(Acacia).

Ranunculacea (Clematis).

IV. Dilleniacece.

Carpels

2,

combined.

Carpels

3,

combined. Ovary 3 -celled, 3-ovuled. Styles

2-celled, oo-ovuled.

Styles 2, free

XXXVI.

Cunoniacea (Bauera).

LXXII, Hfophorbuuxa

3, 2-partite

<liicinocarpus).

Carpels 3-12, combined. Ovary 2-celled, oo-ovuled. Styles 3-12, free XVIII. Hyvericineee.
Carpels 2-4, combined. Ovary 2-4-celled, 2-ovuled. Style 1

B. Oligandrous.
§

Ovary

.

.

XVII. Elaocarpecc.

Stamens fewer than 20.

inferior.

Flowers umbellate.

XXXVIII.

Herbs

XXXIX.

Shrubs

Umbellifera.
Araliacece.

Flowers not umbellate.

Leaves exstipulate.

Shrubs.

Leaves exstipulate.

Herbs.

Leaves stipidate.

Shrubs or

Leaves stipulate.

Shrubs.

* This Clavis
'

is

XXXI. Myrtacea.

Petals 5

Petals 2-4.
trees.

Cells of ovary 1-ovuled

Stamens 4-5

.....

XXX. Halorageee,
XXIV. Rhamnea.
XXXI. Myrtacea

Stamens 10 or more

(Culycothrix).

not intended to supersede the study of a proper "Work on the Natural Orders, such as Lindley's

Vegetable Kingdom,' but only as an aid to the Tasmanian botanist.

A

full

and

sufficient

account of the Tasmanian

Orders would be far too extensive for the limits of this volume, and properly belongs to introductory works on Botany.


FLORA OF TASMANIA.

§§ Ovary superior.
† Leaves stipulate.
  a. Carpels solitary, or several, and then free.
    Flowers papilionaceous ........................................ XVI. Leguminosae.
    Flowers regular. Styles 1 to each carpel ...................... XVII. Rosaceae.
    Flowers regular. Stigmas 3-5. Ovary 1-celled ............. LXII. Plumbaginaceae.

3. Carpels several, more or less combined.
  * Ovules parietal.
    Flowers regular. Leaves with glandular hairs .......... VII. Droseraceae.
    Flowers irregular. No glandular hairs ................ VI. Violarieae.
  ** Ovules axile or basal.
    Leaves opposite, 2-foliolate ................................ XXII. Zygophyllaceae.
    Leaves opposite, simple ...................................... XIV. Elatineae.
    Leaves alternate, 3-foliolate ................................ XXI. Oxalidaceae.
    Leaves alternate, simple or pinnate.
      Fruit with a long beak ...................................... XX. Geraniaceae.
      Ovary 1-celled, with basal ovules .................... XXXIII. Portulaceae.
      Ovary 3-5-lobed and -celled, with solitary ovules in each . XXV. Stackhousiaceae.
      Ovary 3-celled, with 2 ovules in each cell .......... LXII. Euphorbiaceae.

†† Leaves exstipulate.
  a. Carpels several, free.
    Stamens hypogynous. Carpels 2- or few-seeded .......... IV. Dilleniaceae.
    Stamens hypogynous. Carpels many-seeded .............. XXXVI. Cannabaceae (Tetracarpus).
  b. Carpel solitary.
    Flower papilionaceous ......................................... XVI. Leguminosae.
    Flower regular. Shrubs ....................................... XVI. Buettneriaceae.
    Flower regular. Herbs ....................................... XXXIII. Portulaceae (Calandrinia).

y. Carpels 2 or more, combined into a 1-∞-celled ovary.
  * Styles free, several.
    Ovary 1-locular. Ovules parietal .......................... XI. Frankeniaceae.
    Ovary 1-locular. Ovules basal ................................ XII. Caryophyllaceae.
    Ovary 2-locular. Shrubs ....................................... XXXI. Cannabaceae.
    Ovary 3-locular. Shrubs ....................................... LXII. Euphorbiaceae.
    Ovary 5-locular. Herbs ....................................... XIII. Lineaceae.
  ** Styles combined into a solitary simple one.
    Leaves opposite. Stamens hypogynous. Ovary 4-8-lobed or -celled .......................... XXIII. Rutaceae.
    Leaves alternate or whorled.
      Anthers 6 (rarely 1-4), 4 longer, opening by slits .... V. Cruciferae.
      Anthers 5, opening by slits. Ovary 1-celled ............ XXXIII. Portulaceae.
      Anthers 5, opening by pores or slits. Ovary 3-5-celled ...... XVI. Buettneriaceae.
KEY TO THE NATURAL ORDERS.


II. MONOPETALOUS.

A. Ovary inferior. Flowers (minute) in an involucrate head.

† Stigmas 2, naked ........................................ XLII. *Composite*.

Stigma 1, in a 2-lipped cup ................................ XLIII. *Brunoniaceae*.

‡‡ Flowers not in an involucrate head.

* Leaves alternate.

Anthers 5, 2-celled, combined. Stigma not in a cup ................................ XLV. *Lobeliaceae*.

Anthers 2, 2-celled, combined. Stigma not in a cup .............................. XLV. *Stylideae*.

Anthers 5, 2-celled, free, alternate with corolla-lobes. Stigma not in a cup .............................. XLVII. *Campanulaceae*.

Anthers 5, 2-celled, free, opposite corolla-lobes .............................. LXI. *Primulaceae*.

Anthers 5, 2-celled, free or combined. Stigma in cup .............................. XLIV. *Goodeniaceae*.

Anthers 3–5, free, 1-celled. Filaments combined .............................. XXXII. *Cucurbitaceae*.

** Leaves opposite or whorled.

Simple, stipulate ....................................... XII. *Rubiaceae*.

Pinnate .............................................. XL. *Caprifoliaceae*.

B. Ovary superior. Flowers regular.

† Carpels free, or combined into a deeply lobed ovary.

* Stamens free from corolla.

Hypogynous. Leaves opposite ................................ XXIII. *Rutaceae*.

Perigynous. Leaves alternate ................................ XXV. *Stackhousiaceae*.

** Stamens attached to corolla.

Unequal .................................................. LVI. *Labiata* (Lycopus).

Equal. Anthers 2-celled, opening by slits .............................. LV. *Boragineae*.

Equal. Anthers 2-celled, opening by pores .............................. XLVIII. *Ericaceae*.

Equal. Anthers 1-celled .................................... XLIX. *Epacridae*.

‡‡ Carpels combined. Ovary not deeply lobed.

* Stamens hypogynous.

Anthers 1-celled ........................................ XLIX. *Epacridae*.

Anthers 2-celled ........................................ XLVIII. *Ericaceae* (Prionotes).

** Stamens inserted on corolla.

a. Corolla-lobes plaited in buds. Leaves alternate.

Capsule few-seeded ...................................... LIV. *Convolvulaceae*.

Berry many-seeded. Anthers with pores .............................. LVIII. *Solanaceae*.

Capsule many-seeded. Anthers with slits .............................. LII. *Gentianaceae*.

b. Corolla-lobes twisted or crumpled in bud. Leaves opposite.

Small trees or climbing shrubs ................................ LI. *Apocynaceae*.

Erect or decumbent herbs .................................... LII. *Gentianaceae*.
γ. Corolla-lobes imbricate or valvate.

1. Leaves opposite.
   Stamens 2. Ovules numerous ... LIX. Scrophulariaceae.
   Stamens 2. Ovules few ... L. Olearia.
   Stamens 4. Ovules numerous ... LIII. Loganiaceae.

2. Leaves alternate.
   Anthers 1-celled ... XLIX. Epacridaceae.
   Anthers 2-celled, opening by pores ... XLVIII. Ericaceae.
   Herbs. Capsule bursting horizontally ... LXIII. Plantaginaceae.
   Shrubs. Leaves with translucent dots ... LVII. Myoporaceae.
   Stamens opposite corolla-lobes ... LXI. Primulaceae.
   Ovary 1-celled, 1-ovuled ... LXII. Plumbaginaceae.

C. Ovary superior. Flowers irregular.
   Stamens opposite corolla-lobes ... LIX. Prickulaceae.
   Ovary simple or 2-lobed, 2-celled. Stigma not in a cup ... LIX. Scrophulariaceae.
   Ovary 1-celled, with central placenta ... LXI. Primulaceae.
   Anthers opening by pores ... VIII. Polygalaceae.
   Ovary deeply 4-lobed. Stamens 4 ... LVI. Lamiaceae.
   Ovary simple or 2-lobed, 2-celled. Stigma not in a cup ... LIX. Scrophulariaceae.
   Ovary 1-celled, with central placenta ... LXI. Primulaceae.
   Stigma in a cup ... XLIV. Goodeniaceae (Velleia).

III. Achlamydeous (no apparent perianth).

§ Trees or shrubs. Male flowers in catkins.
   Branches jointed, leafless, with toothed sheaths ... LXXV. Casuarinaceae.
   Branches with leaves ... LXXVI. Coniferae.

§§ Herbs. Male flowers solitary or panicled ... XXIX. Haloragaceae.

IV. Monochlamydeous.

§ Ovary inferior (flowers usually unisexual).
   Twining, parasitic, leafless herbs ... LXVIII. Lauraceae.
   Climbing or prostrate leafy herbs, without tendrils ... XXXV. Ficoideae.
   Climbing or prostrate leafy herbs, with tendrils. Ovary hispid ... XXXII. Cucurbitaceae.
   Trees, with hermaphrodite flowers ... XXXI. Myrtaceae (Eucalyptus).
   Trees or shrubs, with unisexual flowers. Stamens 8–12 ... LXXIV. Cupuliferae.
   Herbs, trees, or shrubs, with stamens 4–5, opposite the perianth-lobes ... LXXI. Santalaceae.
   Herbs, with 2–4 stamens, alternate with perianth-lobes ... XXIX. Haloragaceae.

§§ Ovary superior.

a. Leaves stipulate.
   Stipules ochraceae. Flowers usually hermaphrodite ... LXIV. Polygoneae.
   Stipules free. Stamens 1–5, opposite lobes of perianth. Flowers unisexual ... LXXXIII. Urticaceae.
   Stipules free. Stamens 4–5. Flowers hermaphrodite ... XXIV. Rhamnaceae (Cuprea).
   Stipules free. Stamens numerous ... XXV. Leguminosae (Acacia).
   Stipules free. Stamens 8. Styles 3 ... LXXII. Euphorbiaceae.

b. Leaves reduced to sheaths of the jointed branches ... LXXV. Casuarinaceae.

γ. Leaves exstipulate.
   Flowers hermaphrodite. Carpels many, free ... I. Ranunculaceae.
   Carpels solitary, 1-celled, with a simple style.
   Anthers 12 (3 sterile), opening by valves. Twining parasite ... LXVIII. Lauraceae.
KEY TO THE NATURAL ORDERS.

Anthers 4, 2-celled, opposite lobes of perianth. Shrubs and trees.

1. Seeds exalbuminous
   Anthers 1–4, 2-celled. Seeds albuminous  LXXI. Proteaceae.

2. Anthers 3, united (and 1 sterile filament)  LIX. Proteaceae (Conospermum).

3. Anthers 2–5, free, 1-celled  LXVI. Amauracaeae.

4. Stamens very numerous. Anthers free  XXVI. Leguminosae.

5. Carpels combined, 1-celled, with 2 or more styles.
   Ovule 1 or several, basal. Leaves opposite, connate  XII. Caryophyllaeae.

6. Ovule 1, basal. Seed 1. Leaves usually alternate  LXVII. Chenopodiaceae.

7. Ovules several. Seeds several  L. Oleaceae.

8. Flowers unisexual.


10. Herbs, with 1–5 stamens opposite lobes of perianth  LXXIII. Urticaeae.


12. Herbs, with alternate leaves, 2-celled anthers, 1-celled ovary, and 2 styles LXVII. Chenopodiaceae.

13. Herbs, with 1-celled anthers, 1-celled ovary, and 1 style  LXVI. Amauracaeae(Alternanthera).

14. Herbs, with 2-celled anthers, 2-celled ovary, and 2 styles  LXV. Phyllolacceae.

15. Shrubs, with 2-celled anthers, 3-celled ovary, and discoid stigma LXXII. Euphorbiaceae (Begonia).

MONOCOTYLEDONS.

A. Perianth superior.
      Perianth irregular, of 6 unequal pieces  I. Orchideae.
      Perianth regular. Anthers 1–4, extrorse, opposite the sepals  II. Irideae.
      Perianth regular. Anthers 3, introorse, opposite the petals  III. Hemodoraceae.
      Perianth regular. Anthers 6, extrorse  IX. Melanthaceae (Campylenae).
      Perianth regular. Anthers 6, introorse  IV. Hyposideae.

B. Perianth inferior.
   a. Perianth of large pieces.
      Stamens 6. Anthers extrorse  IX. Melanthaceae.
      Anthers introorse. Seed rounded, with a thin testa  X. Smilaceae.
      Anthers introorse. Seed often flattened, with a coriaceous, brittle, dark testa  XI. Liliaceae.
      Stamens 3  XIII. Xyridaceae.

β. Perianth of 6 small, green, or dry chaff-like pieces.
   Anthers extrorse. Ovules solitary  VIII. Alismaceae.
   Anthers introorse. Ovules several  XII. Junceae.

II. Apetaloid. Perianth very obscure or 0.

Small floating green scales  VI. Pistaceae.
Erect marsh plant, with long, soft, thick catkin  VII. Typhaceae.
Caulescent water-plants  VIII. Alismaceae.
III. Glumaceous. Perianth of dry scales.
Anthers 2-celled. Perianth of 6 nearly equal pieces
Anthers 1-celled. Culms generally solid and terete
Anthers 2-celled. Perianth of alternate scales. Culms generally solid,
3-angled or flattened. Leaf-sheath not split to base
Anthers 2-celled. Perianth of alternate scales. Culms generally hollow,
terete. Leaf-sheaths split to base

---

KEY TO THE GENERA OF TASMANIAN FLOWERING PLANTS.

DICOTYLEDONS.

I. Ranunculaceae.
Perianth single, valvate. Shrubs. Leaves opposite
Clematis, p. 2.
Perianth single, imbricate. Herbs. Leaves radical. Ovule 1
Anemone, p. 4.
Perianth single, imbricate. Herbs. Leaves radical. Ovules ∞
Caltha, II. p. 355.
Perianth double, imbricate. Herbs. Ovule 1
Ranunculus, p. 5.

II. Magnoliaceae.
Tasmania, p. 10.

III. Monimiaceae.
Atherosperma, p. 11.

IV. Dilleniaceae.
Stamens in several bundles
Hibbertia, p. 13.
Stamens in one unilateral bundle
Pleurandra, p. 15.

V. Cruciferae.
Pod long, compressed. Septum linear. Flowers white or lilac
Cardamine, p. 19.
Pod long, sub-4-gonous. Flowers yellow
Barbara, p. 20.
Pod short, subterete. Flowers yellow
Nasturtium, p. 21.
Pod short, compressed, narrow-linear (¾ inch)
Stenopetalum, p. 21.
Pod short, oblong, laterally compressed. Septum narrow
Hutchinsia, p. 22.
Pod short, obovate, laterally compressed. Septum narrow
Thlaspi, p. 23.
Pod short, elliptic, flat. Leaves entire
Pod short, oval, laterally compressed. Seed 1. Septum narrow
Lepidium, p. 25.

VI. Violariæae.
Herbs. Fruit capsular
Shrub. Fruit baccate
Hymenanthera, p. 27.

VII. Droseraceæ.
Drosera, p. 28.

VIII. Polygaleæ.
Comesperma, p. 31.

IX. Tremandreae.
Tetratheca, p. 33.
KEY TO THE GENERA.

X. Pittosporaceae.
Climbers. Flowers tubular. Fruit baccate ........................................ Billardiera, p. 36.

XI. Frankeniaceae.
Frankenia, p. 40.

XII. Caryophyllaceae.
Leaves stipulate ................................................................................. Sparganium, p. 41.
Exstipulate. Perianth double ................................................................ Stellaria, p. 43.
Exstipulate. Perianth single, of 4–5 sepals ....................................... Colobanthus, p. 45.

XIII. Linaceae.
Linum, p. 46.

XIV. Elatineae.
Elatine, p. 47.

XV. Malvaceae.
Calyx with an involucremum .......................................................... Lavatera, p. 47.
Involucellum 0. Stamens 8-12. Flowers densely spicate ......... Lavandula, p. 48.
Involucellum 0. Stamens very numerous. Flowers corymbose .... Plagianthus, p. 49.

XVI. Buettneriaceae.
Lasiopterum, p. 50.

XVII. Elycoraceae.
Aristotleia, p. 53.

XVIII. Hypericaceae.
Herbs ......................................................................................... Hypericum, p. 53.
Shrubs or trees ............................................................................ Eucryphia, p. 54.

XIX. Sapindaceae.
Dodonaea, p. 54.

XX. Geraniaceae.
Flowers regular. Fertile stamens 5 ............................................. Geranium, 57.
Flowers irregular. Fertile stamens 4–7 ......................................... Pelargonium, p. 57.

XXI. Oxalidaceae.
Oxalis, p. 55.

XXII. Zygophyllaceae.
Ropera, p. 59.

XXIII. Rutaceae.
Corolla tubular, petals all united .............................................. Correa, p. 61.
Petals free. Leaves simple, alternate. Filaments pilose ............ Eriostemon, p. 64.
Petals free. Leaves simple, or 3-foliolate, or pinnate, opposite. Stamens 8 ....... Boronia, p. 65.
Petals free. Leaves 3-foliolate, opposite ................................. Acradenia, p. 68.
**FLORA OF TASMANIA.**

**XXIV. Rhamnaceae.**

Spinous shrub.  Disc very broad ........................................ Discaria, p. 69.
Leafy shrubs. Flowers bracteate.  Stamens shorter than petals ........................................ Cryptandra, p. 70.
Leafy shrubs. Flowers ebracteate. Stamens longer than petals ........................................ Pomaderris, p. 76.

**XXV. Stackhousieae.**


**XXVI. Leguminosae.**

A. Flowers papilionaceous.
   1. Stamens all free.
      Ovules 4 or more.  Pod ovate, turgid ........................................ Oxylolium, p. 80.
      Ovules numerous.  Pod inflated, globose ........................................ Gompholobium, 81.
      Ovules 2.  Pod with a straight upper and curved lower edge.  Seeds estropiolate .......................... Daviesia, p. 82.
      Pod subglobose, stipitate ........................................ Spherolobium, p. 84.
      Pod sessile, ovate, ventricose.  Leaves ebracteate.  Calyx ebracteate ........................................ Dillwynia, p. 84.
      Pod short, sessile.  Calyx stipitate ........................................ Pullenaea, p. 86.
   2. Stamens all combined, or rarely (in Hovea) with the upper free.
      Pod rounded, inflated.  Ovary 2-ovuled.  Leaves alternate, simple .......................... Hovea, p. 93.
      Pod long, stipitate.  Ovary many-ovuled.  Leaves alternate, simple .......................... Bossiaea, p. 94.
      Pod stipitate, oblique at base.  Ovary few-ovuled.  Leaves alternate, 3-foliolate .......................... Goodia, p. 97.
   4. Stamens diadelphous.  Pod divided into cells by spongy tissue between the seeds.
      Herbs.  Leaves 3-foliolate, stipulate.  Pod separating into 1-seeded, indehiscent joints .......................... Desmodium, p. 100.
B. Flowers not papilionaceous .......................... Acacia, p. 103.

**XXVII. Rosaceae.**

Fruit of small fleshy drupes ........................................ Rubus, p. 112.
Fruit of many dry achenia, with short styles .......................... Potentilla, p. 113.
Fruit of many dry achenia, with long styles .......................... Gymn, p. 113.
Fruit of 1–2 achenia sunk in the calyx-tube .......................... Acena, p. 114.

**XXVIII. Onagraceae.**

Calyx-tube produced beyond the ovary.  Seeds naked .......................... Gerothera, p. 118.

**XXIX. Haloragaceae.**

Terrestrial.  Flowers hermaphrodite, tetrumerous .......................... Haloragis, p. 129.
Aquatic.  Flowers unisexual.  § flowers naked.  § 4 petals .......................... Myriophyllum, p. 120.
KEY TO THE GENERA.

Aquatic. Flowers hermaphrodite, dimerous ..................................................... Meionectes, p. 123.
Aquatic. Flowers unisexual, all naked. Stamen 1 .............................................. Callitriche, p. 124.

XXX. Lythraceae.

Lythrum, p. 125.

XXXI. Myrtaceae.

A. Corolla of 5 free petals.
   Ovary 1-celled, 2–4-ovuled. Calyx-lobes with blunt tips .................................. Thryptomene, p. 127.
   Ovary 3-celled, ∞-ovuled. Stamens very long and numerous. Calyx sunk in the bark Melaleuca, p. 128.
   Ovary 2–3-celled, ∞-ovuled. Stamens very long and numerous. Flowers axillary, or forming terminal spikes ................................................. Kunzea, p. 130.
   Ovary 3–5-celled, ∞-ovuled. Stamens very long and numerous. Flowers forming dense spikes in the middle of the branches ............................................. Callistemon, p. 130.
   Ovary many-celled. Stamens short, numerous ................................................ Leptospermum, p. 140.
B. Petals and sepals combined into a deciduous pileus ....................................... Eucalyptus, p. 131.

XXXII. Cucurbitaceae.

Sicyos, p. 142.

XXXIII. Portulaceae.

Petals forming a calyptra over the ovary ....................................................... Calandrinia, p. 143.
Petals 5, free. Seeds 3 or more ........................................................................ Claytonia, p. 144.
Petals 5, free. Seeds 1 or 2 .............................................................................. Montia, p. 144.

XXXIV. Crassulaceae.

Tillaea, p. 146.

XXXV. Ficoideae.

Petals numerous ..................................................................................................... Mesembryanthemum, p. 146.
Petals none ............................................................................................................ Tetragonon, p. 147.

XXXVI. Cunoniaceae.


XXXVII. Escalloniaceae.

Anopterus, p. 151.
XXVII. Umbelliferae.

Carpels of fruit 2, much laterally flattened, didymous.

- Stems creeping, branching ........................................... *Hydrocotyle*, p. 151.
- Stems erect, simple. Carpels with one curved ridge on each face ........................................... *Didiscus*, p. 154.
- Stems branched. Carpels with 3-4 slender ridges on each face ........................................... *Xanthosis*, p. 155.

Carpels of fruit 2, much dorsally flattened.

- Calyx without lobes ........................................... *Diplaspidis*, p. 156.
- Calyx with petaloid lobes ........................................... *Dichopetalum*, p. 157.

Carpels of fruit 2, each semiterete.

- Flowers in a dense ovoid capitulum ........................................... *Eryngium*, p. 159.
- Flowers on dichotomous scapes ........................................... *Microhaziadium*, p. 158.
- Flowers in umbels. Leaves filiform ........................................... *Crantzia*, p. 160.

XXXIX. Araliaceae.

**Panax**, p. 163.

XL. Caprifoliaceae.

**Sambucus**, p. 164.

XLI. Rubiaceae.

Calyx 4-5-lobed. Leaves opposite. Flowers unisexual, free ........................................... *Ceprosma*, p. 165.

- Calyx 4-lobed. Flowers hermaphrodite, free ........................................... *Opeccularia*, p. 166.
- Calyx 4-lobed. Flowers hermaphrodite, free ........................................... *Nertera*, p. 167.
- Calyx-lobes 0. Leaves whorled. Corolla campanulate, or funnel-shaped ........................................... *Asperula*, p. 168.
- Calyx-lobes 0. Corolla rotate ........................................... *Galium*, p. 169.

XLII. Composite.

A. Capitula with the outer florets ligulate (rayed), white, pink, or purplish, the inner tubular, yellow.

- Pappus long, rigid, scabrid.
  - Branched herbs. Achenia very long, flattened, and narrow ........................................... *Vittadinia*, p. 181.
- Pappus of very short hairs or scales ........................................... *Brachycome*, p. 183.
- Pappus 0. Achenia erosestrate ........................................... *Paquerina*, p. 188.
- Pappus 0. Achenia rostrate ........................................... *Lagenophora*, p. 188.

B. Capitula with all the florets tubular, none ligulate (in *Cassinia*, *Ozothamnus*, *Helichrysum*, etc., the inner radiating involucral scales resemble ligulate flowers).

- Pappus of 2 rigid spines ........................................... *Nablonium*, p. 190.
- Pappus of 8 silvery scales ........................................... *Pumilo*, p. 199.
- Pappus of 6 flat, feathery scales ........................................... *Pterygopappus*, p. 207.
- Pappus none.
  - Flowers numerous. Corolla of outer ones 0, or imperfect ........................................... *Cotula*, p. 191.
  - Corolla of outer ones inflated ........................................... *Leptinella*, p. 192.
  - Corolla tubular mouth entire ........................................... *Myriogyne*, p. 194.
KEY TO THE GENERA

β. Flowers about 6; outer flowers 3-cleft. ........................................... Trineuron, Vol. II., p. 364.
γ. Flowers about 4; outer flowers 4-toothed ........................................ Silverlea, p. 195.
e. Pappus of soft hairs (rather harsh in Millotia).
a. Capitula combined into a spherical head.
   Leaves opposite. Stems branched ..................................................... Calceolus, p. 196.
   Leaves alternate. Stems branched ................................................... Leucophyllum, p. 196.
   Scapigerous herbs .............................................................................. Craspedia, p. 197.
   Very minute herb ................................................................................. Skirrhophorus, p. 198.
β. Capitula free.

1. Receptacle paleaceous.
   Inner involucral scales stipitate and radiating .................................... Podolepis, p. 208.
   Inner involucral scales erect. Paleae of receptacle filiform .................. Apalocklames, p. 199.
   Inner involucral scales erect. Paleae of receptacle like inner involucral
   scales ..................................................................................................... Cassinia, p. 200.

2. Receptacle without paleae.
   † Involucral scales in one series, erect.
   Shrubs. Involucral scales herbaceous ................................................... Bedfordia, p. 223.
   †† Involucral scales in several series, inner often radiating.
   Pappus of few (10–12) hairs ................................................................... Leptorkynchus, p. 207.
   Tufted, alpine, woolly, sessile-flowered herb, with a white ray of
   involucral scales ...................................................................................... Razonia, p. 206.

C. Capitula yellow, the inner florets tubular, the outer with long rays.
   Herb. Involucral scales in many series ............................................... Cyebonotus, p. 225.
   Shrub. Involucral scales in one series ............................................... Centropappus, p. 225.
   Herbs. Involucral scales in one series ............................................... Senecio, p. 221.

D. Capitula yellow. All the florets ligulate.

XLIII. Brunoniaceae.

Brunonia, p. 229.

XLIV. Goodeniaceae.

FLORA OF TASMANIA.

Fruit dehiscent, capsular. Calyx superior. Goodenia, 231.

XLV. STYLIDIEÆ.


XLVI. LOBELIACEÆ.

Lobelia, p. 236.

XLVII. CAMANULACEÆ.

Wahlenbergia, p. 239.

XLVIII. ERICEÆ.


XLIX. EPERITEÆ.

A. Fruit an indehiscent drupe, berry, or nut. Ovules solitary in each cell.
1. Fruit a 2-10-celled drupe.
   a. Corolla with 5 tufts of hairs inside at the base.
   β. Corolla naked inside at the base.
      Bracts removed from base of calyx. Lissanthe, p. 247.
      Bracts appressed to calyx.
      Tube of corolla slender. Stenanthera, p. 244.
      Tube of corolla infundibuliform or cylindric.
      Bracts numerous. Cyathodes, p. 244.
      Bracts generally 2.
      Lobes of corolla each with a pencil of hairs at apex. Acrotriche, p. 252.
      Lobes of corolla villous and bearded.
2. Fruit a drupe, 1-celled, 1-ovuled.
3. Fruit a berry, with 5 nuts.
4. Fruit a berry, with 10 nuts.
B. Fruit capsular, many-seeded.
1. Leaves not sheathing at the base.
   Bracts numerous. Epacris, p. 256.
2. Leaves sheathing at the base.
   Corolla rotate. Sprengelia, p. 264.
   Corolla calyptrate. Calyx bracteate. Hypogynous scales 0. Cystanthe, p. 265.
   Corolla campanulate. Dracophyllum, II.

L. OLEINEÆ.

Notelax, p. 268.
KEY TO THE GENERA.

LI. Apocyneæ.

Calyx eglandular. Drupes 1 or 2. ___________________________ Alyxia, p. 269.
Calyx glandular. Follicles 2. ____________________________ Lyonia, p. 269.

LII. Gentianææ.

Corolla tubular or salver-shaped. Leaves opposite.
  Calyx-lobes even. Style 0. Anthers not twisted. ____________________________ Gentiana, p. 271.
Corolla rotate, its lobes bearded at the base. Leaves alternate. ____________________________ Villarsia, p. 272.

LIII. Loganiaceæ.

Mitrasacme, p. 273.

LIV. Convolvulaceæ.

Calyx 5-partite, ebracteate or with small bracts.
  Leafless twining parasite. ____________________________ Casacula, p. 278.
  Tufted creeping herb, with rotate corolla. ______________ Dichondra, p. 277.
  Slender prostrate herb, with infundibuliform corolla. ______________ Convolvulus, p. 275.
Calyx 5-partite, with large bracts. ____________________________ Calystegia, p. 276.
Calyx urceolate, 5-toothed. ____________________________ Wilsonia, p. 276.

LV. Boragineæ.

Nuts 4, elliptic, perfectly smooth and shining. ______________ Myosotis, p. 278.
Nuts 4, depressed, hispid or echinate. ____________________________ Cynoglossum, p. 279.

LVI. Labiateæ.

Leaves whorled. ____________________________ Westringia, p. 284.
Leaves opposite.
  Stamens 4, equal, exserted. ____________________________ Mentha, p. 279.
  Stamens 4, the 2 upper filaments bearing only capitate tips (not anthers). ______________ Lycopus, p. 280.
  Stamens 4, unequal.
    Anther-lobes free, divaricating. ______________ Scutellaria, p. 282.
    Calyx with a broad, flat, adnate lobe on upper lip. ______________ Prunella, p. 281.
    Anther-lobes free, parallel. ____________________________ Prostanthera, p. 283.
    Anther-lobes confluent. ______________ Tenerium, p. 285.
Upper lip of corolla small, of 2 reflexed lobes. ______________ Ajuga, p. 286.
Upper lip of corolla very minute. ____________________________

LVII. Myoporineæ.

Myoporum, p. 286.

LVIII. Solaneææ.

Solanum, p. 287.

2 b
LIX. Scrophularineae.

Leaves alternate
Leaves opposite.
Stamens 2. Calyx 4-partite
Stamens 2, or if 4, upper filaments capitate. Calyx 5-partite
Stamens 4, all fertile.
Creeping herb. Style of 2 lamellae
Scapigerous herb. Style of 2 lamellae
Creeping water-herb. Style of 1 lamella
Creeping water-herb. 1 sessile stigma

LX. Lentibularineae.

Calyx 2-lipped
Calyx 4-partite

LXI. Primulaceae.

Samolus, 300.

LXII. Plumbaginaceae.

Statis, p. 301.

LXIII. Plantaginaceae.

Plantago, p. 301.

LXIV. Polygonaceae.

Perianth 6-lobed, in 2 rows, enlarging in fruit
Perianth 4-5-partite, lobes not enlarging
Perianth 5-partite, baccate in fruit

LXV. Phytolaccaeae.

Didymotheca, p. 309.

LXVI. Amaranthaceae.

Perianth 3-bracteate, plumose. Style long
Perianth 3-bracteate, glabrous. Style short
Perianth 2-bracteate. Style short

LXVII. Chenopodiaceae.

Fleshy, leafless, jointed, saline herbs
Leafy herbs or shrubs.
Perianth 3-5-partite, ebracteate.
Suffruticose. Seed adherent to utriculus
Herbaceous. Seeds free
Perianth of ♂ 3-5-partite, ebracteate. ♀ flowers with 2 large bracts
Perianth urceolate, baccate, truncate, gibbous
Perianth urceolate, fleshy, 5-partite
KEY TO THE GENERA.

LXVIII. Laurinae.

*Cassytha*, p. 317.

LXIX. Proteaceae.

Flowers in dense cones or heads.

Cones bracteate, cylindrical .................................................. *Banksia*, p. 328.

Cones globose or oblong, with numerous imbricating bracts .................. *Isopogon*, p. 319.

Head a dense, involucrate corymb .............................................. *Telopea*, p. 327.

Head a rather dense naked corymb ............................................. *Conospermum*, p. 318.

Flowers spiked. Perianth regular.

Stamens on middle of segments. Hypogynous glands 0 ...................... *Agastachya*, p. 320.

Stamens on middle of segments. Hypogynous glands 4 ...................... *Orites*, p. 325.


Stamens hypogynous. Hypogynous glands 0 ...................................... *Bolleandena*, p. 321.

Flowers racemose or axillary. Perianth regular ........................... *Persoonia*, p. 320.

Flowers racemose or axillary. Perianth irregular.

Hypogynous gland 1 or 0. Style persistent. Ovules 2 .................. *Grevillea*, p. 322.


LXX. Thymeleae.

Stamens 4 ........................................................................................................ *Dropeles*, p. 330.

Stamens 1–2 ........................................................................................................ *Pimelea*, p. 330.

LXXI. Santalaceae.

Leafless trees or shrubs. Peduncle of fruit red, swollen .................. *Exocarpus*, p. 335.

Leafless shrubs, with baccate fruit ...................................................... *Leptomeria*, p. 336.

Slender herb, with linear leaves ......................................................... *Thesia*, p. 337.

LXXII. Euphorbiaceae.

Flowers with calyx and corolla. Filaments combined ................... *Ricinocarpus*, p. 338.

Flowers with calyx and corolla. Filaments free ............................. *Poranthera*, p. 342.

Perianth single.


LXXIII. Urticaceae.


Female perianth tubular, 4-fid. Stamens 4–5 ...................................... *Parietaria*, p. 344.

Female perianth tubular, mouth entire. Stamen 1 ............................... *Australina*, p. 345.

LXXIV. Cupuliferae.

*Fagus*, p. 346.

LXXV. Casuarinaceae.

*Casuarina*, p. 347.

2 b 2
## Flora of Tasmania

### LXXVI. Coniferæ

See Clavis of Genera, p. 351.

### Monocotyledones

#### I. Orchidæ

See Clavis of Genera, Vol. II. p. 2; and add Dendrobium, from Supplement, p. 372.

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<td>Diplarrhena, p. 34</td>
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<tr>
<td>Perianth sessile on the ovary. Stamens 3, fertile</td>
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Hamodorum, p. 35

#### IV. Hypoxideæ

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#### V. Hydrocharideæ

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* Lemma*, p. 37

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<td>Perianth 0, or scales. Flowers naked. Ovaries 4, sessile</td>
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<td>Perianth 0, or scales. Flowers naked. Ovaries 4, stalked</td>
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<td>Perianth 0. Flowers in spathes. Ovary 1</td>
<td>Posidonia, p. 43</td>
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<td>Perianth 0. Flowers naked, crowded on a flat spadix. Stamen 1</td>
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<td>Perianth 0. Flowers pedicelled, solitary, axillary, spathed. Stamens 2</td>
<td>Cymodoceæ, p. 44</td>
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<td>Perianth 0. Flowers in a diphylous spathe. Stamens 3, with connate filaments</td>
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#### IX. Melanthaceæ

| Perianth superior | Campynema, p. 47 |
| Perianth inferior. Flowers umbellate | Burchardia, p. 45 |
| Perianth inferior. Flowers spicate | Anguillaria, p. 46 |
| Perianth inferior. Flowers solitary, triandrous | Henardia, p. 47 |

#### X. Smilaceæ

*Drymophila*, p. 48

#### XI. Liliaceæ

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<td>Ovary stipitate. Flowers large, red</td>
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Flowers solitary, in 2 spathes ........................................... Herpolirion, p. 54.
Flowers solitary. Leafless twining herbs ................................ Thysanuts, p. 53.
Flowers umbellate. Fruit of clavate 1-seeded lobes ....................... Tricyrune, p. 54.
Flowers racemose or panicked.
  Flowers white or purple. Pedicel jointed in middle ................... Arthropodium, p. 50.
  Flowers yellow. Pedicels not jointed .................................. Cupine, p. 51.
  Flowers white or blue. Pedicels jointed at apex .................... Cassia, p. 52.
Fruit capsular, dehiscent. Styles 3 ...................................... Milligania, p. 61.
Fruit indehiscent. Style 1 ................................................... Tricyrune, p. 54.
Fruit of 3 indehiscent clavate lobes .................................... Dianella, p. 56.
Fruit a globular berry. Flowers blue. Filaments tumid ................. Astelia, p. 60.
Fruit an oblong berry. Flowers white. Filaments simple ............. Astelia, p. 60.

XII. Juncaceae.

Flowers unisexual. Anthers peltate .................................... Xerotes, p. 63.

XIII. Xyridaceae.

Xyris, p. 69.

XIV. Restiaceae.

Perianth of 4–6 leaves or scales.
  Stamens 4–6 ............................................................... Restio, p. 70.
  Stamens 3. Flowers fascicled or amentaceous. Ovary 3-locular .... Lepyrodi, p. 72.
  Stamens 3. Flower solitary, axillary .................................. Calorophus, p. 75.
Perianth 0. Flowers in scales or spathes.
  Spike solitary, of distichous scales .................................. Aphelia, p. 75.
  Capitulum solitary, with 2 spathes. Flowers with numerous paleae Centrolepis, p. 76.
  Capitulum solitary. Flowers few, with 1 or 0 palea .................. Alepyrum, p. 77.
  Capitulum solitary, with a 4-leaved involucrre ...................... Trithuria, p. 78.

XV. Cyperaceae.

I. Nut free, not enclosed in a flagon-shaped utriculus.
  A. Spikelets flattened, with many distichous scales.
    Hypogynous scales or bristles 0.
      All the scales equal and (generally) floriferous ............... Cyperus, p. 79.
      Lower scales smaller, empty .................................... Schemus, p. 89.
    Hypogynous bristles 3 or more.
      Spikelets aggregated in a globose capitulum .................. Gymnoschaenus, p. 83.
      Spikelets solitary or fascicled ................................ Chatospora, p. 81.
  B. Spikelets flattened or terete, with many flowers and scales imbricated all round.
Hypogynous scales or bristles 4 or more.
Spikelets terminal, solitary

Spikelets lateral, fascicled

Hypogynous scales 0. Scales of spike entire

Hypogynous scales 0. Scales trifid or lobed

C. Flower solitary. (No spikelet)

D. Spikelet of several scales, imbricating all round, but with only 1–3 flowers.

1. Spikelet of several scales, imbricating all round, but with 1–3 flowers.

Hypogynous scales 6, minute, coriaceous

Hypogynous scales 0.

Filaments not elongated after flowering. Culms simple

Filaments not elongated after flowering. Culms branched

Filaments 3–6, elongated and persistent

II. Nut enclosed in a flagon-shaped utriculus.

Utriculus with an exserted hooked bristle

Utriculus without an exserted hooked bristle

XVI. Gramineae.

I. Glumes 2, containing 1 flower.

Spikelets in a dense soft cylindric spike

Spikelets in a dense head bristling with awns

Spikelets panicled.

Flowers stipitate, with one long rigid twisted terminal awn, jointed at the base

Flowers shortly stipitate, with one long awn from below the apex of the palea

Flowers stipitate, with 5 awns

Flowers sessile, with no awn, or a dorsal one. Glumes not awned

Flowers sessile, with no awn, or a dorsal one. Glumes awned

II. Glumes 2. Containing 2 or more flowers. All paleae floriferous, or upper empty.

Spikelets alternate, spiked

Spikelets in a dense cylindric shining spike

Spikelets panicled.

Flowers 3–6, silky, remote, lowest ♂, rest ♀

Flowers 3, 2 lateral ♂, intermediate ♀

Flowers all (or always lower) hermaphrodite.

Flowers 2–3, glabrous, shining. Lower palea awned above the base

Flowers 2–3, puberulous. Lower palea bifid, with a twisted awn at the back

Flowers 2–8. Lower palea (often with pencils of hairs) deeply bifid with a flattened (at base) twisted awn

Flowers numerous, awnless. Glumes and paleae blunt. Squamule 1 or 2 connate

Flowers 2–8, awnless. Glumes and paleae blunt. Squamule 2

Flowers 2–8. Glumes and paleae acute, lower often awned at apex

III. Glumes 2, 1–2-flowered. Lower paleae empty.

A. Spikelets panicled. Flowers sessile. Glumes 2, large, 1-flowered. Stamens 4

B. Spikelets sessile on a simple, slender-jointed rachis

C. Spikelets collected into large globose spiny heads. (Rigid Maritime-grass)

D. Spikelets in panicled fascicles with very long stout awns. (Kangaroo-grass)
FLORA OF TASMANIA.

CLASS MONOCOTYLEDONES.

NAT. ORD. I. ORCHIDEÆ.

One of the most beautiful and interesting Natural Orders of Australia, abundant in the extratropical latitudes of that continent, and especially in Tasmania, but extremely rare in the tropical. The great majority are terrestrial and tuberous-rooted, but there are a few epiphytical ones, all belonging to the tribe Vandææ, on the warm and tropical eastern coasts, and one inhabits Tasmania which has been found nowhere else. About 200 Australian Orchideæ are known, which are, with few exceptions, endemic. The exceptions are Spiræanthæ Æustralis (S. Novæ-Zelandiæ, mihi), found in New Zealand, India, and other countries; a Prasophyllum, also found in New Zealand, where a Tasmanian species of Thelymitra and of Caladenia probably also occur, but these have not been satisfactorily identified. Considerably more than half the Australian Orchids, about 120 species, are confined to the east coast and Tasmania, about 60 being confined to the western, and 15 or 20 are common to the south-eastern and south-western quarters of the continent. Tasmania contains 74 species, all but 8 of which have been found on the neighbouring continent, though of these some are peculiar to it and south-western Australia.

The difficulties attending the analysis and discrimination of the plants of this Natural Order are proverbially great, and the Tasmanian Orchids have proved proportionally more troublesome than any other Natural Order, partly from Mr. Brown having found few of them in Tasmania, and partly from Gunn's splendid series of specimens being accompanied by fewer remarks than usual.

On the other hand I have derived the greatest assistance from Mr. Archer's drawings, notes, and specimens, as well as from his intimate acquaintance with the living plants; his beautiful drawings and dissections are, with his kind permission, and at his expense, lithographed for this Work by Mr. Fitch; and I can only add, that but for his having afforded me the benefit of his accurate knowledge of the species, I should in several cases have failed to discriminate them aright, and in other cases, where I had properly discriminated, to have selected their most important diagnostic characters.

I am also greatly obliged to Dr. Lindley for his ever ready advice and assistance, and for the use of his Herbarium, containing all of Gunn's collections that were published in his valuable 'Genera and Species of Orchideæ.'
To facilitate the recognition of the Tasmanian Orchidæ, I give a clavis of the genera, founded on the most prominent characters these present; but a tyro will find it exceedingly difficult to make out any satisfactorily until he has acquired some general knowledge of the majority.

A. **Anther deciduous, terminal. Pollen waxy.** (Vandæ).  
1. **Gunnia.**—An epiphyte, with long, tortuous, aerial roots, distichous falcate leaves jointed near the base, and a simple raceme of yellow, sweet-scented flowers (p. 32).
2. **Dipodium.**—A terrestrial, leafless herb, with a large erect raceme of rose-coloured, spotted flowers. Sepals and petals revolute at the apex (p. 32).

B. **Anther deciduous, terminal. Pollen granular.** (Gastrodæ.)  
3. **Gastrodia.**—A leafless, dirty-white or pale-brown herb, with a fleshy tuberous root, a stem with sheathing scales, and few-flowered raceme of whitish drooping flowers, whose sepals and petals are united into a tubular, ventricose, 5-toothed perianth (p. 31).

C. **Anther deciduous, terminal. Pollen powdery.** (Arethuseæ.)  

a. **Labellum anticus.**
4. **Microtis.**—Slender, erect herbs, with tuberous roots at the base of the stem, narrow linear leaves, crowded spikes of very minute green flowers (p. 24).
5. **Acianthus.**—Small, slender, delicate plants, with long-pedicelled tubers at the base of the stem, one sessile cordate leaf on the stem, and a few racemose brownish flowers, with long points to the sepals and petals (p. 25).
6. **Cytostylis.**—Similar to **Acianthus**, but with the column dilated at the apex (p. 25).
7. **Chiloglottis.**—Small herbs, with long underground roots, each terminating in a tuber; two sessile leaves at the base of the scape, and one (rarely two) terminal reddish-brown and green flower, whose labellum bears large, pedicelled, capitate, dark red-brown glands (p. 23).
8. **Eriochilus.**—A very slender herb, with a long underground root terminated by a naked tuber, one sessile ovate leaf on the scape, and small greenish-white pubescent flowers, having the lateral sepals unguiculate (p. 26).
9. **Caladenia.**—Slender, often beautiful herbs, mostly covered with glandular pubescence or long hairs, having a long underground root terminated by a coated tuber, one linear or oblong radical leaf, and a 1-2-flowered scape; flowers often large, with spreading narrow segments, and the labellum studded with pedicelled glands (p. 26).
10. **Glossodia.**—Small pilose herbs, with the general characters of **Caladenia**, but differing in the labellum being sessile, having no glands, but an erect projection at the very base, close to the column (p. 31).
11. **Pterostylis.**—Pale-green, slender, often membranous herbs, with a long underground root terminated by a naked tuber, radical or alternate caleine leaves or none, and solitary or racemose green transparent flowers. Upper sepal galeate. Labellum irritable. Column very long, with auricled wings at the top, and the stigma halfway down its face (p. 18).
12. **Corysanthes.**—A small, singular-looking plant, with a long underground root terminated by a naked tuber; one sessile, broad, cordate leaf, and one almost sessile red-brown flower as large as the leaf, with a very large galeate dorsal sepal, and larger, cuculate, fimbriated labellum. Anther one-celled (p. 15).
13. **Burnettia.**—A very small, stout herb, 2 inches high, with a few alternate leaves, and one or two erect flowers, nearly equal sepals and petals, with involute margins, and a short, broadly-cuneate, papillose labellum (p. 16).

β. **Labellum posticus.**

14. **Liperanthus.**—A short, stout, rather fleshy herb, with a long underground root terminated by a naked tuber, several leaves at the base of the scape, and red-brown racemose flowers. Sepals spreading. Labellum posticus, with crenulate margins (p. 16).
15. **Caleana.**—An erect, slender herb, with a fibrous underground root terminated by a naked tuber, one linear leaf, a long scape, few rather large fuscous-green flowers, which have the irritable labellum shaped like a hammer, with the head placed over the flower (p. 8).

D. **Anther persistent, at the back of and parallel to the column, or sunk in a deep notch of the column, its apex pointing forwards and upwards.** *Pollen powdery.* (Neottieae.)

a. **Labellum anticus.**

15. **Thelymitra.**—Stout or slender herbs, with one linear leaf, and one- or a few-flowered raceme of flowers, whose petals, sepals, and labellum are nearly equal and similar: the labellum without glands (p. 3).

16. **Diuris.**—Generally tall, slender herbs, with several linear radical leaves and few-flowered racemes, linear lateral sepals placed below the three-lobed labellum, and a petaloid staminodium on each side of the base of the column (p. 6).

17. **Calochilus.**—A stout, erect herb, with leafy stem, a spike generally of reddish-brown flowers, which have the labellum beautifully fringed with long purple hairs (p. 14).

18. **Spiranthes.**—A slender, leafy herb, with a few linear leaves, and twisted spike of small pink flowers (p. 14).

19. **Prasophyllum.**—Slender or stout herbs, leafy or leafless, bearing two sessile coated tubers, and spikes of small greenish-yellow or purple flowers. Column short, with the margins expanded into staminodia (p. 9).

20. **Cryptostylis.**—A tall, slender herb, with one radical, petioled, linear-lanceolate, coriaceous leaf, and a few-flowered spike of rather large red-brown flowers (p. 8).

**Tribe I. Neottieae.**

**Gen. I. Thelymitra, Forst.**

*Perianthium regulare, foliolis omnibus (labello incluso) conformibus. Labellum sessile, nudum. Columna bifida, cucullata, trifida, lobo medio emarginato v. trifido, lateralibus porrectis crenatis v. in appendicem apice plumosam productis. Anthera persistens, lobo medio columnae inserta, stigmatibus libero parallela, inclusa v. semiexserta, bilocularis. Pollinia 4, stigmatibus glandulis affixa.—Herbas; radicibus plerumque bituberculatis; folio lineari (rarius lanceolato), sepissime solitario; scapo 2–3-bracteato, apice 1–6-floro; floribus abis caeruleis carnis purpurascensibus flavidissere, sub sole apertis, tempore nebuloso clausis.*

This genus may be distinguished at once by the segments of the perianth and sessile labellum being nearly all equal and similar, and by the column forming a rather membranous hood, which encloses the suberect anther. It abounds in extratropical Australia and New Zealand, but is very rare in tropical Australia, and, except one species found in the lofty mountains of Java, none are known to inhabit other countries but those mentioned, though some will no doubt be found in New Caledonia, etc. In the 'New Zealand Flora' I have alluded to the extreme difficulty, if not impossibility, of characterizing the forms of the genus in that country, and there is not less difficulty with regard to some of the Australian ones. Of these Brown enumerates ten, and Lindley twenty-nine (including Macdonaldia).

The Tasmanian species, of which Brown had one only, may be reckoned at seven, according to Mr. Archer's and my opinion. Of these, four belong to the very distinct section *Macdonaldia*, which has no plumose appendages to the column, and are very distinct from one another (though it is sometimes difficult to discriminate dried specimens of *T. carneae* and *T. venosa* from small forms of *T. nudum* and *iztioides*). The other three are all extremely variable in size and many minor points, but are, I think, easily referable to *T. nudum, angustifolia*, and *iztioides*. Of these three species, *T. iztioides* has the middle lobe of the column truncate, trinod, laciniated, or crested, and shorter than the lateral feathery lobes; in *T. nudum* it is hooded, notched or bilobed, and higher than the lateral
feathery lobes; and in *T. angustifolia* it is somewhat similar, but with the lobes crenate. The two former of these vary extremely in size and habit, from a slender, thread-like, one-flowered herb, 6 inches high, to a tall, stout herb, 18–24 inches high, with six or seven flowers. The other species (*T. angustifolia*) does not vary so much in form and stature, being usually larger, stouter, and with larger flowers and leaves, but a good deal in the apex of the column, whose lobes are crenate, toothed, or fimbriate, long or short, broad or narrow, and whose lateral lobes with feathery apices are sometimes quite erect, and much longer than at others.

How far a local botanist may be able to discriminate some of these forms of *izioides* and *nuda* in various parts of the colony (and in South-eastern Australia, where they are all very abundant), it is impossible for me to say; but, after a very diligent study of the column of all Gunn’s specimens, and of a most beautiful selected series of Archer’s, accompanied with coloured drawings, and dissections of varieties of them, both Mr. Archer and myself have come to the conclusion that the above is a near approximation to the actual number of well-marked forms existing in Tasmania. (Name from θελωντρια, in allusion to the hooded column; that of *Macdonaldia* was given in honour of Mrs. Macdonald Smith.)

§ 1. *Macdonaldia*.—Column bifid at the apex, its sides not produced into toothed or feathery arms. Anther projecting, generally more or less granular or villous.


    Hab. Moist ground near Georgetown, Archer.—(Fl. Oct., Nov.)

    Distrib. South coast of Australia, from Victoria to Swan River.

    A very beautiful little plant, 4–8 inches high, slender, the scape with a double flexure, and two lanceolate bracts, one below each flexure.—Leaf narrow, linear. Floral bracts obtuse. Flowers ¾–1 inch across, pale or deep yellow, relieved by the bifid apex of the column, which is produced into two small purple obcordate appendages. Segments of the perianth variable in shape from linear-oblong to broadly elliptical-oblong, acute or almost obtuse.—Plate Cl. A. Fig. 1, section of leaf; 2, side view of column; 3, front view of ditto; 4, the same, vertically cut; 5, hairs of anther:—all magnified.


    Hab. Sandy soil near Circular Head, Mrs. Smith; Georgetown, abundant, Archer.—(Fl. Oct., Nov.)

    Distrib. South-western Australia.

    Similar in habit to *T. antennifera*, and with the same double flexure of the scape, but the bracts on the scape are longer, almost leafy, and the flowers very much smaller, not ¾ inch across.—Segments of the perianth pale-yellow, tinged with pink externally. Apex of column with two blunt lobes. Anther villous, blunt.—Plate Cl. B. Fig. 1, section of leaf; 2, lateral, and 3, front view of column; 4, hairs of anther:—all magnified.


    Hab. Moist ground, flooded in winter. Circular Head and Rocky Cape, Gunn; Cheshunt and Port Sorrell, Archer.—(Fl. Dec.)
**Orchideæ.**

**FLORA OF TASMANIA.**

Distrib. New South Wales and Victoria.

A very different-looking species from the preceding, larger, taller, with more campanulate bright blue flowers, the scape usually without flexures.—**Stem** 1–2 feet high. **Bracts** two, appressed, with short laminae; upper outer segment of perianth shorter than the inner, two lower longer. **Lip** obovate, rather expanded. **Column** with its bifid apices linear, involute, notched at the tips. **Anther** with an acuminate bifid apex and papilllose base.—This varies with white and blue flowers. Lindley describes *T. venosa* from Bauer’s drawings, as having serrulate segments of the perianth; this is not the case with my Sydney specimens, but Archer tells me that the lip has sometimes small notches along the margin. The Australian specimens have sometimes six flowers, each nearly an inch across.—Plate CII. A. Fig. 1, section of leaf; 2, side, 3, back 4, front views of column; 4, papillae of anther:—all magnified.

§ 2. **Column** three-lobed at the apex, the middle lobe notched or entire, the lateral projecting forwards and crenulate.

4. **Thelymitra carneæ** (Br. Prodr. 519); caule gracile subflexuoso 1–3-floro, floribus roseis parvis, columnæ apice trilobæ lobo medio rotundato crenulato lateralibus porrectis carnosulis crenato-dentatis verrucosisque, anthera subacuta.—Lindl. Gen. et Sp. Orchid. 519. (Gunn, 756, 757.) (Tab. CII. B.)

Hab. Near Hobarton, Gunn; Georgetown and Cheshunt, Archer.—(Fl. Dec.)

Distrib. New South Wales, Victoria, and Swan River.

A small, slender species, a span to 18 inches high, with the scape strict, or having a strong double flexure, bearing one narrow-linear leaf at the base, and two closely appressed bracts. **Flowers** two or three, flesh- or rose-coloured, small, ½ inch across. **Segments** of perianth acute. **Column** with a three-lobed apex, the middle lobe truncate or rounded, crenulate, the lateral projecting forwards and upwards, rather thick, toothed and warty. **Anther** short, blunt.—Except by wanting the feathery apices of the lateral lobes of the column, I cannot distinguish dried specimens of this from small ones of *T. tioides* and *T. nudæ*.—Plate CII. B. Fig. 1, section of leaf; 2, side, and 3, front view of column; 4, basis of anther:—all magnified.

§ 3. **Column** three-lobed at the top, the lateral lobes produced into feathery arms, the middle lobe trifid or notched. **Anther** wholly hidden in the column.


Var. β; columnæ lobo intermedio truncato crenulato.—An species distincta?

Hab. Abundant throughout the Colony, in various soils and localities.—(Fl. Nov.–Jan.) (v. v.)

Distrib. New South Wales, Victoria, and South Australia; New Zealand?

**Stems** usually a foot high, and three- to six-flowered, but of all degrees of stoutness and slenderness, and sometimes 2 feet high, at others 6 inches. **Flowers** a pale delicate blue, tinged with pink, or passing into pink. **Column** dark purple towards the apex; the middle and lateral lobes generally yellow; the middle lobe rounded, notched, or bifid, its margins more or less inflexed, quite entire; lateral lobes short, more or less feathery. For the var. β I am indebted to Mr. Archer: it may prove a distinct species, but we have very few specimens.—Plate CIII. A. Fig. 1, lateral, and 2, front view of column; 3, anther; 4, hair of column:—all magnified.


**VOL. II.**
HAB. Sandy soil at Welcome River, Circular Head, etc., not uncommon, Lawrence, Archer, Gunn.—(Fl. Nov.)

Distrib. New South Wales, Victoria, and South Australia.

I am indebted to Mr. Archer for discriminating my specimens of this species, which were much intermixed with T. nuda. It is distinguished by being generally a large, very stout plant, sometimes 3 feet high; it has a large radical leaf, large loose sheathing bracts on the scape, large pale unsotted flowers: the middle lobe of the column is arched, notched or bifid, with deeply crenate or fimbriate margins; it usually overtops the lateral feathery lobes: the anther is blunt, with a short, stout apiculus.—Brown’s specimens in the British Museum are very small and slender, though not more so than many of ours, and we rely on the description of the lobes of the column for the identification of our plant with his.


HAB. Abundant throughout the Colony.—(Fl. Nov., Dec.) (v. e.)

Distrib. New South Wales, Victoria, South Australia, and Swan River.

Similar in general appearance and habit to T. nuda, and presenting as great varieties in size, stature, slenderness of stem, and size and number of flowers, but the latter are paler and spotted with black; it is at once distinguished by the truncate top of the column, which does not terminate in a rounded hood which overtops the lateral lobes. The middle lobe of the column is trifid; the three inner segments are of very irregular form and size, but the two lateral are generally the longest, and all are more or less toothed, cut, or fimbriate. The lateral lobes of the column, which have feathery tips, almost invariably point more upwards than in T. nuda, and usually considerably overtop the truncate middle lobe. Anther with a long point.—Plate CIII. B. Fig. 1, lateral, and 2, front view of column:—both magnified.

Gen. II. DIURIS, Smith.

Perianthium ringens. Sepala inferiora linearia, labello supposita, supremum latius subfornicatum. Petala patentia, ungunculata. Labellum sessile, trilobum, secalcaratum. Columna brevis, utrinque lobo petaloideo (staminodio) laterali stipata. Anthera mutica, stigmati parallela, persistens, bilocularis. Polinia 2, biloba.—Herbae glabrae; caulibus basi tuberibus duobus oblongis sessilibus terminatis; foliis radiabilibus lineariolis, paucis v. pluribus; scapo vaginato, apice 1–4-floro; bracteis magnis; floribus longe pedunculatis, majusculis, plerumque luteis purpureo-maculatis, rarius albis purpureisve, paucis, laxe racemosis.

The species of this genus are generally handsome, and always variable, especially in the breadth and colour of the segments of the perianth, and their markings. About twenty species are known, all Australian, and chiefly natives of South-eastern Australia; only one is tropical.—Flowers yellow in all the Tasmanian species; two lower sepals linear (often green), placed below the three-lobed, spurious, sessile lip; upper sepal broader, arched. Petals spreading, horizontally clawed. Column short, furnished at the base on each side with two erect, petaloid appendages, which are deformed stamens, and answer to the feathery lateral lobes of the column of Thelymitra. (Name from άς, two, and οπός, a tail; in allusion to the long, narrow lateral sepals.)

1. Diuris maculata (Smith, Exot. Bot. t. 30); foliis 1–2 angustae linearibus lanceolatis filiformibus scapo 2–5-floro brevioribus, floribus aureis purpureo-variegatis, sepalis inferioribus labello longioribus, petalis longe unguculatis obovato-orbiculatis rhombeisve, labelli basi bicarinati lacinii subaequalibus
**Orchideae.**

**FLORA OF TASMANIA.**


**Hab.** Very abundant in pastures and loose forests throughout the Colony.—*(Fl. Oct.)* *(v. v.)*

**Distrib.** New South Wales and Victoria.

A most common and extremely variable plant, which I vainly attempted, when in Tasmania, to find constant characters for; it varies in height from 4–12 inches, in the leaves being very narrow, linear-subulate or linear-lanceolate, in the scape being two- to ten-flowered, in the flowers being from ½ to 1 inch across the petals (rarely more), and extremely in the narrowness of the petals and their spots, in the comparative size and shape of the segments of the lip, in the length of the two lower linear sepals, which are generally much longer than the lip, and cross over one another, but are at other times free and straight, and a little in the form and toothing of the lateral lobes of the column. As a species it may be known by the stipitate broad petals, and equally three-lobed lip, which has two prominent ridges at the base.—*Plate CIV. B. Fig. 1 and 2, front and side view of lip; 3 and 4, front and back view of column:*—*all magnified.*


**Hab.** Marshy ground near Hobarton, Circular Head, etc., *Backhouse, Gunn.* Port Dalrymple, *Patterson.*—*(Fl. Dec.)*

**Distrib.** Victoria and South Australia.

A small species, rarely more than 4 inches high, with numerous narrow-linear, almost filiform radical leaves, shorter than the two- or three-flowered scape.—*Peduncles ½–1 inch long. Flowers small, ½ inch across; the petals very dark-coloured, of a deep orange, almost obscured by dark purple-red blotches. Lower sepals longer than in *D. maculata,* and petals narrower.*


**Hab.** Common in many parts of the Colony.—*(Fl. Nov.)* *(v. v.)*

**Distrib.** New South Wales, Victoria, and South Australia.

A larger and handsomer plant than *D. maculata,* further easily recognized by the paler, less-blotched flowers, by the labellum not having two elevated ridges at its base, and by the middle lobe being larger, and generally more than twice as large as the lateral. The majority of my specimens are a foot to 18 inches high, and the flowers are 1–1½ inch across the petals; the upper sepal is trulliform, with a very short claw, and two spots on each side of the middle; the two lower are linear, and vary from as long as to twice as long as the lip: they rarely cross one another; the petals are golden-yellow, with a deep purple-brown claw, and the labellum golden-yellow, blunt, with a prominent mesial line corresponding with a canal on the lower surface, have two large blotches on each side of the middle lobe, one small transverse one across the middle nearer its base, and mottled or clouded lateral lobes; these markings are however variable in size and shape.—*Plate CIV. A. Fig. 1, dorsal sepal; 2, petal; 3, lateral, and 4, front view of labelllum; 5, front, and 6, back view of column:*—*all magnified.*

Hab. Common in the northern parts of the Colony, as at Circular Head, Emu Bay, Georgetown, etc.,
Gunn, Archer.—(Fl. Sept., Oct.)

Distrib. New South Wales, Victoria, and Swan River.

Similar in habitat and general characters to the preceding species, but of a duller colour.—Flowers of the same size as those of D. sulphurea, or rather larger, sometimes more than 1½ inch across the petals; upper sepal of a dirty yellow, suffused with dull-red, broadly ovate. Petals dull yellow, faintly clouded with red. Labellum with three nearly equal lobes, or with the middle one rather the largest, and obcuneate, rounded, truncate or emarginate at the tip, without any prominent ridge or keel.—Plate CV. B. Fig. 1, labellum —magnified.

5. Diuris pedunculata (Br. Prodr. 316); folis 3–5 linearibus scapo 1–4-floro brevioribus, floribus pallidis, perianthio connivente, sepala lateralibus labello appressis porrectis, petalis elliptico-lanceolatis, labelli lobis lateralis rarius crenatis intermedio trulliformi acuta medio carina duplici pubescente instructo.—D. lanceolata, Lindl. Gen. et Sp. Orchid. 508. (Gunn, 609, 934.) (Tab. CV. A.)

Hab. Abundant in moist places near Hobarton, and other parts of the Island.—(Fl. Oct.) (v. v.)

Distrib. New South Wales, Victoria, and South Australia.

A very different species from any of the foregoing, but extremely variable. It is at once recognized by the pale-yellow horizontal flowers, whose perianth appears compressed from above, and not spreading, and the labellum has a double downy ridge down the centre: it is one of the earliest spring flowers.—Very variable in height, 4–10 inches. Leaves rather numerous, very slender. Flowers generally one or two, but sometimes four, on long peduncles, ½–1⅔ inch long, including the ovary; upper sepal short, narrow, oblong or broadly ovate, pointing forwards, and parallel to the lip; lateral sepals placed close below the lip, linear, straight or curved, as long or longer than the lip. Petals pointing forward, narrow or broad, elliptical, about as long as the lip, with short purplish claws. Lip with two small crenate lateral lobes, like auricles, at the base of the larger lobe, which is plane, triangular-ovate, acute, points forwards, and is very variable in length.—Plate CV. A. Fig. 1, dorsal sepal; 2, petal; 3, labellum; 4, column —all magnified.

Gen. III. CRYPTOSTYLIS, Br.

Herba; bulbis teretibus, fasciculatis, subarticulatis; folio radicali petiolato, lineari-lanceolato, coriaceo, reticulato; floribus scapum vaginatum terminantis, spicatis, sordide rufis, majusculis.

The species of this genus, of which there are several, are all Australian herbs, but are so closely allied to some East Indian and Malayan Island plants (Zosterostylis, Bl.), that it is doubtful whether all these should not be brought into the same genus.—Flowers rather large, dusky-red or brownish, spiked, solitary or few. Radical leaves strongly net-veined when dry. Roots fascicled, of thick, jointed or annulate fibres.—The C. longifolia is a tall herb, 10–24 inches high, with one rather coriaceous, flat, radical, linear-lanceolate leaf on a long petiole. Scape erect, rather stout, with a few distant, short, sheathing bracts. Flowers three to eight, rather distant, sessile, upwards of an inch broad. Ovary curved, slender, ½ inch long, about twice as long as the bracts. Sepals narrow-linear, dirty yellow-green, almost an inch long. Petals shorter, smaller, more subulate, of the same colour. Lip superior (i.e. posticus), pointing forward, its face looking downward, broadly-ovate, oblong, blunt, margins recurved, with three medial ridges terminating in a double tubercle towards the apex, dirty reddish-brown. Column very short, hidden in the eucallate base of the lip, its margins expanded, membranous, and torn. (Name from κρυπτος, concealed, and στυλος, a column.)

**Hab.** Marshy places in sandy soil: Circular Head, Gunn; Port Sorrell, Garrett's Sugar-loaf, and east side of Meander River, Archer.—(Fl. Feb.)

**Distrib.** New South Wales and Victoria.

**Plate CVIII. A.** Fig. 1, labellum; 2, side, and 3, front view of column; 4, front view of anther and pollen:—all magnified.

**Gen. IV. PRASOPHYLLUM, Br.**

**Perianthium** ringens. **Sepala** lateralia postica, distincta v. basi coherentia. **Petala** inequilateralia, sepalis subaequalia. **Labellum** posticum, unguiculatum, ascendens, indivisum, ecalearatum, sepius lamina adnata marginis libera auctum. **Columna** basi utrinque laciniosis lateribustis (staminodia) suffulta. **Anthera** mutica, antica, loculis approximatis. **Pollinia** 2, biloba, apicibus stigmatibus affixa.—**Herba** terrestres, glabra; tuberibus indivisibus; folio radicali, lineari, basi vaginato, tereti-fistuloso, rarius brevissimo; floribus parvis, rufescentibus flavidibus, fuscis, dense v. laxe spicatis.

A large genus of very variable plants, confined, so far as is at present known, to Australia and the New Zealand Islands. The species may readily be recognized by their coated bulbs, which are not pedicelled, solitary staminal leaves, and spike of small flowers, which have the labellum above. Mr. Archer has made a detailed study of the Tasmanian species, and I have gladly availed myself of his arrangement and characters of the species; these appear to me good, though I must own it is not possible to find in all the dried specimens of any species all the characters we agree in considering to be the diagnostics of that species: still the difficulties are not nearly so great in this genus as in *Microtis* and *Thelymitra*. The genus *Genoplesium*, founded by Brown upon a drawing of Bauer's, we have included in *Prasophyllum*, with an amended character, Bauer appearing to us to have confounded the petals with the staminodia, though we must confess that it is difficult to understand how he came to do so; as however the different views of these organs, as represented by Bauer, are not consistent with one another, we are unavoidably compelled to suspect some error.—(Name from πρασός, a leaf, and φύλλον, a leaf.)

**Conspicuum specierum.**

1. **Euprasophyllum.**—**Sepala** et **petala** æqualia. **Labellum** breviter unguiculatum. **Columna** sepalo dorsali non adnata. **Staminodia** simplicia v. basi tantum lobulata. **Anthera** mutica. **Folium** plerumque scapo æquilongum.

A. **Labellum** ultra medium repente angustatum; marginis non undulato.
   1. **Sepala** lateralia sepius connata. **Flores** virides, odorati. **Folium** elongatum. **P. alpinum.**
   2. **Sepala** lateralia libera. **Flores** sepius fusi, inodori; sepalis petalisque angustis.
   **Folium** elongatum. **P. fuscum, Br.**

B. **Labellum** ultra medium sensim angustatum; marginibus undulatis.
   a. **Sepala** lateralia plus minusve connata.
   * **Ovarium** elongatum, cylindricum, bractea paulo longius.
   3. **Staminodia** linearia, membranacea. **Folium** secapum æquans. **P. australi.**
   4. **Staminodia** brevia. **Folium** breve. **P. falcum.**
   **Ovarium** turgidum, pedicellatum; bractea pedicellum æquante.
   5. **Sepala** lateralia basi non saccata. **Folium** breve. **P. brevilabre.”
6. Sepala lateralia basi saccata. Folium elongatum

7. Sepala lateralia apicem versus unidentata. Labelli lamella adnata, apice abrupte terminata

8. Sepala lateralia apice integra. Labelli lamina adnata, bicornata, apice evanida


A. Labelli margo integra v. erosa, non fimbriata.


B. Labelli margo fimbriata.

12. Flores horizontales, pauci. Sepala lateralia basi non saccata. Labelli lamina adnata, simplex. Staminodia biloba, lobo inferiore fimbriato


§ 1. Lateral sepals united throughout their length, or nearly so.

1. Prasophyllum australis (Br. Prodr. 318); folio scapum robustum equante, spica multiflora elongata, bracteas acutae ovario gracilis cylindracea § breviores, floribus fuscis, sepalis lateribus connatis, labelli apice attenuati margine undulato, lamella adnata distincta marginibus membranaceis, staminodii lineari-elongatis membranaceis antheram superantibus.—Lindl. Gen. et Sp. Orchid. 514. An P. elatum, Br.? (Gunn, 921.)

Hab. Abundant at Circular Head and Rocky Cape, in poor soil, Gunn.—(Fl. Nov.)

Distrib. New South Wales, Victoria, and Swan River.

A tall, stout, dark reddish-brown or purplish species, 1–2 feet high, with a leaf as long as the scape, a spike of many, crowded, dark-coloured flowers, large for the genus, slender ovaries, lateral sepals cuneate (rarely free), and very long, narrow, white, membranous staminodia. I have seen no authentic specimen of this, but I have of Brown's P. elatum, the staminodia of which precisely accord with those of our plant.

2. Prasophyllum lutescens (Lindl. Gen. et Sp. Orchid. 514); folio caulem subrobus tum equante, bracteis acuminatis ovarii gracilibus pedicellatis brevioribus, sepalis acuminatis lateribus cuneatis, petalis acuminatis undulatis, labelli basi saccati medio recurvi apice attenuati marginibus undulatis, lamella adnata distincta, staminodiis lineari-oblongis falcatis recurvis. (Tab. CX. B.)

Hab. Wet places: Rocky Cape, Gunn; Stoker's Plains, Archer; Huon River, Oldfield.—(Fl. Nov., Dec.)

Distrib. New South Wales and Victoria.

A rather stout, yellowish-green species, 10–18 inches high, with a leaf as long as the scape.—Flowers rather numerous. Sepals and petals acuminata, somewhat undulata; lateral sepals united. Lip undulate, with a saccate base, and large lamella with free margins. Staminodia linear-oblong, recurved.—Plate CX. B. Fig. 1, flower; 2, labellum; 3, back, and 4, front view of column; 5, pollen:—all magnified.
3. **Prasophyllum brevilabre** (Hook. fil.); folio scapo gracili æquilongo, floribus laxe spicatis, ovariiis pedicellatis turgidis, bracteis minimis pedicellos subequantibus, sepalis subacutis lateralibus cuneatis petalisque obtusis, labello elongato basi subsaccato medio refracto, lamella adnata crassiuscula marginibus undulatis, staminodiis lineari-oblongis falcatis recurvis obtusis.—P. lutescens, var. β. brevilabris, *Lindl. l. c.* (Gunn, 923.) (Tab. CX. A.)

**Hab.** Rocky Cape, in wet places, *Gunn*; Cheshunt, Archer.—(Fl. Dec.)

**Distrib.** Victoria.

But for the remarkable difference in the ovary and bracts of this species, I should not have ventured to have separated it from *P. lutescens*. In this however the ovaries are shorter, very turgid, distinctly pedicelled, and the minute bracts are hardly longer than the pedicels. The whole plant is also smaller, has fewer and more distant flowers, the sepals and petals are blunter, and the labellum is sharply doubled back on itself at about the middle. Gunn remarks that the labellum is shorter, as well as more acutely reflexed: the latter character I observe to be the case, but I think the shortness is the resulting appearance.—**Plate CX. A.** Fig. 1, flower; 2, labellum; 3, side view of labellum and column; 4, front view of column; 5 pollen:—all magnified.

4. **Prasophyllum flavum** (Br. Prodr. 318); caule robusto foliio brevissimo atro-purpureo, spica multiflora, floribus luride viridibus, bracteis acuminatis ovariiis cylindraceis brevioribus, sepalis dorsalius connati lateralius petalisque subacutis, labello basi non saccato breviusculo recto v. vix recurvo apice attenuato marginibus undulatis, lamella adnata crassiuscula, staminodiis brevibus obtusi saculis. (Tab. CIX. A.)

**Hab.** In marshy ground: Cheshunt, Archer; Huon River, Oldfield.—(Fl. Dec.)

**Distrib.** New South Wales.

I have examined two specimens of this plant, which varies from 10–18 inches high, and is more or less robust, and when dry deep purplish-black. It is very similar to *P. australe*, but may be known from it by the very short leaf, and from others by the slender ovaries, with acute bracts about half their length, the cuneate lateral sepals, short, nearly straight labellum, not saccate at the base, with undulate margins, and short, small staminodia.—**Plate CIX. A.** Fig. 1, side, and 2, front view of flower; 3, labellum; 4, side, and 5, front view of column:—all magnified.

§ 2. **Lateral sepals free (except in P. alpinum and rostratum).** Labellum not suddenly contracted at the apex.

5. **Prasophyllum patens** (Br. Prodr. 318); pallide viride, folio caulem elatum æquante v. superante, floribus laxe spicatis majusculis patulis, ovariiis turgidis pedicellatis, bracteis parvis obtusi pedicellos vix superantibus, sepalis subacutis lateralius liberis apice raro dentatis, labelli late ovato-lanceolati reflexi marginibus late undulatis, lamella adnata crassa bilamellata apice evanescente, staminodiis suberectis falcatis apice truncatis integris emarginatisve.—*P. truncatum, Lindl. l. c. 513.* (Gunn, 352, 926, 927.) (Tab. CXL.)

**Hab.** Abundant in moist ground throughout the Island.—(Fl. Nov., Dec.) (v. v.)

**Distrib.** New South Wales and Victoria.

After a laborious examination of very many specimens, I find myself quite unable to distinguish all Gunn’s specimens of *P. truncatum* from *P. patens*. Archer however, in his notes and drawings, distinguishes two species by the form of the adnate lamella on the surface of the labellum, that of *P. patens* gradually subsiding into the substance of the labellum, whilst that of *P. truncatum* ends abruptly at the flexure; the sepals of *P. truncatum* are further more uniformly notched near the apex.—The general form of the staminodia, which are broadly oblong and falcate in all the specimens, is very much the same, but the apex varies extremely, being truncate, rounded, or subacute, entire, erose, or notched.—**Root-tubers bilobed (always?).** Scapes 6–18 inches high, with one leaf as long as
itself, or longer. *Spike* loose, appearing distichous in the dried specimens, many-flowered. *Flowers* often sweet-scented, but not constantly so, pale-whitish or greenish-yellow, pedicelled. *Bracts* very small, blunt, scarcely longer than the pedicels. *Ovaries* turgid. *Sepals* acute, the lateral free, never or seldom notched near the tip. *Petals* linear, blunt, sometimes more or less undulate. *Labellum* recurved, with a distinct, bilobed, rather fleshy lamella, which sinks gradually into the substance of the labellum at its termination; margins very undulate.—*Plate* CXI. Fig. 1, side, and 2, front view of flower; 3, side, and 4, front view of labellum; 5, back, 6, side, and 7, front view of column; 8, pollen:—all magnified.

6. *Prasophyllum truncatum* (Lindl. Gen. et Sp. Orchid. 513); pallide virescens, folio caulem elongatum æquantem v. superante, spica multiiflora, floribus majusculis patulis pedicellatis, bractea parva obtusa pedicello æqualiæ, sepalis subacutis lateralibus liberis apice sepius dentatis, petalis planis undulatis obtusis, labelli late ovato-lanceolato reflexi marginibus late undulatis, lamella adnata definita sulcata apice abrupte truncata, staminodii suberectis apice rotundatis truncatisve emarginatis. (Gunn, 924, 925, 928.) (Tab. CIX. B.)

Hab. Common in various parts of the Colony.—(Fl. Nov.)

Distrib. New South Wales and Victoria.

I am quite unable to distinguish all states of this, when dry, from *P. patens*, either by the form and notching of the apex of the staminodia, or by any other character, except the form of the lamella on the labellum: this I find from Archer's drawings to be abruptly terminated at the flexure of the labellum with a strong, raised, transverse edge, whilst that of *P. patens* gradually sinks into the nerves of the labellum. In some states the petals are much undulated, and in these the lateral sepals are more frequently notched towards the apex.—*Plate* CXIX. B. Fig. 1, side, and 2, front view of flower; 3, labellum; 4, side, and 5, front view of column:—all magnified.

7. *Prasophyllum alpinum* (Br. Prodr. 318); virescens, folio caulem gracilem superante, ovariis turgidis pedicellatis, bracteis pedicelllos æquantibus brevibus rotundatis, floribus parvis, sepalis acutis lateralibus liberis approximatis v. basi connatis, labello ovato-lanceolato ultra medium repente angustato pubescente v. glabrato marginibus vix undulatis crassiusculis, lamella adnata vix definita, staminodii brevibus obtusis hinc emarginatis.—*Lindl. l. c. 515.* (Gunn, 929.) (Tab. CXII. A.)

Hab. Alpine and subalpine localities: Circular Head, Gunn; Mount Wellington, Oldfield; Western Mountains, Archer.—(Fl. Nov.—Jan.)

Distrib. Australian Alps, Mueller.

Generally a small, pale green species, with the leaf longer than the scape, but very variable in size, and sometimes 18–20 inches high. *Flowers* loosely spikes, not so patent as in *P. patens*, and smaller. *Ovaries* turgid, pedicelled; *pedicels* with short, blunt bracts. *Lateral sepals* free, or rarely united at the base or to the middle, sometimes notched near the apex. *Lip* short, fleshy, with thick, hardly undulate margins, and a thickened, but not defined disc, often pubescent, ovate at the base, suddenly contracted beyond the middle, not strongly recurved.—It is difficult to define this species from some states of *P. patens* by words, but it is a very distinct plant, and when fresh has a strong smell of Hyacinths.—*Plate* CXII. A. Fig. 1, side, and 2, front view of flower; 3, back, 4, front, and 5, side views of column:—all magnified.


Hab. Common in various parts of the Island, in a rich and moist soil, Lawrence, Gunn, Archer.—(Fl. Nov., Dec.)
Distrib. Victoria, Mueller, etc.

I find it extremely difficult to distinguish this from *P. alpinum*. Archer defines this as having the lateral sepals free, or united at the base only, whilst in *P. alpinum* they are united along their lower half; but I find that this partial connection of the sepals affords no constant character. The most prominent difference at first sight appears to me to be the darker, often dusky colour of *P. fuscinum*, which has much narrower petals and sepals; it is also inodorous.—Plate CXII. B. Fig. 1, side, and 2, front views of flower; 3, side view of column and labellum; 4, front view of column; 5, pollen:—all magnified.

B. Genoplesium.—Anther pedicellate, with a terminal beak. Labellum clawed. Dorsal sepals adherent to back of column. Lateral sepals larger than the dorsal.—(Genoplesium, Br.)


Hab. Sandy soil: Circular Head, and Hampshire Hills, Rocky Cape, Gunn.—(Fl. Dec., Jan.)

Tuber as large as a Hazel-nut. Base of the scape covered thickly with withered, sheathing scales. Scape very slender, 3—8 inches long, with one appressed, truncate sheath at the base, and one sheathing, acuminate bract, placed towards the top, but removed from the spike. Spike of six to ten, horizontally spreading, shortly pedicelled, small, yellowish flowers. Bracts very minute, truncate. Ovary cylindrical, turgid. Perianth horizontal, ½ inch long. Lateral sepals rather saccate at the base, then coherent, lanceolate-acuminate; dorsal broadly ovate, very concave, acuminate. Petals shorter than the sepals, ovate-lanceolate, with long, acuminate spines. Lab as long as the petals, oblong-lanceolate, acuminate, erose at the margin, the adnate lamella blending at the margin into its substance, grooved down the centre. Staminodia oblong, deeply bifid, membranous.—This Archer has identified with the Genoplesium Baueri of Brown, described from Bauer’s drawing. This drawing, which Mr. Brown has kindly allowed us to examine, accurately represents our plant in all but the apparent confounding of the petals with the staminodia in the magnified analyses.

10. *Prasophyllum nudiscapum* (Hook. fil.); scapo aphylo graciili ad apicem bractea parva instructo, spica brevissima pauciflora, floribus horizontalibus pedicellatis minute bracteolatis, ovariiis cylindraceis turgidis, sepals petalisque acutissimis lateralibus longioribus basi connatis non saccatis, labelli unguiculati lanceolati marginibus planiusculis erosis, lamella adnata inconspicua, staminodiis breviusculis late bidentatis membranaceis glaberrimis.

Hab. Sandy soil: near Hobarton, J. D. II.—(Fl. Aug.)

Of this curious little species I have seen only the few specimens gathered by myself, which are passing into fruit, and one from Victoria. It is closely allied and very similar indeed to *P. brachystachyum*, but distinguishable at once by the bract of the scape being placed close under the spike; it has, further, fewer smaller flowers, shorter staminodia, and a narrower labellum, with more erose margins. Younger specimens are however necessary to complete the description of the flower.

11. *Prasophyllum despectans* (Hook. fil.); scapo gracillimm aphylo apicem versus bractea vaginantae instructo, spica elongata, floribus curvis perianthio deflexo atro-purpureo, ovario brevi cylindraceo pedicellato, bracteola minima, sepals acutissimis lateralibus setaceo-lanceolatis basi connatis non saccatis dorsali late ovato acuminate longioribus, petalis ovato-lanceolatis acutissimis, labello unguiculato lanceolato acuminate marginibus integris, lamina adnata definita simplici, staminodiis subulatis falcatis incurvus glaberrimis. (Tab. CXIII. A.)
HAB. Sandy soil: near Hobarton, J. D. H.; Cheshunt, Archer.—(Fl. Sept.)

Root and scape as in the other species of this section. Bract placed below and rather distant from the spike. Spike ½–1 inch long, eight- to twelve-flowered. Flowers minute, short, curved, the perianth pointing downwards. Sepals and petals acuminate, with subulate points. Staminodia with incurved, subulate points, which, with the deflexed flowers, distinguish this species well from all its allies.—PLATE CXIII. A. Fig. 1, flower; 2, side view of column and labellum; 3, labellum; 4, front view of column and labellum; —all magnified.

12. Prasophyllum Archeri (Hook. fil.); scape gracillimo apicem versus bractea longe acuminita instructo, spica brevi pauciflora, floribus horizontalibus flavo-rubris, sepalis lateralibus basi connatis dorsali late ovato acuminato longioribus, petalis ovato-lanceolatis acuminitis, labello unguiculato marginibus fimbriato-laceris, lamella adnata simplici crassa definta, staminodiis bilobis lobo anteriore subulato fimbriato carnosulo posteriori breviore truncato membranaceo, anthera rostro elongato. (Tab. CXIII. B.)

HAB. Light soil near Cheshunt, Archer.

A very distinct species, of the same habit and general appearance as P. brachystachyum, but more slender, with smaller reddish-yellow flowers, fimbriated membranaceous margins to the lip, which bears a very prominent, thick, cellular, undivided, adnate lamella, grooved down the middle, and very different staminodia: these are broad, and unequally two-lobed, the outer or lower lobe is red, subulate-lanceolate, curved, cellular and papillose, with fimbriated edges; the inner or upper is shorter, broader, truncate, transparent, white, and naked.—Anthera with a long rostrum.—PLATE CXIII. B. Fig. 1, front, and 2, side views of flower; 3, column and labellum; 4, front of column; 5, front, and 6, side views of pollen: —all magnified.

13. Prasophyllum nudum (Nob. in Fl. N. Zeal. i. 242); scape aphylo gracili apicem versus 1-bracteato, spica multiforma, floribus brevioribus minute bracteolatus atro-purpureis, sepalis lateralibus basi connatis subsaccatis dorsali ovato-acuminato longioribus, petalis ovato-lanceolatis acuminitis, labello oblongo-lanceolato unguiculato, lamina basi biauriculata marginibus fimbriatis, lamellae adnatis 2 parallelis discretis, staminodiis bilobis lobo anteriore subulato subfimbriato posteriori obtuso laiore, anthera longipilosa rostrata. (Tab. CXIII. C.)

HAB. Collected by Gunn, but I do not know where.

Distrib. New Zealand.

Very variable in size, 3–10 inches high, always slender, with a leafless, one-bracteate scape, and rather long spikes of eleven to thirty ascending, minute flowers, smaller than in any of the preceding of this section. It is very nearly allied to P. Archeri, but differs in the two distinct, parallel lamellae on the labellum, and the shorter, less fimbriated, anticus lobe of the staminodia.—PLATE CXIII. C. Fig. 1, side, and 2, front views of flower; 3, labellum: —all magnified.

Gen. III. CALOCHILUS, Br.


The few known plants of this genus are very beautiful, and all Australian; they are easily recognized by the red-brown (rarely yellowish or white) flowers, with an ovate-lanceolate labellum, covered with a copious, pendulous beard of delicate filaments.—Root an undivided bulb, above which are very thick, spreading, cylindrical rootlets; stem 12–18 inches high, with one or a very few narrow radical leaves, and some sheathing ones on the scape. Flowers few, large, racemose or spicate, with three nearly equal, lanceolate sepals, of which two are placed under
the labellum, two inner petals similar to the sepals, and a long, pendulous, crinete lip. Column short, hooded, enclosing an erect, acute anther.—The C. campestris has a four- to eight-flowered spike; the flowers about half an inch across; labellum longer than the sepals, terminating in a ligulate point of very variable length. I find such great differences in the length of the labellum and its ligulate apex, in the relative length of the bracts and ovaries, and in the size and colour of the flowers of the different forms of Calochilus, that I much doubt there being more than one species of the genus. (Name from καλός, beautiful, and χαλός, a lip.)


Hab. Not uncommon in moist ground, as also in poor, sandy soil: Rocky Cape and Woolnorth, Gunn; Port Sorrell, Archer; Huon River, Oldfield.—(Fl. Dec.)

Distrib. Tropical Australia, Brown; New South Wales, Victoria, and South Australia.

Plate CVI. A. Fig. 1, labellum; 2, side, and 3, front view of column; 4, pollen:—all magnified.

Gen. IV. SPIRANTHES, Rich.

Sepala lateralia labello supposita, basi brevissime saccata; supremum cum petalis in galeam connivens. Labellum anticum, breviter unguiculatum, imberbe, columnam brevem amplexens. Anthera dorsalis, stigmatem parallelem, rostellum lamellato apice bifido incensens. Pollinia 2, glandulæ communi affixa.—Herbe foliosa, radice et fibris crasis indivisæ; foliis angustis; scapo vaginato; floribus in spicam sapa tortam dispositis.

A large and widely-diffused genus, the only Tasmanian, or indeed Australian, species of which is found in many parts of the globe, a very rare instance of wide distribution in the Order. The New Zealand species, which I distinguished in the Flora of that country as S. Nova-Zelandiae, appears, according to Dr. Lindley, to be a variety of the Australian, differing in the narrower labellum, but not constantly.—The S. Australis is a small, herbaceous plant, 4 inches to a span high, with a root of thick, unbranched fibres, several linear, radical leaves, and a vaginate scape, terminated by a twisted spike of small, reddish, crowded flowers. Scape and spike glandular. Bracts broadly ovate-acuminate, as long as the ovary. Flowers ½ inch long, horizontal. Sepals and petals ovate-lanceolate, subacute; dorsal sepal and petals forming together a galea; lateral sepals rather saccate at the base. Lip hardly longer than the sepals, white, shortly clawed, linear-oblong or ovoblate-oblong, with crumpled and crenate margins. Column short. Anther dorsal. (Name from σπειρα, a spire, and αρβος, a flower.)

1. Spiranthus Australis (Lindl. in Bot. Reg. 823); foliis anguste lineari-lanceolatis, spica glanduloso-pubescente tortili, labello oblongo obtuso marginibus crispatis basi biligulato, columnæ lobulis lateralibus stigmatem longioribus.—S. Nova-Zelandiae, Nob. in Fl. N. Zeal. i. 243. Neottia Australis, Br. Prodr. 319. (Gunn, 402, 754.)

Hab. Moist places: Circular Head, Gunn; Cheshunt, Archer.—(Fl. Nov.)

Distrib. New South Wales and Victoria, New Zealand, China, India, and Siberia.

Tribe II. ARETHUSEÆ.

Gen. V. CORYSANTHES, Br.

Perianthium ringens. Sepalum supremum maximum, galeatum; lateralia basi connata, una cum petalis angustissimis labello occultata. Labellum magnum, cucullatum v. tubulosum. Columna brevis, solida.
Anthera 1-locularis, semibivalvis, persistens. Pollinia 4.—Herbae perpusilla, glabra; folio unico rotundato, integro v. lobato; flore solitario, maximo, subsessili, luride rufo v. purpureo.

A very singular genus, consisting of about six Australian and one Javan plant; all are small herbs, growing in very shaded, damp woods, and have slender roots, with one or two small, pedicelled tubers, very short stems, a rounded, very membranous leaf, and large, solitary, dingy rufous-coloured, sessile flower, quite unlike that of any other Orchideous plant; that of the Tasmanian species resembles a snail.—Sepals unequal, the upper large and hooded, the lateral very small and narrow, and, as well as the small petals, hidden under the large upper sepal. Lip large, tubular or succate, sometimes spurred; that of the Tasmanian species is spurred, hooded, with toothed or fimbriated margins. (Name from copus, a helmet, and avos, a flower.)


Hab. Common upon shaded, mossy banks, and in moist, sandy places, in various parts of the Island. —(Fl. July–Sept.) (v. v.)

Distrib. New South Wales and Victoria.

Lindley distinguished this doubtfully as a different species from C. fimbriata, from its having larger flowers and less fimbriated margins to the labellem; but I find both the flowers and leaves to be extremely variable in absolute and relative size. The flowers are sometimes nearly white, and vary from %–¥ inch long.—Plate CVII. B. Fig. 1, dorsal sepal; 2, column and petals; 3, front view of column; 4, portion of labellum; 5, front, 6, back, and 7, side views of pollen:—all magnified.

Gen. VI. LYPERANTHUS, Br.

Perianthium carnosulum, papillosum, ringens, extus glandulosum. Sepalum posticum fornicatum; lateralia et petala angusta, planiuscula, subaequalia. Labellum breve, semicucullatum, ascendens, recurvum, disco glandulosum v. costato. Columna linearis, solida. Anthera bilocularis, terminalis. Pollinia 4.—Herbae terrestris, glabra, radicibus crassis fibrosis tuberum solitarium gerentibus; caule basi foliato, superne vaginato; floribus racemosis, fucis v. luride atro-purpureis.

There are about six known species of this genus, of which four are Australian, and of the others, one inhabits New Caledonia, and the other Lord Auckland’s Group, south of New Zealand. L. nigricans, the only Tasmanian species, is rather common in Australia, extending from Sydney to Swan River, but is very rare in Tasmania; it is a stout, herbaceous plant, 4–7 inches high, with dark, red-purple flowers. Root of very stout, often woolly fibres, springing from the base of the stem, of which one, stouter and longer than the rest, terminates in an oval, undivided tuber. Leaves very thick and fleshy, the lowest largest, ovate or circular, the upper gradually passing into sheathing bracts, which loosely clothe the scapes. Flowers three to five, racemose, about 1 inch long, almost concealed in the large, elliptical, concave bracts. Upper sepals galeate, lanceolate, acute; lateral sepals about equal in length, linear, curving downwards. Petals ascending. Lip blunt, with a revolute apex, glandular disc, and crisped margins. (Name from λυπυς, mournful, and αvroς, a flower; in allusion to the aspect of the flowers.)

1. Lypervanthus nigricans (Br. Prodr. 325); folio radicali cordato-rotundato v. ovato-oblongo, caulis vaginis bracteisque cymbiformibus, labelli apice revoluto disco papilloso marginibus undulato-crispatis.—Lindl. Gen. et Sp. Orchid. 392; Endl. Icon. t. 7; Plant. Preiss. ii. 5. (Tab. CVI. B.)

Hab. Forest near Georgetown, Archer. —(Fl. Dec.)

Distrib. New South Wales, Victoria, and Swan River.

Plate CVI. B. Fig. 1, flower, magnified.
Gen. VII. BURNETTIA, Lindl.


—Herba pusilla, erecta, robusta, 2–3-foliata; foliis vaginaformibus; floribus 2–3, pro planta magnis, erectis.

A very singular and rare plant, the only one of its genus hitherto discovered. Lindley, who first described it, has placed it in Neottiae, but the relative positions of the anther and stigma on the column appear to me the same as in Lyperanthus and its allies, with which it further agrees in the structure of the lip and its appendages.—A very small, herbaceous, greenish plant, about 3–4 inches high, with two to three distant, leafy bracts on the stem, and two to three large, erect flowers, nearly ½ inch long. Ovary clavate, longer than the acuminate flower-bracts, as long as the perianth. Sepals nearly equal, oblong-lanceolate, subacutæ; dorsal concave; lateral with involute margins. Petals as long as, but narrower than, the sepals, with involute margins. Labellum short, ascending, broadly cuneate, with a truncate, erose apex, its margins rolled in; disc with two thickened ridges, terminating in a conical callus near the base, and in some scattered, small, clavate glands towards the apex; a few papillæ are also scattered over the surface of the labellum, whose under surface is granular towards the apex. Column with broad, membranous margins. Anther terminal, two-celled, acuminate. Stigma a rather prominent, hollow, ovate, depressed body, below and in front of the very base of the anther. (Named in honour of the late G. T. Burnett, a Professor of Botany in London.)


Hab. Very rare. Sandy soil: at the foot of Rocky Cape, Gunn; Port Arthur, Backhouse (fide Gunn).

—(Fl. Dec.)

Plate CVII. C. Fig. 1, flower; 2, labellum; 3, column and labellum; 4, front view of column:—all magnified.

Gen. VIII. CALEANA, Br.


The species of this genus, of which only three are known, are remarkable for the irritability of the lip; this is posticus, has a long, narrow pedicel, and stands erect, as it were, over the flower, but when the plant is shaken, or rain comes on, it suddenly shuts down, like a lid, on the flower, and its lamina becomes closely applied to the large petaloïd column. A Swan River species is said thus to catch insects, whose struggles appear to disengage the pollen from the anther, and apply it to the stigma.—Slender, herbaceous plants, with a solitary, narrow, radical leaf, and tall scape, bearing one or very few, rather large, deep red-brown flowers. The Tasmanian C. major is a span to 8 inches tall, with a leaf varying from narrow-linear to broadly lanceolate, a scape with one small, sheathing bract, and about two flowers, 3–1½ inch long. Flowers pedicelled, with a small bract at the base of the pedicel, reversed, the labellum being above. Sepals three, narrow-linear, one hanging down behind the column, and the two lateral pointing backwards, nearly horizontally, notched at the margin. Petals about as long as the column, linear, placed against its sides, pointing downwards and forwards. Labellum with a long, slender peduncle, the lamina produced into a narrow point at the apex, and at the base into a subulate appendage. Column much larger.
than any other part of the flower, broadly dilated, petaloid, dark red-brown, with a terminal, greenish anther. (Named in honour of G. Caley, a diligent explorer of New South Wales botany.)

1. **Caleana major** (Br. Prodr. 329); folio angusto lineari v. lanceolato plano, scapo medio 1-bracteato, limbo labelli levi semi-ovato apice angustato basi appendice curvato instructo. — *Endl. Nov. Gen. t. 1598; Lindl. Gen. et Sp. Orchid. 429.* (Gunn, 946.) (Tab. CVII. A.)

**Hab.** Sandy soil: Rocky Cape, Gunn; Cheshunt, Archer; Hobart and Huon River, Oldfield.— (Fl. Dec.)

**Distrib.** New South Wales and Victoria.

**Plate CVII. A.** Fig. 1, flower; 2, lateral, and 3, dorsal sepal:—*all magnified.*

Gen. IX. **PTEROSTYLIS**, Br.

**Perianthium ringens.** *Sepalum* posticum cum petalis in galeam connatis v. conniventibus; lateralia connata, deflexa v. erecta. *Labellum* unguiculatum, inclusum v. exclusum et dependens, limbo angusto basi appendiculato, ungue sepalis adnato. *Columna* elongata, arcuata, semiteres, apice auriculis petaloideis alata. *Anthera* terminalis, persistent, loculis approximatis. *Pollinia* 4, compressa.— *Herbae* *pleraque* *membranaceae*, foliis v. aphyllo; radicibus e caudicibus elongatis, apice tuberiferis; caulisibus v. scapis 1-pauci-v. *plurifloris*; floribus parvis v. magnis, pallide viridibus, labello sepa irritabili.

A large and very peculiar and well-marked genus, common in extratropical Australia and New Zealand, but not hitherto detected elsewhere. About 35 species are known to me, of which 28 are Australian, and half of the latter are Tasmanian; they present very different forms, but all agree in being pale green herbaceous plants, with underground tubers terminating long caulicles.— *Leaves* generally rosulate and radical, more rarely linear and alternate on the stem, rarely none, or reduced to sheathing scales; in some species the leaves appear only after the flowers; in others again they are borne on separate stems, springing from the base of the flowering scape. *Flowers* solitary, or numerous and spiked, large or small. *Upper sepal* and *petals* together forming a very convex upper lip or galea; *lower sepals* connate, ascending and closing the flower, or hanging downwards. *Labellum* often irritabile, usually small, linear, clawed, the limb narrow, with an appendage at the base, in some species fringed with long hairs. *Column* slender, winged near the apex. (Name from *πτερος* a wing, and *στυλος* a column.)

§ 1. Radical leaves spreading. *Scape* one-flowered, with one or more sheathing bracts, or leafy. *Lower lip* of *perianth* ascending. *Labellum* glabrons.

1. **Pterostylis curta** (Br. Prodr. 327); foliis radicalibus stellatis oblongo-ovatis obtusis brevem petiolatis, scapo gracili 1-3-bracteato, flore solitario erecto magnico, labio inferiori galea obtusiuscula breviori, labello inclusi lamina integra obtusa, appendice bifida penicillata.— *Guill. II. L. t. 2; Hook. Bot. Mag. t. 3086; Lindl. Gen. et Sp. Orchid. 390.* (Gunn, 600.)

**Hab.** Common in shady places.— (Fl. Oct.) (v. c.)

**Distrib.** New South Wales and Victoria.

A graceful species.— *Leaves* all radical, spreading, membranous, 1-2 inches long. *Scape* with one to three membranous, erect, distant, sheathing bracts. *Flowers* erect, about 1 inch long. *Lower lip* shorter than the galea. *Wings of the column* produced above into short, subulate points, and below into long, straight auricles.

2. **Pterostylis nutans** (Br. Prodr. 327); foliis radicalibus stellatis petalitis ovatis oblongis subacutis, scapo gracili 1-2-bracteato, flore solitario horizontali v. nutante, labio inferiori galeam apice decurvis sequante, labello inclusi limbo piloso v. glabro apice attenuato truncato, appendice bifida penicillata.— *Bot. Mag. t. 3085; Lindl. l. c. 391.* (Gunn, 604.)
HAB. Common in shaded places, in a poor soil.—(Fl. Sept.-Nov.) (v. v.)

Distrib. New South Wales.

Similar in general characters to *P. curta*, but readily distinguished by the horizontal or nodding flowers, by the lips of the perianth being equal in length, and by the apex of the galea being suddenly turned downwards. —Wings of column produced upwards into slender, filiform appendages, broadly auricled below, and dilated.

3. **Pterostylis pedunculata** (Br. Prodr. 327); foliis radicalibus substellatis ovato-oblongis lanceolatis subacutis obtusisus, scapo laxe 1-2-bracteato, flore erecto, labii inferioris laciniiis capillaribus galeam apice repente incurvam superantibus, dente intermedio incurvo interjecto, labello incluso columna breviore, lamina subacuta, appendice bifida penicillata.—*Lindl.* l. c. 391. (*Gunn*, 629.) (Tab. CXIV. *A*.)

HAB. Abundant in shady places.—(Fl. Sept.-Nov.) (v. v.)

A smaller species than either of the preceding.—Leaves 1-2 inches long, sessile or petioled, erect or spreading. Scape slender. Flowers erect, ½ inch long. Lower lip with two long, slender, filiform arms, much longer than the suddenly inflexed galea. Wings of the column produced upwards into slender, filiform appendages, and downwards into falcate auricles.—Plate CXIV. *A*. Fig. 1, labellum; 2, side, and 3, front view of column:—all magnified.

4. **Pterostylis nana** (Br. Prodr. 327); foliis radicalibus stellatis longe petiolatis ovatis acuminatis, scapo puberulo 2-bracteato, bracteis distantiis subfoliaceis, flore erecto, labii inferioris laciniiis filiformibus galeam acuminatam subequantibus, labelli lanceolati appendice bifida subpenicillata.—*Lindl.* l. c. 391. (*Gunn*, 902.) (Tab. CXIV. *B*.)

HAB. Dry soil; not uncommon in several parts of the Colony: Woolnorth, Circular Head, *Gunn*; Bagdad, *Miss Forster*.—(Fl. Oct.) (v. v.)

Distrib. Victoria, Robertson.

Very similar to *P. pedunculata*, but much smaller, with petiolate, ovate, acute, or even acuminate leaves; smaller, less foliaceous, lanceolate bracts; a pubescent scape, and smaller flower.—Leaves rather numerous, ½-1 inch long, including the long petiole. Flower erect, ½-1 inch long. Wings of column produced upwards and downwards into subulate points.—Plate CXIV. *B*. Fig. 1, labellum; 2, side, and 3, front view of column:—all magnified.

5. **Pterostylis obtusa** (Br. Prodr. 327); foliis radicalibus (in planta florida nullis) stellatis breve petiolatis ovato-oblungis obtusis, scapo 2-3-bracteato, bracteis subfoliaceis, flore majusculo erecto, labii inferioris laciniiis longe filiformibus, galeae arcuato-incurvae sepalo dorsali longe acuminato caudato petalos acuminatos superante, labelli lamina lanceolata, appendice bifida appendiculata.—*Lindl.* l. c. 389. (*Gunn*, 357.) (Tab. CXV. *C*.)

HAB. Poor soil; common in the northern parts of the Colony: Circular Head, *Gunn*; Port Sorrell, Cheshunt, and the Mersey, *Archer*.—(Fl. Nov., Dec.)

A handsome, rather large species, a span to 7 inches high.—Root of two collateral tubers, of which one bears four or five petiolate, ovate-oblong leaves, and the other, a bi- or tri-bracteate, slender scape. Bracts ½ inch long, loose, rather foliaceous, with long, acuminate points. Flower erect, 1½ inch long. Galea arched, curving downward from above the middle; dorsal sepal, with a very long, caudate apex, longer than the petals. Lower lip with very slender, erect, filiform lacinia. Labellum very narrow, its apex exserted, irritable, as in most of the species. Wing of column produced into a short, subulate point above, and long oblong auricle below.—Plate CXV. *C*. Fig. 1, column and labellum; 2, labellum; 3, front view of column:—all magnified.

6. **Pterostylis cucullata** (Br. Prodr. 327); foliis radicalibus amplis stellatis oblongo-lanceolatis acutis, bracteis 1-2 magnis foliaceis late vaginantibus cymbiformibus cucullatis membranaceis, flore magno erecto, labii inferioris laciniiis subulatis galeae lente curvam aequantibus, labello integro obtu-
siusculo, appendice bifida penicillata.—P. cucullata et P. seabriva, Lindl. l. c. 389, 390. (Gunn, 355, 601, 904, 905, 906.) (Tab. CXV. A.)

Hab. Common in poor soil and shaded places.—(Fl. Oct., Nov.)

A large, erect-flowered species, extremely variable in stature, from 3–8 inches high.—Leaves usually sessile, 1½–2½ inches long, elliptic-oblong or lanceolate and acute. Bracts 1 inch long, very large, membranous and spathelike. Flowers sometimes pubescent, 1½ inch long, including the ovary. Galea arching over at the top only, blunt. Lower lip with two short, acuminate lobes, as long as the galea. Wing of the column produced upwards into a short, subulate point, and downwards in a long, straight, subacute, narrow auricle.—Plate CXV. A. Fig. 1, side view of column and labellum; 2, front view of labellum; 3, ditto of column:—all magnified.

7. Pterostylis dubia (Br. Prodr. 328); caule bifolio, foliis sessilibus oblongo-ovatis obtusis, scapo ebracteato, flore erecto magno, galea apice lente curva subacuta, labio inferiore breviter bifido galea breviore, segmentis breviter subulatis, labello angusto lineari-lanceolato columnae æquilongo, appendice apice penicillata. (Tab. CXV. B.)

Hab. Cuming's Head, in shaded places, Mr. C. Hortle (Archer).—(Fl. Jan.)

Very similar to P. cucullata in many respects, but with only two leaves, no bracts on the very short scape and very short lobes to the lower lip of the flower.—Plate CXV. B. Fig. 1, flower; 2, petal; 3, lateral view of column and labellum; 4, front view of column:—all but fig. 1 magnified.

8. Pterostylis furcata (Lindl. Gen. et Sp. Orchid. 390); foliis radicalibus stellatis petiolatis lanceolatis ellipticis acutis (interdum dissitis), bracteis 2–3 foliaceis laxe vaginantibus, flore erecto, perianthio glaberrimo, labii inferioris lacinias anguste caudatis galeam vix incurvam acuminatam superantibus, labello lineari, appendice bifida penicillata. (Gunn, 602.)

Hab. Shaded, wet places: near Launceston and Deloraine, Gunn; Chudleigh and Cheshunt, Archer.—(Fl. Oct.)

Closely allied to P. pedunculata, but easily distinguished by the narrower, more shortly petioled leaves, the shorter lacinias of the lower lip, and the scarcely incurved galea. The smaller bracts and laciniae of the lower lip being produced beyond the galea, distinguish it from P. cucullata.—Wing of the column produced upwards into a very short, blunt point, and downwards into a blunt, long auricle.

§ 2. Radical leaves spreading. Scape one- or many-flowered. Lower lip of perianth deflexed. Labellum fringed with long hairs.

9. Pterostylis squamata (Br. Prodr. 327); foliis radicalibus stellatis imbricatis suberectis lanceolatis acuminati, caulinis lanceolatis, flore erecto, galea oblongo-lanceolata apice oblique truncata acuminata, labio inferiore deflexo bipartito lacinias linearibus, labelli lamina subulata pilis flavis crinita apice glandula incrassata clavata glabra, appendice apice penicillata.—Flor. N. Zeal. i. 249. P. squamata et P. barbata, Lindl. l. c. 388. (Gunn, 603.) (Tab. CXVI. A.)

Hab. Common in sandy soil: near Hobarton, Circular Head, Georgetown, etc., Gunn, Archer.—(Fl. Nov.)

Distrib. Victoria, Swan River, New Zealand.

A very remarkable species, 5–8 inches high, conspicuous from the beautiful labellum being fringed with yellow hairs, and terminated by a purple, polished, capititate gland. Archer remarks that the labellum is irritable, as in most of the genus.—Wing of the column produced upwards into a long, erect, subulate point, and downwards to a long, falcate auricle.—Plate CXVI. A. Fig. 1, flower; 2, side view of labellum and column; 3, front view of labellum; 4, hairs of the same; 5, front view of column:—all but fig. 1 magnified.
10. **Pterostylis mutica** (Br. Prodr. 328); folii radicalibus confertis stellatis breve petiolaris ovatis, scapo bracteato multifloro, spica subspiralii, floribus subrectis, perianthio inclinato v. horizontali, galea brevi lata obtusa, labio inferiore deflexo ovato obtuso indiviso v. breviter bifido, labello oblongo obtuso, appendice elongata apice lobata v. obtusa.—Lindl. l. c. 390. (Gunn, 605, 900, 901.) (Tab. CXVII. B.)

**Hab.** Common in rich pastures, as well as in light sandy soil.—(Fl. Oct., Nov.) (v. v.)

**Distrib.** New South Wales and Victoria.

A very variable and abundant species, from 3 to 10 inches high, robust or slender, few- or many-flowered, the flowers small, densely or loosely spiked, the spike straight or somewhat twisted.—*Leaves* all radical, numerous. *Scape* suberect. *Flowers* subereet, ½ inch long. *Perianth* inclined or horizontal. *Galea* short, broad, blunt, nearly straight, or incurved at the apex. *Lower lip* bent down, ovate, entire and blunt, or bifid at the apex. *Labellum* short, broad, with a long, stout, incurved appendix, that is simple or thickened at the apex, and there entire or lobed. *Wing of column* slightly ciliated at the lower margin, scarcely auricled.—*Plate CXVII. A.* Fig. 1, side, and 2, front view of lower lip and labellum; 3, side, and 4, front view of column:—all magnified.

11. **Pterostylis rufa** (Br. Prodr. 327); folii radicalibus stellatis petiolaris ovato-oblongis acutis, scapo bracteato 3-5-floro, perianthio horizontali, galea lata abrupte longe acuminata, labio inferiore deflexo bifido lobis ovatis subulatis, labello obovato emarginato longe laxe piloso, appendice brevissima obtusa ciliata. —Lindl. l. c. 390. (Tab. CXVI. B.)

**Var. a**; folii coetanei, scapo laxe bracteato, floribus remotis majoribus pedicellatis. **Var. b**; scapo florifero aphylo, bracteis numerosis, spica densiore, floribus minoribus subsessilibus. **Hab.** Port Sorrell, on dry sandy ridges near the beach, *Archer.*—(Fl. Nov.)

**Distrib.** New South Wales.

I have described two forms of this plant, both from Mr. Archer; of one, which agrees with authentic specimens of Brown’s *P. rufa*, I have seen only a drawing: it has larger and longer-pedicelled flowers; of the other I have examined three specimens from Mr. Archer: it has no leaves, more bracts on the scape, smaller and more sessile flowers. The species is intermediate in size and habit between *P. mutica* and *P. squamata*, having the numerous flowers of *mutica* and the bearded labellum of *squamata*: it is however extremely different from both.—*Scaoes* 4-8 inches high, leafless, or with ovate, oblong, stellate leaves at the base. *Flowers* reddish-yellow-green, ¾ inch long. *Perianth* inclined or horizontal. *Galea* broad, abruptly acuminate, with a long point. *Lower lip* sharply bifid. *Labellum* coriaceous, small, broadly oblong, blunt, bearded with long hairs; appendix blunt, ciliated. *Wings of column* ciliated, hardly auricled.—*Plate CXVI. B.* Fig. 1, front, and 2, side view of labellum; 3, column:—all magnified.


12. **Pterostylis praecox** (Lindl. Gen. et Sp. Orch. 388); caule gracili folioso, folii alternis lanceolatis, flore solitario erecto, labii inferioris erecti lacinios filiformibus galeam lente curvam superantibus, labelli lamina lineari glabra, appendice penicillata. (Gunn, 751.)

**Hab.** Circular Head, *Gunn*; Hobarton, *J. D. H.*—(Fl. May–July.) (v. v.)

**Distrib.** Victoria.

A very slender species, 3–5 inches high, sometimes pubescent on the stem and flowers.—*Leaves* lanceolate, alternate, ¼ inch long. *Flowers* erect, about 1 inch long, including the ovary. *Galea* curved. *Lower lip* with its filiform laciniae longer than the galea. *Labellum* very variable in breadth, almost sessile or unguiculate.—Very nearly allied to the *P. scabra* of Swan River, which has a more slender labellum, rather clavate at the tip. It may be a form of the *P. reflexa* or *revoluta*.
§ 4. Radical leaves stellate or none. Flowers small, spiked, rarely solitary. Lower lip of perianth ascending.

13. Pterostylis aphylla (Lindl. Gen. et Sp. Orch. 392); scapo florifero aphylo bracteis 2–3 remotis instructo, floribus 1–2 erectis, galea apice incurva, sepalo dorsali acuminato, petalis obtusis, labio inferiore ascendentc apice late bifido, lacinii distantis brevibus uncinis, labello lineari-oblongo incluso, appendice trifurca. (Gunn, 903.) (Tab. CXVI. C.)

Hab. Heathy plains; near Circular Head, Gunn; Huon River, Oldfield; Cheshunt, Archer.—(Fl. Nov., Dec.)

Distrib. Swan River (Drummond).

A very curious little species, of which I have seen no leaves, but Archer says these appear in winter.—Scape rather stout, strict, 3–6 inches high, bearing two or three remote, small, sheathing bracts. Flowers one or two in my Tasmanian specimens, four in a Swan River one, erect, about ½–3 inch long, including the ovary, puberulous or glabrous, erect. Galea with a short incurved apex. Dorsal sepal acuminate, rather shorter than the blunt petals. Petals much contracted and obliquely cuneate at the base, shortly sickle-shaped, white, with red-brown nerves and margins. Lower lip closely applied to the galea, shorter than it is, with two short, incurved, uncinate teeth separated by a wide sinus. Labellum small, included, linear-oblong, with a three-forked apex. Column wings with a descending auricle, and ascending, subulate, uncinate arm.—Plate CXVI. C. Fig. 1, flower; 2, petal; 3, labellum; 4, lower lip and labellum; 5, column:—all magnified.

14. Pterostylis parviflora (Br. Prodr. 327); foliis in caulibus non floriferis stellatis petiolatis parvis ovatis acutis, scapo remote bracteato gracili, floribus 3–8 spicatis remotiusculis erectis, galea apice abrupte deflexo, sepalo dorsali acuminato petalis longe acuminatis breviore, labio inferiore erecto late bifido, segmentis brevibus uncinatis galea brevioribus, labello incluso lineari-oblongo, appendice apice tricuri.—Lindl. l. c. 389. (Gunn, 759.)

Hab. Sandy soil; probably not uncommon, but easily overlooked: Circular Head, Gunn; Huon River, Oldfield; Hobarton, J. D. H.—(Fl. Oct.) (v. v.)

Distrib. New South Wales.

I have referred this plant to Brown's P. parviflora, with the insufficient description of which it quite agrees; few-flowered specimens of P. aphylla may however equally be included in that description. The present plant is taller, more slender than P. aphylla, has a scape 3–10 inches high, three- to eight-flowered (rarely more), and bears small, ovate, petiolate leaves, which are borne on my specimens on lateral shoots at the base of the flowering scapes. It further differs from P. aphylla in the much longer and deflexed apex of the galea, and in the longer acuminate petals.

§ 5. Leaves all cauline, alternate. Scape one- to four-flowered. Lower lip of perianth deflexed.

15. Pterostylis longifolia (Br. Prodr. 327); scapo 1–5-floro gracili, foliis alternis anguste lanceolatis acuminiis, perianthio horizontali, galea lata abrupte apiculata, labio inferiore deflexo breviter bifido, lobis ovatis apice subulatis, labello brevissimo ciliato oblongo apice dentato, appendice brevi obtusa.—Lindl. l. c. 388. (Gunn, 345.) (Tab. CXVII. B.)

Hab. Common in dry soil in forest land.—(Fl. Oct.) (v. v.)

Distrib. New South Wales and Victoria.

I have followed Lindley in referring this common plant to Brown's P. longifolia.—Stem very slender, wiry, 4–14 inches tall, leafy throughout its length, with narrow-lanceolate or subulate-acuminate leaves. Flowers 3–5 (sometimes 6–8, but rarely), pale-green, about ½ inch long, puberulous or glabrous. Galea horizontal, broad, suddenly acuminate; dorsal sepal rather longer than the petals. Lower lip suddenly bent down, bifid; lobes ovate,
acuminate. *Labellum* very small, short, ciliated, with a short, blunt appendix. *Wings of column* ciliated, shortly auriculate.—*Plate CXVII. B.* Fig. 1, front, and 2, side view of labellum; 3, front, and 4, side view of column:—all magnified.

**Gen. X. CHILOGLOTTIS, Br.**

*Perianthium* bilabiatum; *sepalo dorsali* fornicato, lateralibus labello suppositis. *Petala* ascendentia v. reflexa. *Labellum* unguiculatum, basi appendiculata; *appendice lingulata* v. columnari; disco glanduloso. *Columna* elongata, apice biïda. *Anthera* terminalis. *Pollinia* 4.—Herbas terrestres, caudiculis radicalibus basi tuberiferis; foliis 2, radicalibus; *scapo infra florem unibracteato, unifloro; floribus luridis, suberectis; pedicello post anthemis elongato.*

A very peculiar-looking genus, closely allied to *Cyrtoptopus*, but of a much more robust habit, and two-leaved. Only three species are known, one confined to Tasmania, a second found in the same island and Australia, and a third hitherto observed only in the Auckland and Campbell Islands, south of New Zealand.—*Root* a simple, elongated, descending caudicle, terminating in a round naked tuber, and giving off from near the base of the stem other caudicles, whose tubers bear stems in the following year. *Leaves* two, at the base of the stem, with a sheath round their base. *Scape* rather stout, erect, with one sheathing bract near the middle. *Flower* rather large, erect; *dorsal sepal* arched, acute; *lateral* placed under the labellum, curved downwards. *Petals* narrow, ascending or deflexed. *Labellum* clawed, rather fleshy, simple, ovate, with large, erect, capitate glands on the disc. (Name from χιλός, a lip, and γλώrra, the tongue; from the form of the appendix of the first-described species.)


_Hab._ Shaded places: Woolnorth, Circular Head, Cheshunt, etc., _Gunn, Archer._—(Fl. April, May.)

_Distr._ New South Wales.

A slender species, 3–6 inches high, with two petiolate, ovate, lanceolate leaves. *Flowers* about ½ inch across. *Sepals* narrow, linear; *lateral* united at the base, terete at the apex, deflexed or even recurved. *Petals* linear, deflexed. *Labellum* spatulate, dark red-brown, with a large black-purple ligulate gland at the base, backed with smaller capitate ones, and a crowd of pedicelled glands on the disc.—The form and size of the appendix and glands are variable, and sometimes they resemble an ant sitting on the disc of the labellum: (see Ross’s Hobarton Almanac, 1833.)

2. **Chiologlottis Gunnii** (Lindl. Gen. et Sp. Orchid. 387); robusta, foliis ovatis breve petiolatis, scapo brevi, sepalo dorsali unguiculato spatulato acuminato, lateralibus ovato-subulatis ascendentibus, petalis erectis, labello trulliformi, glandulis sparsis, appendice columnari. (Gunn, 913.) (Tab. CVIII. B.)

_Hab._ Shaded banks, etc.: Circular Head, Cheshunt, and Hobarton, _Gunn, Archer, etc._—(Fl. Oct.)

A small, robust species, 2–4 inches high. *Leaves* sessile, or shortly petioled. *Flowering scape* generally thick. *Flower* an inch across, with very much broader sepals and petals than _C. diphylla_, the upper sepal unguiculate and spatulate, the lateral not united at the base, ascending and recurved. *Petals* ascending. *Labellum* of the form of a trowel, with numerous stipitate glands, which often are so arranged as to resemble an ant, as in _C. diphylla._—In both species the pedicel of the flower elongates remarkably after flowering.—*Plate CVIII. B.* Fig. 1, labellum; 2, column; 3, pollen:—all magnified.
Gen. XI. MICROTIS, Br.

**Perianthium** herbaceum, ringens. **Sepalum** dorsale cum petalis parvis linearibus in galeam connivens; lateralia labello suopposta. **Labellum** dissimile, oblongum, obtusum, integerrimum v. lobatum, callis glandulivse instructum. **Columna** nana, infundibiliformis, utrineum auricula membranaee aucta. **Anthera** terminalis, mutica. **Pollinia** 4.—Herbe terrestris, glabra; radicebus e tuberis oblongis nudis indivisis; folio caulino solitario, tereti, fistuloso, basi vaginante; floribus herbaceis, parvis, viridibus, dense spicatis.

A common genus in temperate Australia and New Zealand, of which about a dozen species are known. A species is found in New Caledonia, and another in Java. These are very variable in stature, but uniform in general characters, forming rather stout, green herbs, with small, green, densely spiked flowers, and a single, terete, fistulose leaf.—**Roots** of undivided oblong tubers. **Perianth** herbaceous, green, of one dorsal, rather large, concave sepal, parallel to and on each side of which is a small linear sepal. **Lateral sepals** placed under the green, oblong labellum, which is furnished with granulated, callous bodies on its surface. **Column** small, terete, with expanded margins. (Name from µυκες, small, and ους, an ear.)

I have characterized three species of this genus, following Brown's and Lindley's descriptions, and Archer's notes and drawings, but I am unable to distinguish the dried specimens, and I suspect that many intermediate and aberrant forms will be found.

1. **Microtis pulchella** (Br. Prodr. 321); sepalis lateralibus petalisque patentibus ovali-oblongis obtusiusculis acuminatis, labello oblongo bilobo apicem versus callo granuloso, margine crispato, callis basi confluentibus.—**Lindl. Gen. et Sp. Orch.** 395. (Gunn, 915, 918.) (Tab. CXVIII. A.)

**Hab.** Abundant in sandy soil throughout the Island.—(Fl. Nov., Dec.)

**Distrib.** New South Wales, Victoria, and South-west Australia.

**Stems** 6 inches to 2 feet high, slender or robust. **Flowers** very variable in size, as is the ovarium. **Sepals** and petals blunt. **Labellum** with crisped margins, oblong, blunt, or two-lobed at the apex, having one granular callus more or less developed towards the apex, and two confluent ones at the base.—**Plate** CXVIII. A. Fig. 1, front, and 2, side view of flower; 3, labellum; 4, front, and 5, side views of column:—all magnified.

2. **Microtis arenaria** (Lindl. Gen. et Sp. Orch. 396); sepalis lateralibus petalisque ovali- v. linearii-oblongis obtusiusculis acuminatis, labello oblongo retuso margine planiusculo apicem versus callo granuloso, callis basi confluentibus.—**An M. media, Br.?** (Gunn, 354, 916.) (Tab. CXVIII. B.)

**Hab.** Sandhills near the sea: Circular Head, Gunn.—(Fl. Dec.)

**Distrib.** New South Wales and Victoria.

Quite similar to large states of **M. pulchella**, and only distinguishable by the more plane labellum, that has not crisped margins, is less strongly lobed, and has the calli less developed.—**Plate** CXVIII. B. Fig. 1, front, and 2, side view of flower; 3, labellum; 4, front, and 5, side view of column:—all magnified.

3. **Microtis rara** (Br. Prodr. 321); spica rari flora, sepalis lateralibus revolutis petalisque linearii-oblongis acutis, labello oblongo retuso marginibus subundulatis callis basi confluentibus apice subcallosis.—**Lindl. Gen. et Sp. Orch.** 396. **M. frutetorum, Schlecht.** (Gunn, 917.)

**Hab.** Wet places: Circular Head, Hampshire Hills, etc., Lawrence, Gunn; Cheshunt, Archer.—(Fl. Dec.)

**Distrib.** New South Wales and Victoria.

My Tasmanian species are a different-looking plant from either of the preceding, but not easily characterized, except by being more slender, with more sparse and more erect flowers.—**Lateral sepals** and **petals** acute, the former acuminate. **Labellum** with less undulated margins than in **pulchella**, and a more obscure callus towards the tip.

Hab. Circular Head, Gunn; dry ground near Cheshunt, Archer.—(Fl. Dec.)

Distrib. Tropical Australia, New South Wales, and Victoria.

Smaller than any of the foregoing species, with smaller flowers, shorter ovaries, and a short, oblong, blunt, nearly plane labellum, its upper half thickened, but hardly callose.

Gen. XII. ACIANTHUS, Br.

Sepala patentia, acuminata v. aristata; lateralia labello supposita. Petala minora, acuminata. Labelium liberum, integrum, basi bicallosum, disco inappendiculato. Columna semiteres, clavata, inauriculata. Anthera terminalis, persistens, 2-locularis, recumbens. Pollinia 8, v. 4 bipartita.—Herbae parvae, tenerae, membranacea; tuberibus globosis, indivisis, caudicem terminaliibus, novellis pedicellatis; folio solitario, subsessili, late cordato, reticulato-setoso; floribus paucis, racemosis.

A very small genus, of delicate, shade-loving, inconspicuous plants, found in temperate Australia and New Zealand.—Roots of prostrate cacti, ending in small, round tubers. Stems slender and succulent, with one broadly-cordate, sessile, membranous, reticulated leaf. Flowers few, red-brown, racemose. Sepals and petals slender, acuminate, or terminating in a subulate point. Labelium projecting, undivided, with a naked disc, and two calli at its base. Column long, slender, not dilated intoauricles. Anther deciduous, placed rather behind the apex of the column (as in Neottia). (Name from acus, a needle, and andos, a flower; in allusion to the pointed perianth.)

1. Acianthus caudatus (Br. Prodr. 321); floribus 1–3, sepalos dorsales longissimae setaceo acuminatati, lateralis brevioribus petalis triplo longioribus, labello lanceolato.—Lindl. Gen. et Sp. Orch. 397. (Gunn, 758.) (Tab. CXIX. B.)

Hab. Common in shaded moist woods: Woolnorth and Circular Head, Gunn; Chudleigh, Archer; Hobarton, J. D. H.—(Fl. Oct.) (v. v.)

Distrib. New South Wales.

Stems 3–5 inches high. Leaf acuminate, with often undulated margins. Flowers one to three, deep, dark brown-purple. Dorsal sepal extremely long and narrow, erect, nearly an inch long, much longer than the lateral, which are twice as long as the petals.—Plate CXIX. B. Plant of the natural size.

2. Acianthus exsertus (Br. Prodr. 321); floribus racemosis, sepalos dorsales ovato-lanceolato aristato, lateralis subulato-lanceolato acuminatis, petalis horizontaliter reflexis sepalis ½ brevioribus lanceolatis acuminatis, labello apice papilloso.—Lindl. l. c. 397. (Gunn, 752.) (Tab. CXIX. A.)

Hab. Circular Head, in light soil, Gunn; rocky ground near Cheshunt, Archer.—(Fl. Oct.)

Distrib. New South Wales and Victoria.

Similar in habit to A. caudatus, but with more (four to six) flowers, which are much smaller, with far shorter, paler-coloured sepalos and petals, whose slender points are thickened at the tips.—Plate CXIX. A. Fig. 1, flower; 2, labelium; 3, front, and 4, side view of column; 5, pollen:—all magnified.

Gen. XIII. CYRTOSTYLIS, Br.

Very closely allied to *Acianthus*. Only one Australian species is known, and several New Zealand ones. *C. reniformis* is a delicate herb, 4–8 inches high, with the general habit and appearance of *Acianthus*.—*Leaf* oblong-cordate, or almost orbicular-cordate. *Flowers* three to six, racemose, pale purplish-brown, very membranous, about \( \frac{3}{4} \) inch long. *Sepals* and *petals* nearly equal in length, narrow-linear, not aristate; dorsal sepal erect, the lateral and petals pendent, and pointing rather forwards. *Labellum* narrow-linear, oblong, with two deeper-coloured, raised mesial ridges. *Column* slender, inflexed, with membranous wings towards the apex. (Name from κυρός, short, and ως, a column; in allusion to the short column.)

1. *Cyrtostylis reniformis* (Br. Prodr. 322); folio oblongo v. orbiculari-cordato, perianthii foliolis anguste linearibus acutis, labello lineari-oblongo medio obscure bicarinato.—*Lindl. l. c. 398.* (Gunn, 615.) (Tab. CIX. C.)

*Hab.* Common in damp shaded woods and banks.—(Fl. Sept.) (v. v.)

*Distrib.* New South Wales, Victoria, and Swan River.

*Plate CIX. C. Fig. 1, column and labellum; 2, labellum; 3, column; 4 and 5, pollen:—all magnified.*

Gen. XIV. **ERIOCHILUS, Br.**


A small Australian genus, of about six species, the majority of them natives of Swan River. *E. autumnalis* is a slender, glandular, pubescent plant, 4–10 inches high, with a round, tuberous root, a small, ovate, sessile leaf, produced at a different season from the flower, and one or two terminal, pale rose-coloured flowers, \( \frac{1}{2} \)–\( \frac{3}{4} \) inch long. —*Bract* short, blunt. *Ovary* slender. *Perianth* two-lipped; the upper lip of a linear, erect dorsal sepal, and two similar petals; the lower of two petioled, elliptic-lanceolate, acuminate, prominent sepals. *Labellum* short, recurved, pubescent, entire, without glands or appendages. *Column* straight, its margins hardly dilated. (Name from ἐπιος, hairy, and χεῖλος, a lip.)


*Hab.* Common in open and somewhat dry ground throughout the Island, *Archer, Gunn.*—(Fl. Sept.)

*Distrib.* New South Wales and Victoria.

I do not observe the petals to be dilated and denticulate, as described by Lindley.—*Plate CXX. A. Fig. 1, flower; 2, labellum; 3, gland; 4, front, and 5, side view of column; 6, pollen:—all magnified.*

Gen. XV. **CALADENIA, Br.**


A large extratropical Australian genus, of which about 40 species are known, and there are several others natives of New Zealand.—Glandular, sometimes villous, pubescent herbs, with few root-fibres terminating in globose
tubers, and one sessile, sheathing, radical leaf. Flowers glandular, solitary or few, of all colours, large or small, sometimes with very long, slender sepals and petals, and commonly called Butterfly-plants in Tasmania. Dorsal sepal generally concave, pointing forwards; lateral placed beneath the labellum. Petals erect or spreading. Labellum clawed, cuculate, with incurved, membranous, often fimbriate margins, entire or three-lobed, generally much contracted beyond the middle, its disc with two or more rows of pedicelled glands. Column with membranous margins. (Name from καλός, beautiful, and αυστ, a gland; in allusion to the glandular labellum.)

§ 1. Leptoceras (Br.)—Petals linear, erect, longer than the sepals.

1. Caladenia Menziesii (Br. Prodr. 325); glanduloso-pubescent, folio ovato-lanceolato v. linearis-longo, seco strico 1–2-floro, petalis erectis linearibus strictis sepalis duplo longioribus atro-purpureis, labello abrupte angustato recurvo, disci glandulis biseriatis.—Leptoceras Menziesii, Lindl. Gen. et Sp. Orch. 416; Endl. in Plant. Preiss. ii. 6. (Gunn, 348, 753.) (Tab. CXXI. A.)

Hab. Common in moist places throughout the Island.—(Fl. Oct., Nov.) (v. v.)

Distrib. Victoria to Swan River.

A span to a foot high, covered with glandular pubescence.—Leaf very variable in size and form, 2–5 inches long, ovate-lanceolate to linear-oblong. Flowers one or two, rose-coloured, distinguished at once by the linear, erect, dark-purple petals. Odour very sweet, of hyacinths.—Plate CXXI. A. Fig. 1, side, 2, back, and 3, front views of labellum; 4, front, and 5, side views of column; 6, glands of ditto:—all magnified.

§ 2. Calonema (Lindl.)—Sepals and petals much elongated and cande at the apex. Labellum fimbriated.

Leaves slender in the Tasmanian species.

2. Caladenia filamentosa (Br. Prodr. 324, non Lindl.); molliter patentim pilosa, sepalis petalisque æqualibus longissimæ filiformibus puberulis atro-rufis, labello apice angustato elongato revoluto nudo marginibus crenulatis, disco biseriatic glanduloso, columna basi ecallsa apice biauriculata. (Tab. CXXI. B.)

Hab. Forests: Cheshunt and Georgetown, Archer.—(Fl. Dec.)

Distrib. New South Wales, Victoria, and South Australia.

Archer's specimens of this fine species are the only Tasmanian ones I have seen; they are about a span long, and covered with long, patent, soft hairs. Flowers of a dark reddish-brown colour, 1½–2 inches broad; the sepals and petals long-linear, but not thickened at the apex. Lip with a rather long, slender, revolute apex, slightly crenulate, with two short series of glands on the disc. Column auriculate at the apex.—Plate CXXI. B. Fig. 1, column and labellum; 2 and 3, labellum; 4, column:—all magnified.

3. Caladenia dilatata (Br. Prodr. 325); molliter patentim villosa, floribus pallidis, sepalis longe filiformibus apice interdum dilatatis vix puberulis, petalis brevioribus angustie linearibus, labello medio dilatato profunde pectinatim lacero dein abrupte angustato crenulato, glandulis disci conventim 4-seriatis, columna basi bicallaosa apice versus dilatata.—C. filamentosa, Lindl. Gen. et Sp. Orch. 421. C. tentaculata, Schlcht. (Gunn, 910.) (Tab. CXXXII. B.)

Hab. Sandy soil: Circular Head, Gunn; forest lands near Cheshunt, Archer.—(Fl. Dec.)

Distrib. South Australia, Victoria.

A very elegant species, much villous than C. filamentosa, and with paler flowers, easily recognized by the sepals being linear-oblong for half their length, and then filiform, much longer than the petals, and being often somewhat dilated towards the tips; further also by the labellum being very broad at the middle, its margins there pectinate, and suddenly contracting to a narrow, crenulate, recurved apex; also by the four rows of long, purple glands on the deep-purple lip, and by the winged, but not auriculate, upper one-third of the column.—Plate CXXXII. B. Fig. 1, column and labellum; 2 and 3, labellum; 4, column; 5, pollen; 6, hair of leaf:—all magnified.
4. Caladenia clavigera (A. Cunn. MSS. in Lindl. Gen. et Sp. Orch. 422); patentim villosissima, floribus pallide rufis glabris, sepalis apice clavellatis petalisque subequalibus longissime filiformibus, labello medio dilatato integro deinceps abrupte angustato crenato apice recurvo, glandulis disci 4-seriatis, columna supra medium dilatata basi bicallosa. (Gunn, 344.) (Tab. CXXII. A.)

HAB. Circular Head? Gunn; west side of Tamar River, near Whirlpool Reach, Archer.—(Fl. Nov.)

DISTRIB. New South Wales and Victoria.

A very elegant species, about a span high, one- rarely two-flowered, covered with long, patent, villous hairs.—Flowers 1 inch across, nearly glabrous. Sepals and petals equal in length, pale-reddish, the former with club-shaped tips. Labellum like that of C. dilatata, but not pectinate, deep red-purple at the tip. Column gradually dilated from above the middle. Ovary pubescent.—Plate CXXII. A. Fig. 1, column and petal; 2, labellum; 3, column; 4, apex of sepal:—all magnified.

5. Caladenia Patersonii (Br. Prodr. 325); molliter patentim vilosa, floribus pallidis pubescentibus, ovarii tomentosis, sepalis longissime filiformibus petalis consimilibus longioribus, labello medio vix dilatato argenteo serrulato et pectinato sensim angustato (interdum longissime caudato) revoluto, disci pallidii glandulis parvis 6-seriatis, ingle basi 4-glanduloso, columna basi bicallosa leviter dilatata. (Gunn, 610, 908, 909.) (Tab. CXXIII. A.)

HAB. Abundant in poor soil throughout the Island.—(Fl. Oct., Nov.) (v. v.)

DISTRIB. New South Wales, Victoria, and South Australia.

A very common and elegant plant, variable in size and colour, also in the length of the sepals and petals; best known by the form of the (usually pale) labellum, which is very slightly broader in the middle, and gradually tapers to a revolute point; the margins of the column about the middle are deeply pectinate, but not like those of C. dilatata, and the disc bears six rows of glands.—Scapes often robust, 4-10 inches high, one- to three-flowered. Leaf 3-5 inches long, often ½ inch broad. Ovary very tomentose. Flowers varying from straw-colour, clouded with pale red, to reddish-purple, 1½-3 inches in diameter. Sepals and petals nearly equal, very long and slender, sometimes rather dilated towards the apex. Labellum gradually narrowed to a point, that is sometimes an inch long, and at others short.—Plate CXXIII. A. Fig. 1, column and labellum; 2, labellum; 3, column; 4, pollen:—all magnified.

6. Caladenia pallida (Lindl. Gen. et Sp. Orchid. 421); breviter patentim pilosa, bractea scapo breviter foliaceo, floribus pallidis glabris, sepalis e basi lanceolatis longissime acuminatis apice scaberulis petalis ½ longioribus, labello ovato-lanceolato a medio paulo dilatato pectinato sensim angustato crenato dentato revoluto, disci concoloris glandulis 4-seriatis, columna modice longitudinaliter alata. (Gunn, 907.)

HAB. Circular Head, abundant, Gunn.—(Fl. Oct., Nov.)

DISTRIB. South Australia.

A very elegant species, and quite distinct from any of the foregoing, easily recognized by the pale colour of its flowers, which are smaller, and the sepals and petals broader in proportion to their length.—Leaf narrow-linear, almost glabrous. Scapes very slender, a span and upwards high, covered with soft, spreading pubescence, the bract at the middle with an elongated linear lamina, ½ inch long. Flowers an inch across, pale, dirty straw-coloured. Sepals sometimes thickened towards their apices. Labellum deeply and closely crenulate towards its apex. Column with narrow wings almost throughout its length.

§ 3. Eucaladenia (Lindl.).—Sepals and petals spreading, nearly equal, not having long, acuminate or caudate apices.

7. Caladenia latifolia (Br. Prodr. 324); patentim pilosa, folio (magno) lineari-oblongo acuto v. obtuso, floribus 1-3 erectis roseis, ovario tomentoso, sepalis petalisque oblongo-lanceolatis obtusis subae-
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qualibus, labelli trilobi glandulis biseriatis, lobis lateribus amplis intermedio lanceolato marginibus longe glanduloso-appendiculatis, disco eglanduloso, columna vix alata, anthera longe mucronata.—Lindl. Gen. et Sp. Orch. 419. (Gunn, 750.)

Hab. Sandy soil: Woolnorth, Circular Head, and Georgetown, Gunn; hills near Hobarton, Archer.—(Fl. Sept., Oct.)

Distri. Victoria, Adamson, Robertson.

A very pretty plant, readily distinguished from its allies by its broad, large leaf, and pink (rarely white) flowers. I have examined two specimens, collected by Archer, near Hobarton, of which the flowers were blue when fresh. —Leaf radical, horizontal, 2–6 inches long, linear-oblong, more or less hairy. Scape with spreading hairs, one- to three-flowered. Flowers nearly an inch broad. Sepals and petals lanceolate-oblong, blunt (acute, Br.). Labellum deeply three-lobed; the lateral lobes broad, entire, embracing the column. Anther with a long, erect mucro.

8. Caladenia barbata (Lindl. Gen. et Sp. Orchid. 418); pubescent-pilosa, folio lineari scapo breviusculo breviore, bractea foliacea patente, flore solitario cæruleo erecto, sepalis petalisque lineari-oblongis lanceolatis subacutis, labello obscure trilobo, lobis omnibus fimбриatis intermedio glandulosus, disci glandulis sub-6-seriatis, columna obscure alata, anthera breviter mucronata.—C. unguiculata, Lindl. l. c. (Gunn, 347.) (Tab. CXXIII. B.)

Hab. Abundant in grassy pastures, etc., throughout the Island.—(Fl. Sept., Oct.) (v. v.)


This is the common blue Caladenia of Tasmania, characterized by its linear leaf, solitary, nearly erect flower, ½–1 inch broad, equal, spreading, lanceolate-oblong or linear-lanceolate, subacute sepals and petals, by the labellum being obscurely two-lobed and fimбриate to the apex, and by the short mucro to the anther.—Plate CXXIII. B. Fig. 1, column and labellum; 2, labellum; 3, column; 4, glands of ditto:—all magnified.

9. Caladenia carnea (Br. Prodr. 327); pilosula, folio lineari, bractea scapo appressa, flore solitario erecto cæruleo, sepalis petalisque equalibus lineari-lanceolatis acutis, labello 3-lobo, lobis integerrimis transverse vittatis.—Lindl. l. c.

Hab. Tasmania, Brown.

Distri. New South Wales.

I have seen no Tasmanian specimens of this very distinct species, which is allied to C. barbata, but is more slender, less hairy, with a small, appressed bract on the scape; a deeply three-lobed labellum, with broad, entire, lateral lobes; and a small, also entire, revolute middle lobe.

10. Caladenia carneae (Br. Prodr. 324); pilosula, folio lineari, scapo 1- (rarius 2-)floro, sepalis petalisque roseis subequalibus, sepalo dorsali erecto v. recurvo columnam roseo-vittatum non velante, labelli vittati 3-lobi disco glandulis 2-seriatis ornato, lobis lateralibus rotundatis integerrimis dentatisve intermedio brevi revoluto longitudinaliter fimбриato disco nudo.—Lindl. Gen. et Sp. Orchid. 417; Endl. Icon. t. 1594. (Gunn, 606, 912.) (Tab. CXXIV. A.)

Hab. Abundant throughout the Island, in grassy places and open forest land.—(Fl. Oct., Nov.) (v. v.)

Distri. South-eastern Australia, from the tropics to South Australia.

A very common, slender, generally one-flowered species, 4–8 inches high, with pilose scape and long-linear leaf.—Flowers pink, about ¾–2 inch across. Sepals and petals nearly equal, linear-lanceolate, acute; dorsal sepal erect, not concave, or covering the column, as in all the following species. Labellum three-lobed, transversely banded with pink (as is the column); lateral lobes rounded, entire or toothed; disc with two series of yellow, capitata glands; middle lobe small, yellow, revolute, fimбриate along the edges, its disc naked.—Plate CXXIV. A.
11. Caladenia congesta (Br. Prodr. 324); pilosula, folio lineari, scapo 1–3-floro, floribus roseis, sepalis petalisque subaequalibus acuminatis, sepalo dorsali fornicato columnam velante, labelli trilobi non vittati glandulis atrro-purpureis 4-seriatis depressis confluentissimis, infannis longioribus stipitatis, lobis laterali- bus longioribus quam latissimis subacutis, intermedio atrro-purpureo recurvo margine integerrimo.—Lindl. Gen. et Sp. Orchid. 421. (Tab. CXXIV. B.)

HAB. Tasmania, Paterson; open forest land, Cheshunt and Port Sorrell, Archer.—(Fl. Nov.)
DISTRIB. New South Wales and South-western Australia.

Similar at first sight to C. carnea, as indeed are all the following species, but very distinct. It may be known by the arched dorsal sepal, which more or less conceals the column, by the absence of red bands on the column and labellum, by the long lateral lobes of the labellum, by its deep black-purple middle lobe, with entire margins, and especially by the glands of the labellum, which are black-purple, crowded in four series, of which the basal ones are longest, and by their glands being continued on to the surface of the middle lobe.—Plate CXXIV. B. Fig. 1, column and labellum; 2 and 3, labellum; 4, column.—all magnified.

12. Caladenia alata (Br. Prodr. 324); pubescens, folio lineari, scapo elongato 3–5-floro, perianthii foliolis acuminatis, sepalo dorsali fornicato columnam velante roseo-vittato, labelli trilobi vittati disco glandulis 2–v. sub-4-seriatis, lobis laterali bus rotundatis integerrimis intermedio flavo plus minusve fimbriato.—Lindl. l. c. 418; Smith, Ex. Bot. 104. (Gunn, 755.) (Tab. CXXV. A.)

HAB. Probably a common species: sandy soil near Hobarton, Gunn; open forest land, Cheshunt, Archer.—(Fl. Nov.) (v. v.)
DISTRIB. New South Wales and Victoria.

I have referred this plant to Brown’s C. alata with some hesitation; the glands on the disc of the labellum are often in four rows, though each pair of these are irregularly disposed, and often run together, whilst in some specimens there are decidedly only two rows; another important difference is in the middle lobe of the labellum, which is more or less crenate or fimbriate throughout its length, thus differing from Brown’s character of “basi utrinque unidentato;” but I find the fimbriation of the middle lobe to vary a good deal in all the species. The lateral lobes of the labellum vary much in breadth.—This is a much taller plant than any other of this section, 10–18 inches high, with several (two to five) flowers (rarely one only) of a pale, dirty pink or whitish colour. The leaflets of the perianth vary much in size and relative shape, but all are acuminate; the dorsal sepal arches, and is about the same size as the petals; the lateral sepals are broader and longer. Labellum banded with pink; middle lobe yellow. Column also banded with pink.—Plate CXXV. A. Fig. 1 and 2, labellum; 3 and 4, column.—all magnified.

13. Caladenia angustata (Lindl. l. c. 420); pubescenti-pilosa, folio filiformi, scapo tenui 1–2-floro, floribus roseis, sepalis petalisque subaequalibus acuminatis dorsali fornicato columnam velante, labello (columnaque) roseo-vittato, disco glandulis sparsis 4-seriatis, lobis lateralis angustis integerrimis intermedio flavo fimbriato basi glanduloso.—C. gracilis, Br.? Prodr. 324. (Gunn, 911.) (Tab. CXXV. B.)

HAB. Probably common: Circular Head, Cheshunt, Hobarton, etc., Paterson, Gunn, Archer.—(Fl. Oct.) (v. v.)
DISTRIB. New South Wales and Victoria.

A small, slender species, very similar indeed to C. carnea, but with an arched dorsal sepal.—Leaves very narrow. Scape 4–8 inches high. Flowers generally solitary, pink. Sepals and petals acuminate. Labellum with rather narrow, entire lateral lobes; disc with four rows of small, scattered glands, that are produced on to the yellow-red middle lobe; the latter is more or less crenate or fimbriate: in some of Mr. Archer’s specimens the tooth-
ing is confined to the small process on each side, at the very base, and these I was inclined to refer to Brown's C. alata, but the glands are decidedly in four rows, and the middle lobe of the labellum is also glandular.—Plate CXXV. B. Fig. 1, column and labellum; 2, labellum; 3, glands of ditto; 4, column; 5, pollen:—all magnified.

Gen. XVI. GLOSSODIA, Br.

Perianthium patens; sepalis petalisque subequalibus. Labellum brevius, dividuisum, eglandulosum, basi appendice elongata instructum. Columna membranaceo-alata. Anthera terminalis. Pollinia 4, compressa.—Herbes terrestres, pilous; radicibus tubere tunicato terminatis; folio solitario, radicati, patente; scapo 1-floro, graciilis, 1-bracteato; flore majusculo, coruleo, extus glandulosum; pedicello basi bracteato; appendice labellum linguam serpentis eximulante.

The few known species of this genus are all of them Australian, and extremely nearly allied to Caladenia, of which indeed they may be considered a section, with no glands on the disc of the labellum, and a solitary, bifid, long appendix at the base of that organ, resembling somewhat a serpent's tongue, whence the name.—G. major is a slender plant, 5-12 inches high, covered with patent hairs; it has a linear-oblong, horizontal, radical leaf, one or two-flowered scape, with a bract at the middle, and another beneath the flower. Flower about 1 inch across, pale blue. Sepals and petals pale blue, linear-oblong, blunt.

1. Glossodia major (Br. Prodr. 326); labello ovato acuminatino basi pubescente, appendice apice bilobo.—Lindl. Gen. et Sp. Orchid. 423; Endl. Icon. t. 41. (Gunn, 608.) (Tab. CXX. B.)

Hab. Common in poor sandy soil throughout the Colony. (Fl. Oct., Nov.) (v. v.)

Distrib. New South Wales, Victoria, and South Australia.

Plate CXX. B. Fig. 1 and 2, labellum; 3 and 4, column:—all magnified.

Tribe III. GASTRODIEAE.

Gen. XVII. GASTRODIA, Br.

Perianthii foliola in tubum apice 5-florum basi ventricosum connata. Labellum parvum, posticum, unguiculatum, tubo inclusum. Columna basi antice stigmatifera. Anthera terminalis, decidua. Pollinia 4, per paria coherentia, e granulis magnis elasicis coherentibus.—Herbes carnose, erecti, aphyllici, sordide albii; radice tuberosa e. elongata, torta, tereti; scapo squamis distantibus vaginato; floribus racemosis, pendulis, albis v. ochroleucis.

A remarkable genus, confined, as far as is at present known, to Australia and New Zealand, though probably some Malay Island and Indian plants will prove congeneres. The G. sesamoideis is a tall, robust, pale whitmy-brown, erect, leafless herb, 10-24 inches high, bearing a many-flowered, nodding raceme of pedicelled, tubular, pendulous flowers.—Root an elongated tuber, full of starch and mucilage, eaten by the aborigines. Scape with a few, remote, scarious bracts. Flowers about \( \frac{3}{4} \) inch long. Ovary small. Perianth gibbous at the base. Sepals and petals united into a subcampanulate, oblique tube. Mouth with three somewhat reflexed large lobes (apices of sepals), and two internal smaller ones (petals). Labellum included, posticus, unguiculatum, contracted above and below the middle, with crenuluted and rather verrucose margins and mesial ridge; claw concave from the base. Column elongated, hollow on the anterior face, scarcely winged. Anther short, terminal. Pollen-masses four, united in pairs. Stigma a viscid depression at the base of the column; from its base a canal leads to the cavity of the ovary. (Name from \( \gamma \sigma \rho \rho \), a stomach; in allusion to the form of the flower.)

1. Gastrodia sesamoideis (Br. Prodr. 350); radice tuberosa, perianthio breviter urceolato-campanulato, columna elongata.—Lindl. Gen. et Sp. Orchid. 384; Endl. Icon. t. 5. (Gunn, 359, 613.) (Tab. CXXVI.)
Hab. Dense humid forests, probably not uncommon, as at Circular Head, Table Cape, Georgetown, etc., Lawrence, Gunn, Archer.—(Fl. Nov., Dec.)

Distrib. New South Wales.

Plate CXXVI. Fig. 1 and 2, ovary, column, and labellum; 3, front view of column; 4 and 5, pollen; 6, grain of ditto; 7, seed; 8, nucleus of ditto in water:—all magnified.

Tribe IV. Vandeæ.

Gen. XVIII. DIPODIUM, Br.

Perianthium subregulare, patens. Sepala et petala subaequalia. Labellum unguiculatum; ungue magno, canaliculato, excavato; marginibus callossis, e columnæ basi productis; lamina cum ungue articulata, oblonga, integra; disco apicem versus barbato v. glandulosou. Columna semiteres, ungue labellii equilonga. Anthera terminalis, decidua. Pollinia 2, globosa, cereacea, biloba, caudiculis distinctis glandulis stigmaticis affixa.—Herbae glabra, terrestres, ophylla; radice e flos crasis carnosis articulatis; scapo robusto, vaginato; racemo multifloro; floribus sublonge pedicellatis, patentibus, roseis.

This remarkable genus is, so far as is at present known, confined to Australia and New Caledonia; it is one of the few terrestrial Vandeæ of the southern hemisphere. D. punctatum is a stout, erect, leafless, glabrous herb, 1–2 feet high.—Roots of many spreading, stout, articulate, terete fibres. Scape strict, erect, with a few pressed, short, sheathing, acuminate scales, which are more numerous and imbricating at the base of the scape. Raceme erect, 3–6 inches long. Flowers deep pink or purplish, on long, slender, spreading pedicels, $\frac{1}{4}$–$\frac{3}{4}$ inch long. Perianth spreading. Sepals and petals nearly equal, linear-oblong, obtuse, with recurved margins, rose-coloured, spotted with darker colour. Labellum about as long as the petals, of two parts, a broad, subconcave, thick, margined claw, with which the rather longer, oblong, thick, straight lamina is jointed; lamina glandular in the middle. Column straight, semiterete, as long as the claw of the labellum, terminated by a small, convex, deciduous, two-celled anther, below which is a small stigma. Pollen-masses two, globose, two-lobed, waxy, attached to the stigmatic gland by short caudicles. (Name from δε, two, and ποις, a foot; in allusion to the caudiced pollen.)


Hab. Forests: Circular Head, Gunn; Port Sorrell and Cheshunt, in stony and moist places, generally growing near Eucalypti, Archer.—(Fl. March?)

Distrib. New South Wales and Victoria.

Plate CXXVII. Fig. 1 and 2, labellum; 3 and 4, column:—all magnified.

Gen. XIX. GUNNIA, Lindl.

Perianthium ringens. Sepala lanceolato-oblonga; dorsale erectum; lateralia subfalcata, ungui elongato labelli adnata. Petala lanceolata, ascendentia. Labellum longe unguiculatum, porrectum; lamina 3-loba, disco tuberculato, mucrone inflexo, lobis lateralisibus late oblongis, obtusis, ascendentiibus, conniventiibus. Columnæ brevis, semiteres, aperta, rostelllo bifido. Anthera 2-locales. Pollinia 4, cereacea, per paria globosa, arcte connata, caudiculis late lineari adnata.—Herba epiphytica; radicibus tortis, filiformibus, elongatis; caule brevissimo; foliis 3–5, distichis, falcatis, lineari-lanceolatis, acuminatis, basi articulatis; scapo brevisculo; floribus flavis, racemosis, patentibus, longissimæ pedicellatis.

Gunnia is one of the most southern of the Epiphytic Orchideæ, and is unknown in Australia, where epiphytes have hitherto been found only to the northward of Port Jackson or Illawarra. It is closely allied to the genus...
Sarcocilis of Australia and New Zealand.—*Gunnia australis*, the only known species, is a small Epiphyte, almost stemless, with numerous tufted, very long, flattened, tortuous, filiform roots, often a foot long, that spread along the decayed twigs of the shrubs in which it grows, or are pendulous in the air.—*Leaves* three to five, coriaceous, linear-lanceolate, acuminate, falcate, 2–4 inches long, with numerous parallel veins, jointed on to the stem. *Raceme* about as long as the leaves, six to ten-flowered. *Flowers* yellow, spreading, pedicelled, about \( \frac{1}{2} \) inch broad, very sweet-scented, like honeysuckle. *Sepals* oblong-lanceolate; the dorsal erect; lateral connate with the long claw of the labellum, spreading. *Petals* lanceolate, free, ascending. *Labellum* with a long, prominent unguis, bearing at its apex a small, tuberculate disc, which expands into a three-lobed lamina, formed of two incurving, broad-oblung, lateral lobes, and a smaller, oblong, emarginate middle lobe. *Column* very short. *Anther* terminal, hemispherical, two-celled. *Pollen-masses* appearing to be only two, and globose, but each formed of a closely combined pair, attached to a strap-shaped caudicle, which unites them to the top of the stigma. (Named in honour of R. C. Gunn, Esq., F.R.S., of Tasmania.)

1. *Gunnia australis* (Lindl. in Bot. Reg. n. 1699). (Gunn, 436.) (Tab. CXXVIII.)

*Hab.* On the trunks and branches of bushes and small trees in dense forests at Emu Bay, Black River, Circular Head, Great Swan Port, etc., *Backhouse, Milligan, Gunn.*—(Fl. March.)

Plate CXXVIII. Fig. 1, flower; 2, column, anther, and pollen; 3, the same, with anther and pollen removed; 4 and 5, upper and lower side of anther-case; 6, pollen; 7, transverse section of ovary:—*all magnified.*

**Nat. Ord. II. IRIDÆ.**

Upwards of thirty *Irideæ* have been discovered in extratropical Australia, of which only one or two advance northward into the tropic. They belong to three genera, of which one only, *Libertia*, is extra-Australian, being found in New Zealand and Chili. By far the greater number of species are inhabitants of South-western Australia, and only one or two are common to that and the south-eastern quarter.

Gen. I. **PATERSONIA**, Br.

*Perianthium* petaloideum, regulare, hypocrateriforme, tubo gracili; limbi sexpartiti laciniosis interioribus minutis. *Stamina* 3, filamentis connatis. *Stylus* capillaceus. *Stigmata* 3, lamellata, indivisa. *Capsula* polysperma, spathis tecta.—*Herbae* perennes; radice fibroso; caule subbullo; foliis equitantibus, ensiformibus; scapo simplici, ebracteato; spatha exteriose bivalvis, spathas partiales unifloras confertas includente; floribus sensim erumpentibus, fugacibus, carunculis, immaculatis; seminibus sepius angulis internis loculis, nunc columnæ centrali, affixis.

The plants of this genus, of which about twenty-four are known, are for the most part very beautiful, but owing to the exceedingly fugacious corolla, are difficult of preservation in a good state for after examination. *P. glauca*, the only common Tasmanian species, is a perfectly glabrous, rigid herb, 1–1½ foot high, with fibrous roots, very short rhizome, and equitant, linear, sword-shaped, rigid, pungent leaves, 6–18 inches long and \( \frac{1}{2} \)–\( \frac{1}{2} \) broad, slightly convex on both surfaces, and roughish at the margin, enclosed in sheathing, brown scales at the base. *Scape* very much shorter than the leaves, 1–3 inches long. *Outer spathe* of two equal, lanceolate, glabrous leaves, 1 inch long, containing several, much narrower, scarious, shining, red-brown bracts, of equal length, each of which encloses a flower. *Perianth* with a very slender tube, and six-lobed, regular limb, of which the alternate lobes are very minute, pale blue; larger lobes rounded-ovate. *Style* erect, short, with three broad, spreading, foliaceous, stigmatic lobes. *Capsule* prismatic, linear, shorter than the spathe, three-valved; valves leaving a slender, erect, central column, to which the seeds are attached. *Seeds* linear-ovoid, dark red-brown, shining, polished, with a conspicuous white funiculus.—Gunn considers that there are two Tasmanian species, but the shrivelled state of the corolla of his specimens prevents me from determining this point. (Named in honour of Colonel William Paterson, a sedulous investigator of New South Wales botany.)

Hab. Abundant in wet, peaty soil, in the northern parts of the Island, *Brown, Gunn, etc.*—(Fl. Dec., Jan.)

**Distrib.** New South Wales and Victoria.

**Gen. II.** **DIPLARRHENA, Br.**

*Perianthium* petaloideum, sexpartitum; laciniis interioribus minoribus; superiore dissipili fornicata. *Stamina* 2, fertilia sub superiore laciniariam interiorum conviventia; tertium castratum. *Stigma* bilabiatum, 3-partitum. *Capsula* oblonga, trigona.—*Herba* perennis, *glaberrima*; radice fibrosa; caule brevi, foliato; folis ensiformibus; scapo vaginato; spatha communi bivalvis, foliaceo, bracteas uniformas confertas includente; floribus pedicellatis, albis; laciniis perianthii interioribus pictis.

I have only seen Tasmanian specimens of this beautiful plant, of which one species is so extremely common as to cover many acres with its white blossoms; its comparative rarity in the continent of Australia is hence remarkable.—*Rhizome* very short. *Leaves* radical and alternate on the stem or scape, narrow-linear, perfectly glabrous, striate, rigid, but not so much as those of *Patersonia*, 1–2 feet long, acuminate, smooth and flat on both surfaces, \( \frac{1}{2} \)-inch broad. *Scape* erect, compressed, generally longer than the radical leaves, often flexuous, sometimes branched, bearing several sheathing bracts, and one to three spathes. *Spathes* of two lanceolate leaves 1½–2 inches long, containing several flowers, enclosed in scarious bracteoles. *Ovary* very long. *Perianth* without a tube, white, 1½–2 inches broad, of six obovate-oblong, spreading, membranous lobes, of which the three inner are smaller, and one is arched. *Stamens* three, two fertile, connivent, the third with an imperfect anther. *Stigma* three-lobed. *Capsule* exerted beyond the sheath, oblong, three-angled; *cells* with one row of densely packed, vertically flattened, opaque seeds. (Name from *διπλος*, *double*, and *απρων*, *male*; in allusion to the two perfect stamens.)

1. **Diplarrhena Morea** (Br. Prodr. 304). (Gunn, 955.)

**Var.** *B. alpina*; foliis brevioribus latioribusque. (Gunn, 1378.)

Hab. Abundant in good soil throughout the Island.—**Var.** *B. in alpine situations, elev. 4000 feet, Gunn.—(Fl. Oct., Nov.) (v. v.)

**Distrib.** Victoria.

**Gen. III.** **LIBERTIA, Spr.**

*Perianthium* 6-partitum, regulare; foliis subæqualibus v. interioribus majoribus, basi angustatis. *Stamina* 3, omnia fertilia. *Stigmatæ* 3, filiformia. *Capsula* clavata v. globosa, 3-locularis, loculicide 3-valvis. *Semenia* biseriata, angulata.—*Herbae* glabra; radice fibrosa; foliis gramineis, equitantibus; caule v. scapo teretissimo; inﬂorescentia subpaniculata; pedicellis subumbellatis; spathis persistentibus, alternis subverticillatis v. involucratis; floribus albis.

There are about six Australian species of this genus known, chiefly natives of the south-west quarter; others are found in New Zealand and South Chili.—*Herbs*, with equitant, striated, linear, grassy, rarely rigid leaves, and paniculate inﬂorescence, the peduncles of which are fasciculate, and enclosed in opposite or whorled, spathaceous bracts, hence often appearing umbellate. *Perianth* regular, white, six-lobed. *Stamens* three; *filaments* connate or free. *Stigma* three, filiform. *Capsule* coriaceous, turgid, three-celled; *cells* with two rows of dark, angled seeds. (Named in honour of Madame Libert, author of a work on *Hepatica*.)

1. **Libertia Laurencei** (Hook. fil.); rhizome gracili, foliis patentibus marginibus ciliolatis, inflo-
rescetia subumbellata, spathis fasciculorum subverticillatis, pedicellis filiformibus puberulis, perianthii foliolis obovato-oblongis, filamentis basi vix connatis. (Gunn, 270.) (Tab. CXXIX.)

Hab. Dense woods, abundant in various parts of the Island, ascending to 4000 feet; Western Mountains, Lawrence; Acheron River, Hampshire Hills, etc., Gunn.—(Fl. Nov.)

A very elegant, white-flowered, little plant, forming large patches in shaded forests.—Rhizome slender, 1 inch long, giving off slender root-fibres. Leaves 3–6 inches long, ½–¾ inch broad, with minutely ciliated margins. Scapes slender, longer than the leaves, once or twice divided near the top. Pedicels filiform, in fascicles, subtended by one or several lanceolate spathe, which approach, and form a whorl or involucre. Flowers about ½ inch broad. Capsules globose, size of a small pea.—Plate CXXIX. Fig. 1, flower; 2, stamen; 3, ovary and stigma; 4, transverse section of ovary; 5, capsule; 6, transverse section of ditto; 7, seed; 8, ditto, cut longitudinally:—all magnified.

Nat. Ord. III. Haemodoraceae.

The plants of this Order are for the most part natives of the southern hemisphere, and especially of Brazil, South Africa, and Australia. Those that are natives of the latter locality are almost exclusively found in South-western Australia, whence nearly fifty species have been brought; there are also three or four New South Wales species, all belonging to the genus Haemodor, which is both a tropical one and a native of Tasmania. The Order is allied to Melanthaceae and Irideae, differing from the former in its introrse anthers, entire stigma, and usually inferior ovary, and from the latter in the stamens, when only three, being opposite the inner lobes of the perianth.

Gen. I. Haemodor, Sm.

Perianthium superum v. semisuperum, 6-partitum, persistent, glabrum. Stamina 3. Ovarium 3-loculare, loculis 2-ovulatis; stylo filiformi; stigmate simplici. Capsula semisupera v. supera, 3-loba, loculicida 3-valvis. Semina 2, peltata, compressa; testa membranacea; umbilico ventrali; albumine carnosae; embryone minimo.—Herba: glabra; radicibus e fibris increasatis tuberibusse coccineis elongatis fasciculatis; caulibus foliatis; foliis equitantibus, aversis, planis compressis: floribus corymbosis, variis spicatis.

Upwards of twelve species of Haemodor are known, all natives of Australia, and, with the exception of two or three, of the south-western quarter. The Tasmanian H. distichophyllum is a small, tufted, rigid herb, with distichous, equitant, compressed leaves, 2–3 inches long, and a stout central scape about the same length, covered with large, concave, loosely sheathing, coriaceous bracts, and bearing a small, compact head of corymbose flowers.—Perianth ¾ inch across, of six nearly equal, spreading, obovate-oblong leaflets. Stamens three, with slender, erect filaments, and small, introrse anthers. Ovary half-superior, three-lobed, three-celled; cells with two ovules in each. Style slender, erect, undivided, with a simple, inconspicuous stigma. Capsule almost wholly superior, three-lobed, coriaceous, splitting down the back of each lobe. Seeds two, compressed. (Name from αἷμα, blood, and δόσις, a gift.)

1. Haemodor distichophyllum (Hook. Ic. Plant. t. 854); humilis, foliis distichis equitantibus e basi longe vaginante lineari-subulatis compressis coriaceis, scapo brevi robusto bracteato, bracteis coriaceis laxis concavis, floribus capitatis, foliis perianthii interioribus paulo minoribus basi staminiferis, staminibus exsertis. (Gunn, 2055.)

Hab. Heathy hills near Macquarrie Harbour, Milligan.—(Fl. Nov.)

Nat. Ord. IV. Hypoxideae.

A small Order, whose species are natives of South Africa and Australia chiefly, though several are found in India, the Malay Islands, and other parts of the world.
Gen. I. HYPOXIS, L.

Perianthium superum, 6-partitum, patens, æquale, persistens. Stamina 6; filamentis brevisibus disco epigyno insertis; antheris introrsis. Ovarium 3-loculare; loculis multi-ovulatis; ovulis 2-seriatis, amphitropis. Stigma 3, angulis styli erecti adnati v. libera. Capsula 1–3-locularis, evalvis. Semina plurima; testa coriacea; umbilo laterali rostelliformi; albumine molli, carnoso; embryo recto, axili; radicula supera, hilo remotae.—Herba radice tuberosa, tunicata; foliis planis lineari-nervatis; scapo bracteato, 1-plurifloro; floribus sepsiisse flavis.

Of this genus, which abounds in South Africa, only four or five Australian species are known. All are small herbs, with narrow, grassy, or filiform leaves, coated tubers, and slender, one- or several-flowered scape. Flowers yellow, erect. Perianth superior, of six equal, spreading pieces. Stamina six, inserted on an epigynous disc or thickened base of the perianth; filaments short; anthers intorse. Style erect, with three adnate or free stigmas. Ovary inferior, three-celled; cells with many ovules in two rows. Fruit indehiscent, three-celled, or with the dissepiments sometimes obliterated, coriaceous or membranous, crowned with the withered perianth. Seeds with a small, subtulate point or hook at the umbilicus. (Name from ὑπόξ, beneath, and ὄξος, sharp; in allusion to the elongate base of the capsule.)

1. Hypoxis hygrometrica (Lab. Nov. Holl. i. 82. t. 108); pilosa, foliis angustis linearibus filiformibus scapo gracili 1–2-floro longioribus, floribus majusculis, filamentis elongatis, antheris basi longe bifidis, stigmatem simplici parvo.—Br. Prodr. 289. (Gunn, 561.)

Hab. Abundant in marshy and grassy pastures, etc., throughout the Island, ascending to 4000 feet. (Fl. Nov.–April.) (v. v.)

Distrib. Throughout extratropical Australia.

Whole plant more or less pilose, 2–8 inches long. Leaves very slender, almost filiform, longer than the one- or two-flowered, slender scape. Flowers ⅛–⅜ inch broad, bright yellow. Stamina with the anther-cells free from the base upwards to the insertion of the filament, which is almost half their length. Style with small, clavate, adnate stigmas. Capsules turbinate.

2. Hypoxis glabella (Br. Prodr. 289); glaberrima, foliis filiformibus scapo gracili 1–2-floro longioribus, floribus majusculis, staminibus subæqualibus, antheris angustis linearibus integris, stylo brevi, stigmatem late clavato integro v. trilobo.—Lehm. in Plant. Preiss. ii. 14. (Gunn, 163.) (Tab. CXXX. A.)

Hab. Abundant in pastures, etc.—(Fl. Aug.–Oct.) (v. v.)

Distrib. Victoria and South-west Australia.

Very similar in general appearance to H. hygrometrica, but glabrous, with paler flowers, and the stamens and style are very different. Stamina linear, entire at the base, on short filaments. Stigma large, clavate, on a stout, short style, entire or deeply lobed.—Plate CXXX. A. Fig. 1, flower; 2, stamen; 3, style and stigma:—all magnified.

3. Hypoxis pusilla (Hook. fil.); glaberrima, foliis filiformibus flexuosis scapo brevi longioribus, floribus parvis, staminibus alternis minornibus, antheris ellipticis basi integris, stylo brevi, stigmatibus linearibus, capsula turgida. H. hygrometrica?, Fl. N. Z. eal. i. 253. (Gunn, 761.) (Tab. CXXX. B.)

Hab. Circular Head, Gunn.—(Fl. May.)

Distrib. Victoria and South-west Australia, New Zealand.

A smaller species than either of the preceding.—Bulb as large as a hazel-nut. Leaves wiry, 2–3 inches long. Scapo ⅛–1½ inch high, one- rarely two-flowered. Flower ⅛ inch broad.—Plate CXXX. B. Fig. 1, flower; 2, outer segment of perianth and stamen; 3, inner ditto; 4, ovary, style, and stigma; 5, transverse section of ovary; 6, ripe fruit; 7, vertical section of ditto; 8, seed; 9, ditto, cut longitudinally:—all magnified.
There are three Australian genera of this Order; one, Damasonium, contains a single species very closely allied to, if not identical with, an Egyptian and Indian plant; the second, Hydrilla, consists also of one species, which is found throughout the Old World, from East Prussia to South Africa and India; the third is the present, a very singular plant, the economy of whose fertilization is one of the most curious in the vegetable kingdom.

Gen. I. VALLISNERIA, L.


1. Vallisneria spiralis (Linn. Sp. Pl. 1441); foliis linearibus obtusis apice serrulatis.—Br. Prodr. 345.

Hab. South Esk River, in deep and shallow water, and probably common elsewhere, Gunn.

Distrib. Australia, and generally diffused in the warm-temperate and tropical parts of the world.

Vallisneria spiralis is a submerged fresh-water herb, with fibrous roots, a very short stem, sending off lateral suckers, and very long, flat, linear, green leaves, serratulate at the tips. The male and female flowers are on different plants. The male inflorescence (of which I have seen no Tasmanian specimens) is an almost sessile spathe, containing a small, short spadix, covered with little globose, sessile, white, almost microscopic flowers; these become detached from the spadix, ascend to the surface of the water, expand by three valvate segments, and expose one to three minute stamens, alternating with some staminodia. The female flower is solitary at the apex of a very long, spirally-twisted filiform peduncle, which, by unrolling its spire, allows the flower to reach the surface of the water, and there expand. The female flower consists of a cylindrical ovary, crowned by three small, spreading perianthlobes, has three staminodia, and three large sessile stigmata. The pollen, detached from the floating male flowers, fertilizes the female, after which the spiral peduncle again contracts, and the female is carried to the bottom of the water, where it ripens its fruit.—Fruit a cylindrical berry, ½–2 inches long, with many ascending, ridged, and toothed seeds, attached to parietal placenta. (Named in honour of Antonio Vallisneri, an Italian botanist.)

NAT. ORD. VI. PISTIACEÆ.

A very small Order, containing a few genera of water-plants, closely allied to Aroidæ, of which they are no doubt very reduced forms. The tropical Duckweed, Pistia, which abounds in the fresh waters of the Old and New Worlds, has not hitherto been found in Australia.

Gen. I. LEMNA, L.

Flores hermaproditi v. abortu dioici, fissura frondis lenticularis celluloseae inseriti, spatha membranacea inclusi. Stamina 1–2, exserta; filamentis inaequilongis; antheris didymis. Ovarium sessile, 1-loculare; ovulis 1–4, basilaribus, stylo brevi; stigmatic truncato. Utriculus membranaceus, 1–4-spermus.
Semina erecta v. horizontalia; testa membranacea. Embryo exalbuminosus, orthotropus v. semi-antitropus; cotyledone crassa, farinacea, inferne excavata, radiculum includens, infra centrum plumulam minimam involvens, tubo membranaceo globulis repleto percursa.—Herbæ minima; frondibus lenticularibus, aquis dulcisibus natantibus, marginibus proliferis; radiculis simplicibus, calytra majuscula terminatis.

A genus of very curious minute water-plants, found all over the temperate and tropical parts of the globe, familiar as “Duckweed,” covering the surface of stagnant fresh-water with a pale bright-green stratum.—Frons scale-like, proliferous at the margin, furnished with tufts of thread-like, solitary, or tufted roots that have thickened extremities. Flowers very minute, and seldom produced, included in slits of the frond, enclosed in a membranous spathe that bursts irregularly. Stamens two, exserted, unequal, with two-lobed anthers.—The flowers, which are, when present, detected with difficulty, from their excessive minuteness, may best be found by examining the yellowish patches of the floating stratum. (Name, the old Greek one.)

1. **Lemna minor** (Linn. Sp. Pl. 1376); frondibus ovalibus utrinque planis, radicibus solitariis.—Br. Prodr. 345; Fl. N. Zeal. i. 239. (Gunn, 1015.)

Hab. Still waters, abundant.—(v. v.)

Distrib. Australia, New Zealand, throughout Europe, Asia, North and South Africa, America, and the Pacific Islands.


2. **Lemna trisulca** (Linn. Sp. Pl. 1376); frondibus lanceolatis petiolatis cruciatim cohaerentibus, radicibus solitariis.—Br. Prodr. 345. (Gunn, 1014.)

Hab. Still waters; less frequent than *L. minor*, Brown, Gunn, etc.—(v. v.)

Distrib. Australia, Europe, and various temperate and tropical countries.

The “Ivy-leaved Duckweed” of England.—Frons ¾ to ½ inch long, thin, elliptic-lanceolate, with one extremity prolonged, the other serrate, pellucid at the margin. Roots solitary. Seed solitary, transverse, with a short funiculus.

**NAT. ORD. VII. TYPHACEÆ.**

The small Order to which *Typha* belongs, may, along with *Pistiaces*, be reduced to a section of *Aroideæ*. The only genera belonging to it, *Typha* and *Sparganium*, are both Australian, though the former only has hitherto been found in Tasmania.

Gen. I. **TYPHA, L.**

Flores amentacei. Amenta cylindrica, mascula et feminea eundem culsum vestientia, masculo superiore. Flores densissime congeisti, papposi.—Masc. Perianthium 3-setosum, staminibus 3–6, filamentis filiformibus liberi v. varie monadelphis, antheris basifilis;—Fem. Ovarium 1-loculare, longe stipitatum, in stylum elongatum gracilem, apice lateralis stigmatosum angustatum, stipite setis capillaris (perianthio) plumoso; ovulo unico, pendulo, anatropo. Utriculus evalvis, monospermus. Semen pendulum; testa membranacea, albumine farinaceo, embryone axili, radicula hilo proxima, plumula fissura laterali inserta.—Herbæ; rhizomatæ repente, fibras crassas emitente; foliis ensiformibus, subspongiosis, integerrimis; culmis inarticulatis, cylindraceis.

This genus contains the common English Reed-mace, or “Cat’s-tail,” and is found in most parts of the globe on the margins of fresh-water ponds, etc., where it is conspicuous for the cylindrical, bright-brown catkins of pappose flowers. These yield an immense quantity of pollen, which is pressed into the form of cakes, and eaten in
times of scarcity by the natives of Australia, New Zealand, and Seinde in Western India. The leaves are used for thatching and other purposes. *Rhizomes* full of starch, often eatable. The species are not well characterized; the Tasmanian one seems to be the same as the English, though larger than the common European state of the same plant.—*Rhizomes* stout, creeping, densely matted together. *Culms* 2–4 feet high, cylindrical, solid. *Leaves* linear, spongy internally, sheathing at the base, quite entire. *Catkins* two, towards the apex of each culm, the upper of male flowers removed a little distance from the lower. *Flowers* minute, most densely matted together, so that the catkins look like velvet pile. *Perianth* of capillary setae; male of three to six stamens, with slender filaments; female of a slender one-celled ovary, terminating in a taper persistent style. (Name, the old Greek one.)


**HAB.** Common in marshes, banks of rivers, etc.—*(v. e.)*

**DISTRIB.** Australia, New Zealand, and in many temperate and some tropical parts of the Old and New World.

**NAT. ORD. VIII. ALISMACEÆ.**

A large Order of water-plants, whose limits are much disputed; and it seems to be immaterial whether *Alismaceæ, Juncaginæ,* and *Naiadæ* are considered separate Orders, or sections of one. A far more perfect transition of forms exists between the most perfect *Alismaceæ* and the most imperfect *Naiadæ,* than between *Aroideæ, Pistacíæ,* and *Typhaceæ,* which are somewhat similarly connected. All are water or marsh plants, with solitary or free, superior, one-celled, one-seeded, rarely two- or many-seeded, indescent carpels, bearing one or more erect or pendulous, exalbmninous seeds, with straight or curved embryos. The floral envelopes are in two series in *Alisma,* consisting of three green sepals, and as many white membranous petals; but the transition is perfectly gradual from this perfect double perianth to the naked stamens and ovary of *Ruppia* and others. The European genera *Alisma* and *Actinocarpus* are both Australian, but not hitherto found in Tasmania.

**Gen. I. TRIGLOCHIN, L.**

*Flores* hermaphroditici. *Perianthium* 6-phyllum, *foliis* imbricatis ovato-concavis, 3 interioribus interdum altius insertis, v. 0. *Stamina* 3–6; *perianthium* brevissimis, antheris extrorsis. *Ovarium* 3–6-loculare, loculis ovulo 1 (ratio 2?) erecto; *styles* 3–6, stigmatibus sessilibus papillosus v. plumosis. *Capsula* e carpidiis 3–6 axi adnatis, alternis interdum sterilibus septiformibus. *Semen* solitarii, testa coriacea; *embryone* exalbuminoso orthotropo.—*Herba* paludosa, scapigera; *foliis* linearibus; *scapi* gracilibus; *floribus* viridibus, spicatis racemosis, inconspicuis.

Minute or tall slender marsh-herbs, with narrow, grass-like, or subulate leaves and scapes, bearing spikes or racemes of inconspicuous green flowers, natives of all temperate regions, more numerous and curious in Australia, where about ten species are known, than in any other country.—*Perianth* of four to six greenish, generally unequal (the outer and lower larger), fleshly, concave leaflets, in two series, the upper generally placed at a little distance above the others. *Stamens* three to six, with very short filaments, and broad, extrorse anthers, often as large as the sepals in which they lie. *Ovaries* three to six, turigd or linear, combined into a three- to six-celled ovary, with as many one- to two?-ovulæ cells, and sessile plumose stigmas. *Fruit* of three to six carpels, attached to a central axis, each ovate, cylindrical, or linear, sometimes keeled, grooved, or armed with a projecting spine below. *Seed* solitary, erect, exalbmninous, with a coriaceous testa and straight embryo. (Name from τρις, three, and γάλαγας, a point; in allusion to the three carpels.)

_Hab._ Salt-marshes; abundant, *Brown, Lawrence, Gunn, etc._—(Fl. Nov.–Jan.){v. v.)

_Distrib._ Australia, from Moreton Island southwards and Swan River; New Zealand, Cape of Good Hope; South America, from South Brazil on the east coast, and Chili on the west, southwards; South United States.

A slender plant, 3 inches to 2 feet high.—Root swollen and bulibous. _Leaves_ narrow, linear, sharp-pointed, as long as or shorter than the scape, with membranous sheaths. _Scape_ solitary, flowering part 1–5 inches long. _Flowers_ very numerous, minute, on spreading pedicels that lengthen after flowering. _Sepals_ ovate, acute or blunt, variable in size and form. _Stamens_ variable in number, and particularly in size. _Fruit_ broadly-ovate or elliptic, one line long, of three compressed carpels, alternating with as many flat abortive ones. _Carpels_ with three ridges at the back, and very sharp points.—The Tasmanian specimens have sharper sepals than is usual, and the stamens are more frequently six.

2. *Triglochin centrocarpum* (Hook. Ic. Pl. t. 728); pusillum, caespitosum, foliis filiformibus, scapo brevioribus, scapis plurimis, floribus breve pedicellatis, sepalis membranaceis valde inequalibus acuminatis obtusis, staminibus 3–5, fructu linearis apice truncato, carpellis 3 fertilibus 3 sterilibus alternantibus linearibus dorso planis tricostatis, costis lateralibus marginalibus basi breviter calcaratis, stigmatibus parvis recurvis.—*Endl. in Plant. Preiss.* ii. 54. (*Gunn, 761.)*

_Var._ *β*; fructibus brevioribus brevissime pedicellatis divaricatis. (*Gunn, 899.)*

_Hab._ Sandy, moist places; abundant, *Gunn._ *Var._ *β._ Georgetown, *Gunn._

_Distrib._ Victoria and Swan River.

An insignificant plant, 1–2 inches high.—_Leaves_ ½–1 inch long, filiform, narrow, blunt. _Scapes_ numerous, rigid and wiry when in fruit, bearing a spike of five to ten minute flowers. _Fruit_ on very short pedicels, linear, ½–1 inch long, three-angled or six-angled, the alternate faces much smaller, and formed by the alternate sterile carpels. _Carpels_ very narrow, blunt, with a small, recurved, feathery stigma; back flat, with three ridges; the two lateral marginal produced at base each into a short projecting spine.—Swan River specimens are sometimes twice as large as these, with much longer pedicels to the fruit, but the majority do not differ from Tasmanian. The *Var._ *β* looks a somewhat different plant because of its small, sessile, spreading (not erect) fruit, but I find the same size of fruit on long pedicels in Swan River specimens, and both erect and spreading.


_Var._ *β._ minor, gracilior, foliis anguste linearibus spica abbreviata.

_Hab._ Fresh and brackish water; abundant. _Var._ *β._ In pools dried in summer.—(Fl. Nov._) (v. v.)

_Distrib._ Tropical New Holland, Port Jackson, Swan River, and Victoria.

An extremely variable plant, as Mr. *Gunn* well remarks, from 1 to 3 feet high, and robust in proportion. The *Var._ *β* is smaller and more slender, growing in sandy pools dried up in summer.—_Roots_ of many fibres, bearing numerous oval tubers ½–1 inch long. _Leaves_ 6 inches to 3 feet long, and ¼–2 inches broad, compressed below, flat above, linear, blunt, the upper part floating on the water. _Scapes_ solitary, very variable in thickness and length, some as thick as the thumb, others as a crow-quill. _Spikes_ long or short, of many, sessile, crowded flowers,
that separate and become pedicelled as fruit is matured. 

**Sepals** six, broad, rounded. **Stamens** six. **Ovaries** six, with recurved, rough stigmas. **Carpels** six, obliquely linear or ovate, with spreading, curved points, straight or twisted, ¾–½ inch long.—Endlicher separates this from the genus and Natural Order of *Triglochin*, on account of the valvate perianth, two ovules, and embryo with a large cotyledon, in all which characters, and particularly in the partially floating leaves, it approaches *Potamogeton*; but not only is the whole habit and appearance that of *Triglochin* (in which Mr. Brown places it), but I find the aestivation partially imbricated (as much as in some *Triglochin*), only one ovule in all the specimens I have examined, and the form of the embryo varies with that of the carpels in the different species of the genus.

**Gen. II. POTAMOGETON, L.**

*Flores* hermaphroditii. **Sepala** 4, valvata. **Stamina** 4, antheris extrorsis. **Ovaria** 4, sessilia, unilocularia; ovulo 1, ascendentem, infra apicem loculi affixo; stigmatum sessili, obliquo. **Carpella** 4, coriacea v. nucumentacea. **Semen** curvaturn, exalbuminosum; testa tenui; radícula incrassata, infera.—Herbe *aquaicæ*; caulibus *repentibus*, *demersis*; foliis *alternis*, *rarius oppositis*, *polymorphis*; stiplis *infrasoliaceis*; spiciis *pedunculatis*, *axillaris*, *basi vaginatis*.

Fresh-water herbs, with leaves often of two forms, the lower linear, grass-like, green, and submerged, the upper brown and floating, and short, axillary, or terminal spikes of inconspicuous green flowers that project above-water. In shallow places the lower leaves are often undeveloped; in deeper the upper floating ones are sometimes fewer in proportion. The depth of water and its rapidity, if flowing, cause great variation in their form, number, and size. The species are numerous, and many are found in all temperate and even tropical parts of the world.

—*Flowers* few or many, sessile on short or long fleshy peduncles. **Perianth** of four nearly sessile concave sepals, valvate in aestivation. **Stamens** four, sessile, opposite the sepals; **anthers** two-celled. **Ovaries** four, sessile, one-celled, with one curved ascending ovule attached to the axis above the middle. **Stigma** sessile near the apex. **Carpels** four, coriaceous or bony. **Seed** exalbuminous; **testa** membranous; **radicle** thick, pointing downwards. (Name from *πτομαφ*, a river, and γείτων, a neighbour.)

1. **Potamogeton natans** (Linn. Sp. Pl. 182); foliis natantibus petiolatis ellipticis oblongis oblongo-rotundatis basi subcordatis rotundatis subacutis, submersis linearibus membranaceis v. nullis, stipulis liberis, nucibus dorso carinatis.—*Br. Prodtr. 343*; *Fl. N. Zocul. i. 236*. (Gunn, 748.)

Var. **β. minor**; foliis minoribus elliptico-lanceolatis.


Distrib. Over most parts of the world, from the Arctic Circle to the Cape of Good Hope, South Chili, New Zealand, and Australia; also found in the Pacific Islands.

A common and very variable plant, often covering the surface of the water with its red-brown foliage.—*Leaves* floating, 1–3 inches long, stalked, elliptical or oblong, more or less broad and sharp at both ends, or blunt and cordate at the base; submerged leaves none, or linear, green, membranous. **Spike** 1–2 inches long. **Nuts** keeled at the back.—The var. **β** resembles the European *P. heterophyllus*, and has smaller, sharper leaves, partly owing to its growing in running water, and partly to the elevation of its habitat (1500 feet). I have not seen its fruit.

2. **Potamogeton heterophyllus** (Schreb. Spic. Fl. Lips. 217); foliis natantibus petiolatis oblongis ellipticis elliptico-lanceolatis, submersis membranaceis sessilibus v. breve petiolatis lanceolatis utrinque angustatis integerrimus crispatis denticulatis, stipulis nervosis, pedunculis superne incrassatis.—*Engl. Bot. t. 1255.*

Hab. Derwent River, above New Norfolk, *Gunn*.—(v. v.)

Distrib. Europe, India, and probably many other places.

**Alismaceæ.**]  FLORA OF TASMANIA. 41
My specimens are not satisfactory, having only young flowers, and few floating leaves; it may prove to be a variety of *P. natans*. This character I have adopted from the British Flora, the Tasmanian plant agreeing with it, and with European specimens.—Floating leaves like those of *P. natans*, but narrower and more membranous; submerged ones numerous, narrow lanceolate, stalked, membranous, entire, toothed, or crisped. *Peduncle* short, thickened upwards.—Some Tasmanian specimens have rigid, wiry stems, and all the leaves lanceolate, opaque, and coriaceous. This is possibly *P. crispus* of Mr. Brown, from Port Jackson, who has added to the specific name “non Linn.” in my copy of his ‘Prodomus.’ Koch refers *P. heterophyllus*, Schreb., to a variety of *gramineus*, which this plant may be.


*Hab.* South Esk River (growing with *P. natans*), Gunn.

*Distrib.* Europe, India, and various other parts of the world, as Australia and New Zealand.

A very different-looking and greener plant than the two former.—*Stems* elongated; branches long, simple. *Leaves* 2–4 inches long, ½ inch broad, linear, blunt, with three parallel veins connected by a few distant transverse ones. *Peduncles* short, as are the spikes.

Gen. III. **RUPPIA, L.**

*Flores* hermaphroditi v. unisexuales, spicati, paeci. *Perianthium* 0. *Stamina* 2–4, interdum dissita; filamentis brevissimis, squamaformibus; antheris magnis, extorsis, polline trihedro. *Ovaria* 4, sessilia, demum stipitata, 1-locularia; *ovulo* 1, pendulo; *stigmatic* sessili, petiato. *Fructus* e carpellis 1–4 longe stipitatibus indehiscentibus, gibbosis; *semen* pendulum, exalbuminosum, uncinatum, cruribus inaequalibus. *Embryo* homotropus, macropodus, cotyledone acuminata.—*Herbae* gracillimae, *caspitose*, *aquam* *salsam* *habitantes*; *ramis* *filiformibus*; *foliis* *linearis-setaceis*, *filiformibus*, *basii* *vaginatibus*.

A very widely-distributed plant, forming matted masses of long, very narrow, slender, greenish-brown stems and foliage, in brackish water.—*Stems* very slender, 6 inches to several feet long. *Leaves* alternate, sheathing below, very long, narrow, and linear. *Flowers* in the axils of the leaves. *Spadix* much lengthened after flowering, and spirally twisted (as in *Vallisneria*). *Ovaries* sessile. *Peduncles* of the fruit much lengthened, often an inch long. *Nuts* very small, oblique, compressed, with sharp or blunt styles.—An extremely variable plant in Europe, of which several species have been made on insufficient grounds. (Named in honour of *Henry Barnard Ruppius*, an early German botanist.)

1. **Ruppiia maritima** (Linn. Sp. Pl. 184).—*Fl. N. Zeal.* i. 236. (Gunn, 1859, 1859?.)

*Hab.* Fresh and brackish water near the sea; abundant in the Derwent, Tamar, etc.—(Fl. Oct.) *(v. v.)*

*Distrib.* Europe and North Africa, Red Sea, peninsula of India, and Ceylon, Australia, New Zealand, Sandwich Islands, east and west coasts of North America, West Indies.

Gen. IV. **ZANNICHELLIA, L.**

*Flores* monoici. *Masc.* *Stamen* 1, spatha inclusum, axillarem, pedicellatum; anthera sessilis, late oblonga, 2–4-locularis; pollen globosum. *Fem.* *Ovaria* sub-4, spatha inclusa, pedicellata, 1-locularia, 1-sperma; stylo recto; stigmatic dilatato; *ovulo* 1, pendulo, orthotropo. *Nucule* 4, breve pedicellato v. sessiles. *Semen* pendulum, exalbuminosum; testa tenui; cotyledone elongata, circinatim inflexa; radicula macropoda.—*Herbae* *natantes*, *tenellae*, *auge* *dulcis*. 
Very slender, floating herbs, inhabiting fresh-water. **Leaves** linear-elongate, 1–3 inches long, 1 line broad. **Flowers** monoeccious, axillary, solitary, minute, hidden in the spathaceous axils of the leaves. **Male.** A solitary, naked stamen, with short filament, and erect, quadrade, two- to four-celled anther. **Pollen** globose. **Female.** Four ovaries in a spathæ, sessile or pedicelled, with slender styles and peltate stigmas. **Fruit** of four linear-oblong, coriaceous, minute nuts, indehiscent, sometimes crenate at back, on long or short pedicles, furnished with long or short styles. **Seed** oblong, pendulous; **testa** membranous; **albumen** 0; **radicle** very large; **cotyledon** doubled inwards on the radicle. (Named in honour of John Jerome Zannichelli, a Venetian apothecary and botanist.)


**Hab.** Pools of fresh water, abundant: Hobarton, etc.—(v. v.)

**Distrib.** Pools of fresh water, New Zealand, Europe, North Africa, as far south as the Canaries, North, Central, and West Asia, India, east and west coasts of North America, and the West Indies.

Gen. V. **POSITONIA,** König.

**Flores** hermaphroditæ, spadice pedunculo basi spatha foliacea bilabiata inclusæ. **Perianthium** 0. **Stamina** persistentia, sessilæ; antheræ 3–4, bilocularibus, loculi discretæ; filamentis crasse coriaceis, viridibus, erectis, conico-elongatis, utrinque extus basi loculam pollinifera gerentibus; polline confervoideo. **Ovarium** 1-loculare; ovulo 1, parietali, amphitropo; stigmata sessili, villose, lobato? **Fruces** subbacca tatus, indehiscens. *Semen* longitudinaliter adnatum, exalbuminosum. **Embryum** macropodus; **radicula** maxima, infera; **cotyledon** inflexa, rima longitudinali inclusa.—**Herbae** marinae; caule repente, ramoso, **foliorum** exuvis vestito; foliis ad apices ramorum congestis, lineari-elongatis, gramineis; spadice pedunculo crassiusculo et foliorum centro exserto.

Dull-green plants, with creeping rhizomes, growing in salt-water.—**Rhizomes** short, shaggy with the fibrous remains of old leaves, and tufts of green, grassy leaves. The species are most common in tropical seas. **Peduncle** or **spadix** short, arising from the centre of a leaf, its base enclosed in a two-valved, leafy spathe. **Flowers** few, three to twelve (each surrounded by a secondary spathe?). **Perianth** 0. **Stamens** three or four. **Anthers** placed at the back (outer face) of a broad, persistent, coriaceous filament, that resembles a segment of a perianth. **Ovary** one-celled, with one ovule. **Fruit** a small, fleshy utriculus, with a sessile, plumose stigma. **Seed** exalbuminous, attached on one side by all to the walls of the pericarp; **radicle** very large, bent upwards at the apex? plumule lying in a slit of the cotyledon.—I have seen detachedfruits spikes of the Tasmanian species, in a very bad state; they were found by Gunn, washed up on the beach, and were supposed by him to belong to *Cymodocea*, but they so closely accord with the general characters of the European *P. oceanica*, that I conclude they belonged to *P. australis*. (Name from Ποσεidon, the god Neptune.)

1. **Posidonia australis** (n. sp.); caule brevisucculo, ramis abbreviatis exuvis foliorum longissimis flexuosis dense vestitis, foliis longissimae linearibus obtusis, ligula brevisissima truncata, spica 4–6-flora.—**Caulinia oceanica,** *Br. Prodr.* 339, non DC. (Gunn, 1847.)

**Hab.** Coast of Tasmania, *Brown*; near Georgetown, below low-water mark, *Gunn.*

**Distrib.** South coast of Australia.

**Stems** short; **branches** densely covered with long, ragged, white fibres, 2–3 inches long, the remains of old leaves. **Leaves** 2–3 feet long, ½ broad, rounded at the tip, nerveless, shining when dry. **Ligula** very short, decurrent, and forming inflexed margins to the base of the leaf.—I have not seen the flowers of this plant, of which Mr. Brown says there are four to six on the spike; he refers it to the *P. oceanica* of the Mediterranean Seas, which is much smaller, with a stiff white brush at the base of the leaves, instead of long, matted fibres. Mr. Brown further remarks that the four to six flowers of this may distinguish it.
Gen. VI. CYMODOCEA, König.


I am very doubtful whether the Ruppia antarctica of Labillardière should be referred to this genus, having seen no flower or fruit, and the male flower alone being hitherto described by Gaudichaud. C. antarctica strongly resembles, in habit and general appearance, some Indian plants referred to Thalassia, as T. Indica, but the generic character of Thalassia attributes a three-leaved perianth to that genus, flowers enclosed in a peduncled spathe, and nine anthers to the male flower, characters wholly at variance with Gaudichaud’s description of Ruppia antarctica. (Name from Κυμάδοκη, a sea-nymph.)


Hab. Rocks in the sea, Georgetown, Gunn.

Distrib. East, west, and south coasts of Australia.

Stems sparingly branched, 1–2 feet long, pale brown, cylindrical, jointed, joints swollen, as thick as a pigeon’s quill. Leaves crowded at the end of the branches, alternate, amplexicaul, 1½–2 inches long, ½ inch broad, linear, with a broad shallow notch at the tip, dark-green, nerveless. Ligula very short, decurrent, forming inflexed margins to the base of the leaf (as in Posidonia).

Gen. VII. ZOSTERA, L.

Flores monoici v. dioici. Spatha foliacea, basi folii longitudinaliter adnata. Spadix membranaceus, inclusus, antice staminibus ovariisque biseriatis onustus. Antheræ solitariae, sessilia, peitatae, 1-loculares, polline confervoideae. Ovaria paucæ, dorso prope apicem affixa, 1-locularia; ovulo 1, pendulo, orhtothropeo; stylo persistente, subulato; stigmatibus 2, capillari-bus. Utriculus evallis. Semen pendulum, exalbminosum; testa membranacea, longitudinaliter striata; embryo macro-poda, radícula infera, cotyledone inflexa, rima longitudinali inclusa.—Herbae marinae; caule repente, radicante; foliis gramineis, basi vaginantisibus.

Slender, creeping, marine plants, called “Sea-wrack” in England, with grassy leaves, which are extremely variable in breadth and length. There is probably but one species (of the varieties of which many more have been made), which is found in all seas, but not hitherto found in flower or fruit in those of Australia and New Zealand.—Spathe adnata to the inner face of the base of the leaves. Stamen et ovaries inserted in two rows on the face of a flat thin, spadix. Flowers monocious. Perianthium 0. Male flower a sessile, one-celled anther, with confervoid pollen. Female an ovate ovary, with one long, filiform style and two stigmata, one cell and one ovule. Fruit a utriculus, bursting irregularly. Seed pendulous, without albumen, a large radicle and inflexed cotyledon lodged in a slit. (Name from ꜅worp, a ribbon; in allusion to the form of the leaves.)


Hab. Abundant in the sea, especially in muddy estuaries, forming extensive green banks.—(v. v.)

Distrib. European and North-American shores, from Iceland southwards, the Mediterranean, Cape of Good Hope, Australia, and New Zealand.
Stems creeping; branches slender, erect, leafy. Leaves in Tasmanian specimens 6–12 inches long, 1–2 lines broad, with numerous, very faint nerves. Flowers and fruit unknown in Tasmania.

Gen. VIII. HALOPHILA, Gaud., an Thouars?

Flores dioici (?), (interdum) monoici, axillares, solitarii, breve pedicellati. Perianthium spathaceum, diphyllum. Fl. masc. Stamina 3; filamentis connatis; antheris liberis, extorris, 1-locularibus. Pollen confoverdeo. Fl. fem. Ovarium 1-loculare; ovulis plurimis, pariatalibus, anatropis; stylo elongato; stigmatic obliquo, discoideo, (stigmatibus 3–5, filiformibus, Gaud.) Semina exalbuminosa, embryo curvo; (semina depresso-subglobosa, umbilico basilaris; testa membranacea; albumine farinoso; embryo apice albuminis posito, torto, Gaud.)—Herbula submarina, delicatula; caule repente, gracili, nodoso, ad nodos folioso; foliis binis longe graciilo petiolatis, oblongis v. lineari- v. elliptico-oblongis, obtusis, integerrimis crenulatis; costa crassiuscula; venis intramarginalibus, capitariibus v. evanidis; venulis et costa divaricatis ascendentibus; stipulis ad nodos binis, oppositis, late oblongis, obtusis, membranacis, deciduis.

A very curious plant, of which I have seen no flower or fruit, and I have taken the above description of these in part from Endlicher’s ‘Genera Plantarum,’ for which I believe Gaudichaud is the authority, and in part from some notes and sketches of flowers of both sexes, for which I am indebted to C. Drew, Esq., Assistant-Surgeon in the Madras Army, who examined specimens of apparently the same plant on the Malabar coast. It appears to be a congener of Delile’s Zoeterra bullata.—A very slender, submarine, pale-green plant, consisting of a slender, creeping, jointed stem, giving off a pair of long-petioled leaves at each joint. Leaves membranous, ½–2 inches long, oblong or elliptic or linear-oblong, blunt, with a slender, intramarginal vein, and stout costa, which gives off slender venules. Flowers monoeious in Mr. Drew’s notes (according to Gaudichaud dioecious), axillary, solitary, enclosed in two spathaceous bracts. Male of three one-celled anthers (two-celled according to Mr. Drew’s description, but not his figure), with monadelphous filaments, linear anthers, and confoveral pollen. Female flower of one one-celled, many-ovuled ovary, with a slender style, and obliquely truncate, discoid stigma (Drew), and three to five stigmas (Gaud.). Seeds many, according to Gaudichaud, depressed, globose, with copious, farinaceous albumen, and a small, twisted embryo, in a cavity at its apex (but according to Mr. Drew, about twelve, exalbuminous, with a curved embryo?). (Name from δας, the sea, and φλω, in allusion to its marine habitat.)


Hab. Found floating in the sea in Bass’s Straits, Gunn.

Distrib. Tropical and South-western Australia, the peninsula of India, and Madagascar.

NAT. ORD. IX. MELANTHACEÆ.

A small Order, in Australia containing about fifteen species, with one exception extratropical.

Gen. I. BURCHARDIA, Br.

Flores umbellati. Perianthium inferum, petaloideum, 6-phylhum, foliis erecto-patentibus, basi nectariferis. Stamina 6, basi perianthii inserita; antheris extorris, peltatis. Ovarium trigonum, acutum, triloculare; ovulis plurimis, biseriatis; stylis 3, brevibus. Capsula 3-partibulis, introrsum dehiscens. Semina conferta, biseriata, verticaliter compressa; testa coriacea.—Herba; radicibus e fibris crassis, fasciculatis; caule simplici, foliato; foliis linearibus, vagina integra, superioribus subvaginantibus, supremis involucriformibus; floribus albis.
1. **Burchardia umbellata** (Br. Prodr. 273); foliis scapo plerunque brevioribus, pedicellis breviusculis. (Gunn, 103.)

Var. *B. parviflora*; caule graciliore, floribus minoribus.

**Hab.** Northern parts of the Island, as at Launceston, Georgetown, etc., Laurence, Gunn; Great Swan Port, Storey.—(Fl. Oct., Nov.) Var. *B. Georgetown.—(Fl. Dec.)**

**Distrib.** New South Wales and Victoria.

The only Tasmanian species of this genus forms a small herb, 6-24 inches high, with a root of fleshy, fascièd fibres, an erect, leafy scape, and involucrate umbel, of four to eight star-like, white flowers. **Leaves** linear, spreading and curving outwards, the cauline ones sheathing at the base. **Pedicels** of the flowers very variable in length, ½–1 inch long. **Flowers** extremely variable in size, ½ to almost 1 inch across, of six linear-oblong, white, spreading leaflets, each with a nectariferous pit at the base. **Stamens** six, inserted on the base of the segments, with slender filaments and versatile anthers. **Ovary** elliptic, suddenly contracted into three short, spreading stigmas. **Capsule** three-valved, coriaceous; **valves** boat-shaped, laterally compressed, acuminate, bursting inwards. **Seeds** very numerous, in two series in each cell, vertically compressed, densely imbricated, with a pale, coriaceous testa.—Gunn finds a much smaller-flowered and more slender plant, as a variety of this, from Georgetown, and I do not find that it presents any characters but these to distinguish it. (Named in honour of Henry Burchard, M.D., a botanical author.)

**Gen. II. ANGUILLARIA, Br.**

**Flores spicati.** **Perianthium** inferum, petaloideum, 6-phyllum, foliolis ellipsoideis, ungue vittato a biglandulo. **Stamina** 6, basi perianthii inserta; antheris extrorsis. **Ovarium** trigonum, obtusum, triloculare; ovulis plurimis, biseriatis; stylis 3, erectis. **Capsula** 3-valvis, loculicide 3-valvis, valvis medio septiferis. **Semina** biseriata, globosa; **testa** coriacea.—**Herbae; radice bulbosa, tunica; foliis gramineis, caulinis vaginibus; floribus interdum unisexuales, albis, purpureis pictis.**

A small genus of five or six species, confined to extratropical Australia.—Small herbs, with bulbous roots, grassy leaves, with inflated sheaths, and spikes of white, star-shaped flowers. **Bulbs** covered with a deep chestnut-brown, shining; membranous coat. **Stems** slender. **Flowers** sessile, sometimes unisexual. **Perianth** of six linear, spreading leaflets, with two glands, or purple, thickened spots or bars about the middle. **Stamens** six, with extraorse anthers. **Ovary** superior, blunt, three-celled, with three recurved styles, and three cells with two rows of ovules in each. **Capsule** trigonous, coriaceous; dehiscence loculicular. **Seeds** globose. (Named in honour of Aloys Anguilara, a Professor of Botany at Padua.)

1. **Anguillaria dioica** (Br. Prodr. 273); floribus spicatis unisexualibus v. hermaphroditis, perianthii foliolis medio biglandulosis v. transverse incrassatis.—Kunth, Enum. iv. 158; Endl. Icon. t. 3. Pleae Sieberi, Sieb. Pl. Erstic. 156. (Gunn, 162.)

Var. *B. multiflora*; foliis latiorebus, floribus plurimis majoribus, perianthii foliolis obscure transverse incrassato-vittatis v. omnino nudis.

**Hab.** Abundant in meadows, pastures, etc., throughout the Island; sea-sand, near Woolnorth, Gunn.—(Fl. Aug.–Oct.) (v. v.)

**Distrib.** South-eastern and South-western Australia, from New South Wales to Swan River.—Var. *B. Victoria, Adamson.*

A small, slender plant, 2 inches to a span high. **Leaves** longer than the scape, spreading and recurved, sheathing base broad and cucullate, lamina elongate-subulate, concave. **Flowers** polygamous, three to six in a spike, very variable in size, ½–3 inch across. **Leaflets** of the perianth with two, purple, thickened spots about the middle, which usually coalesce and form a transverse, purple band. The var. *B* looks very distinct in Tasmania, but
FLORA OF TASMANIA.

I have intermediate forms from Victoria; it is larger, with broader leaves, larger, more numerous flowers, and the leaflets of the perianth are very obscurely fasciate.

2. *Anguillaria uninflora* (Br. Prodr. 273); caule 1–2-floro, floribus hermaphroditis, perianthii foliolis medio margines versus late biglandulosis.—*Kunth, Enum.* iv. 159. *An A. biglandulose*, *Br., var.?* (Gunn, 562.)


Distr. New South Wales.

Very similar in general characters to *A. dioica*, but a much more slender plant, bearing one or two flowers; and the leaflets of the perianth are narrower, and have two thickened glands towards the margins, at about their middle parts.

Gen. III. HEWARDIA, *Hook.*


A very singular plant, quite unlike any of its congeners, and far more resembling *Hemodoraceae* than *Melanthaceae*, from its coriaceous habit, lurid flowers, the stamens being only three, and the ovary partially sunk in the short, campanulate base of the perianth. On the other hand, the truly superior ovary, extrorse anthers, three stigmas, and the stamens being inserted on the outer segments of the perianth, conclusively refer it to *Melanthaceae*.—A small, very rigid, harsh plant, a span high, with hard, coriaceous, distichous, equitant leaves, a spatheaceous scape, and one very large, pedicelled, dark-purple, spreading flower, enclosed, when in bud, by two spathes. *Rhizome* short, woody. *Leaves* nearly straight, 3–5 inches long, ½–1½ inch broad, rigid, but not pungent, minutely striate, with shining, brownish margins, and short, broad, open sheaths. *Scape* slender, rigid, compressed. *Spathes* alternate, the two terminal opposite at the apex of the scape, all much more membranous than the leaves, compressed, upper about 1½ inch long, pale brown. *Flow-ers* with a slender pedicel, as long as, or shorter than the spathes, 1½–2½ inches broad. *Perianth* with a short, campanulate tube, and six nearly equal, long, spreading, linear-lanceolate, acuminate segments. *Stamens* short; *anthers* linear-oblong, erect, extrorse, as long as the filaments. *Ovary* conical, with a short, terminal, erect style, and three rather large, revolute stigmas. (Named in honour of R. Heward, Esq., the friend and biographer of Allan Cunningham, the Australian botanist.)

1. *Heawardia Tasmanica* (Hook. i. c. Plant. t. 858). (Gunn, 2054.)

Hab. Heathly plains and mountain ranges near Macquarie Harbour, *Milligan, Gunn.*—(Fl. Dec.)

Gen. IV. CAMPYNEMA, *Lab.*

*Flores* solitarii v. paniculati, polygami, unibracteati. *Perianthium* superum, 6-partitum, persistens; foliolis patentibus, coriaceis, ellipticos. *Stamina* 6, perianthii segmentis basi inserta, post anthesin recurvus; *antheris* versatileibus, extrorsis. *Ovarium* lineari-clavatum, 3-loculare; *stylos* 3, apice revolutis; *ovulis* dense biseriatis, septis ovarii insertis. *Capsula* linearis, coriacea, tricarinata, perianthio persistente coronata, intus? dehiscens. *Semia* conferta, rufa, immatura verticaliter compressa; *testa* coriacea.—*Herba* *gracilis, glaberrima*; *radicibus e fibris crassis, fasciculatis*; *collo squamus vaginantibus hyalinis nitidis altis*
A very anomalous plant, referred doubtfully to Melanthaceae by Brown, from Labillardiere’s unsatisfactory figure, although the perianth is most decidedly superior.—A small, slender, inconspicuous plant, 3-15 inches high, very variable in habit, number, and breadth of leaves, slenderness of scape and leaves, both of which are sometimes filiform, and in number and size of the flowers, which are hermaphrodite or unisexual. Root of tufted fleshy fibres. Base of the stem surrounded with white, hyaline, shining, linear, acute sheaths, an inch long, external to which is sometimes a dense fibrous mass of decayed sheaths. Radical leaf solitary. Scape rigid, flexuous, leafless, or with one leaf towards the base, and small, distant, sheathing bracts above. Flowers solitary or panicled, erect, \( \frac{1}{3} - \frac{1}{2} \) inch in diameter. Ovary linear-clavate, three-celled, with numerous axile ovules in two series, and three recurved styles. Capsule linear, \( \frac{1}{3} - \frac{1}{2} \) inch long, coriaceous, three-angled, deeply three-grooved; cells apparently bursting inwards. (Name from καμπυλος, curved, and νημα, a thread; in allusion to the curved filaments.)

1. Campyphema linearis (Lab. Pl. Nov. Holl. i. 93. t. 121).—Br. Prodr. 291; Fl. Antarct. i. 78, in notes. (Gunn, 954.)

Hab. Heathy places at Middlesex Plains, Rocky Cape, Macquarrie Harbour, between Lake St. Clair and Franklin River; Recherche Bay, etc., ascending to 4000 feet, Labillardiere, Gunn, Milligan.—(Fl. Jan.–March.)

NAT. ORD. X. SMILACEÆ.

Of this Order there are few Australian genera or species. These consist of Drymophila, an Asparagus, two of Eustrephus, four of Geitonoplesium, a Rhipogonum, and several species of Smilax. The majority of these are natives of the Tropics and East Coast.

Gen. I. DRYMOPHILA, Br.

Perianthium petaloideum, 6-phyllum; foliolis patentibus, æqualibus, deciduis. Stamina 6, hypogyna; antheris introrsis. Ovarium 3-loculare; stigmatibus 3, revolutis; ovulis plurimis, biseriatis, anatropis. Baccæ subglobosa, 3-locularis; semina plurima, ovata; testa membranacea, cum nucleo connata; umbilicio basiliari, punctiformi; albumine dense carnosæ; embryone axili; radiículo umbilico proxima.—Herba perennis; rhizomate repente, noduloso; caulibus gracilibus, erectis, subflexuosis, vaginati; vaginis membranaceis, distantiis, superne foliatis; foliis distichis, sessilibus, e torsione basi angustata resupinati, lanceolatis vel lineari-oblongis, acuminiatis, striato-nervosis; pedunculis axillaribus terminalibusque, solitariis, unifloris, ebracteatis, inarticulatis; floribus albis, cornuis; baccis caeruleis, pendulis.

D. cyanocarpa, the only known species, is very closely allied to the genus Callitrem of New Zealand and South Chili, but differs in the almost sessile, large, revolute stigmas.—A slender herb, with a creeping, perennial rhizome, and slender, annual, erect, simple or rarely-branched stems, 1–2 feet high, which are cylindrical and leafless below, bearing there only a few distant, scarious, sheathing scales, and compressed and leafy above. Leaves alternate, 1–3 inches long, linear-lanceolate or oblong-lanceolate, acuminate, distichous, narrowed at the base into a very short petiole, which is half-twisted, so that all the leaves are nearly horizontal. Flowers white, \( \frac{1}{3} - \frac{1}{2} \) inch broad, on slender, curved, solitary peduncles, axillary and terminal, nodding, of six equal, spreading leaflets. Stamina six. Ovary three-celled, with many ovules. Styles three, recurved. Berry very variable in size, deep bright-blue
(rarely white), with several ovoid seeds, whose testa is membranous and albumen firmly fleshy. (Name from δρυμός, a wood, and φολος; from its affecting shady places.)

1. **Drymophila cyanocarpa** (Br. Prodr. 292); *Kunth, En. iv. 212.* (Gunn, 224.)

**Hab.** Abundant in grassy, shaded places, amongst Fern, etc.—(Fl. Jan.–Dec.) (v. v.)

**NAT. ORD. XI. LILIACEÆ.**

This Natural Order, in its extended sense, includes all superior-fruited petaloid Monocotyledones that have introrse anthers, trilocular ovaries, and seeds with the testa generally black and crustaceous; it thus includes *Asphodeleæ* and *Hemerocallidæae*, but excludes *Smilacæae* and *Melanthiæae*; it is connected with *Juncæae* by various genera. Upwards of 100 Australian species are known, but they are for the most part imperfectly defined.

**Gen. I. BLANDFORDIA, Smith.**

*Perianthium* marcascens, tubulosocommanulatum, ore 6-fido. *Stamina* 6, basi tubi inserta; filamen-tis filiformibus apice cucullo connectivi insertis. *Ovarium* stipitatum, lineare, 3-loculare, in stylum brevem attenuatum; *stigma* 3-lobo; *ovulis* plurimis, biseriatis, anatropis, horizontalibus. *Capsula* prismaticæ, basi perianthio vaginata, tripartilibis; loculis angulo interno dehiscentibus, acuminatis, membranaceis. *Semina* biseriata, linearis; *testa* villosa, laxa, fusca, membranacea.—*Herbes* *perennes*; radice *fibrosa*; folis radicalibus *rigidis*, lineari-elongatis, *base* semivaginatus, *severalis* integerrimæ; caulinis *distantis*, abbreviatis; *scapo* tereti; *floribus* *racemosis*, pedunculatis, pendulis; *pedunculis* apice curvis, *base* *vibratæatis*; *fructibus* eréctis.

A very beautiful genus, of which several species are known, all confined to Eastern and South-eastern Australia and Tasmania. *B. grandiflora* is one of the handsomest plants in Tasmania; it forms an annual herb, with a fibrous, perennial root, having long, narrow linear, coriaceous leaves, 1–2 feet long, with serrulate margins, and a tall, stout, cylindrical flowering scape, 2–3 feet high, bearing a raceme of beautiful, pendulous, deep orange-red flowers, 1–2 inches long.—*Bracteae* lanceolate-subulate, varying in length from half as long to as long as the peduncles. *Capsules* erect, stipate, prismatic in shape, narrow linear-lanceolate, acuminate, sheathed below by the persistent perianth. *Seeds* very numerous, linear; *testa* membranous and densely villous, with tawny, soft hairs. (Named in honour of the Marquis of Blandford, a patron of Horticulture.)

1. **Blandfordia grandiflora** (Br. Prodr. 296); folis arguto serrulatis, *scapo* robusto, *bracteis* angustae lanceolato-subulatis pedunculum floriferum subæquantibus v. brevioribus.—*Kunth, En. iv. 590; Lindl. Bot. Reg. xi. 924.* (Gunn, 241.)


Var. *γ.* *Backhousii*; *floribus* subcorymbosis.—*B. Backhousii, Lindl. Bot. Reg. 31. sub tab. 18.* (Gunn, 241.)

**Hab.** Not uncommon in sandy soil in various parts of the Island, ascending to 4000 feet. Var. *β.* Rocky Cape. Var. *γ.* Mersey River.—(Fl. Dec.)

**Distrib.** New South Wales.

This is undoubtedly the *Aletris punicea* of Labillardière, which Brown refers doubtfully to his *Blandfordia grandiflora*. The lower bracts are much larger and longer in the Tasmanian than in other specimens, but there is great variation in their size, as in that of the flower, fruit, and peduncles. Lindley distinguishes *B. Backhousii*, but Gunn, who first suspected that it might prove distinct, has sent later specimens, which present numerous intermediate states. Port Jackson specimens have narrower leaves than the Tasmanian, but are not otherwise different.
Gen. II. ARTHROPODIUM, Br.

Flores albi v. purpurascen

Hab. Abundant throughout the Island, ascending to 1500 feet.—(Fl. Dec.) (v. v.)


Exceedingly variable in size, from 6 inches to a yard high, with the leaves from 2 inches to 2 feet long, and varying proportionately in robustness and breadth of leaves, ramification of raceme, and number of flowers. Flowers white or purplish, on very slender pedicels, generally in pairs; their bracts always small, ovate. Filaments densely villous, with pale hairs for two-thirds of their length. Anthers yellow or purplish, with a few hairs at the base of the lobes. Style long and slender.

2. Arthropodium pendulum (De Cand. Cat. Hort. Monsp. 80); 1—2-pedalis, racemo simplici v. ramoso, pedicellis gracilibus medio articulatis solitariis et aggregatis, floribus purpureis, bracteis parvis ovatis, foliolis interioribus subcrenatis, filamentis dense stuposo-barbatis, barba inferne flava superne purpurea, antheris basi subbilosis, stylo filiformi.—Kunth, En. iv. 620. Phalangium pendulum, Red. Lil. t. 360. (Gunn, 563, 100?)

Hab. Abundant in the northern parts of the Island, as at Launceston, Woolnorth, the Hampshire Hills, etc., Scott, Gunn.—(Fl. Dec.)

Very nearly allied indeed to A. paniculatum, and perhaps only a distinct variety; it differs chiefly in the less compound raceme, shorter peduncles, deep-purple flowers, the pedicelled, fusiform tubers of the root, and in the beard of the filament being yellow below and purple above.
3. Arthropodium minus (Br. Prodr. 276); 6-10-pollicaris, tuberibus cylindraceis sessilibus, racemo simplici, floribus subsolitariis, bracteis inferioribus subspathaeis, pedicellis supra medium articulatis, floribus purpureis, filamentis brevibus supra medium dense stuposis, antheris basi barbatis, stylo brevi curvo.—Kunth, En. iv. 621; non Lindl. in Bot. Reg. (Gunn, 950.)

HAB. Rich pasture-land in the northern parts of the Island, as at Formosa, Circular Head, and Lake River, Gunn.—(Fl. Nov.)

DISTRIBUTION. New South Wales and Victoria.

A very pretty and distinct little species, 6-8 inches high, with short leaves, and a simple (rarely branched) raceme of purple flowers. Tubers quite sessile and cylindrical. Stamens shorter than in the preceding species. Stylo short and curved.

§ 2. Filaments glabrous. Anther-lobes produced at the base into short, obtuse, glandular appendices.

4. Arthropodium laxum (Sieb. Pl. Exsicc. 194); 1-3-pedalis, tuberibus pedicellatis, racemo simplici v. ramoso, bracteis inferioribus elongatis infinis spathaeis, pedunculis solitariis apice articulatis, floribus purpureis, filamentis imberbis, antheris lineari-elongatis, loculis basi in appendices breves productis.

—Dichopogon Sieberianus et D. humilis, Kunth, En. iv. 623. (Gunn, 100.) (Tab. CXXXI)

HAB. Abundant in good soil throughout the Colony.—(Fl. Oct.—Dec.) (v. v.)

DISTRIBUTION. New South Wales, Victoria, and South Australia.

Similar in habit and general aspect to A. pendulum, but at once distinguished by the larger flowers, the solitary peduncles joined close to the flower, the large lower bracts, and the peculiar anthers.—PLATE CXXXI. Fig. 1, flower; 2, stamen; 3, pistil; 4, transverse section of ovary; 5, capsule; 6, transverse section of ditto; 7, seed; 8, the same, cut longitudinally:—all magnified.

§ 5. Flores ignoti.

5. Arthropodium strictum (Br. Prodr. 276); "racemo subsimplici multifloro, pedicellis solitariis, capsulis erectis."

HAB. Tasmania, Brown.

Gen. III. BULBINE, L.

Flores dense racemosi, erecti, flavi. Perianthium patens, 6-phyllum, foliolis patentibus. Stamina 6; filamentis omnibus v. 3 inferioribus barbatis; antheris versatilibus. Ovarium 3-loculare; stylo filiformi; stigmate papillosa; ovulis paucis, 2-seriatis. Capsula coriacea, loculicida 3-valvis, oligo-v. polysperma. Semina angulata, compressa; testa atri v. fusca albumine adherente; embryone recto v. curvo.—Herbe; radice fasciculato-fibrosa; caule basi interdum bulboso; foliis linearibus, canaliculatis; racemo simplici, erecto, cylindraceo.

About five or six Australian species of this genus are known to me; there are also a great many Cape species; but neither the limits of the genus nor its species are at all well known. They are further very difficult to preserve, retaining their vitality under pressure for many weeks.—The Australian Bulbines are all erect herbs, with fuscated, fibrous or tuberous roots, linear leaves, and erect scapes, bearing simple racemes of erect, yellow, spreading flowers. Perianth of six equal, spreading leaflets. Stamina six, all, or the inner only, bearded on the filaments. Anthers versatile. Ovary three-celled, with about six ovules in each cell, a simple, straight style, and papillose stigma. Capsule coriaceous, three-valved. Seeds few, with a coriaceous or subcrustaceous, dark opaque testa. (Name from bulb, a bulb.)

1. Bulbine bulbosa (Haworth, Revis. 33); radicis fibris crassis, caule basi bulboso incrassato, racemo primum densifloro apice conico, filamentis omnibus supra medium barbatis declinatis.—Anthericum bulbosum, Br. Prodr. 275.
HAB. Abundant in rocky places throughout the Island.—(Fl. Oct., Nov.) (v. v.)
DISTRIB. New South Wales and Victoria.

A handsome herbaceous plant, 1–2 feet high. Root of thick fascicled fibres, with difficulty removed from the soil. Base of stem thickened in old plants, sometimes forming a very distinct bulb. Leaves linear elongate, terete on the back, plane or channelled in front. Raceme 2–4 inches long. Flowers very numerous, on slender peduncles, with ovate acuminate scarious bracts at the base. Filaments all with a tuft of hairs above the middle. Capsule erect, obovate-globose, with few seeds.


HAB. Common in moist and marshy places in various parts of the Island.—(Fl. Nov., Dec.) (v. v.)
DISTRIB. Extratropical Australia, from New South Wales to Swan River.

A much less handsome plant than B. bulbosa, with slender fibrous roots, easily removed from the soil, a longer laxer raceme of smaller flowers and fruit, and having the filaments bearded above the middle only.

Gen. IV. CÆSIA, Br.

Flores racemosi v. corymbosi, albi v. caerulei, pedicellis apice articulatis. Perianthium patens, æqualis, 6-partitum, post anthesin tortum. Stamina 6; filamentis gracilibus, imberbis; antheris brevibus, basi emarginata insertis. Ovarium 3-loculare; stylo filiformi; stigmate simplici; ovulis loculis 2–4. Capsula clavata, apice lobata, vix valvata, loculis 1–2-spermis. Semina loculis 2–4; testa crustacea, astra.—Herbe; radicibus e fibris interdum tuberosis, fasciculatis; foliis gramineis; racemo simplici v. paniculato, composito v. corymboso; pedicellis solitariis v. aggregatis; floribus eretis v. untantibus; perianthio mov decidueo; antheris flavis.

Of this genus about ten species are known to me, all of them Australian or Tasmanian. One is tropical, the rest inhabit the extratropical quarter, none however being common to the south-east and south-west. All are rather slender, white- or blue-flowered herbs, with roots of fascicled, sometimes tuberos fibres, linear grass-like leaves, and a racemose inflorescence.—Flowers jointed on the pedicel. Perianth of six spreading leaflets. Stamina six, with naked filaments and small anthers. Ovary three-celled; cells with from two to four ovules in each. Style slender, with a small stigma. Capsule clavate, three-celled, obscurely three-valved, cells one- or two-seeded. Seeds with a crustaceous testa. (Named in honour of Frederic Cæsius, a botanist of the middle of the seventeenth century.)

§ 1. Flowers corymbose. Ovary with four ovules in each cell. Capsule obconicata, with four shining compressed seeds in each cell.

1. Cæsia corymbosa (Br. Prodr. 277); parvula, radicibus e fibris tuberosis crassis, foliis planis ciliatis, floribus subcorymbosis eretis, perianthii foliolis late ovatis, filamentis gracillimis, capsula obcuneata 4-spermis, seminibus splendentibulis.—Kunth, En. Plant. iv. 609. (Gunn, 346.) (TAB. CXXXII. A.)

HAB. Abundant in grassy places throughout the Island.—(Fl. Oct.) (v. v.)
DISTRIB. Victoria.

A charming little plant, conspicuous in grassy pastures from the beautiful blue of its star-shaped flowers. Roots of thick, tuberous, fleshy fibres. Leaves flat, plane, linear, rather obtuse, ciliolate, 2–3 inches long. Scape longer than the leaves, sparingly branched in a corymbose form above. Flowers erect, about \( \frac{1}{4} \) inch in diameter. Filaments very slender. Capsule rather membranous, with four shining compressed black seeds in each cell. This,
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and one or two other South Australian species, belongs to a different section of the genus from the following, having, besides the characters given above, broad segments of the perianth, slender filaments, and membranous capsules.—

**Plate CXXXII. A.** Fig. 1, flower; 2, stamen; 3, ovary; 4, the same, cut transversely; 5, capsule; 6, transverse section of ditto; 7, seed; 8, the same, cut longitudinally:—all magnified.

§ 2. **Flowers racemose.** Ovary with two ovules in each cell. Capsule broadly globose, coriaceous, three-lobed; lobes with two or three globose, opaque seeds, with a large umbilicus.

2. **Cæsia parvisflora** (Br. Prodr. 277); radicibus e fibris cylindricis elongatis fasciculatis, foliis anguste lanceolatis v. filiformibus, racemis strictis gracilibus basi divisis, floribus parvis binis v. aggregatis erectis, perianthii foliolis lineari-oblongis, filamentis planis, capsula brevi 3-loba, lobis 1–2-spermis, seminibus globosis, umbilico lato, testa atra opaca granulata.—Kunth, En. iv. 609. (Gunn, 1883.)

Hab. Sandy soil: in the northern coasts of the Colony, at Georgetown, Launceston, etc.—(Fl. Dec., Jan.)

Distrib. New South Wales (Brown), South-west Australia?

I am uncertain whether this or the following is the *C. parvisflora*, Br., but incline to refer this to it, from the roots being truly fibrous. I have not, however, seen any Australian specimens of the present species, except, indeed, it be the same as a Swan River one, which it closely resembles. Of this Tasmanian *C. parvisflora* I have two varieties, one smaller, with filiform leaves, from sand-hills at Georgetown, the other from Penquite, with rather broader leaves.—Roots of fascicled, cylindrical, rather fleshy fibres. Leaves 3–7 inches long, very narrow. Racemes strict, erect, slender, branched at the base, many-flowered. Flowers small, ½ inch long, erect, pedicelled, the pedicels clustered by two or more in the axil of each small membranous bract. Pedicels about as long as the flowers. Perianth with linear-oblong lobes.

3. **Cæsia vittata** (Br. Prodr. 277); radice e fibris crassis tuberosis fusiformibus, foliis lanceolato-linearibus gramineis planis, racemis strictis basi divisis v. paniculatum ramosis, floribus aggregatis erectis nutantibusque, perianthii foliolis linearibus, filamentis basi et apice angustatis, capsula subglobosa 3-loba, lobis 1–2-spermis, seminibus globosis, hilo late strophiolato, testa atra opaca minutissime granulata.—Kunth. En. iv. 608. (Gunn, 99.)

Hab. Common in grassy places, and especially in the northern parts of the Island: Launceston, Lawrence, Gunn.—(Fl. Oct., Dec.)

Distrib. New South Wales, Victoria, and South Australia.

A very pretty plant, not easily distinguishable by descriptions from *C. parvisflora*, but much larger in all its parts, with longer, broader leaves, a more branched, often spreading panicle of racemose flowers nearly ½ inch long, and the seeds not so strongly granulated.

Gen. V. **THYSANOTUS**, Br.

Flores caerulei, umbellati v. sparsi, pedicellis medio articulatis. Perianthium 6-partitum, equale, persistens; foliolis exterioribus angustioribus, interioribus utrinque coloratis margine fimbriatis v. nudis. Stamina 6; filamentis brevibus, glabris; antheris apice productis. Ovarium 3-loculare; stylo elongato, gracili; stigmati simplici; ovulis 2. Capsula perianthio involuta, membranacea, 3-locularis, loculicide 3-valvis. Semina loculis 2, altero pendulo, altero erecto; testa atra, crustacea; umbilico strophiolato.—Herbae; radicibus tuberosis fibrosis; caule stricto v. volubili; foliis linearibus v. 0; floribus solitariis paniculatis umbellatis.

The largest Australian genus of the Order, containing upwards of thirty species, found in both temperate and tropical regions, but confined to Australia and Tasmania, with the exception, perhaps, of a Philippine Island.
plant (Cuming, 981), which has been doubtfully referred by Planchon, from an imperfect specimen, to this genus. Considering how abundant this genus is in Australia, its rarity in Tasmania is remarkable. *T. Patersoni*, the only Tasmanian species hitherto known, is a slender, annual, twining, leafless plant, with a perennial root of many stalked or sessile tubers. — *Stem* as thick as small twine, simple, terete, and straight at the base, soon becoming flexuous, angled, and branched. *Flowers* about ½ inch across, numerous, blue-purple, on stout pedicels, solitary or alternate, pedicels with small bracts at the base. *Perianth* of six equal spreading pieces, that are persistent, and enclose the capsule; outer leaflets narrow, with membranous edges; inner broad, margins not fimbriate. *Stamens* six, rather unequal, with short filaments and linear membranous anthers, whose cells are white and membranous at the apex. *Capsule* membranous, three-celled, with two superimposed compressed seeds in each cell. *Testa* black, rather shining; funiculus expanded at the hilum into a membranous arillus. (Name from *budavros*, fringed; in allusion to the fringed perianth.)

1. *Thysanotus Patersoni* (Br. Prodr. 284); radicus tuberosus fasciculatis, caule volubili ramoso aphylo, ramis angulatis patentibus, floribus sparsi breve pedicellatis, staminibus 6, antheris apice membranaceis.— *Kunth, En.* iv. 616. (Gunn, 351.)

Hab. Creeping amongst grass, not uncommon in many parts of the Island, but easily overlooked.— (Fl. Oct., Nov.) (v. e.)

Distrib. Victoria and South Australia.

Gen. VI. HERPOLIRION, *H.f.*

*Flores* spathis duabus inclusus. *Perianthium* tubuloso-campanulatum, 6-partitum, foliolis æqualibus linearï-oblongis. *Stamina* 6, filamentis filiformibus; antheris demum subtortis. *Ovarium* oblongum, 3-loculare; stylo filiformi; stigmate simplici; ovulis plurimis biseriatis.— *Herba*; rhizomate repente, radicante; foliis linearibus, subglaucescentibus, basi vaginantibus; flore sessili, luteo v. pallide caruleo; perianthii foliolis exterioribus multiseriatis, interioribus paucinerviis.

A remarkable little genus, of only two known species, one a native of the mountains, one of New Zealand, and the other of those of Tasmania. The *H. Tasmania* is a small alpine plant, with slender, creeping, tufted rhizomes, sending up very short stems, bearing spreading leaves and one sessile flower. — *Leaves* 1–3 inches long, glaucescent, linear, acute, the inner shorter, passing into spathaceous bracts, the two last of which enclose the flower. *Flower* quite sessile, erect, very variable in size, from ¼ to 1 inch long, of a fine pale-blue, varying to yellowish and white (according to Gunn). *Perianth* campanulately six-parted; segments very variable in length and breadth, from oblong to narrow-linear. *Stamens* six, with slender, slightly pubescent filaments, and small linear-oblong anthers, emarginate at the base, twisted when old. *Ovary* oblong, three-celled, with a slender straight style, and many ovules in each cell. (Name from ἄπω, to creep, and ἀρερω, a lily.)

1. *Herpolirion Tasmaniae* (H.f. in Fl. N. Zeal. i. 258.) (Gunn, 371.) (Tab. CXXXII. B.)

Hab. Summits of the Western Mountains, in wet places; banks of Lake St. Clair, covering large patches of ground, Gunn.— (Fl. Dec., Jan.)

Distrib. Mountains of Victoria, Mueller.

Plate CXXXII. B. Fig. 1, flower; 2, outer sepal; 3, inner ditto; 4, stamen; 5, pistil; 6, transverse section of ovary; — *all magnified.*

Gen. VII. TRICORYNE, *Br.*

FLORA OF TASMANIA.

ovoidea; testa atra, crustacea, opaca.—Herbae; radice fibrosa; foliis gramineis; caule vel scapo ramoso; ramis basi bracteatis; floribus pedicellatis; pedicellis articulatis.

I have seen eight or ten Australian species of this genus; they inhabit various parts of the tropica land extratropical coasts. The genus is best known by its erect, yellow flowers being collected into small, bracteate umbels; by the ovary being deeply three-lobed; by the hairy filaments; and by the fruit being formed of one to three coriaceous, indehiscent, one-seeded cocci; the roots are fibrous, leaves grassy, and inflorescence branched. T. elaiot is a slender plant, 1–2 feet high, with slender, compressed, divaricating branches, and small umbels of four to seven shortly pedicelled flowers. (Name from τραυς, three, and κορων, a club; in allusion to the form of the carpels.)

1. Tricoryne elaiot (Br. Prodr. 278); caule teretiusculo ramoso folioso, ramis gracilibus divaricatim ramosis angulatis, foliis planis, umbellis 4–7-floris.—Bauer, Ill. Plant. Nov. Holl. t. 11; Endl. Icon. t. 61; Kunth, En. iv. 612. (Gunn, 1884.)

HAB. South Esk River, thirty miles from Launceston, Gunn; Cheshunt, Archer.—(Fl. Dec.)

Distrib. Tropical and temperate coasts of Australia, from Port Curtis to Swan River.

Gen. VIII. STYPANDRA, Br.

Flores caerulei flavi v. albicantes, paniculatim corymbosi; pedicellis articulatis, umbellulatis. Perianthium 6-partitum, seque, patens, deciduum. Stamina 6; filamentis infra attenuatis curvatis glabris, supra stuposo-barbatis pubescentibus. Ovarium 3-loculare; stylo filifloro; stigmae simplici; ovulis plurimis. Capsula 3-locularis, 3-valvis. Semina paucia, ovala, umbilico nudo; testa atra, splendente; embryo teretiusculo.—Herbae subrigidae, perennes; rhizomate repente, radices fibrosas emittentes; foliis lineari-ensiformibus, distichis, vaginis integris v. semivaginatibus; antheris demum revolutis, filamentorum barbisque flavis.

The species of Stypandra, about ten of which are known to me, are all natives of Australia and Tasmania, except one New Caledonian species; they are rather rigid, perennial plants, with creeping rhizomes, fibrous roots, and distichous, sometimes glaucous, ensiform leaves.—Scape or stem naked or leafy, branched. Flowers white, blue, or yellowish, in panicked corymb or umbels. Perianth of six, equal, spreading pieces. Stamens six; filaments contracted below the middle, densely bearded above. Ovary three-celled; cells many-ovuled; style slender, erect. Capsule three-celled, three-valved. Seeds few, with a brilliantly-polished, black, crustaceous testa. (Name from ορυγ, tow, and ἀρπ, a stamen.)

1. Stypandra caespitosa (Br. Prodr. 279); 2–3-pedalis, foliis radicalibus anguste lineari-ensiformibus planis margine scabris vaginis fissis, caulini abbreviati, scapo plures dichotome paniculatim ramoso, pedicellis umbellatissimus alterni ovario bracteatis perianthiiisque glaberrimis.—Sieb. Plant. Exsicc. n. 201, 263; Kunth, En. iv. 626. (Gunn, 1836.)

HAB. Sandy, wet land: near Georgetown, and probably elsewhere in the Colony, abundant, Gunn.—(Fl. Dec., Jan.)

Distrib. New South Wales and Victoria.

Very variable in size, but usually from 2 to 3 feet high. Leaves shorter, or rather longer, than the scape, narrow-linear, rigid, glaucous; margins rough. Scape repeatedly divided in a dichotomous manner; the branches alternate; pedicels umbellate or alternate. Flowers blue or yellow, about ½– ⅔ inch across. Filaments densely pubescent for nearly their whole length.

2. Stypandra umbellata (Br. Prodr. 279); 6-pollicaris v. pedalis, foliis strictis lineari-ensiformibus margine laevibus vaginis fissis, caulino solitario abbreviato, scapo parce ramoso, pedicellis 2–4 umbellatis perianthiiisque glaberrimis.—Sieb. Plant. Exsicc. 200; Kunth, En. iv. 626. (Gunn, 766.)
HAB. Abundant in sandy soil throughout the Colony.—(Fl. Nov., Dec.) (v. v.)

Distrib. New South Wales and Victoria.

Gunn doubts whether this be distinct from *S. cospitosa*, and his doubts are probably well founded; it differs chiefly in its much smaller size, shorter leaves, with smooth margins, less branched inflorescence, and more uniformly umbellate flowers; but all these characters are very fallacious.

Gen. IX. DIANELLA, Lamarck.

*Flores albi v. caerulei, paniculati, pedicellis apice articulatis. Perianthium 6-partitum, secale, patens, deciduum. Stamina 6; filamentis curvis, superne incrassatis, glabris pubescentibus stupisve; antheris linearibus, strictis, basifixis. Ovarium 3-lociare; stylo gracili; stigmatæ simplici; ovulis plurimis. Bacca globosa v. oblonga, 3-lociaris; loculis polypermiss. Semina ovoidea; testa utra, splendente; umbilico nudo.

—Herbas rigides, perennes; rhizomate repente; radicibus fibrosis; foliis rigidis coriaceis, gramineis, basi semivaginantis; pedicellis basi bracteola unilaterali stipatis; floribus nutansibus; baccis caeruleis.*

A large genus, found in Madagascar, in the tropical parts of India, the Malayan and Polynesian Islands, and New Zealand. About ten Australian and Tasmanian species are known to me; they are very difficult to discriminate; and I am not certain that any of the species I have named according to Brown’s ‘Prodromus,’ are really the plants there described, nor that all here distinguished are really distinct. The stamens appear to me to afford the best characters. In general structure the genus is closely allied to *Stephandra*, but the species are of a larger, coarser, more rigid growth, the flowers panicled, the filaments thickened and often pubescent, or tomentose above the curved, glabrous portion, the anthers short or long, and straight, and the fruit is a blue, indehiscent berry. (Name from *Diana*, as Goddess of woods.)

1. *Dianella caerulea* (Sims, Bot. Mag. t. 505); foliis caulinis numerosis elongatis ensiformibus (½ unc. latis) marginibus et carinae serrulatis, paniculæ ramis brevibus, parum divisæ, pedicellis coniértis perianthio brevioribus, filamenti parte incrassata anthera flava breviore, bacca parva globosa.—Red. Lil. t. 79; Br. Prodr. 279. (Gunn, 1837.)

HAB. Near Launceston, Gunn; Cheshunt, Archer. (Fl. Nov. ?)

Distrib. Eastern and Southern Australia, from the tropic to Victoria.

The only Tasmanian specimens of this plant which I have seen, were grown in Mr. Gunn’s garden at Penquite, but were transplanted there from the neighbourhood. It agrees well with the figures quoted, and with the description of Brown, except in the branches of the panicle being curved; in this respect it resembles the *D. revoluta*, which is figured in the ‘Botanical Register’ as having straw-coloured anthers (but described as having them fuscous). *D. revoluta* of the ‘Botanical Register’ is another allied plant, with toothed margins to the leaf (as the Tasmanian plant and the *D. caerulea* have), but Brown describes that species as having the margins of the leaf smooth. All these are possibly varieties of one, some of my subtropical specimens of *D. caerulea* having the leaves very obscurely rough here and there on the margins. The broad, serrulate leaves, short, curved pedicels, and yellow anthers, being longer than the thickened part of the filament, best distinguish this plant from its Tasmanian congener.

2. *Dianella longifolia* (Br. Prodr. 280); foliis radicalibus longe et anguste lineari-ensiformibus (vix ½ unc. latis) marginis carinaque levibus, paniculæ ramis elongatis gracilibus parum divisis, pedicellis gracilibus flore longioribus, filamenti apice incrassato lineari parte inferiori equilongo et anthera fusca breviore.—*Lindl. Bot. Reg. 784; Kunth, En. v. 54.* (Gunn, 564 in parte.)

HAB. Tasmania, Gunn.

Distrib. New South Wales.

A tall plant, 3 feet high, very slender, with very long, narrow leaves, whose margins and carina are smooth.
Panicle large, spreading, very much branched; branches slender, spreading, more or less curved; pedicels also long and slender. Flowers deep blue. Filaments about as long as the yellow-brown anthers; swollen part of the filament about as long as the lower part. Lindley states, under his D. revoluta, t. 1120, that the figure of D. longifolia (734) is perhaps not Brown's plant, but a luxuriant variety of the revoluta. The present plant however so well agrees with Brown's description of D. longifolia, and Lindley's plate of that name, that in the absence of more definite descriptions of the anthers and filaments in the 'Prodomus,' I feel obliged to consider it as such.

3. Dianella lævis (Br. Prodr. 280); foliis radicalibus late ensiformibus planis caule brevioribus, marginibus et carina vix elevata levibus, caulinis paucis distantiisibus, panicula parce ramosa elongata, ramis breviusculis, pedicellis flore æquilongis gracilibus, filamenti parte superiore incrassata linearis anthera fusca æquilonga, parte inferiore brevissima. - Kunth, En. v. 54. ? D. elegans, Kunth et Bourch, Ind. Sem. Hort. Berol. 1848, fide Kth. l. c. (Gunn, 566, in part.)

HAB. Tasmania, Fraser: Hampshire Hills, Gunn.—(Fl. Sept., Oct.)
DISTRIB. New South Wales.

I have only a portion of a large plant, with a young leaf, from Fraser, and the top of a panicle from Gunn. In general appearance it resembles the other species, but the leaf is described by Brown as flat, with an inconspicuous keel, and in my specimen the thickened part of the filament is linear, as long as the anther, and the lower part is extremely short.


HAB. Common in poor sandy soil on the north coast, and probably throughout the Island, Gunn, Archer, etc.—(Fl. Nov., Dec.) (v. e.)
DISTRIB. New South Wales and Victoria.

A tall, handsome plant, 2–4 feet high, with long, narrow, rigid leaves, very revolute at the margins, and narrow, elongate, branched panicles of numerous blue flowers. Leaves with the margins and very prominent keel smooth. Anthers fuscos, much longer than the thickened portion of the filament, which is very short, yellow, and rather shorter than the glabrous, subulate base of the filament.

5. Dianella Tasmanica (Hook. fil.); 4-5-pedalis, foliis radicalibus late et longe ensiformibus (1 unc. latis) marginibus revolutis carinaque prominula serrulatis, panicula decompositae ramosa pedunculis subfasciculatis pedicellisque curvis, antheris fuscis parvis brevibus filamentorum parte incrassata brevioribus, baccis globosis. (Gunn, 565.) (Tab. CXXXIII. A.)

HAB. Common in rich moist soil: Circular Head, Woolnorth, etc., Gunn.
DISTRIB. Victoria.

Much the largest Tasmanian species, attaining a height of 5 feet, with the leaves 3–4 feet long, and 1 inch broad, their margins revolute, and prominent keel serrulate. Panicle 1–2 feet long, very robust, much branched, the branches somewhat fascicled. Anthers very short and small, fuscos, shorter than the long, large, thickened apex of the filament; lower glabrous part of filament very short. Gunn says that this is a much larger plant than D. revoluta, with paler blue flowers, and with the perianth completely reflexed when fully expanded. The perianth seems to grow considerably as the fruit ripens, and encloses the berry; but all the fruiting specimens having been immersed in boiling water to facilitate their drying, it is impossible to examine them satisfactorily. I have a specimen of what appears the same species, from Victoria, sent by the indefatigable Mueller with D. revoluta. The very small anthers being much shorter than the thickened part of the filaments, distinguish the species.
6. **Dianella Archeri** (Hook. fil.); 1–2-pedalis, foliis radicalibus late et longe ensiformibus (1 unc. latis) margine revolutis carinaque serrulatibus, panicula parce ramosa, pedunculis pedicellisque curvis, floribus campanulatis, sepalis interioribus late oblongis, filamentis crassi elongatis anthera multo longioribus 3 exterioribus sepalis semiadnatis, baccis oblongis. (Tab. CXXXIII. B.)

**Hab.** Cheshunt, Archer.

A remarkably distinct-looking species, most similar to *D. Tasmanica*, with which it agrees in foliage, but it is smaller, with a less-branched panicle, larger campanulate flowers, very much broader segments of the perianth, and large oblong berry. The filaments are long and stout, but not so thickened upwards as in *D. Tasmanica*, and the outer series are adnate for half their length to the sepals.

**Plate CXXXIII. B.** Fig. 1, flower; 2, outer sepal and stamen; 3, inner sepal; 4, inner stamen; 5, ovary; 6, berry; 7, seed:—all magnified.

**Gen. X. XANTHORRHCEA, Smith.**

Flores multibracteati, in spicam amenitiformem densissimae congesti. **Perianthium** 6-partitum, foliolis basi conniventibus, interioribus concavis. **Stamina** 6, basi perianthii inserta; **filamentis** linearibus, glabras, exsertis; **antheris** versatilibus. **Ovarium** 3-loculare; **stilo** erecto trisulco; **stigma** simplici. **Capsula** ovata, lignea, triloculata, loculicidae trivalvis; loculis polyspermis. **Semen** paue, compressa; **testa** atra, crustacea, umbilico nudo; **albumine** carnosae; **embryone** transverso. — **Plantae** perennes, habitu proprio; **trunco** submulo v. erecto, subarboreo, crasso; **foliis** ad apicem canicicis numerosissimae effusi, longissimae lineari-ribus, graminosis, subtriquetris, basibus dilatatis, persistentibus, corticem spurium efficiensibus et sepissimae resinae scatentibus; **scapo** robusto, simplici, tereti; **floribus** albis, parvis; **bracteis** unguiculatis, imbricatis; **capsulis** exsertis, brunneis, nitidis.

One of the most remarkable of Australian genera, some species of which are well known to the colonists as "Black-boys." One of the larger species, with tall, erect trunks, occurs in Tasmania, where the dwarf kinds are more abundant. Brown enumerates seven species, all natives of the eastern and south-eastern shores of Australia or of Tasmania, and several others are described from the Swan River Colony. In all, the bases of the leaves are persistent, and form a more or less complete spurious bark to the trunk; they are further, in some species, cemented together by a copious exudation of rich, red-brown, fragrant resin.—**Leaves** very numerous, effuse, narrow-linear, pendulous from beyond the middle. **Flowers** collected into dense cylindrical spikes, 6 inches to 2 feet long, sessile, bracteate. **Perianth** of six obovate, rather coriaceous or scariosus leaflets. **Stamens** inserted at the base of the perianth, with long, exserted filaments, and versatile anthers. **Ovary** three-celled, with many ovules, and a long, straight style. **Capsules** woody, shining, protruding from the amentum, three-celled, three-valved, few-seeded. **Seeds** with a black testa. (Name from carbo, yellow, and peo, to flow; in allusion to the gum.)

1. **Xanthorrhoea australis** (Br. Prodr. 285); trunco arborescente (1–2-pedali?), foliis ancipitibus, scapo amento elongato breviore, bracteis fasciculatis subdententibus elongatis.—**Kunth, En. iv. 649.** (Gunn, 953.)

**Hab.** Northern coast of Tasmania: Rocky Cape to Detention River, and Asbestos Hills, Gunn.—(Fl. Oct., Nov.)

**Distrib.** Victoria.

**Trunk,** according to Gunn, never in Tasmania exceeding 2 feet high. **Leaves** 2–3 feet long, slightly scabrous. **Scapes** very variable in length, from a few inches to 4 feet high, robust. **Spikes** a foot or two long. **Flowers** opening first on the sunny side of the spike.—The aborigines used to eat the centre of the stem and bases of the young leaves, which have a nutty flavour, but are not palatable.
2. Xanthorrhoea hastilis (Br. Prodr. 288); trunco arboreo ramoso (6-pedali), foliis extra medium triquetris, scapo amentum longissimum vix equante, bracteis perianthiiisque imberibus.—Kunth, En. iv. 649. (Gunn, MSS., 630, exempl. nullum.)

Hab. Flinders' Island, Gunn.

Distrib. New South Wales and Victoria.

I have seen no Flinders' Island specimens of this plant, which has not yet been found on the mainland of Tasmania. According to Gunn, it attains about 6 feet in height, and is very irregularly branched; it yields a great quantity of resin.—Scape varying from 4–6 feet long.

3. Xanthorrhoea minor (Br. Prodr. 288); acaulis, foliis inferne ancipitibus ultra medium triquetris, junioribus antice concavis, scapis plurimis 1–3-pedalis, amentis 4–10-uncialis, bracteis fasciculos subentendentibus floribus aequantibus, omnibus perianthiiisque imberibus v. acicibus foliolorum parce pilosis.—Kunth, En. iv. 649. (Gunn, 764.)

Hab. Abundant; covering large tracts of ground near Yorktown and east of Georgetown; top of Grasstree Hill, near Hobarton.—(Fl. Dec.) (v. e.)

Distrib. New South Wales and Victoria.

I refer this with some doubt to Brown's X. minor, the descriptions being insufficient to identify the plant. It is a small stemless species, which, unlike its Tasmanian congeners, sends up numerous flowering scapes from each head of leaves. Mr. Gunn further remarks that it appears to flower only occasionally, the flowers being abundant in one year, and every few having been found in the same place in the following season. It often covers the ground to the exclusion of everything else, and the country appears white from the abundance of its flowering stems.

Gen. XI. LAXMANNIA, Br.

Flores capitati, multibracteati. Perianthium 6-phyllum, persistens; foliolis basi conniventibus, exterioribus scariosis. Stamina 6; filamentis subulatis, glabris, foliolis perianthii insertis; antheris subrotundis, peltatis. Ovarium 3-loculare; styllo filiformi, cum ovario articulato; stigmati simplici; ovulis paucis, amphitropis. Capsula perianthio inclusa, 3-locularis, loculicidem 3-valvis. Semina 1–2, peltata, umbilico nudo; testa atra, crustacea; embryone dorsali.—Herbae perennes, facie Polycarpae; radice fibrosa; caulibus brevibus v. elongatis et ramosis, foliatis; folii acroso-filiformibus, confertis; stipulis basi vaginatis, vaginis ciliatis; capitulo pedunculato, multibracteato; floribus parvis, unibracteatis, albis purpureis.

A very remarkable genus, dissimilar in habit from any of the above. About ten species are known, all of them exclusively Australian except L. minor, and most of them inhabitants of the south-west quarter.—Stems tufted, short or elongate, wiry and much branched. Leaves all radical, or, in the branched species, collected in fascicles on the stems, linear, acerose or subulate, with scarious, often ciliated, membranous, silvery, stipulary sheaths at the base. Flowers in long scapes, densely capitate, surrounded by imbricating bracts; the bracts and outer leaflets of the perianth scarious. Stamens 6, inserted on the perianth; filaments subulate, glabrous; anthers small, versatile. Ovary three-celled, with few ovules, a straight slender style jointed on the ovary and simple stigma. Capsule three-celled, with few seeds; testa black.—The L. minor is a small, tufted plant, looking something like a matted grass, with numerous, slender, branching stems, bearing at intervals tufts of six to eight acerose, recurved leaves; these are ½–1½ inch long, rigid, terete, acute, surrounded at the base by silvery, ciliate scales. Heads of flowers sessile in the tufts of leaves, very minute, with many scarious, ovate-lanceolate, sheathing bracts, the outer white and ciliated, often silvery, the inner longer, often purple. Flowers about ½ inch long, variable in length, each with a sheathing, appressed bract. Outer segments of perianth ovate-oblong or oblong-lanceolate, hardly acute, but appearing acuminate from the involute margins, generally pale red-purple; inner leaflets much smaller, oblong, membranous. Stamens of outer series inserted at the base of the outer leaflets; of the inner, half-
way up the inner leaflets; all included, with very slender filaments and small yellow anthers. Ovary trigonous. (Named in honour of E. Laxmann, a Siberian traveller.)

1. *Laxmannia minor* (Br. Prodr. 286); caulibus dense caespitosis tenuibus ramosis, foliis fasciculatis curvis acerosis (pollicaribus), stipulis longe ciliatis, capitulis sessilibus 6–8-floris, bracteis exterioribus subciliatis, interioribus plerisque margine integris, perianthii foliolis exterioribus scariosis lineari- v. oblongo-lanceolatis acutis involutis, interioribus lineari-oblongis obtusiusulis membranaceis exterioribus dimidio minoribus.—*Kunth, En. iv. 642. (Gunn, 968.*

Hab. Heathy places: abundant in some of the north parts of the Colony, and at Georgetown, Circular Head, and Asbestos Hills, *Gunn.—*(Fl. Oct.)

**Distrib.** Victoria; Swan River, Drummond,

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**Gen. XII. ASTELIA, Banks et Sol.**

*Flores sericei*, polygamo-dioici, racemosi v. paniculati. *Perianthium* rotatum v. campanulatum, 6-partitum, patens. *Stamina* 6, in floribus femineis minimis castratis. *Ovarium* 3-gonum, 1–3-loculare; ovulis plurimis v. paucis, axillaribus parietalibusve; stylo erecto, apice trilobo v. 0; stigmatibus sessilibus. *Bacco* ovoidea v. globosa, carnosa, 1–v. 3-loculares. *Semina* paucâ v. plurima; *testa* atra, crustacea, nitida; *albamine* carnosâ; *embryone* brevi.—*Herbas* perennes; *radicibus* fibrosis; foliis elongatis, *radicalibus* subtrifariam imbricatis, *longe* vaginantibus, *vaginis* membranaceis, utrique vel subitus villis argenteis *sericeis* furfuraceis *paleaceis* compressis *objectis*, *basibus* longissime dense villosis; scapo erecto, *pariter* viloso, apice *ramoso*.

The plants comprised in *Astelia* and *Milligania* are so different from most *Liliaceae*, that they may be regarded as a separate group, though whether entitled to rank as another Order or not must be a matter of doubt at present. Most of them resemble some *Melanthaceae* in habit far more than they do any *Liliaceae*, and some of them have separable styles, but others have a single terminal style; none have extrorse anthers, and all have black crustaceous integuments to the seed. *Astelia* consists of about ten species, chiefly natives of New Zealand (where most are large epiphytes), but some inhabit the Polynesian Islands, one Fuegia, and another the alps of Tasmania and Victoria, and one is confined to Tasmania. All are herbaceous plants, with thick fibrous roots, numerous narrow radical leaves, covered, as are all other parts in most of the species, with silvery, furfuraceous or woolly hairs; many are dioecious.—*Flowers* in panicles or branched racemes, generally green or yellowish, seldom conspicuous. *Perianth* of the male paniculate or rotate, deeply six-lobed, of the female rotate or urceolate, sometimes enclosing the fruit. *Stamens* six, inserted on the perianth, rudimentary in the female flower; *filaments* subulate or filiform; *anthers* linear or broad. *Ovary* one- or three-celled, with one three-lobed style, or three sessile stigmas. *Berry* globose or ovoid, one- or three-celled, with many or few parietal or axile seeds. (Name from *αστέλεχος*, wanting a stem.)

1. *Astelia alpina* (Br. Prodr. 291); foliis linearibus lanceolatis ensiformibusve, panicula feminea densa, mascula laxa, antheris filamentisque brevibus, ovario oblongo, stigmatibus 3 subsessilibus, placentis 3 parietalibus, ovulis plurimis, seminibus paucis breviter oblongis, testa levi nitida.—*Hook. Bot. Misc. i. p. 5. t. 3; Kunth, En. iii. 264. (Gunn, 762.*

Hab. Abundant on all the mountains, in wet places.—*(Fl. Dec.)

**Distrib.** Alps of Victoria, *Mueller."

The *A. alpina* forms dense matted tufts of silvery foliage on mountain bogs, etc.—*Leaves* very variable in size, length and breadth, and form, 4–14 inches long, lanceolate, ensiform, or linear, with densely silky, villous, membranous, sheathing bases. *Scaapes* shorter than the leaves, erect, also densely silky with long soft hairs; female bearing short, dense, bracteate panicles of flowers; male panicle more lax and spreading. *Bracts* leafy. **Perianth**
six-parted. Ovary linear-oblong, with three very short stigmas and as many parietal placentae, each with numerous ovules on slender curved funiculi. Berry ovoid, fleshy, \( \frac{1}{2} \) inch long, bright red, with a few oblong, rounded, polished black seeds, sweetish, eatable, greedily devoured by birds.

2. Astelia stylosa (Mueller, MSS.); foliis anguste lanceolatis nervosis, panicula laxa ramossa, bracteis ovato-lanceolatis membranaceis, perianthii laciniis linearibus membranaceis glabris, bacca globosa, stylo gracile apice trifido, seminibus sub-6 reniformibus.

Hab. Mount Lapeyrouse, Stuart.

I have seen only a fragment of this very distinct species, sent by Dr. Mueller. It is at once distinguished from A. alpina by the small globose berry, with a straight, slender style.—Leaves 1\( \frac{1}{2} \) foot long, 1\( \frac{1}{2} \) inch broad, white beneath. Scope slender. Berry \( \frac{1}{2}-\frac{3}{4} \) inch in diameter. Seeds about six, minute, shining and black.

Gen. XIII. MILLIGANIA, H.f.

Perianthium persistens, patens, fere ad basin hemisphericum, 6- (rarius 5-7-) partitum, segmentis imbricatis. Stamina 6, parva, segmentis inserta; filamentis brevibus, subulatis; antheris introrsis, versatilibus, 2-locularibus, polline subgloboso. Ovarium oblongum, basi perianthio immersum et eo adherens, 3-loculare. Styli 3, discreti, subulati, recurvi; stigmata punctiformia; ovula plurima, angulo interiori affixa, ascendens, anatropa. Capsula oblonga, obtusa, profunde triloba, chartaceo-membranacea, ad medium tripartibilis, loculis (stylis fissis terminatis) superne breviter loculicide dehiscentibus. Semina plurima v. abortu paucia, ascendentia, linearia, curva; testa crustacea, atra, nita, utrinque subcarunculata v. apice appendiculata; endopleura membranacea; albumine carnoso; embryone tereti, axillari.—Herba elata caspita Tasmaniae, facie Asteliae, sericeae v. villosa; radice fibrosa, fibris crasis; foliis lineari-ensiformibus, siccis coriaceis; scapo paniculato, ramoso, bracteato; floribus pedicellatis, mothcribus, albis, bracteolis; capsula Anguillaria.

This curious genus is apparently intermediate between Liliaceae and Melanthaceae, differing from the former in the three separate styles, and the partially tripartible capsule, and from the latter in the more important characters of versatile introrse anthers, and few linear seeds covered with a black brittle testa. Its general appearance is very similar to Astelia, and it further agrees with that genus in the nature of the silky wool, the very coriaceous foliage, the hemispherical base of the perianth, oblong capsule, and especially in the long seed. It differs from that genus in the structure and dehiscence of the capsule, which resembles in form, etc., that of Anguillaria. So much diversity exists however in the form, placentation, and dehiscence of the fruit in Astelia, that much stress cannot be laid upon that organ; and though the affinities of both Milligania and Astelia are so obscure, I regard them as nearly allied to one another, and both as members of the Asphodelacea. (Named in honour of Dr. Joseph Milligan, Secretary of the Tasmanian Philosophical Society.)

1. Milligania longifolia (Nob. in Hook. Kew Journ. Bot. v. 296. t. 9); foliis elongato-linearibus subgramineis basi parce villosis, panicula laxa effusa ramis gracilibus, bracteis bracteolisque membranaceis linearibus lineari-lanceolatis. (Gunn, 1888.)

Hab. Franklin River, under shade of Huon Pines, Gunn; crevices of limestone cliffs, Gordon's River, Macquarrie Harbour, Milligan.—(Fl. Dec., Feb.)

Mr. Gunn, who discovered this genus and species, states that it grew in company with some of the most peculiar plants of Tasmania, Huon Pine, Anopthera glandulosa, Cenarrenes nitida, and Richea pandaniifolia, all of which are typical of a most humid atmosphere. It so much resembles large specimens of Astelia alpina in habit and general appearance, that its discoverer took it for that plant; and he adds that the specimens were nearly three months drying, between papers that were daily changed.—Plants apparently growing in dense large tufts, with long, pendulous, spreading foliage, and erect scapes. Roots of stout, simple fibres. Stems of large plants nearly 2 inches in
diameter at the base, formed of the sheathing bases of the leaves, which are surrounded by the fibres of decayed foliage. Leaves shorter or longer than the scape, 1–3 feet long, ¾–2 inches broad, linear, gradually tapering at the top to a long point, grassy-green, ribbed when dry, more or less silky or villous towards the base and along the midrib. Scape villous, 1–2 feet high, branched above the middle, bearing below that one or two narrow, linear-subulate, amplexicaul leaves. Panicle bracteate at the axils; bracteae lanceolate or linear-lanceolate, generally elongate; branches slender, spreading; pedicels slender, cernuous, covered with silky wool, bearing small, linear, membranaceous bracteole at the base. Flowers ½ inch broad, white, not jointed on to the pedicel. Perianth entire and cup-shaped at the base, then divided into six (rarely five or seven) linear-oblong, blunt lobes, that are imbricate and somewhat involute in aestivation. Stamens small, inserted at the base of the segments; filaments subulate. Anthers small, versatile, two-lobed. Ovary sunk in the base of the perianth, and adherent at its base with it, oblong, three-lobed, with three subulate recurved stigmas, three-celled, with many axile, ascending ovules. Capsule oblong, membranous, three-lobed, three-celled, dehiscing to the middle down the axis, each cell splitting at the summit only, the divisions crowned by the persistent styles, which are also split in halves. Seeds few or many, linear, ascending, covered with a brittle, black, shining testa, that is contracted at either end of the seed. In small specimens the leaves are a span long, and ¾–½ inch broad.


Hab. Mount Sorrell, Macquarie Harbour, Dr. Milligan.—(Fl. Dec.)

A very different-looking plant from the preceding, with much shorter, more coriaceous foliage, sheathing lower bracts, robust scape, broader bractlets, and dense panicle.—Leaves coriaceous, 8–10 inches long, gradually tapering from a broad, sheathing base, 1–1½ inch broad, to an acuminate point, sparingly covered with silky hairs. Scape woolly with silky hairs; robust, with one or two large, ovate, concave, leafy bracts, that have long, entire, amplexicaul sheaths and tapering apices. Panicle 1–6 inches long; branches short, with concave leafy bracts; flowers crowded, ½ inch across, white.

NAT. ORD. XII. JUNCEÆ.

Following Brown and Lindley, I have brought Xerotes under this Order, which, like most others of Monocotyledones of any extent, comprehends plants of very various habits and appearance. All agree in their six-parted perianth, which is generally scarious or coriaceous, and brown or green, but it is coloured and petaloid in some genera, and highly coloured and scarious in Calectasia. Of Juncea proper there are about twenty-five Australian species, most of them having very wide ranges, and few being confined to Australia and Tasmania; on the other hand, Xerotes is a remarkably local genus of plants.

Gen. I. XEROTES, Br.

Flores dioeci. Perianthium 6-partitum, viride v. subcoloratum. Masc. Foliola interiöra v. omnia basi coherentia. Stamina 6, perianthio inserta; antheris peltatis. Pistillae rudimentum. Fœm. Perianthii foliola distincta, persistentia. Stamina cassa. Ovarium 3-loculare; stylis 3, basi connatis; ovulis loculis solitariis. Capsula coriacea, v. subbaccata, corticata, 3-locularis, loculicide 3-valvis. Semina peltata; testa membranacea, interdum laxa et axillaformi; albumine cartilagineo; embryone recto.—Herbae rigide, aride, perennes, habitu varie; radice fibrose; caule nullo v. rarius elongato, folioso, ramoso; foliis pleurisque radicalibus, lineariis, planis cylindraceis, basitis scariosis, semivaginantis; scapis rigidis, simplicibus ramosis; inflorescentia varia, capitata, epica, racemosa v. paniculata; floribus parvis, sessilibus pedicellatis; bracteis scariosis.
A very remarkable genus, consisting of upwards of fifty species, all confined to Australia and Tasmania, and almost without exception confined in their ranges to the south-eastern or south-western quarters, scarcely any even of the south-coast species ranging from Victoria to Swan River. The species present great diversity in habit, but all are singularly dry, rigid, Cyperaceous-looking plants, with fibrous roots, and almost invariably radical leaves, the stems being very short.—Leaves flat or terete, usually very long and rigid. Flowers sometimes in sessile heads, but usually in branched panicles, racemes, or spikes, sometimes densely capitate, often in dense clusters on the branches of the panicle. Flowers dioecious, generally greenish-white. Perianth six-parted; leaflets of the male flowers more or less cohering at the base, those of the female distinct, persistent. Stamens six, inserted on the perianth; anthers peltate. Ovary three-celled, cells one-ovuled. Capsule coriaceous, three-valved. Seeds with a membranous, pale testa. (Name from ξύπορος, dryness.)

1. **Xerotes longifolia** (Br. Prodr. 263); acaulis, foliis lineari-elongatis rigidis strictis apice bilobis eroso-dentatis, scapo angustissime linearibus strictis scaberulis apice tabasecente obtusus, vaginis laceris, scapo simplici, floribus glumaceis capitatis, masculis glomeratis, glomerulis in spicam elongatam dispositis.—**Kunth, En.** iii. 374; **Lindl. Bot. Reg.** 1839. t. 3. **Lomandra longifolia**, **Lab. Nov. Holl.** i. p. 92. t. 119. (Gunn, 386.)

**Hab.** Abundant in dry and moist ground throughout the Colony.—(Fl. Oct.) (v. v.)

**Distrib.** New South Wales and Victoria.

A harsh, Cyperaceous-looking plant.—Leaves 2 feet long, very rigid, linear, variously cut or truncate at the top. Scape erect, flattened, stout, 6–12 inches high. Inflorescence panicked; branches opposite, the lower sometimes whorled, with long, subulate-lanceolate, spreading bracts at the base. Flowers small, sessile in glomeruli on the branches of the panicle, subtended by spreading, subulate bracts.

2. **Xerotes glauca** (Br. Prodr. 260); caule brevi basi ramoso, ramis brevibus, foliis angustissime linearibus strictis scaberulis apice tabasecente obtusus, vaginis laceris, scapo simplici, floribus glumaceis capitatis, masculis glomeratis, glomerulis in spicam elongatam dispositis.—**Kunth, En.** iii. 372; **Sieb. Plant. Exsicc.** 433, 488. (Gunn, 93.)

**Hab.** Abundant in gravelly soil near Penquite, and at Norfolk Plains, etc., **Archer, Gunn.**—(Fl. Nov.)

**Distrib.** New South Wales and Victoria.

A small, rigid species, 4–8 inches high, with a short, stout, much-branched stem, and long, very narrow, linear leaves, scaberulous to the touch, with blunt, brown tips.—Scape short. Female flowers in a solitary, globose, almost sessile head; males forming sessile glomeruli on an elongated, interrupted spike.

**Gen. II. JUNCUS, L.**

Flores plerumque congesti, paniculati v. capitati. Perianthium coriaceum v. glumaceum, 6-partitum, 2-bracteatum. Stamina 6 v. 3, basi perianthio inserta; filamentis planis; antheris linearibus. Ovarium prismaticum, 1–3-loculare; stylo brevi; stigmatibus 3, elongatis. Capsula prismatica, perianthio inclusa, 3- rarius 1-locularis, loculicide 3-valvis. Semina plurica, ascendentia v. erecta; testa membranacea, inter- dum laxa v. utrinque producta, pallida.—Herbae erecta, annua v. rhizomate perennis, repente, squamoso; culmis annuis, teretibus, basi foliosis v. aphyllis; foliis glabris, teretibus v. rarius planis v. adversis, intus continuis v. nodoso-articulatis; floribus viridibus brunneis.

A cosmopolitan genus, many of the species also being widely spread, of which the common English Rushes, *Juncus communis*, *bufonius*, and *maritimus*, all found in Australia and New Zealand, are examples. About twenty Australian species are known, most of which are temperate, and common to the east and west coasts, and to Tasmania and other parts of the world. The species vary much in habit, being leafless or leafy, with the leaves terete, compressed, or quite flat.—Culmus erect, bearing branched panicles or heads, or corymbs of inconspicuous, small, green or brown flowers. Perianth of six coriaceous or glumaceous leaflets. Stamens six, rarely three. Ovary
trigonous, three- (rarely one-) celled, with many axile ovules, a short style, and three long stigmas. Capsule small, brown, polished, three-angled, with many pale seeds with a membranous testa. (Name from JUNGO, to join; the leaves having been woven into cordage.)

§ 1. Culmis leafy at the base. Leaves all radical, or nearly so, quite flat, or with involute margins.

1. **Juncus planifolius** (Br. Prodr. 259); annuus, radice fibrosa, culmo nudo, foliis omnibus radi-calibus numerosis planis, inflorescentia terminali dense capitata v. floribus glomeratis, glomerulis cy-mosopaniculatis, staminibus 3, capsulis prismaticis mucronatis perianthio brevioribus longioribusve, seminibus striolatis ovoideis, testa lavi.—Fl. N. Zeal. i. 263; Fl. Antarct. 358, and Suppl. 545. (Gunn, 970, 1441.) Variat insigniter inflorescentia et statura.

**Hab.** Abundant in pastures, etc., throughout the Island.—(Fl. Oct.-Dec.) (v. v.)

**Distrib.** Throughout extratropical Australia, New Zealand, Lord Auckland's Island, and South Chili.

Very variable in size and in the inflorescence, of which the flowers form sometimes a dense solitary capitulum, or are collected in glomeruli on a dichotomously-branched panicle. The numerous soft, broad, flat, radical leaves, annual fibrous root, naked, simple culm, and three stamens, abundantly distinguish the species.

2. **Juncus caespititius** (E. Meyer, in Plant. Preiss. ii. 47, and Linnæa, xxvi. 244); annuus, radice fibrosa, foliis omnibus radicalibus angustis planis marginibus involutis, scapo gracili, floribus glomeratis, glomerulis 1-5 lateralibus pedunculatis v. omnibus cymosis, perianthii foliolis exterioribus acuminatis capsulam ellipticam acutam subæquantibus, staminibus 6. (Gunn, 971.)

**Hab.** Northern parts of the Island: Circular Head, Gunn.—(Fl. Dec.)

**Distrib.** Victoria and Swan River.

Very similar indeed to small states of planifolius, of which it may prove a variety, but the leaves are narrower, and have involute margins, and the stamens are six in number.

3. **Juncus falcatus** (E. Meyer, in Reliq. Hænk. i. 144; Linnæa, xxvi. 245); rhizomate repente perennante, culmis basi foliatis medio unifoliatis v. aphyllis, foliis rigidis anguste linearibus planis v. marginibus involutis, capitulis solitariis terminalibus globosis, perianthii foliolis acutis capsulam late obovatam obtusam æquantibus, staminibus 6, seminibus lineari-oblongis, testa striata utrinque breviter producta. (Gunn, 339.)

**Hab.** Wet places in the mountains, as at Arthur's Lakes, Lake St. Clair, etc., Gunn, Archer.—(Fl. Jan., Feb.)

**Distrib.** Alps of Victoria, Mueller; Unalashka and California (fid. E. Meyer).

A most distinct species, a span to a foot high, at once distinguished from its flat-leaved congeners by its creeping perennial rhizomes, solitary capitula of rather large flowers, large, obovate, blunt, black-brown capsule, striate seeds, with the testa produced beyond either end, and six stamens.

4. **Juncus bufonis** (Linn. Sp. Pl. 466); annuus, humilis, radice fibrosa, culmis numerosissimis foliosis, foliis radicalibus et caulinis lineari-setaceis marginibus involutis v. antice sulcatis, cyma terminali laxe dichotome ramosa, ramis tenuibus gracilibus, floribus 1-3-aggregatis majusculis pallidis, perianthii foliolis acutissimis capsulam lineari-prismaticam acutam superantibus, staminibus 6, seminibus ovato-globosis, testa lavi pallida nitida.—Fl. N. Zeal. i. 264; E. Meyer, in Plant. Preiss. ii. 47. Juncus plebejus, Br. Prodr. 239. (Gunn, 1495, 588.)

**Hab.** Abundant in moist places throughout the Colony.—(Fl. all the year.) (v. v.)

**Distrib.** Throughout Europe and Northern Asia, North America, New Zealand, and temperate Australia.
A small pale-coloured species, with fibrous roots, sending up very many slender, leafy culms, 1-6 inches high. *Leaves* linear-subulate, with large sheaths. *Culms* much branched; branches very slender, dichotomous, bearing solitary flowers or clusters of two or three. *Perianth* of very narrow, acuminate leaflets. *Stamens* six; sometimes a few are imperfect. *Capsule* shorter than the perianth, linear-ovate.

5. *Juncus revolutus* (Br. Prodr. 259); rhizomate repente perenni, foliis radicalibus plurimis caulinis solitariis v. 0, omnibus angustae linearibus rigidis planis marginibus basi tenuiter incurvis superne recurvis v. planis supra leavibus subitus striatis, culmo gracili angulato, floribus solitariis binisve, ramis corymbi parce divisi sessilibus pallidis, bracteolis membranaceis brevibus obtusis, perianthii foliis acuminatis capsulam obovatam retusam superantibus, staminibus 6, seminibus parvis pallidis, testa laevi.—*E. Meyer, in Linnaea*, xxvi. 245. J. Brownii, F. Mueller, MSS. (Gunn, 977.)

HAB. Tasmania, near the sea: Georgetown, etc., Gunn.—(Fl. Dec.)

DISTRIB. Alps of Victoria, Mueller.

I have described this most distinct species from Mueller's specimens, as well as from Tasmanian, which are much smaller, with fewer flowers. It is very similar in many respects to *J. fulvatus*, especially in the creeping rhizome, and small states resemble *J. bufonius*, but the leaves are very peculiar, being narrow-linear, rigid, quite flat, with the margins narrowly recurved above, and incurved below, the upper surface is quite even, the under striate. *Culm* compressed or angled, with usually one leaf about the middle. *Cyme* of two or three unequal branches, bearing at intervals solitary flowers, or two or three together; these are rather large, very pale, with acuminate leaflets of the perianth, which are longer than the blunt capsule.

§ 2. *Culms* leafy, branched, annual. *Leaves* terete, or laterally compressed.

6. *Juncus capillaceus* (Nob. in Fl. N. Zeal. i. 265); pusillus, culmis gracilibus caespitosis repentibus ramosis, foliis setaceis teretibus solidis continuis v. intus nodosis culnum gracilem superantibus, floribus solitariis v. paucis congestis sessilibus v. breviter pedicellatis bibracteatis, bractea interiore membranacea brevi aestro (culmi apice) flores superante, perianthii floriferis subacutis fructiferis acuminatis capsula elliptica rostrata membranacea 1-loculare brevioribus, staminibus 6 elongatis, seminibus subglobosis politis nitidis. — *J. prismatocarpus*, β alpinus, Mueller, MSS. (Gunn, 1414, 1419.) (Tab. CXXXIV. B.)

HAB. Alpine marshes: Arthur's Lakes, Gunn; Cuming's Head, Archer; Coal River tier, near Richmond, Oldfield.—(Fl. Dec., Jan.)

DISTRIB. Alps of Victoria, elev. 5-6000 ped., Mueller; New Zealand, Colinso.

A very small, extremely slender, tufted, annual species, with much-branched rhizomes, creeping at the base.—*Culm* filiform, 2-3 inches high. *Leaves* attenuate, very slender, subulate, longer than the culm. *Inflorescence* almost capitate, very small, of one to six minute flowers near the apex of the culm, subtended by two opposite bracts, of which one is the apex of the culm produced beyond the flowers, and the other is more membranous and very short. *Capsule* rostrate, longer than the perianth.—PLATE CXXXIV. B. Fig. 1, fruit in perianth; 2, outer sepals and stamen; 3, inner sepals and stamen; 4, capsule; 5, valve of ditto, and seed; 6, seed; 7, vertical section of ditto: *all magnified*.

7. *Juncus Holoschænus* (Br. Brodr. 259); rhizomate perenni repente, culmis foliosis, foliis et involucro monophyllo lateraliter compressis intus nodoso-articulatis, floribus glomerulatis, glomerulis in cyma terminalia v. lateralem parce ramosam dispositis, perianthii acuminatis capsulam prismaticam acuminatam 1-locularem œquantibus, staminibus 6, seminibus lineari-oblongis profunde striatis et transverse rugosis, testa utrique breviter producta.—*J. cephalotes*, Fl. N. Zeal. i. 263, an Thunb.? Prodr. 66. (Gunn, 415.)
HAB. Abundant in marshy places throughout the Island.—(Fl. all summer.) (v. v.)

Distrib. Throughout extratropical Australia; New Zealand; North and South Africa? Sardinia? North America? India?

A very common plant, easily recognized from its Tasmanian allies by its short, creeping rhizome; tall, stout, leafy culms, 1-2 feet high; articulate, laterally compressed leaves; long leaf-like involucr; and branched cyme bearing heads of flowers. Small states have the leaves grassy and hardly articulate.—Perianths acuminate. Capsule acuminate, one-celled.

§ 3. Rhizomes perennial, creeping. Leaves terete or none. Inflorescence lateral.

8. Juncus maritimus (Lamk. Encyc. Bot. iii. 264); clatus, culmo nudo foliisque radicalibus territibus, panicula laterali corymbosa, ramis umbellatis, floribus glomeratis, perianthii foliolis exterioribus acutis capsulam oblongam obtusam æquantibus, staminibus 6, seminibus oblongis angulatis, testa utrinque laxa.—Br. Prodr. 258; Kunth, En. iii. 322; E. Meyer, in Plant. Preiss. ii. 46; Fl. N. Zeal. i. 262. (Gunn, 980.)

HAB. Common in salt and brackish marshes, sometimes on moist sand-hills.—(Fl. Dec.) (v. v.)

Distrib. Extratropical Australia, New Zealand, Europe and temperate Asia, North and South Africa, and North and South America.

A tall, coarse Rush, the largest in Tasmania except J. vaginatus, from which it is at once distinguished by the glomerate flowers, and long, terete, pungent leaves at the base of the culm.—Rhizome very stout, creeping. Sheath of leaves red-brown. Culmus 2-3 feet high, more slender in drier places than in moist. Inflorescence rather crowded, lateral, dark brown. Flowers small. Capsules blunt, about as long as the perianth, dark brown, as are the ripe seeds. Stamens 6.

9. Juncus australis (Hook. fil.); culmo nudo tereti gracili basi vaginato, vaginis obtusis acuminatis, panicula palliada laterali globosa densillora v. ramis elongatis paucis glomerulis dense congestas gerentibus, perianthii acuminatis capsulam sub-1-locularem obovatam pallidam subsequantibus, staminibus 3, seminibus oblongis, testa palliada levi utrinque producta. (Gunn, 566, 567, 568.) (Tab. CXXXIV. A.)

HAB. Common in various parts of the Island.—(Fl. Nov.) (v. v.)

Distrib. Victoria and Swan River, New Zealand.

A slender species as compared with J. maritimus and vaginatus, the culms being about as thick as those of J. communis, from which it differs in the dense inflorescence, very acuminate perianth, and three stamens. The whole plant, culms, flowers, capsule, and seeds, are of a pale colour, but not so white as J. pallidus.—Flowers sometimes collected into a solitary, dense, globose capitulum; in other cases the panicle branches a little, and bears dense masses of glomeruli. The Australian specimens have the sheaths at the bases of the culms long and attenuate, acuminate. I have only one very small Tasmanian specimen with rhizome and bases of culms, in which the sheaths are short and blunt, probably from not being fully developed; my numerous other Tasmanian specimens have unfortunately been collected without the rhizome and base of the culm. The plant above described differs from Brown's characters of J. pallidus, in the flowers being far too much crowded to be called alternate and subimbricate, and though the inflorescence is much looser in the Australian specimens, from the lengthening of the branches of the panicle, the flowers are even more densely glomerate than in J. maritimus.—Plate CXXXIV. A. Fig. 1, flower; 2, outer sepal; 3, inner ditto; 4, stamen; 5, ovary; 6, capsule in perianth; 7, ditto, removed; 8, valve of ditto, and seed; 9, seed; 10, vertical section of seed:—all magnified.

10. Juncus pallidus (Br. Prodr. 258, non Kunth, etc.); clatus, culmo nudo basi foliis longe vaginis interdum folia brevia teretia gerentibus?, panicula laterali albida ramosa, ramis inaequalibus, ramulis congestis, floribus alternis subimbricatis majusculis, perianthii acutis capsula pallida ovali
1-loculari brevioribus, staminibus 6, seminibus linearibus, testa laxe utrinque producta.—An var. J. vaginati? (Gunn, 569, 570)

Hab. Launceston, etc., Lawrence, Gunn.

Distrib. Southern coast of Australia.

I take this to be Brown’s J. pallidus, from its singularly pale colour, the crowded branchlets of the panicle, alternate flowers, and oval capsule longer than the perianth. It may be a small state of J. vaginatus, but is not the J. pallidus of Kunth and E. Meyer, which I refer to J. communis. The J. pallidus is of the size and habit of J. maritimus, but has almost white inflorescence; much shorter leaves at the bases of the culm, or none; and alternate, not glomerate flowers of a larger size; the capsule too is quite different, and the seeds are narrower, with the testa much more produced at either end.

11. Juncus communis (E. Meyer, Junc. 12); culmo tereti gracilis nudis, vaginis aphyllo filiformi nudo, vaginis aphyllis, panica lateralis effusa, ramis filiformibus, floribus distinctis, perianthiis acutis capsulam ovatum obtusum subovatum, staminibus 3, seminibus lineari-oblongis, testa utrinque laxa.—Kunth, En. Plant. iii. 320. J. effusus, Br. Prodr. 259; Fl. N. Zeal. i. 263. J. pallidus, Kunth, non Br. (Gunn, 571, 1390).

Hab. Abundant in stiff moist soil throughout the Colony.—(Fl. all year.) (v. v.)

Distrib. Australia, New Zealand, and in most temperate parts of the world.

The common Australian form of this widely-diffused plant is slender and tufted, 2 feet high, with an effuse panicle of few branches, bearing few distinct flowers; the sheaths usually bear slender, terete leaves, but often do not, and the panicle is of a pale colour. The form with a dense inflorescence (J. conglomeratus, Linn.) is not common in Australia.—The J. communis is so variable that it is often difficult to distinguish it from its allies, but it differs from J. maritimus and J. australis by its slenderness and distinct flowers; from J. pallidus by its slender form and three stamens, and by its more obtuse, shorter capsule; from J. vaginatus by its very much smaller size, the absence of great sheaths at the base of the culm, and by its three stamens; from J. Gunnii by its pale flowers and less acuminate perianth; from J. pauciflorus it is not distinguishable except by size, and its three stamens, and shorter, blunter capsule.

12. Juncus pauciflorus (Br. Prodr. 259); culmo aphyllis filiformi nudo basi vaginato, panicula laterali pauciflora, ramis filiformibus, floribus distinctis, perianthiis acutis capsula ovali pallida 1-loculari brevioribus, staminibus 6, seminibus oblongis, testa utrinque breviter laxa.—Kunth, En. iii. 320. (Gunn, 566, 961.)

Hab. Abundant throughout the Colony.—(Fl. all year.) (v. v.)


I have seen no Australian specimens of this very elegant species, which may be recognized at once by its slender filiform culms, 1½ foot high, densely tufted with very short, red-brown sheaths at the base, by the lateral panicle of few, very slender, few-flowered branches, by the small flowers, acute, brownish perianth, ovoid capsule, and six stamens. The culms are much more slender than any form of J. communis, and scarcely stouter than pack-thread.

13. Juncus Gunnii (Hook. fil.); culmis nudis gracilibus subfiliformibus aphyllis basi vaginatis, panicula parva laterali ramosa brevire brunnea dense congesta v. rami elongatis distinctis, floribus parvis aggregatis, perianthiis acuminatis capsula obovata brunnea longioribus, staminibus 6, seminibus? (Gunn, 572, 973.)

Hab. Tasmania, probably common, as no habitat is given, Gunn.—(Fl. Nov.)

Apparently a very distinct species, almost as slender as J. pauciflorus, which it a good deal resembles, but the
panicle is very different, ½–1 inch long, dark brown, much branched, the branches somewhat fascicled, and the flowers clustered and smaller; the capsule is dark brown, and considerably shorter than the perianth.

14. **Juncus vaginatus** (Br. Prodr. 258); robustus, elatus, aphyllus, culmis teretibus nudis basi laxe vaginis, vaginis obtusis, panicula alba laterali effusa erecta ramosa multiflora, ramulis subfastigiatis, floribus majusculis distinctis, perianthiis acutis capsulam pallidam obovato-ellipticam obtusam subaqueantibus, staminibus 6, seminibus testa utrique laxe.—Kunth, En. iii. 319; E. Meyer, in Plant. Preiss. ii. 46; *Fl. N. Zeal*. i. 282. (Gunn, 570?; 569.)

**Hab.** Common in many parts of the Colony, both in the north and south.—(Fl. Dec.) (v. v.)

**Distr.** Extratropical Australia and New Zealand.

Much the largest of the Tasmanian species, and one of the most robust of the genus.—**Culms** erect, 3–5 feet high, sometimes as thick as the little finger, conspicuous for the loosely sheathing, blunt vaginas at the base. **Panicle** very much divided, erect, white, 2–4 inches long. **Flowers** very numerous, distinct, white or very pale, large for the genus. **Perianth** as long as the ovoid, blunt capsule. The plant I have considered to be Brown’s *J. palidus* may be a small variety of this, with a longer capsule.

Gen. III. **LUZULA, DC.**

*Flores Junci, sed ovario ovulis 3, et capsula 1-loculari 3-sperma.*—**Herbae; foliiis planis, pilosis glabratis; scapis gracilibus; floribus glumaceis; bracteis plicatis ciliatis.*

**Luzula** is distinguished from *Juncus* chiefly by the one-celled, three-seeded ovari and capsule; the species are numerous in Europe, and especially mountain and arctic regions, and several are also found in the southern temperate hemisphere. The leaves are flat, grassy, and generally ciliate, in which respect the genus further differs from *Juncus*. (Name of doubtful derivation.)

1. **Luzula campestris** (DC. *Fl. Franc*. iii. 161); folii laxe ciliatis, culmis gracilibus, capitulis globosis ovatis solitariis vel subumbellatis inaequaliter pedunculatis, bracteis scariosis, perianthiis acuminatis, capsulis obtusis.—*Br. Prodr. Addid.*; *Fl. N. Zeal*. (Gunn, 598, 1440, 340, 341.) Variat mirifice statura, indumento, inflorescentia florumque magnitudine et colore.

**Hab.** Abundant in pastures throughout the Island, ascending to 3000 feet.—(Fl. Aug.–Nov.) (v. v.)

**Distr.** Throughout extratropical Australia, New Zealand, and temperate and arctic Europe, Asia, and America.

The *Luzula campestris*, an extremely common and variable European species, is no less so in Australia, Tasmania, and New Zealand. It is a small, herbaceous, perennial-rooted plant, 4 inches to a foot high, with numerous, grassy, flat, spreading radical leaves, ciliated abundantly with long hairs, sometimes woolly, and a long, slender, leafy scape, bearing one or many heads of flowers arranged in capitula or umbels, with long or short spreading branches.—**Capitula** varying in size from a pea to a marble, subtended by leafy bracts. **Flowers** small, sessile, brown, or whitish, or green, with brown margins to the leaflets, closely surrounded with scarious, ciliated bracts. **Flowers** of the same structure as *Juncus*, but the style is generally longer; the ovary is one-celled, with three erect ovules. **Capsule** three-valved, one-celled, three-seeded.

2. **Luzula Oldfieldii** (Hook. fil.); folii late linearibus longae ciliatis, capitulis in capitulum densum ovatum sessile congestis, involucris brevibus, bracteis sublaceris, perianthiis acuminatis brunneis late albo-marginatis integerrimis.

**Hab.** Wet places on the summit of Mount Wellington, *Oldfield*.—(Fl. Jan.)

Very different in size, robustness, and habit, from any of the varieties of *L. campestris*, and with the inflorescence forming a dense, short, lobed, ovoid or globose, terminal, sessile head, subtended by short involucral leaves.
Leaves quite flat, ¾ an inch broad. This is nearly allied to the L. crinita of Lord Auckland’s Islands, but in that the perianth-leaflets are narrower and dark brown, the bracteal deeply laciniate and ciliated, and the leaves narrower. The L. Alopecurus, Desv., of Fuegia, is a third closely allied and extremely similar species, but that has a ciliated perianth. The L. Oldfieldii is much nearer L. campestris than any of the above.

**NAT. ORD. XIII. XYRIDEÆ.**

**Gen. I. XYRIS, L.**

Flores in capitulum solitariun terminale dense spicati; squamis capitis persistentibus, coriaceis, dense imbricatis. Perianthium duplex; exterius glumaceum, foliis 3, exteriore calyptraeformi v. cucullato caduco; lateralis navicularibus; interius corollinum foliis 3 longe unguiculatis, lamina lobata. Stamina 3, fertilia unguibus perianthii interioris inserta, cum staminodis 3 hypogynis apice plumosis alternantia, antheris extrorsis. Ovarium 1-loculare, v. basi 3-loculare; ovulis numerosis, ascendentibus, placentis 3 basilaribus v. subparietalibus, a) antheris extrorsis. Ovarium 1-loculare, v. basi 3-loculare; ovulis numerosis, ascendentibus, placentis 3 basilaribus v. subparietalibus, a) antheris extrorsis. Ovarium 1-loculare, v. basi 3-loculare; ovulis numerosis, ascendentibus, placentis 3 basilaribus v. subparietalibus, a) antheris extrorsis, stigmatea indivisisve. Capsula 1-3-locularis, 3-valvis, polysperma. Semina erecta, subglobosa; testa coriacea; aërmhus carnosus; embryone minimo. — Herbae scapigerae; foliis equitantiis, circiniformibus v. filiformibus; scapo basi ramoso, fruticos. — Tenent, floribus serotinis, v. intermitentibus, Lati ent, erectis, tuaveula r., the front of the inner, and falls away; inner of three petaloi d, clawed, yellow pieces, each bearing a short stamen, with extrorse anther on the claw: three filiform staminodia, with plumose apices, alternate with the inner perianth-segments. Ovary small, one-celled, or partly three-celled, with a slender, trident style, and simple or plumose stigmas. Capsule thickened at the top, with numerous erect seeds, attached to three basal, more or less confluent placentæ. (Name from *γυνος, sharp*; in allusion to the foliage of some species.)

1. **Xyris operculata** (Lab. Nov. Holl. i. p. 14ª. t. x.) foliis teretiusculis filiformibus, culmo tereti, capitulo ovoido v. obovuido, squamis quinquenatis coriaceis obtusis imberbibus inferioribus minoribus vacuis, stigmatibus multifidis?, capsula apice triloba granulata semitriloculari, placentis basi unititis.—Br. Prodr. 257; Bot. Mag. t. 1158. (Gunn, 334.)

Hab. Common in wet heaths and peat soils.—(Fl. Dec.–Feb.) (v. v.)

Distrib. New South Wales and Victoria.

Plant forming large, coarse tufts of rigid foliage, and slender, terete scapes, 1–3 feet long.—Leaves slender, with very shining brown sheathing bases. Scapes slightly twisted. Capitulum ¾–½ inch long. Lateral scales of the outer perianth ciliate or bearded. Flowers sweet-scented.—I have not seen ripe fruit.

2. **Xyris gracilis** (Br. Prodr. 256); foliis ensiformibus tortis, culmo filiformi tereti tortili, capitulo parvo ovoido paucifloro, squamis undique imbricatis obtusis centro discolor imberbibus inferioribus mino-
ribus vacuis, stigmatibus indivisis, capsula obovata apice simplici uniloculari, placentis basi distinctis.—(Gunn, 1389.)

HAB. Common on the road to Macquarie harbour, in similar situations with X. operculata, Gunn.—(Fl. Nov.—Feb.)

Distrib. South-eastern Australia.

A much smaller species than X. operculata, with short, rigid, flat leaves, scabrous at the margin, and often tortuous, more slender twisted scapes, and smaller capitula, the scales of which are fewer, paler in the centre, and not quinquefariously arranged. Outer scale of perianth very broadly obcordate; inner lateral, with scabrous keels. Ovary obovate, not furnished with the granular four-lobed apex of X. operculata. Brown describes the capsule (which I have not seen) as unilocular, with three distinct placenta.

Nat. Ord. XIV. Restiaceae.

This Order, including Centrolepideae as a tribe or suborder, is far more abundant in Australia than in any other country except South Africa. With the exception of the very widely distributed genus Eriocaulon (which is absent from Tasmania), almost all the genera of the Order are natives of these two countries, and the majority of them are Australian. Owing to the difficulty of discriminating the genera and species, and to the male and female individuals of the same species being often very dissimilar, the Australian members of the Order are in considerable confusion. Of these I have examined about 120 species, the majority of them natives of the south-western quarter of the continent, and very few indeed being common to that and the south-eastern quarter. The Restiaceae generally grow in dry and poor soils, forming coarse, Rush-like or Grass-like tufts, that are sometimes with difficulty distinguished from Cyperaceae, except by the sheaths of the culms and leaves, which are in Restiaceae split at the base (except in R. complanatus), and the anthers are usually one-celled.

Gen. I. Restio, L.


One of the largest genera of the Order, confined to South Africa and Australia, from which last country I have seen about thirty species. All are dry, rigid, Rush-like, dioecious plants, with woody, creeping, scaly rhizomes, sending up erect, simple or branched, bracteate culms, which bear terminal, small, brown, solitary or spiked or panicled amenta.—Scales of the amentum rigid, imbricate all round, each bearing one small, obscure, unisexual, bracteate flower. Perianth of four to six coriaceous, brown glumes. Male flower with two or three stamens, with simple, peltate anthers. Female with a two- or three-celled and -lobed ovary, having a two- or three-parted style. Capsule small, two- or three-lobed, bursting at the angles; cells one-seeded. (Name from restis, a cord.)

§ 1. Culmus very rarely divided or branched.

1. Restio monocephalus (Br. Prodr. 245); culmis simplicibus v. divisis teretibus, vaginis laxis truncatis, amentis solitariis paucisve late ovatis, squamis coriaceis obtusis, perianthiis 6-glumis, stylis 2.—(Gunn, 1392.) (Tab. CXXXV. a.)

HAB. Not uncommon in moist quartzy or sandy soil, in various parts of the Colony.—(Fl. Feb.)
Distrib. Victoria.

Brown describes this as having generally but one sheath on the culm, and a single amentum; such is the case with my smallest specimens only; the larger ones have numerous sheaths, and three to five alternate, peduncled amenta.—Culmis 6–18 inches high, slender, bright-yellow when dry, glabrous or pubescent, rarely divided, terete, or grooved on one side above each node on the face opposite the vagina. Sheath ¾–3 inch long, lax, spread open, coriaceous, truncate, often ciliate or villous. Amenta ¾–1 inch long, broadly ovate. Scales imbricating all round, blunt, dark-brown, slightly ciliated, as are the perianth-scales. Styles separate from the very base. —Plate CXXXV. A. Fig. 1, male flower; 2, female ditto, laid open; 3, ripe fruit; 4, transverse section of ditto; 5, fruit, dehisced; 6, one valve of ditto:—all magnified.

2. Restio complanatus (Br. Prodr. 245); dense caespitosus, culmis simplicibus compressis, vaginis strictis membranaceis basi integris, amentis laxo paniculatis erectis, masculis ovatis, feminis ovato-oblungis, squamis lanceolatis aristato-acuminatis ciliatis, perianthiis 4-glumis, stylo bifido v. bipartito. (Gunn, 962.)

Hab. Common in heathy places about Circular Head and Georgetown, Gunn, and probably in other parts of the Island.—(Fl. Nov., Dec.)

Distrib. New South Wales and Victoria.

Culmis from very short, tufted rhizomes, 6–24 inches high, quite flat, or much compressed and two-edged. Sheaths membranous, with a short, erect, blunt apex, quite entire at the base. Amenta panicked in the upper sheaths, on long, slender peduncles, few or numerous, ½ inch long, oblong ovate. Scales numerous, membranous, ovate, acuminate, aristate, ciliate, pale-brown and shining. Perianth of four membranous glumes. Ovary orbicular, flat, with a slender style bifid at the top or to the base.

3. Restio australis (Br. Prodr. 245); culmis simplicibus teretibus laevibus, vaginis laxiusculis obtusis supremis bracteisque tumidis, amentis ovatis racemosis v. subspicatis bracteis persistentibus brevioribus, squamis acuminatis aristatis laxe ciliatis lanatisve, perianthiis masculis 6-glumis, feminis 4-glumis, ovario compresso, stylo 2-partito.—Sieber, Agrostoth. 33. (Gunn, 422.)

Hab. Abundant on the mountains, in marshy places.—(Fl. Dec., Jan.) (v. v.)

Distrib. New South Wales and Victoria.

Culmis tufted, 1–2 feet high, perfectly smooth, terete, not shining. Sheaths erect, blunt, split to the base, 1 inch long, the upper tumid, passing into bracts enclosing the amenta. Amenta shortly peduncled, racemose, crowded at the top of the culms, broadly ovate, pale-brown and shining, subsquarrose from the spreading aristate points of the rather membranous scales.

4. Restio gracilis (Br. Prodr. 245); “culmis teretibus laevibus, vaginis strictis obtusis, spica multiflora subcomposita, spiculis feminis cylindraceo-oblongis acutis bracteas superantibus, squamis aristato-acuminatis, perianthiis 4-glumis, stylo bipartito.”—Br. l. c.

Hab. Tasmania, Brown.

Distrib. New South Wales, Br.

I have seen no specimens of this species from Tasmania, but it appears to be best distinguished from its congeners of that country by its numerous spiked amenta, which are not overtopped by the bracts, as in R. australis.

§ 2. Culmis much branched.

5. Restio tetraphyllus (Lab. Nov. Holl. ii. 77. t. 226 and 227); culmis robustis elatis teretibus striatis superne fastigiatim ramosis, ramis subcompressis, ramulis sterilibus alternatis fasciulatis dichotomis subsetacis, vaginis strictis obtusis, panicula terminali elongata composita, spiculis pedunculatis late ovatis,
FLORA OF TASMANIA.

[Restiaceae.]

squamis aristato-acuminatis, perianthii masculis 6-glumis, femineis 4-glumis, stylo 2–3-fido v. partito.—
Br. Prodr. 247; Sieb. Agrost. 34. (Gunn, 331.)

Hab. Abundant throughout the Island, forming large tufts.—(Fl. Dec., Jan.) (v. v.)


At once recognized by its great size, 3–4 feet high, stout culms as thick at the base as a goose-quill, copious ramifications, fasciculate, setaceous or filiform sterile branches, and long, compound panicles of broadly ovate, shining, peduncled aments.

Gen. II. LEPYRODIA, Br.


An extratropical Australian genus of about twelve species, distinguished from Restio chiefly by the bracteate flowers being fascicled and exserted, not sessile in the scales of the spikelet, and hidden by them. (Name perhaps from Λεπτός, leprous; in allusion to the surface of the culms.)

1. Lepyrodia Tasmanica (Hook. fil.); culmis gracilibus ramosis teretiusculis subtiliter granulatis, vaginis strictis lamina brevi subulata, fasciculis spiciformibus alternis bracteatis, bracteolis perianthii sub-membranaceis ovatis acuminatis flore brevioribus, perianthii glumis lanceolatis aristato-acuminatis extroribus brevioribus. (Gunn, 960, 1393.) (Tab. CXXXV. B.)

Hab. Wet places in the northern parts of the Island: Detention River, near Circular Head, and Lake St. Clair, Gunn.—(Fl. Dec., Jan.)

A very slender, branched, Rush-like plant, growing 1–5 feet high, the smaller states erect, the larger weak, and supporting themselves amongst bushes and herbage.—Culms, when dry, yellow-grey, and minutely granular on the surface, terete, the branches somewhat compressed. Sheaths appressed, ½–¾ inch long, with subulate points. Flowers in alternate, spike-like, erect fascicles towards the ends of the branches, each fascicle shortly pedicelled, arising from the axil of a membranous bract, ½–¾ inch long. Perianths pale-brown, shining, each with two to four short, sheathing, ovate-acminate, membranous bracts at its base; outer glumes shorter than the inner, all lanceolate-acminate and subaristate.—PLATE CXXXV. B. Fig. 1, male flower; 2, stamen; 3, female flower and bracts; 4, pistil and imperfect stamens; 5, ovary; 6, transverse section of ditto; 7, stigmatic surface:—all magnified.

Gen. III. LEPTOCARPUS, Br.


The great dissimilarity between the male and female plants of some species of this genus renders it very difficult to arrive at any accurate determination of these from herbarium specimens, and I am not perfectly certain that the plants described under L. tenax are sexes of the same. In both Tasmanian species the culms are simple, terete, and furnished with appressed sheaths; the male amenta form effuse, terminal panicles, and are ovate, or oblong and cylindrical; the female amenta are crowded, erect, and shortly peduncled. Flowers in both sexes hidden by the closely imbricated scales of the amentum, sessile. Males of four erect glumes, rather distant at the base; stamens three, included; anthers simple; filaments short. Females of six glumes, the two or three outer larger;
one rather slender one-ovuled ovary, and exerted bifid to quadrified style. Fruit a crustaceous, one-celled and one-seeded, indehiscent nut. (Name from Aetos, slender, and kapros, fruit.)


**Hab.** Abundant in wet, marshy, and sandy places throughout the Island.—(Fl. Oct.–Dec.) (v. v.)

**Distrib.** New South Wales and Victoria.

The female plant of this species so entirely resembles the *L. simplex*, Forst., of New Zealand, that it has been referred to that species by Brown, and, following him, by myself in the 'Flora Nova-Zelandiae.' At the period of publication of the latter work, I had not discovered that the plant I now consider to be the female of the Tasmanian *L. Brownii* (and which is very different from the female New Zealand *L. simplex*) was so, both because of its great dissimilarity, and because of its bearing a different number in Gunn's collection. I have however been confirmed in this conclusion by Dr. Mueller sending the same plants as sexes of one from Victoria, under Brown's name of *L. simplex*.—**Culms** 1–2 feet high, slender. **Male panicle** effuse, of six to twenty amena, on pubescent, flexuous pedicels, each cylindrical, ovate, or lanceolate, about \( \frac{1}{2} \) inch long, of numerous, shining, deep-brown, ovate, mucronate or acuminate, glabrous scales. **Female amena** very short, densely fascicled, their scales similar to those of the males. **Perianth** of the male flower of four or five unequal, irregular, linear glumes; of the female of six broadly ovate-oblong, acuminate glumes, the inner very much shorter.—**PLATE CXXXVI.** Fig. 1, male flower; 2, female ditto; 3, the same, laid open.—all magnified.


**Hab.** Waste places throughout the Island, abundant.—(Fl. Nov., Dec.) (v. v.)

**Distrib.** New South Wales, Victoria, and Swan River.

But for Dr. Mueller's having doubtfully suggested the males and females of this plant as belonging to one species, I should not have suspected such to be the case, though analogy with *L. Brownii*, and the fact of both forms being common in Tasmania, and each being unisexual, render his suggestion almost a certainty. The male plant very strongly resembles *Restio microstachys*, Br., from South-west Australia, if it be not that plant.—A larger, stouter plant than *L. simplex*. **Sheaths** with deciduous, membranous apices. **Male** with slender culms, 2–5 feet high, and a very copious-flowered panicle of very small, ovoid amena, each about \( \frac{1}{2} \)–\( \frac{3}{4} \) inch long, their scales broad, acute or blunt, and mucronate. **Perianth** of four linear-oblong glumes. **Female culms** less slender. **Amena** congested in alternate, almost sessile fascicles, their scales very hard, cartilaginous, broadly ovate, with short, rigid, patent, subulate apices, very much larger than the male scales, their margins membranous. **Perianth** with long, narrow glumes, the outer larger.

I have examined an unnamed specimen of the male plant of this, gathered in Recherche Bay by Labillardièrè, who nevertheless took the male of the South-west Australian *Laginia imberbis*, Br., for that of his Tasmanian *S. tenax*, as pointed out by Brown.
Gen. IV. HYPOLENA, Br.


I do not know the limits of this genus; there are several species described from Swan River, and others exist amongst the South-western Australian plants of the Hookerian Herbarium, provisionally referred by me to Leptocarpus and Restio, and requiring close examination. I have drawn up the generic character from the Tasmanian H. fastigiatæ alone, for the H. exsulca of Brown I take to be the female of Labillardière's Calorophus elongatus, the male of which Brown has referred to Restio. The male plant of H. fastigiatæ very closely resembles that of Leptocarpus Brownii in appearance and structure, but its culms are ashy, more pubescent, and excessively branched. The female plant resembles the male in general appearance, but instead of bearing terminal effuse panicles of nodding or drooping cylindrical amenta, it has solitary or very few terminal, erect, single-flowered amenta.—Female flower sunk in the large upper scales of the amentum; periant of six very small glumes, that embrace the base of the stalked nut, and adhere to it after it has fallen away. Nut one-celled, one-seeded, with a large, polished, pale, hemispherical or conical, umberonate top. (Derivation of name unknown to me.)

1. Hypolea fastigiatæ (Br. Prodr. 251); culmis fastigiatim ramosis teretibus striatis cinerascentibus, vaginis strictis brunneis apice membranaceis, perianthii fructiferi glumis ovalibus.—Kunth, En. iii. 451. (Gunn, 599, 963, 964, 965.) (Tab. CXXXVII.)

Hab. Abundant in sandy places which are wet in winter.—(Fl. Nov.) (v. v.)

Distr. New South Wales, Victoria, and Swan River.

Restio cinerascens, Br., of South-western Australia, most strongly resembles the male of H. fastigiatæ, if it be not the same plant.—Plate CXXXVII. Fig. 1, male amentum; 2, scale of ditto, and flower; 3, flower, removed; 4, stamen; 5, female amentum; 2, flower; 5, unripe nut, cut vertically:—all magnified.

Gen. V. CALOROPHUS, Lab.


Several species of this genus abound in extratropical Australia, but all want examination. The genus differs from Hypolea in habit, in the mucronate apex to the sheaths of the culm, in the three stout, pale styles, and in the absence of a tumid top of the nut.—Culmus rigid, wiry, green, often flexuose, sparingly or profusely branched, the branches very slender, terete, or grooved on one side. Sheaths very rigid, coriaceous, cartilagineous, closely investing the culms, with patent, rigid, subulate points. Amenta small, unisexual, rarely hermaphrodite, more or less sunk in the sheaths of the culm; scales convolute. Male of few flowers. Perianth included or exerted, of six lanceolate glumes, and three stamens with exerted anthers. Female amenta with one or few almost terminal flowers, of which the upper alone is perfect. Perianth of six small glumes, which adhere to the ripe nut. (Name from καλορόφος, a Restio, according to Labillardière.)


Hab. Abundant throughout the Island, in sterile, swampy places. Var. *β.* Alpine marshes, alt. 3–4000 feet.—(Fl. Nov.) (v. v.)

**Distrib.** South-eastern and South-western Australia; New Zealand (both varieties).

*Culms* pale-green, rigid, wiry, 2–3 feet long, flexuoses. *Branches* slightly compressed. *Sheaths* with a more or less woolly mouth, and patent or recurved apex. The var. *β.* is a much smaller and different-looking plant, which I described as a doubtfully new species in the New Zealand Flora; but Gunn considers it the same as *C. elongatus*, and except in its smaller size and fewer flowers, I can find no difference between the Tasmanian lowland and alpine states. The New Zealand var. *minor* has very much more woolly sheath, with erect apices. *Calorophus flexuosus*, Nees, and *C. crispatus*, Nees, are both very nearly allied to this variety, and in some respects intermediate between it and *C. elongatus*.

**Gen. VI. APHELIA, Br.**

*Spica* solitaria, terminalis, disticha. *Squamae* 1–3-flore, omnes uniflores, hermaphroditæ, v. inferiores 1 v. 2 masculæ, 1–3–floris; floribus uniglumibus, monandris; caabyrinæ, uniflore eglumibus v. 1–glumæ, gluma postica monogyna. *Utriculus* monospermus; *stylo* filiformi.—*Herba* pusilla *Cyperi parruli fuscè; radicibus fìbrosì; foliis omnibus radicibus, filiformibus; scapo nudo, indiviso; spicula compressa, ovata v. oblonga.

A very curious little genus, of which the Tasmanian and Victoria species differ from the original South-west Australian *A. cyperoides*, described by Brown, in the glumes being unisexual, and in the lower scales of the spike having several male flowers, and the rest bearing a solitary female one. I have examined four species of this section; all are South-west Australian, and two of these are here described.—Minute, tufted, annual, herbaceous plants, about an inch high, with capillary leaves and scales, the latter bearing a solitary, flat; distichous, erect or inclined, ovate spikelet. *Lower scales* longer than the others, forming a kind of involucre, more coriaceous, with a subulate, herbaceous limb and apex, and membranous margins. *Glumes* solitary, of male flowers, minute, lanceolate, membranous, hyaline. *Slamens* with filiform, flattened filaments, and one-celled, linear anthers. *Upper scales* 8–10, broadly ovate, cucullate, obtuse, green, with broad, membranous margins. *Utriculus* membranous, linear-oblong, bursting externally down the middle. (Name from *αφελης*, *simple*.)

1. *Apheilia Gunnii* (Hook. fil.); *spica* inclinata, squama inferiore mascula solitaria aristata involucriformi, caeteris fœminis ovatis obtusis ecarinatis medio setosis. (Gunn, 1499.) (Tab. CXXXVIII. C.)

Hab. Wet places: Formosa, Gunn.—(Fl. Nov.)

**Distrib.** Victoria, Muller.

An exceedingly slender leaved and culmed annual weed, scarcely an inch high, with a small, inclined spike.—

**Plate** CXXXVIII. C. Fig. 1, spikelet; 2, lower scale and male flower; 3, upper scale; 4, female; 5, utriculus, burst open; 6, seed; 7, diagram of spikelet.—all magnified.
2. **Aphelia Pumilio** (Mueller, in Herb. Hook.); spica suberecta, squamis 2 inferioribus aristatis cæteris brevius aristatis margine fimbriatis dense ciliatis.

Hab. Cheshunt, Archer.

Distr. Victoria.

A much shorter species than *C. Gunnii*, scarcely an inch high, with a larger, broader, erect spik, and fimbriated margins to the scales.

**Gen. VII. CENTROLEPIS, Lab.**

*Capitulum* solitaria, terminale, bracteis spathisve 2 inclusum. *Flores* pauci v. numerosi, hermaphroditis, biglumos, receptaculo communi nudo v. paleaceo (paleis squamis spicula referentibus?) conferti. *Stamen* 1; *anthera* simplici. *Ovaria* plurima (3-12), axi communi seriatim imbricata, monosperma; *styli* totidem, simplices, distincti v. basi connati. *Utriculi* extus longitudinaliter dehiscentes.—Herbas *cospitosa*, *pusilla*; radicibus *fibrosis*; foliis *omnibus* radicalibus, setaceis; *scapis* *filiformibus*, *nudis*, *divisidis*; spathis *alternis*, *approximatis*, *aristatis* muticæve.

Small, annual, tufted herbs, with setaceous radical leaves, naked scapes, and terminal capitula of minute flowers, enclosed in two bracts or a two-valved spathe. About twelve species are known, chiefly natives of Southwestern Australia.—*Flowers* hermaphroditic, of two membranous glumes, enclosing a single stamen and a compound pistil, all hidden by the two-valved spathe. *Pistil* formed of many connate, membranous utricles, often imbricating, and forming a moniliform mass, their single capillary styles free, or united at their bases. *Utricules* each bursting outwardly.—In some species scales or paleae are found intermixed with the flowers: these suggest the idea of the capitulum being a reduced, contracted spike, of which the paleae are the scales. (Name from κατάπος, a spur, and λεπίς, a scale; in allusion to a mistaken view of the inflorescence; but, as the name seems sufficiently significant, if regarded as applied to a genus most of whose species have awned spathes, I have followed Kunth, Endlicher, and others, in retaining this name.)

1. **Centrolepis aristata** (Rœm. et Schult. Syst. i. 44); scapo ancipti, spathis glaberrimis longe foliaceo-aristatis, receptaculo epaleaceo, floribus 10-16, glumis 2 lanceolatis, interiore majore abrupte eroso, exterioire apice lacero, ovarii 4-7, styli basi connatis.—*Kunth*, En. Plant. 490. Desvauxia aristata, Br. Prodr. 258; *Nees*, in Plant. Preiss. ii. 71. (Gunn, 1438.) (Tab. CXXXVIII. D.)

Hab. Abundant in wet sandy soil near Georgetown and Launceston, Gunn.—(Fl. Oct.)

Distr. Swan River and Victoria.

Plants rather rigid, 2-3 inches high, perfectly glabrous everywhere. *Scape* flattened and two-edged. *Spathes* with long, ensiform, herbaceous, flattened awns, the inner longest, obscurely jointed on the broad, coriaceous lamina. *Outer glume* (which Nees suggests may be a palea, and 1 regard as a scale of the reduced spike) lanceolate, acuminate, torn or toothed at the apex; inner twice as long, opposite the outer, abrupt and erose. *Stamen* opposite the inner glume. *Ovaries* four to seven.—Plate CXXXVIII. D. Fig. 1, spikelet; 2, flower, removed from ditto; 5, stamen; 6, utriculus; 7, seed:—all magnified.

2. **Centrolepis tenuior** (Rœm. et Schult. Syst. i. 43); foliis capillariibus brevibus hispidis, *scapis* strictis *filiformibus* pubescentibus, spathis late cymbiformibus acuminatis hispidis, receptaculo epaleaceo, glumis 2 fimbriato-laceris ciliatis, ovarii 4-10, styli basi connatis.—*Kunth*, En. iii. 489. Desvauxia tenuior, Br. Prodr. 252. (Gunn, 958.)

Hab. Abundant in wet sandy soil near Georgetown, and at Epping Forest, Gunn, Archer.—(Fl. Nov., Dec.)

Distr. Victoria, Mueller.
This in many respects agrees with Brown’s description of *D. Paternoni, Br.*, but both spathes are equally hispid. The spathes are in this species separated, the upper being distinctly pedicelled.—**Leaves** pilose, with rigid, spreading hairs, very much shorter than the numerous, strict, pilose scapes. **Capitulum** ¼ inch broad. **Spathes** very broad, concave, hispid, with membranous margins, and very short, mucronate or subaristate apices.

3. **Centrolepis fascicularis** (Lab. Nov. Holl. i. p. 7. t. 1); dense cespitosa, foliis basi pilosis scapis glabris brevioribus, spathis hispidis, receptaculo epaleaceno, floribus 8–10 2-glumibus, glumis bifidis, ovariiis 3–5, stylis basi connatis.—**Desv. in Ann. Sc. Nat.** 1828, xlii. t. 2. f. 4; **Endl. Icon.** t. 49; **Kunth, En.** iii. 489. Desvauxia Billardiier, Br. Prodr. 252. (Gunn, 957.)

HAB. Abundant in wet, heathy plains, forming large matted patches.—(Fl. Dec., Jan.)

DISTRIBUTION. New South Wales and Victoria.

A very densely-tufted species, 1–2 inches high, with membranous, pilose sheaths to the leaves, glabrous, rather rigid scapes, and hispid spathes, which are broadly retuse at the apex, and furnished with an erect, rigid, stout arista, as long as the lamina. **Flowers** numerous; **glumes** two, bifid, ciliated.

4. **Centrolepis pulvinata** (Reem. et Schult. Syst. i. 43); foliis scapos subequantibus, spathis muticis, valvula inferiore hispiduscula, superiore glabra, receptaculo paleaceo, stylis 6–7 distinctis.—**Desv. in Ann. Sc. Nat.** 1828, xlii. t. 2. f. 3; **Kunth, En. Pl.** iii. 489. Desvauxia pulvinata, Br. Prodr. 252; **Guill. Fl. l.** t. 17.

HAB. Tasmania, Brown.

DISTRIBUTION. South-west Australia.

I have seen no Tasmanian specimens of this species, which is smaller than either *C. fascicularis* or *tenior*, has awnless spathes, the lower of which only is hispid, has leaves as long as the scapes, and six to seven distinct styles.

Gen. VIII. ALEPYRUM, Br.

**Capitulum** solitariurn, terminale, 1-v. pauci-florum, bracteis spatialis 2 inclusum. **Flores** hermaphroditii, uniglumes v. eglumes, monandri, mono-polygami. **Utriculi** extus longitudinaliter dehiscentes.—**Herbae** pusilla, cespitosa; radicibus fibrosis; foliis setaceis; scapis filiformibus, nudis, indivisis; spathis alternis, approximatis, aristatis muticis.

**Alepyrum** is a reduced form of **Centrolepis**, in which the flowers are few, and the glumes absent, or reduced to one. With the exception of a New Zealand alpine species, the genus is confined to extratropical Australia and Tasmania. The *A. monogynum* is intermediate between *Alepyrum* and **Centrolepis**. (Name from a, privative, and *αερυπος*, a covering; from the imperfect flowers.)

1. **Alepyrum monogynum** (Hook. fil.); dense cespitosa, muscoideum, foliis subulatis culmos subæquantibus, spathis lanceolatis, floribus 2, gluma lineari-lanceolata, ovario solitario. (Gunn, 1434.)

HAB. Moist subalpine situations: margin of Lake St. Clair, and near Marlborough, Gunn.—(Fl. Jan.)

Plants forming small, pale-green, dense tufts, ¼ inch high, with numerous, matted, white, fibrous roots, somewhat resembling *Scleranthus*.—**Leaves** as long as the scapes. **Flowers** two, enclosed in lanceolate spathes. **Glume** one. **Ovary** solitary.—**PLATE CXXXVIII. B.** Fig. 1, leaf; 2, spathes and flowers; 3, spathe; 4, flower and glume; 5, utricle, burst open; 6, seed; 7, diagram of spathe, glume, stamen, and pistil:—*all very highly magnified*.

2. **Alepyrum muscoideus** (Hook. fil.); caulibus dense cespitosum muscoideis, foliis scapos superantibus, spathis lanceolatis aristatis inferiore longiore, floribus 4, gluma 0, ovariiis sub-6–8.
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Hab. Marshy ground, in subalpine situations: Marlborough, Gunn.—(Fl. Jan.)

Very similar to A. monogynum, but with more aristate spathes, four flowers, and six to eight ovaries, imbricating in two series.

3. Alepyrum Muelleri (Hook. fil.); foliis capillaribus, spatha inferiore aristata superiore mutica, floribus 4, gluma 0, ovariiis sub-10.—Desvauxia glabra, Mueller, in Herb. Hook. (Gunn, 2015.)

Hab. Bottom of a lagoon, Macquarrie River, Gunn.—(Fl. Nov.)

Distrib. Mount Emm Creek, Victoria, Mueller; South-west Australia, Drummond.

Laxly tufted, scarcely an inch high. Stem excessively short, with short, white, tufted roots. Leaves rather flaccid, between subulate and capillary, rather shorter or longer than the scapes. Spathes about ¼ inch long, the lower with a straight awn. Ovaries imbricated in two series; the styles more or less combined in Victoria specimens, more free in Tasmanian.

4. Alepyrum polygynum (Br. Prodr. 253); foliis setaceis culmis rigidis brevioribus, spathis coriaceis inferiore longe rigide foliaceo-aristata, floribus 1-2, gluma 0, ovariiis 10-20.—Kunth, En. iii. 488; Nees, in Plant. Preiss. ii. 71. (Gunn, 1436.)

Hab. Near Georgetown, Gunn.—(Fl. Oct.)

Distrib. Swan River and Victoria.

Remarkable for its profusion of rigid culms, 1-3 inches high, with very short, subulate leaves at the base, brown, lanceolate spathes, the outer with a long, nearly straight or curved, green, foliaceous arista, ½ inch long. Flowers one or two, with ten ovaries.

Genus Restiaceae affine?—TRITHURIA, Hook. fil.

Capitulum solitarius, terminale, multiflorum, foliis 4 involucratum. Flores unisexuales, capitulo sine ordine aggregati, omnino achlamydei. Masc. Stamen solitarius; filamento elongato; anthera lineari-oblonga, 2-loculari, basi affixa; polline globoso. Fæm. Ovarium pedicellatum, obovatum, membranaceum, triquetrum, 1-loculare; ovulo solitario, pendulo, anatropo; stylis 2-3 filiformibus. Capsula membranacea, obovata, triqueta, 3-valvis; valvis a septis intervalvaribus secermentibus. Semen lineari-oblongum, cylindraceum; testa membranacea; raphe cellulosa; albumine dense carnoso; embryone minimo, conico, extremitati radiculani albuminis applicato.—Herba perpusilla, annua, aquatica; radicibus fibrosis; foliis subulatis, subcellulosis; spasis plurimis, foliis longioribus v. brevioribus; capitulo ½-¼ unc. lato; involucræ foliis ovato-oblongis, oblatis, 2 exterioribus paulo majoribus; floribus minimis, receptaculo parvo convertis, fœmineæ maturis a pedicello persistente solutis.

A singular little plant, of very obscure affinity, discovered by Gunn in Tasmania, and also by Mueller in South-eastern Australia, who has proposed for it the manuscript name of Juncella Tasmanica, and placed it in Centrolepideae, from which however it differs remarkably in the dehiscence of the capsule, and two-celled anther, which is inserted by its base on the filament. I have ventured to supersede the name proposed (without description) by Mueller, both because the plant has no affinity with or resemblance to Juncus, and because it is not confined to Tasmania. In habit and the involucres it resembles Eriocaulon, but it differs from that genus in the capsule, naked flowers, and anther.—A minute water-plant, 1-2 inches high, growing at the bottom of fresh-water pools, and conspicuous (according to Gunn) when in fruit, from the bright-red colour of the minute capitula.—Roots fibrous. Stem almost none, the subulate, membranous, spreading leaves appearing to rise from the roots. Scapes numerous, bearing a very small capitulum of minute flowers, enclosed in an involucre of four ovate-oblong, blunted, membranous leaves. Male flowers: solitary staminia with long filaments and two-celled anthers, scattered indiscriminately amongst the female flowers: which consist of minute, trignous, obovate, stipitate ovaries, with two or three filiform
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\[\text{Cyperaceæ.}\]

styles, one cell, and one pendulous, anatropous ovule. *Capsule* joined on to the pedicel, trigonous, of three membranous valves, which are separated by narrow repla; in dehiscence the valves fall away completely, and the repla separate, whence the capsule appears to be formed of six pieces, of which three are broadly elliptical, and alternate with as many very narrow ones. *Seed* cylindric-oblong. (Name from ῥυπος, three, and θύπος, a hole or window; in allusion to the dehiscence of the capsule.)

1. **Trithuria submersa** (Hook. fil.).—Juncella Tasmanica, Mueller, in Herb. Hook., and in Catalogue of Victoria Plants, sine descriptor. (Gunn, 2014.) (TAB. CXXXVIII. A.)

HAB. Bottom of a lagoon near Macquarrie Harbour, Gunn.—(Fl. Nov.)

Distrib. Victoria: Hopkins River and Mount Emu Creek, Mueller.

Plate CXXXVIII. A. Fig. 1, capitulo; 2, the same, with the involucre spread open; 3, stamen; 4, pollen; 5, female flower; 6, stigma; 7, ripe fruit; 8, ditto, with the valves separate; 9, seed; 10, ditto, cut longitudinally, showing the embryo:—all magnified.

**NAT. ORD. XV. CYPERACEÆ.**

One of the most difficult Tasmanian Natural Orders to investigate, and I am not at all confident of having rightly determined several of the genera and species, though I have devoted much labour and thought to them, and examined most of the Australian *Cyperaceæ* at the same time. The genera are to a great extent natural, but their limits are extremely vague, and the technical characters necessary to limit them are seldom constant; thus, *Chasmospora* differs from *Schanus* only in the presence of hypogynous bristles, which are often excessively minute, or even evanescent, and some plants almost identical in all other points are hence generically separated by this artificial character. These two genera again differ from *Isolepis* and *Scirpus* chiefly in their scales being distichous; but species of both have imbricating scales. The shape of the nut, and its articulation with the base of the style, also afford good characters, but often very difficult of appreciation; and the relative number of scales and flowers in a spikelet is also apt to vary, as does the number of stamens and styles, or arms of the style, in the same or most nearly allied plants. It is hence almost impossible to determine a few isolated species of the Order, except by artificial means, and it is better that the student of Tasmanian *Cyperaceæ* should not attempt to make out the species until the structure of at least half the genera of the Order is understood, when the value of their characters (which are not expressed in absolute terms, but in relative) will become apparent.

I find about 350 Australian *Cyperaceæ* in the Hookerian Herbarium, and there are a considerable number of tropical species mentioned in Brown’s ‘Prodromus,’ which I am unable to identify with any of these, so that I assume that there may be fully 400 known Australian ones. Of these a large proportion (fully one-third) are almost exclusively tropical, and a considerable number of them identical with Indian and Malay Island plants, often of wide tropical distribution. Of the extratropical species the majority are natives of the south-western quarter, and comparatively few are common to this and the south-eastern quarter. The Tasmanian species are almost without exception also natives of Victoria and New South Wales; a few of them are common to New Zealand, and some to all temperate and many tropical latitudes.

**Gen. I. CYPERUS, L.**

*Spiculae* distichæ, multiformæ; *squamis* numerosis, carinatis, omnibus conformibus floriferis, v. paucis infimis minoribus vacuis. *Setæ* hypogynæ 0. *Stylus* inarticulatus, deciduæ.—Culmi simplices, enodes, bæi foliati v. vaginati; inflorescentia terminati, involucrata; spiculis sepsissime versus apices radiorum umbellæ congestis spicatisve.
A very large and natural tropical genus, of which about fifty Australian species are known, but few enter the cool temperate regions of either hemisphere. The Tasmanian species of the genus are tall, marshy, sedgy plants, with creeping rhizomes, trigonous, unjointed, erect, stout culms, leafy at the base, and bearing at the top an unequal, many-rayed umbel, surrounded by a long, leafy involucre; each ray of the umbel bears towards its apex numerous divaricating, linear, red-brown, shining spikelets, of numerous distichous scales, all of which but the lowest are floriferous.—*Flowers* of three stamens in each scale, and one pistil, without hypogynous scales. *Style* decisionous, but not jointed on to the achene. *(Name of doubtful derivation.)*

1. *Cyperus sanguineo-fuscus* (Nees, in Ann. and Mag. Nat. Hist. vi. 46); elatus, robustus, umbellis sub-8-radiatis simplicibus v. radiis longioribus apice compositis, spicis breviter cylindraceis, spiculis (4/1-pollicaribus) linearibus patento-reflexis 6-10-floris, squamis laxis lineari-oblongis obtusis carinatis sulcatis, nuce lineari-ovata acuta trigona, involucris 6-8-phyllis 1-2-pedalis serratis, culmo striato lavei. *(Gunn, 557, 956.) (Tab. CXXXIX.)*

Hab. Common on river-banks and in marshy places throughout the Island.—(Fl. Nov., Dec.) (v. v.)

Much the largest Tasmanian species, and a very handsome plant, growing 3-5 feet high. It varies a good deal in size and in the length of the spikelets, and immature flowers at first sight look very different from mature ones.—*Culmen* trigonous; angles blunt, smooth. *Involucre* of six to eight long, flat leaves, 1-1 1/4 foot long, and 3/4 inch broad at the base, their margins and keel scabrid from beyond the middle or from the base. *Rays of umbels* six to eight, most of them 4-6 inches long, some very short, bearing at their apices one to three oblong spikes about 1 inch long; when more than one, the lateral spikes spread horizontally from the base of the central one. *Spikelets* crowded, 3/4-1 inch long, linear, patent or divaricating, subulate in a young state; *rachilla* with two broad membranous wings opposite each scale, which enclose the nut. *Scales* alternate, distichous, loosely imbricating when in flower, almost distant when in fruit, linear-oblong, blunt or notched at the apex; lower short and empty; fruiting ones keeled, grooved, nearly 1/4 inch long, shining, bright chestnut-brown, with a green keel. *Stamens* 3. *Nut* sharply trigonous, linear-ovata, acute, white, smooth.—*Plate* CXXXIX. Fig. 1, spikelet; 2, scale and flower; 3, pistil:—*all magnified*.

2. *Cyperus Gunnii* (Hook. fil.); umbellis sub-8-radiatis, spicis compositis subcapitatis, spiculis (4/1-pollicaribus) dense congestis linearibus 6-10-floris, squamis acutis imbricatis late ovato-oblongis apice rotundatis mucronulatis margine pallidis, nuce lanceolata obtusa trigona, involucris 3-4-phyllis angustis 1-1 1/2-pedalis serratis, culmo lavei. *(Gunn, 1408.) (Tab. CXL. A.)*

Hab. Also probably common: Penquite, near Launceston, Gunn.—(Fl. Dec.)

Distr. New South Wales and South-east Australia.

A much smaller and more slender plant than *C. sanguineo-fuscus*, 2-3 feet high, with very narrow involucres of only about three leaves, each about 3/4 inch broad at the base; shorter rays of the umbel, which bear almost globose, lobed, dense heads of several crowded spikes; and the spikelets also are shorter, flatter, of short, broad, densely imbricate scales.—*Plate* CXL. A. Fig. 1, spikelet; 2, scale and flower; 3, pistil:—*all magnified*.

Gen. II. SCHENUS, L.

*Spiculae* solitariae fasciculatae v. paniculate (non capitatae), pauciflorae; squamis distichis, rarius undique imbricatis, extimis minoribus, vacuis, floriferis majoribus. *Seta* hypogynae 0. *Stylus* 2-3-fidus.—Herbar. plicatae rigide, gramineae; culmis inarticulatis, teretibus trigonosis, basi tantum v. per totam longitudinem foliatis; spiculis solitariis paniculatis, fusco-brunneis; squamis chartaceis.

I have not united *Chasmantha* with *Schenus*, though the presence of hypogynous bristles in the former is a purely artificial character, separating in many instances most closely allied plants, and some few that otherwise are almost indistinguishable; their absence or presence is not accompanied by any characters of habit, inflorescence, or habitat. A revision of the genera would doubtless lead to the abandonment of this character, and perhaps to
better ones founded on the insertion of the style. The species with the scales imbricated all round the spikelet should technically be referred to *Isolepis*, but would be most unnaturally associated with the other species of that genus.—Generally harsh, wiry plants, with creeping rhizomes (or tufted culms), and terete or trigonous, solid, inarticulate culms, leafy at the base or all the way up. *Spikelets* axillary or terminal, fascicled, panicked, or solitary (not densely packed in a globose terminal capitulum, as in *Gymnoschoenus*). *Scales* distichous or rarely imbricated all round, of few dark-brown, hard, chartaceous scales, the outer smaller and empty, the inner bearing one flower each. *Stamens* 3. *Nut* trigonous, without hypogynous scales or bristles. (Name from στρωφός, a tuft.)

1. **Schenus fluitans** (Hook. fil.); culmis flaccidis densissime caespitosi elongatis gracilimis longe fluitantibus foliatis, folis anguste linearibus flaccidis, spikelets terminalia solitaria lineari-longicostiata subacuta, squamis 4 lineari-lanceolatis subacutis compressis membranaceis nitidis, staminibus 3, nuce elliptica trigona angulis costatis, stylo elongato filamento persistente basi Don incrassato, itigmatibus 3 deciduis. (Tab. CXLI. B.)

Hab. South Esk River, Gunn.—(Fl. Jan.) (Gunn, 1432.)

A very singular plant, in habit unlike its congener, and resembling *Isolepis fluitans* very closely.—Culmi densely tufted, rooting at the base in gravel, the main part floating, 2 feet long, very flaccid, and much branched, *Leaves* narrow-linear, with membranous sheaths and an evident ligula. *Spikelets* solitary, terminal, bright pale-cinnamon, shining, linear, narrow, nearly ½ inch long, much compressed, two-flowered. *Scales* membranous, not nerved; lower shorter, all linear-lanceolate, subacute. *Nut* pale-brown, small, smooth, with a very long persistent style, from which the three stigmas fall away. *Filaments* capillary, brown, persistent.—Plate CXLI. B. Fig. 1, spikelet; 2, scale and flower; 3, pistil:—all magnified.

Gen. III. **Chætopsora, Br.**

Omnia *Schæni* sed setæ v. squamulæ hypogynæ 3 v. plures. (Ab Gymnoschoenæ habitu tantum differt.)

The presence of hypogynous bristles or scales alone distinguishes this genus from *Schenus*, and its habit from *Gymnoschoenus*. There are very many Australian species, some of which can hardly be separated specifically from others of *Schenus*, except by the above character. (Name from χατος, a hair, and στρωφος, a tuft.)

1. **Chætopsora tenuissima** (Hook. fil.); rhizomate repente, culmis gracilimis nudis trigonis sulcatis folii filiformibus brevioribus, spicula disticha terminalia solitaryia lanceolata 1-flora, squamis enervis interioribus elongatis, squamulis hypogynis 3 brevissimis obtusiis, stylo basi bulboso-incrassato cum ovario articulato.—*Lepidosperma tenuissima*, Müll. in Herb. Hook. (Gunn, 1416.) (Tab. CXL. B.)

Hab. Moist sandy places near Hobarton, Gunn.—(Fl. Oct.) (v. v.)


A glabrous, wiry, smooth species.—*Rhizome* creeping, very stout. *Culmi* much shorter than the long, flexuose, semiterete, deeply channelled leaves, erect, trigonous, grooved, bearing one erect, compressed, lanceolate, acute spikelet. *Spikelet*½ inch long. *Scales* brown, smooth, nerveless, opaque, with pale membranous borders, one of the uppermost ones alone bearing a flower. *Style* glabrous, bulbous at the base, and jointed on to the ovary; the three stigmas exserted.—Plate CXL. B. Fig. 1, spikelet; 2, scale and flower; 3, pistil:—all magnified.

2. **Chætopsora capillacea** (Hook. fil.); rhizomate repente, culmis nudis capillaris, folis capillaceis, spicula solitaria (v. 2 altera pedicellata) infra apicem culmi lanceolata compressa 2–3-flora, squamis enervis interioribus elongatis extimis aristato-acuminatis, setis hypogynis 3 linearibus, stylo bifido basi viloso. (Tab. CXLI. A.)

Hab. Dry sandy banks: near Hospital Bay, South Huon River, Oldfield.

A very slender species, with capillary culms, and leaves 8–10 inches long.—*Rhizome* tufted and creeping. *Culmi* thread-like, erect. *Spikelets* one or two towards the apex of the culm, minute,½ inch long, narrow-lanceolate, dark-brown; when there are two, one is pedicelled. *Scales* distichous, outer with long apices, two or three inner
bearing a flower each. Style with two long, exerted stigmas, swollen and villous at the base. Nut not seen.—

**Plate CXLI.** A. Fig. 1, spikelet; 2, scale and flower; 3, pistil:—all magnified.

3. *Chaetospora nitens* (Br. Prodr. 233); rhizome creeping, culms nudis teretiusculis sulcatis basi foliatis, spiculis congestis lateralibus, squamis subdistichis obtusis nitidis, setis hypogynis basi plumosis, nuce trigona levii mutica.—Fl. N. Zool. i. 274. (Gunn, 972, 572, in Herb. Lindl.)

Hab. Sand-hills near Georgetown, Gunn.—(Fl. Dec.)

**Distrib.** Extratropical Australia, from New South Wales to Swan River; New Zealand.

A slender, rigid, wiry, perfectly glabrous plant, 2–12 inches high. Rhizomes creeping; bases of culms and leaves covered with appressed, black-brown, shining scales. Leaves slender, erect, semi-terete, deeply grooved in front. Spikelets two to eight, fascicled, sessile, about an inch below the erect, subulate apex of the culm, ½–¼ inch long, turgid, of four to six broadly ovate, blunt, shining chestnut-brown, nerveless, smooth scales. Nut pale-brown, smooth, with six short, plumose, hypogynous bristles.—Brown places this in a section by itself, characterized by the scales being imbricated all round; but they are truly distichous in all my numerous specimens, though less regularly and manifestly so than in the other species.

4. *Chaetospora imberbis* (Br. Prodr. 233); culmis cespitosis erectis foliatis foliis subsequilongis, spiculis paniculatim fasciculatis axillaribus terminalibusque 2–4-floris, fasciculis bracteae foliacea elongata subtensis, pedicellis squamarumque carina scaberulis, setis hypogynis brevibus scaberulis, nuce trigona alba obovata striatim clathrata, stylo basi simplici persistente.—Fl. N. Zool. i. 274. C. tenuissima, Steud. Pl. Glum. 162.

Var. a; culmo sub-6-pollicari, bractearum vaginis castaneis nitidis ½-pollicari compositis, spiculis plurimis lanceolatis brunneis.

Var. β; culmo 2–3-pollicari, bractearum vaginis brevibus rufis, fasciculis spicularum solitariis (spiculis interdum solitariis) spiculis brevioribus pallidioribus. (Gunn, 1417.)

Var. γ; culmo 3–4-pollicari, foliis capitellatis, bractearum vagina brevi castanea limbo abbreviato, spiculis paucis parvis atro-castaneis. (Gunn, 1494, 581, 976.)

Var. δ; culmis pedalibus flaccidis foliisque gracillimis, bracteis vagina brevi pallida, spiculis pallidis. (Gunn, 1891.)

Hab. All the varieties very abundant in various soils and situations throughout the Island. Var. γ, in water or marshes.—(Fl. all the year.) (v. v.)

**Distrib.** New South Wales, Victoria, New Zealand.

This common and variable plant is almost easily recognized by its tufted, erect, leafy culms, bearing short-pedicelled fascicles of lanceolate, compressed, small spikelets, which spring from the axils of a long, patent, bracteal leaf: it varies from 1 inch to a foot high, is of a soft texture, and of a green, grassy hue.—Leaves numerous at the base of the culm, longer or shorter than the culm, conceave in front, convex at the back. Sheaths of the bracts or leaves on the culms long or short, from deep chestnut-brown to bright-red. Fascicles of spikelets subpanicled, few or many, generally from the two uppermost rather distant axilae. Spikelets usually three or six in each axil, rarely solitary, on long or short scabrid pedicels, lanceolate, compressed, ½–⅓ inch long. Scales variable in colour, with usually a green, scabrid keel, smooth, dark-brown sides, and rather acuminate, paler apex; the lowermost scales vary from being acute to acuminate, and even shortly aristate. Flowers two to four. Setae bristle-shaped, hispid. Nut white, short, broadly obovate, trigonous, grooved, the grooves with a longitudinal series of pits. Style rather persistent, neither swollen nor jointed on to the nut.—This is probably the *C. tenuissima*, Steud. (Syn. Plant. Glum. etc., p. 162), which is said to have been gathered at “Bobat Town” (Hobarton?).

5. *Chaetospora axillaris* (Br. Prodr. 233); culmis cespitosis prostratis foliosis subramosis, foliis distichis brevibus planiusculis, spiculis axillaribus solitariis binisve 2–3-floris, squamis glaberrimis paucis
distichis acutiusculis, setis hypogynis sub-6, nuce late elliptico-ovata trigona lævi alba stylo basi non incrassato persistente terminata.—Fl. N. Zeal. i. 274. t. 62 A. C. miaroides, Muell. in Herb. Hook. Helothrix pusilla, Nees, in Ann. and Mag. Nat. Hist. vi. 457. (Gunn, 974.)

Hab. Marshy places near Penquite, Gunn, and probably common elsewhere in the Colony.—(Fl. Dec.)

Distrib. New South Wales: Alps of Victoria, Muell; Swan River, Drummond; New Zealand.

Culmis prostrate, rooting at the base, slender, laxly tufted, 2–5 inches long, sparingly branched, compressed. Leaves alternate, patent, distichous, 1–2 inches long, concave above, with grooved, convex backs. Spikelets much smaller than in C. imberbis, axillary, solitary or two together, pedicelled or almost sessile, pale, about \( \frac{1}{2} \) inch long, of four or six compressed, smooth, nerveless, ovate-lanceolate, subacute scales. Hypogynous bristles short, scabrid. Nut white, smooth, broadly elliptical-ovate, trigonous, with a persistent style.

Gen. IV. GYMNOCHÆNUS, Nees.

Spiculae in capitulum terminale late bracteatum densissime congestæ, breves, 1–2-floræ; squamis distichis, extimis minoribus, vacuis. Setæ hypogynæ 3, filiformes. Stylius 3-fidus, basi pubescens.—Herba rigidec, robusta; culmis erectis, caespitosis, radicibus crassis; foliis omnibus radicalibus, rigidis, coriaceis, lineari-elongatis, curvis; capitulo magno, sphaerico; spiculis rachi incrassatis sessilibus.

There are two described species of this genus, both South-eastern Australian. They have the technical characters of the spikelets and flowers of Schemens, but differ so remarkably in habit and inflorescence from that genus, that there can be no doubt as to the propriety of keeping them distinct from it. G. sphaerocephalus consists of a dense mass of tall, very rigid, tufted, smooth, polished culms and leaves, 2–3 feet high. Old plants form short caudices a foot high, from the summit of which the culms and leaves spread in all directions.—Rhizome very stout, sending down thick, tortuous fibres, as stout as a small quill. Base of the culm as thick as the little finger, covered with dark-brown, grooved, coriaceous leaf-sheaths, 2–3 inches long, whose margins are more or less woolly. Leaves a foot or more long, much longer than the culm, tortuous, rigid, narrow-linear, \( \frac{1}{2} \) inch broad, convex, not grooved at the back, broadly concave in front. Scape or culm 3–5 feet long, compressed, perfectly smooth, rigid, solid, not jointed and naked. Capitulum \( \frac{3}{4} \) inch in diameter, perfectly glabrous, of very numerous, short, sessile spikelets, set round a central, thickened axis. Bracteis coriaceis, very broadly rounded, ovate, three or five at the base of the capitulum, and three or four placed amongst the spikelets; one or two sometimes bearing a short, flat, blunt lamina. Spikelets hard, radiating, \( \frac{1}{2} \) inch long, of five or six very coriaceous, yellowish scales, with brown-black margins and apices, distichous, but rather obscurely so; outer scales short, more membranous, quadrate, bifid, with broader membranous margins, truncate; inner broadly ovate, very concave, obscurely keeled, smooth, not nervet. Stamenem three, with short filaments, and large, broad, mucronated anthers. Style with a long, conical, pubescent base, jointed? on the ovary, which is elongate. Stigmas three. Hypogynous bristles three, scabrous, very slender. (Name from \( \gamma \mu \nu \omega \sigma, \text{naked}, \) and \( \sigma \gamma \omega \nu \omega \sigma, \text{a Rush} \); in allusion to the long leafless culms?)


Hab. Abundant in marshes, in the poorest soil, in many parts of the Island: Lake St. Clair, and thence to Macquarrie Harbour; Circular Head, etc., Gunn.—(Fl. Nov.–Jan.)

Distrib. New South Wales and Victoria.

Plate CXLII. Fig. 1, spikelet; 2, bract; 3, scales of spikelet; 4, stamen; 5, pistil:—all magnified.

Gen. V. CHORIZANDRA, Br.

Spiculae in capitulum laterale bracteatum densissime congestæ, late obovatae, compressæ, multifloræ;
Flora Gunn.—or these Banks a both Zeal. New radical of margins and little near male, Scales and a base. to somewhat having aie Juncus (v (EL is nut, and C of broadly two the latter the bracts imbricated superiors longe P**> Fuegia, but texture empty; species leaves, Pistil CARPHA, dark hence on the pale-yellow, glabrous sub-genus, (C. teretibus, scales lower are; span the inch a of five hypogynae with membranous, purple-black, consists with fasciculate, sub-alpina PL shining are resembling apices, Wet Cauline stylo squamulis a at a fascicle plumosis squamis j one a leaves, towards obtusiusculis ito the the (Br. TASMANIA. broadly obovate. Scales obovate-cuneate, all trifid, or sometimes quadridif (more or less irregularly), the points acuminate, a little recurved; back and margins towards the apices woolly with purple hairs; inner scales much narrower and more membranous, hyaline. Antehs yellow. Pistil dark-purple. (Name from χορψ, apart, and avyp, a man; in allusion to the solitary stamens.)

1. Chorizandra enodis (Nees, Pl. Preiss. ii. 73) ; culmis foliisque inarticulatis gracilibus, capitulo depressae globose exserto, squamulis 3-5-fidis obovato-cuneatis acipe lanatis. (Gunn, 1401.)

Hab. Wet places near Georgetown, Gunn.—(Fl. Oct.)

Distrib. Victoria (Hopkins River), Mueller; Swan River, Drummond.

Gen. VI. CARPHA, Banks et Sol.

Spiculae fasciculatae, erectae, uniflores. Squamo distichae, inferiores minores, vacue; 2 superiores sub-opposite, magne; terminali anguste lineari. Setae hypogynae 3-6, longe plumose, squamis equilongae. Nux stipitata, prismatic, obovata; stylo basi longe fusiformi, persistente; stigmatibus 2-3.—Herbae cespitose; foliis lineariusculis; culmo tereti; fasciculi spicularum bractearum foliaceae subtensis.

There are only three species of this genus known to me, of which the present is closely allied to C. sphenoides of Fuegia, and the third (C. devuta) is a native of New South Wales. The C. alpina is a tufted, grass-like herb, with numerous, rigid, narrow-linear, 2-4 inches long, with rather blunt apices, concave faces, and glabrous or scaberulous sides and margin.—Culm slender, erect, cylindric or rather compressed, a span to a foot high, with one or two leaves. Caulline leaves or bracts with a long, entire sheath, each bearing a peduncled, sub-corymbose fascicle of large, pale-yellow, shining spikelets; lower fascicle (when two) on a long, slender, inclined peduncle. Spikelets ½ inch long, of about five or six distinct scales, of which the two lowest are small, subulate, lanceolate, and empty; the two succeeding are very large, opposite, concave and compressed, lanceolate, acuminate, scarios, enclosing one flower between them; the uppermost scale is linear and small. Hypogynous setae in two series, as long as the longest scales, densely plumose. Nut prismatic, with a short style, having a long, conical, persistent base. Embryo large, almost globose, but broadly conical at both ends, and hence somewhat slightly fusiform, its lower half surrounded with a layer of indurated albumen, its upper small, with softer albumen above it. (Name from καρφος, chaff; in allusion to the glumaceous texture of the scales.)

1. Carpha alpina (Br. Prodr. 230) ; foliis rigidis anguste linearibus obtusiusculis supra concavis, fasciculis spicularum subcorymbose-paniculatis, inferioribus gracile pedicellatis squamis pallidis, setis hypogynis 6 longe plumosis apicebus nudis.—Fl. N. Zeal. i. 273. (Gunn, 1485.)

Hab. Not uncommon on the mountains, alt. 4-5000 ped.—(Fl. Dec., Jan.) (v. v.)

Distrib. Mountains of Victoria and New Zealand.
FLORA OF TASMANIA.

Gen. VI. ELÆOCHARIS, Br.

Spicula solitaria, terminalis, elongata, erecta, nuda; squamis undique imbricatis, conformibus, plerisque fertilibus; sete hypogynæ 4–12 (rarius 0). Nux lenticularis v. trigona; stylo basi bulboso, cum ovario articulato, deciduo; stigmatibus 2–3.—Herbæ paludosa; culmis apyllis, basi vaginatis.

A very common genus of marsh plants, found in all parts of the world, and many of the individual species have also a very extended geographical distribution.—All are leafless, erect herbs, with tufted, generally terete culms, sheathed at the base, and simple, erect, lanceolate or cylindrical, solitary, terminal spikelets. Scales numerous, imbricated all round, most or all of them fertile. Flowers of three stamens and one pistil, surrounded by hypogynous bristles. Style with a bulbous base, jointed on to the nut, deciduous; stigmas 3. (Name from elos, a marsh, and χαμο, to delight in.)

1. Elœocharis sphecalata (Br. Prodr. 244); robusta, culmis articulatis intus vacuis, spicula cylindrica, squamis elliptico- v. obovato-oblongis margine sphecalatis.—Fl. N. Zeal. i. 269. (Gunn, 1404.)

Hab. Abundant in lagoons near Formosa, etc.—(Fl. Nov.)

Distrib. Throughout Australia, New Zealand, and the Pacific Islands.

Culms 2–4 feet high, ½–2 inch in diameter, hollow, with numerous transverse septa. Spikelet 2 inches long. Scales blunt, broadly-oblong or elliptic-oblong, with brown edges. Nut very broadly obovate, compressed, with thickened margins. Hypogynous bristles about eight, covered with retrorse setae.

2. Elœocharis gracilis (Br. Prodr. 224); culmis gracilibus inarticulatis cespitosis, vagina ore truncata, spica cylindracea, squamis ovato-lanceolatis, setis hypogynis 4–8 ovario longioribus, nuce compressa, stigmatibus 3.—E. mucronulata, Nees, Ann. and Mag. Nat. Hist. vi. 46. An E. palustris, L., var.? (Gunn, 573.)

Var. β; squamis acutis.—E. acuta, Br. l. c.

Hab. Abundant in marshy places throughout the Island.—(Fl. Oct.–Jan.) (v. v.)

Distrib. Extratropical America and New Zealand.

I can find no characters to separate this plant from the European E. palustris, except the three stigmas, and the occasional presence of a small mucro to the mouth of the sheath; this mouth is either transversely or obliquely truncate in both European and Tasmanian specimens. The scales are more often obtuse than acute, and the hypogynous bristles, though constantly eight in Tasmanian specimens, vary from four to eight in Australian and New Zealand ones. The nut is broadly obovate, pale yellow-brown, with rounded sides, in which respect and its more robust habit it differs from what I have (in the ’New Zealand Flora’) assumed to be Brown’s E. gracilis, and which has a trigonous nut.

Gen. VII. ISOLEPIS, Br.

Spicule parvæ, 1 v. plures (rarius 1), terminales v. prope apicum culmi aggregate, sessiles, breves, ovato-cylindraceæ; squamis undique imbricatis, plerisque floriferis. Sete hypogynæ 0. Nux compressa v. trigona; stylo deciduo, basi non incrassato.—Herbæ (Tasmanie I. nodoso excepto parve) cespitosa; culmis trigonis teretissulivse, basi foliatis v. vaginatis; foliis angustatis, subulatis subgramineisve.

A very common and puzzling genus, found in almost all parts of the world, but most abundantly in the temperate and colder latitudes. The species are extremely difficult to discriminate, being very variable, and their characters minute and not easily expressed. About sixteen Australian species are known to me, including probably the eleven which are described in Brown’s ‘Prodromus,’ though I am unable to determine some of the latter with confidence. The genus differs from Scirpus only in habit and in wanting hypogynous bristles; almost all are small, tufted, usually marsh plants, with subulate radical leaves. (Name from σως, equal, and λεπις, a scale.)


Var. β; spiculis foliorumque vaginis atro-castaneis. (*Gunn*, 1429.)

Var. γ. *terrestris*, F. Mueller; culmis cæspitosis abbreviatis erectis, foliis culmo æquilongis, squama inferiore elongata bracteam referente. (*Gunn*, 1418, 1420.)

Hab. Abundant in rivers and pools throughout the Island. Var. β. Yorktown rivulet, *Gunn*.

Var. γ. Western Mountains and Arthur’s Lakes, *Gunn*.

Distrib. Extratropical Australia, South Africa, and temperate Europe and Asia.

In its usual state this forms dense, matted, floating patches of almost capillary culms and leaves.—*Spikelets* pale, narrow-ovate, ½ inch long. *Scales* green on the back, ovate-lanceolate or ovate-oblong, blunt; the lower empty, and sometimes produced beyond the spikelet. *Nut* compressed, white, with two styles.—In the var. β the spikelets and sheaths of the leaves are a dark chestnut-brown, almost black. The var. γ. *terrestris* so closely agrees with Brown’s character of *Isolepis inundata*, that I have doubts whether it may not be a state of that plant.

2. *Isolepis crassiuscula* (Hook. fil.); culmis cæspitosis fluitantibus v. emersis erectis, spiculis ovatis castaneis, squamis 12–15 late ovato-oblongis apice rotundatis, apices versus membranaceis 3-andris, nuce elliptica valde compressa pallida, stigmatibus 2. (*Gunn*, 1431.) (Tab. CXLIII. A.)


Distrib. South Africa?

Much larger and stouter than *E. fluitans*, and apparently not floating, some of my specimens being evidently terrestrial, though growing in marshes.—*Culms* 6–10 inches long. *Leaves* as in *E. fluitans*, but coarser. *Spikelets* ½ inch long, ovate, acute, of twelve to fifteen blunt scales, which are chestnut-brown above the middle. *Lower scale* fertile, sometimes with a short muro.—Apparently identical with a South African species, whose name I cannot determine.—Plate CXLIII. A. Fig. 1, spikelet; 2, scale and flower; 3, pistil and stamen; 4, nut;—all magnified.

3. *Isolepis lenticularis* (Br. Prodr. 222); culmis cæspitosis setacesis capillaribusve basi unifoliis, spicula solitaria terminali ovato-lanceolata compressa, squamis 6–10 ovato-oblongis lanceolatisve superiورibus obtusis vix carinatis diandris, nuce ovali-oblonga lenticulari valde compressa alba lævi, stigmatibus 2. (*Gunn*, 1424.) (Tab. CXLV. D.)

Hab. Moist ground near Formosa, *Gunn*.—(Fl. Dec.)

Distrib. New South Wales.

I have several good specimens of this plant, but from one locality only, and though from these it certainly appears to be a very distinct and well marked species, specimens from different situations may modify this opinion. It is a good deal like *I. cartilaginea*, and of the same size, habit, and aspect, but the solitary, pale-green spikelet is more terminal, larger, more ovate-lanceolate, and apparently compressed; the scales are not so carinate and nerved, more lanceolate, and the white, oval, oblong, very compressed nut is of a totally different form and character. All my specimens are diandrous, and have bifid styles.—Plate CXLV. D. Fig. 1, spikelet; 2, scale and flower; 3, nut;—all magnified.

b. Spikelets lateral or terminal. Stamens one to three. Nut trigonous or triguetrons.

4. *Isolepis alpina* (Hook. fil.); densissime cæspitosa, 2-polliceris, robusta, culmis erectis spiculas longe superantibus foliis numerosis linearii-subulatis obtusis brevioribus, spicula solitaria laterali...
minali) late ovata compressa, squamis 8–12 oblongo-ovatis obtusis viridibus castaneisve 3-andris, nucce late elliptica compresso-trigona levi, stigmatibus 3. (Gunn, 1409, 1427, 1437.) (Tab. CXLIII. B.)


In many respects similar to I. crassiuscula, but very different in habit, and especially in the lateral spikelets and trigonous nut.—Culmis 1–2 inches high, very robust. Leaves numerous, longer than the culms, rigid, erect. Spikelets large, rarely terminal, twice as large as in I. fluitans, inserted far below the apex of the culm.—Plate CXLIII. B. Fig. 1, spikelet; 2, scale and flower; 3, pistil and stamen; 4, nut:—all magnified.

5. Isolepis prolifer (Br. Prodr. 223); laxe cespitosa, culmis (sepium stoloniferis) flaccidis compressis v. triquetris, capitulis polystachyis passim proliferis, spiculis oblongis pauci- v. multi-floris, squamis late ovatis obtusis acutissimae carinatis v. dorso obtusis monandris, nucce trigona alba levi punctulata striata, stigmatibus 3.—Kunth, En. ii. 201; Fl. N. Zeal. i. 271. Scirpus prolifer, Rothb. Gram. 55. t. 17. f. 2.

Var. α; rarius stolonizans, spithamaed ad pedalem, capitulis non proliferis, spiculis 5–12 cylindraceo-ovatis, squamis sub-16. I. propinquus, Br., fid. Nees in Ann. and Mag. Nat. Hist. vi. 46. (Gunn, 420.) (Tab. CXLIV. A.)

Var. β; rarius stolonizans, 4-pollicaris ad spithamaedam, capitulis raros proliferis, spiculis 2–5 brevibus, squamis 6–10. (Gunn, 420.) (Tab. CXLIV. B.)

Var. γ; stolonizans, 4-pollicaris ad spithamaedam, capitulis proliferis, spiculis 2–5 brevibus, squamis 6–10. (Gunn, 1418.) (Tab. CXLIV. C.)

Var. δ; stolonizans, culmis fluitantibus pedalibus et ultra, capitulis polystachyis valde proliferis, spiculis 3–8 breviusculis, squamis 6–10. (Gunn, 420.) (Tab. CXLIV. D.)

Var. ε; alpina, vix stolonizans, culmis cespitosae 1–2-pollicaris basi foliosis erectis non proliferis, spiculis 5–8 breviusculis, squamis 6–10. (Gunn, 1423, 1425, 1426.) (Tab. CXLIV. E.)

Var. ζ; perpusilla, culmis cespitosae 3–pollicaris basi foliosis, capitulis 1–2 brevibus, squamis 4–8. (Gunn, 1425.) (Tab. CXLIV. F.)

Hab. Abundant in wet places throughout the Island. Var. ε. Marlborough and Georgetown. Var. ζ. Arthur’s Lakes. Vars. γ and δ often growing under water.—(Fl. all the year.) (v. v.)

Distrib. Tropical and extratropical Australia, New Zealand, South Africa.

A most variable plant, ½ inch to a foot high, growing in both wet and dry places, and assuming a different habit under different circumstances. The varieties enumerated above are by no means constant, except in the nut and one stamen; they run into one another in all ways, and are connected with other varieties from other countries, some of which are very much larger than these in all their parts, and some are so slender as to have capillary culms. Brown describes the spikelets as terminal, but they are truly lateral in all states, though sometimes the apex of the culm is short; he also states the culms to be leafless: this they are in many states, but in others they bear triquetrous leaves at the base.—This species may be invariably recognized by its solitary stamen, white, triquetrous, smooth nut; also by its flaccidity, stoloniferous habit, and proliferous spikelets, which vary from two to twenty in a cluster, from ½–1 inch long, and from having three to twenty green or brown scales. Nut white, acutely trigonous, exactly similar in all the varieties. Stamen 1.—Plate CXLV. A–F. Varieties of I. prolifer. Fig. 1, scales; 2, pistil and stamen; 3, nut:—all magnified.

6. Isolepis nodosa (Br. Prodr. 221); elata, robusta, culmis teretio-compressis basi vaginatiis aphyllis apice pungentibus, capitulis globosis polystachyis, spiculis ovatis densissime congestis, squamis obtusis, staminibus stigmatibusque 3, nucce compresso-trigona levi.—Kunth, En. ii. 199; Fl. N. Zeal. i. 271. Scirpus nodosus, Rothb. Gram. 52. t. 8. f. 3. (Gunn, 979.)

Hab. Sand-hills on the northern shores of the Island, common.—(Fl. Nov., Dec.)

Distrib. Extratropical Australia, New Zealand, South Africa, and South America.
Very dissimilar to the other Tasmanian species, being robust, rigid, 2–3 feet high, and bearing a very dense globose capitulum the size of a marble. *Culms* compressed, rigid, leafless, sheathed at the base, with a pungent apex. *Spikelets* extremely numerous and very densely packed, of six to eight broad, concave, blunt, striated, pale-brown scales. *Stamens* and *stigmas* three.

7. *Isolepis setacea* (Br. Prodr. 222); *pusilla*, *culmis setaceis striatis basi monophyllis*, *spiculis 1–3 ovatis lateralibus v. terminalibus*, *squamis acutis carinatis 2–3-andris, nuce globosa*, *longitudinaliter sulcata*, *stigmatibus 2–3.*—*Kunth, En. ii. 193*.

Hab. Probably common in marshy places, but I have seen no specimens but those from Penquite, *Gunn.*—(Fl. Nov.)

Distr. Extratropical Australia, South Africa, India, temperate and warm Europe and Asia.

*Culms* capillary, two or four inches high. *Leaves* short, very slender. *Spikelets* short, one to three, sometimes, especially when solitary, almost terminal. *Scales* six or eight, acute, keeled, and striate. *Nut* globose, deeply grooved, whitish or brown.

8. *Isolepis Saviana* (Schult. Mant. ii. 63); *culmis setaceis subcapillaribusve basi monophyllis*, *spiculis 1–3 ovatis*, *squamis 3-andris obtusis carinatis sulcato-nervosis*, *nuce late obovata compressa obtuse trigona alba v. pallide fusca eremerrime punctata* (asperula).—*Kunth, En. ii. 193*.

Hab. Abundant in moist, sandy, and marshy places.—(Fl. all summer.) (v. v.)

Distr. Extratropical Australia, Europe, Canary Islands, and North Africa. (A native of England.)

My specimens agree perfectly with European ones. Very similar to *I. setacea*, being pale-green, and having, like it, often but one almost terminal spikelet; also most nearly allied to *I. pygmaea*, but that has a smaller, triquetrous, more minutely punctulate nut.—*Culms* 1–3 inches high, very slender, with one leaf at the base. *Spikelets* one to three, small, 1/2–1/5 inch long, of six to eight ovate, blunt, concave, bluntly keeled, deeply striate or grooved scales. *Nut* compressed, ovobovate, obtusely three-angled, white or grey-green, deeply punctate so as to look rough, its surface glistening and iridescent.

9. *Isolepis cartilaginea* (Br. Prodr. 222); *culmis basi foliatis dense caespitosis foliisque crassissulis rigidis erectis*, *spiculis 3–6* (rarius *solitariis*) *lateralibus sepe involucratis*, *squamis 3-andris navicularibus profunde carinatis lateribus impressis sulcato-nervosis inferioribus mucronatis*, *nuce elliptica v. oblonga obtuse trigona punctulata.*—*Fl. N. Zeal. i. 271; Nees in Plant. Preiss. ii. 73*. 

Hab. *A*; *culmis rigidiusculis 1–4-pollicarios*, *spiculis 4–6*, *squamarum lateribus purpureis*. (*Gunn, 582.*) (Tab. CXLV. A.)

Var. *a*; *culmis rigidiusculis 1–4-pollicarios*, *spiculis 2–3*, *squamis pallide viridibus*.

Var. *γ*; *culmis gracilibus subsetaceis*, *spiculis 1–3*, *squamis pallidis*. (*Gunn, 421?) (Tab. CXLV. B.)

Hab. Abundant in sandy and moist places, the varieties apparently growing intermixed.—(Fl. Oct.–Dec.) (v. v.)

Distr. Extratropical Australia, New Zealand, and South Africa.

A very well marked species in its common form of a short, rigid, robust, caespitose plant, 2 inches high, with several lateral, often involucrate spikelets of deeply keeled, shining, navicular, sulcate scales, and with a pale-brown, elliptic-oblong, bluntly trigonous, not compressed, minutely punctulate nut; but the culms are sometimes slender and setaceous, like those of *I. Saviana* and *setacea*; the scales, though constant in general characters, are often wholly yellow-green; the spikelets are sometimes solitary, and have no involucre-like elongated scale at the
base. Swan River specimens are sometimes 5 inches high, with much larger spikelets. Young nuts are white, and acutely trigonous. New Zealand specimens are sometimes diandrous. Between the South African and Tasmanian individuals there is no difference whatever. This is certainly Brown's *I. cartilagines*, though the nuts are but very minutely punctulate, not "scabriusculis," as described in the 'Prodromus,' a character which better agrees with *I. Saviana.* — PLATE CXLV. *A.* and B. Vars. *a* and *γ*. Fig. 1, spikelet; 2, scale and flower; 3, nut: — *all magnified.*


HAB. Abundant in wet banks, ditches, rivers, marshes, etc. — (Fl. all the year.)

DISTRIB. Extratropical Australia, New Zealand, South Africa, South America.

Best distinguished by the very slender, often capillary culms, solitary, very small, lateral, or rarely terminal spikelet, of few, broad, blunt, scarcely keeled scales, and by the small, broadly obovate, compressed, triquetrous nut, which is smooth or very minutely punctulate. — *Culms* 1–4 inches high, sometimes, when growing in shaded woods, 6 inches, and then quite capillary, short and more rigid in alpine localities. *Spikelets* rarely terminal, ½–1½ inch long, pale yellow-green or Chesnut-brown on the sides of the scales. — PLATE CXLV. *C.* Fig. 1, spikelet; 2, scale and flower; 3, nut: — *all magnified.*

Gen. IX. SCIRPUS, L.

*Spikeulae* versus apicem culmi solitariae aggregate *v.* paniculatae; *squamis* undique imbricatis, plerisque floriferis. *Setae* hypogynae squamis breviores. *Nuc* compressa *v.* trigona, stylo deciduo basi non incrassato. — *Culmi* erecti, robusti, elongati, simplices, e rhizome crasso; *folis* graminis *vaginaeformibus* *v.* nullis; *spiculis magnis.*

The species of *Scirpus* are not numerous, but several are found in all temperate and many tropical parts of the globe. All are tall, water or marsh plants, with creeping rhizomes, and stout, erect, simple, generally leafy or leafless culms, bearing the inflorescence below the apex. About six Australian species are known, all of them natives of other countries. — *Spikelets* large, solitary, aggregate or panicled; *scales* numerous, imbricated on all sides. *Nut* with hypogynous bristles. (Name supposed to be used by the Greeks for this or some other marsh plant.)

1. *Scirpus triqueter* (Linn. Mant. 29); culmo triquetro basi 1–2-phyllo, foliis acute carinatis, spiculis lateralisibus solitariis *v.* dense glomeratis ovatis, squamis aristatis vel mucronatis apice fimbriatis. — *Br. Prodr.* 223; *Eng. Bot.* 1694; *Fl. N. Zeal.* i. 269. (*Gunn, 1402.*)

HAB. Near Hobarton, in brackish water, and probably elsewhere, commonly. — (Fl. Nov.) (v.e.)

DISTRIB. Extratropical Australia, New Zealand, Europe, and North Africa, and other temperate and subtropical countries.

*Culms* 2–3 feet high, slender, trigonous, channelled down the front, with one or two trigonous-leaves at their base. *Spikelets* one or more, ½–1 inch long, ovate, dark red-brown. *Scales* membranous, oblong or ovate-lanceolate, usually bifid at the apex, the lowest broadest, with a green mucro, the upper aristate, most of them fimbriate at the margin. *Nut* broadly oblanceolate or fusiform. *Stigmas* two or three. *Setae* three, longer than the nut, beset with strong recurved bristles. *Stamens* with a rough terminal mucro.

2. *Scirpus maritimus* (Linn. Sp. Pl. i. 74); culmo triquetro folioso, foliis graminis culmum superantibus, spiculis subcoruscibus sessilibus pedunculatisque, involucro polyphyllo, squamis scariosis bifidis integerrimisve, nuce trigona. — *Br. Prodr.* 224; *Eng. Bot.* t. 542; *Fl. N. Zeal.* i. 268. (*Gunn, 419.*)
FLORA OF TASMANIA.

Cyperaceae.

HAB. Abundant in salt and brackish marshes, etc.—(Fl. Nov., Dec.) (v. v.)

DISTRIBUTION. Throughout Australia, New Zealand, and all temperate and tropical countries of both hemispheres. (Native of England.)

A larger and coarser plant than S. triqueter, with a trigonous culm, flat grassy leaves, and a corymbose, compound panicle of large, ovate spikelets, surrounded by several involucral leaves; this inflorescence is usually described as terminal, but one of the so-called involucral leaves is always erect, and is manifestly as much the continuation of the culm as is that of S. triqueter. — Spikelets pale-brown, ½–1 inch long. Scales very numerous, membranous or scarious, oblong, entire or bifid, with an often recurved arista. Nut large, pyriform, compressed, with a fusiform terminal mammill, shining, punctulate. Style unequal and variable. Anthers with a rough terminal mucro. Stigmas two or three.

Gen. X. LEPIDOSPERMA, Labill.

Spicule parvae, in paniculas spicasae divisas terminales dispositae, 1–2-florae, monospermae; squamis undique imbricatis, plerisque vacuis. Squamulae hypogynae 6, crassae, basi carinatae, nucis basi adherentes. Nut ventricosa, calva, obtusa; stylo deciduo, basi simplici.—Radix perennis, sope lignosa; culmis nudis, simplicibus, scopissime late angustatis, compressissimis, ruribus teretibus angulatius, rigidis, marginibus scaberulis, sectantibus, basi foliis equitantibus cinctis; panicula basi vagina membranacea appressa cincta; spiculis duri, fuscis.

A very extensive genus, almost confined to extratropical Australia, a few species only being found in New Zealand and the Malay Islands. Brown describes nineteen species, and I find upwards of fifty in the Hookerian Herbarium, by far the greater number being natives of South-western Australia. The larger species form a considerable proportion of the so-called Cutting-Grasses of the forest and bush. Nees von Esenbeck, in 'Plantage Preissiana,' has referred some South-western Australian species to Brown's Tasmanian ones, trusting to the descriptions in the 'Prodromus;' but as Nees had no opportunity of comparing authentic specimens, and I find great differences between all the Tasmanian and South-western Australian species, I have refrained from quoting the 'Plantage Preissiana.' I much doubt whether I am correct as to L. concava, lateralis, and squamata, of which the specimens in the British Museum are scarcely authentic, and hardly agree with the descriptions in the 'Prodromus.'—Coarse, rigid, often tall, perennial Sedges, with simple, erect, harsh culms, which are most often flat, with two cutting edges, but in some species square or terete, bearing a few equitant leaves at the base, and terminated by a branched, compressed panicle of very insignificant spikelets. Spikelets sessile, short, enclosed in an aristate bract, of several imbricating scales, one- or two-flowered, the lower flower alone fertile. Scales chartaceous, hard. Nut ventricose, coriaceous or osseous, surrounded at the base with six connate, persistent, coriaceous, often thickened scales. Style with a simple base. (Name from lepis, a scale, and sperma, a seed.)

1. Lepidosperma gladiata (Lab. Nov. Holl. i. 15. t. 12); 2–4-pedalis, culmo ½–2 poll. lato complanato, axi utrinque elevato intus solido, marginibus foliisque levibus, panicula coarctata, ramis compositis, spiculis imbricatis, squamis ovatis acutis puberulis.—Br. Prodr. 234; Kunth, En. ii. 316. L. ensatum, Nees, Ann. and Mag. Nat. Hist. vi. 47. (Gunn, 984.)

HAB. Common on sand-hills near the sea, on the north coast, Gunn.—(Fl. Nov.)

DISTRIBUTION. Victoria, Robertson; New South Wales, Brown.

A tall, coarse, but not cutting species. Culm compressed, 2–3 feet high, ½–3 inch broad, with smooth margins, and a thickened, convex axis, solid within. Panicle oblong, flattened, 3 inches long, much divided. Spikelets puberulous, crowded.—I have seen no Western Australian specimens of this species.

2. Lepidosperma elatior (Lab. Nov. Holl. i. 15. t. 11); 4–8-pedalis, culmo ½ poll. lato compresso utrinque convexiusculo intus solido marginibus foliisque scabris, panicula elongata effusa, ramis...

Hab. Common in forests, and in damp soil, throughout the Island.—(Fl. Oct.) (v. v.)

Distrib. Victoria.

A tall, slender species, very dangerous to handle, from the keenly cutting edges of the culms and leaves.—Culm often 8 feet high, about ½ inch broad, compressed, thickened rather suddenly from the margins towards the middle equally on both surfaces. Panicle 6–12 inches long, slender, effuse, with long, nodding lateral branches. Spikelets in pedicellated fascicles. Scales about ¼ inch long, arista-mucronate, puberulous.

3. **Lepidosperma longitudinalis** (Lab. Nov. Holl. i. 16. t. 13); 3–5-pedalis, culmo ½ poll. lato complanato intus vacuo marginibus compressissimis levibus, panicula elongata coarctata, ramis subsimpli-cibus, spiculis dense congestis, squamis ovato-oblongis obtusis apiculatisve puberulis.—Br. Prodr. 234; Kunth, En. ii. 317. (Gunn, 1395.)

Hab. Sandy wet places near the sea: Georgetown and Hobart, etc., common.—(Fl. Sept.) (v. v.)

Distrib. Victoria.

The hollow culms at once distinguish this species from all its Tasmanian allies.—Culm 3–5 feet high, about ½ inch broad, with quite smooth (scarcely scabrous, as described by Brown) margins, and a much compressed, broad, hollow axis, reaching nearly to the margins. Panicle erect, 4–7 inches high, sparingly branched, the branches erect. Spikelets fascicled, pubescent. Scales ovate-oblong, blunt, apiculate.

4. **Lepidosperma Oldfieldii** (Hook. fil.); 4–6-pedalis, culmo ½ poll. lato compresso utrinque convexo intus solidio marginibus foliisque scaberulis, panicula elongata contracta erecta, ramis brevibus remotis compositis, spiculis fasciculatis, squamis ovatis aristato-acuminatis. (Tab. CXLVI. A)

Hab. New Norfolk, Oldfield.

Similar in many respects to L. elatior, but a smaller and more slender species, with a different panicle, which is very long (6–18 inches), of few distant, erect branches, 1½–2 inches long, covered with fascicled chestnut-brown spikelets. Spikes aristato-acuminata, keeled, recurved, giving the spikelets a subquarrose appearance. The edges of the culms are very scabrous, and cut severely.—Plate CXLVI. A. Fig. 1, spikelet; 2, scale and flower; 3, pistil and stamens:—all magnified.

5. **Lepidosperma concava** (Br. Prodr. 234); 3–4-pedalis, culmo ½ poll. lato compressissimo hinc concaviusculo marginibus foliisque scabris, panicula erecta elongata, ramis suberectis simplicius-culis, spiculis alternis brevibus, squamis ovatis carinatis aristato-acuminatis.—Kunth, En. ii. 316. L. lineare, Sieb. Agrost. n. 9. L. longitudinalis, Nob. in Fl. N. Zeal. i. 279, non Lab. (Gunn, 576, in part.) (Tab. CXLVI. B.)

Hab. Stony dry places: near Launceston, Gunn, and probably common elsewhere.—(Fl. April?)

Distrib. New South Wales, Victoria, and New Zealand.

A rather slender species, but known by its very thin, flat culm, which is rather concave on one side, and elongate panicle with alternate spikelets.—Culm 3–4 feet high, about ½–½ inch broad, with scabrid, cutting margins. Panicle erect, pale, often a span long, elongated, flexuous, with rather long, erect, alternate branches. Spikelets solitary, subalternate. Scales ovate-acuminata.—I have seen no good authentically-named specimens of this. Those so called in the British Museum have the involucral bract as long or longer than the panicle, and best accord with Brown’s character of L. lateralis, and belong to the species I have so called.—Plate CXLVI. B. Fig. 1, spikelet; 2, scale and flower; 3, pistil and stamens:—all magnified.

6. **Lepidosperma lateralis** (Br. Prodr. 234); robusta, 1–2 pedalis, foliis numerosis, culmo ½ poll.
lato compressissimo hinc plano inde convexiusculo marginibus scabris, panicula coarctata ovato-lanceolata subdensa involucro breviore v. rarius longiore, ramis brevibus subsimplicibus, spiculis alternis approximatis, squamis ovatis acuminato-aristatis puberulis.—Kunth, En. ii. 316. L. squamatum, Lab. fid. Nees in Ann. and Mag. Nat. Hist. vi. 47. (Gunn, 983.) (Tab. CXLVII. A.)

Hab. Sand-hills: Circular Head and Georgetown, Gunn.—(Fl. April.)

Distrib. New South Wales and Victoria.

A short, robust species, 1-2 feet high, with broad, very flat leaves and culms for the size of the species, and a short panicle.—Culms \( \frac{3}{4} \) inch broad, with sebaceous margins. Panicle 1-2 inches long, ovate or oblong-lanceolate, with short, simple branches, bearing a few alternate but close-set spikelets. The erect, rigid, involucral leaf is generally longer than the panicle.—Of this species there are specimens in the British Museum, named L. concave, Br.; it is well distinguished from the plant for which I have retained that name by the short panicle and long involucral bract.—Plate CXLVII. A. Fig. 1, spikelet; 2, scale and flower; 3, pistil and stamens:—all magnified.

7. Lepidosperma angustifolia (Hook. fil.); gracilis, 3-4-pedalis, culmis \( \frac{1}{4} \) poll. latis compressis utrinque convexiusculis marginibus asperulis, panicula elongata tenui gracili, ramis brevibus graciilibus, spiculis parvis alternis approximatis, squamis acuminatis, squamulis hypogynis lanceolatis. (Gunn, 576.) (Tab. CXLVII. B.)

Hab. Penquite, near Launceston, Gunn.—(Fl. April.)

A very slender species, with an erect, slender, sparingly branched panicle.—Culms 3-4 feet high, \( \frac{3}{4} \) inch broad, bases (and sheaths of the leaves) red-brown, much compressed but concave on both surfaces, solid within, margins most minutely roughened. Panicle a span long, with alternate, suberect or recurved, slender branches. Spikelets small, \( \frac{1}{10} \) inch long, alternate, approximate, with acuminate scales.—Plate CXLVII. B. Fig. 1, spikelet; 2, scale and flower; 3, pistil and stamens:—all magnified.

8. Lepidosperma linearis (Br. Prodr. 235); 12-18-pollicaris, folii falcatis culmisque \( \frac{1}{8}-\frac{1}{5} \) poll. latis utrinque convexis vix striatis marginibus levisiusculis, panicula v. spica ovata composita curva, ramis brevibus paucifloris, spiculis approximatis, squamis acuminatis puberulis, squamulis hypogynis ovatis aristato-acuminatis.—Kunth, En. ii. 318. (Gunn, 1497.)

Hab. Tasmania, Brown; Penquite, near Launceston, Gunn.—(Fl. winter.)

Distrib. Victoria.

This is possibly the L. squamata of Labillardière, whose figure it closely resembles in habit and size, etc., but Brown describes the culms of that plant, of which I have examined specimens in the British Museum, as plane on one surface, which these are not, and the leaves as shining at the base, which also is not the case with this plant. The present is the smallest of the Tasmanian flat-culmed species; it forms large tufts 12-18 inches high, with numerous, rigid, curved, very narrow leaves, and culms \( \frac{1}{10}-\frac{1}{5} \) inch broad, convex and striolate (not grooved) on both surfaces, and very minutely roughened at the margins. Panicle 1-1\( \frac{1}{2} \) inch long, young and imperfect in my specimens, sparingly branched, and few-flowered.

9. Lepidosperma globosa (Lab. Nov. Holl. i. 16. t. 14); gracilis, 1-2-pedalis, folii falcatis, culmis \( \frac{1}{8}-\frac{1}{5} \) poll. latis utrinque convexis marginibus scaberulis, spica pauciflora composita, ramis 4-5 alternis brevissimis 2-3-floris involucris partialibus breviornibus, spiculis parvis turgidis, squamis acuminatis, nucibus trigonis, squamulis hypogynis minimis.—Kunth, En. ii. 318.

Hab. Recherche Bay, Labillardière; stony places near Brown’s River, Oldfield.

Very similar to L. linearis, but less rigid.—Leaves falcate, margins smooth, sheaths shining. Culm erect, \( \frac{1}{8}-\frac{1}{5} \) inch broad, compressed, convex on both surfaces, margins scaberulous. Panicle, or rather, branched spike, the smallest and fewest-flowered of the flat-culmed section, not an inch long, erect, with three or four alternate,
rather distant, short branches, each $\frac{1}{2}$ inch long, bearing two or three spikelets, shorter than the bracts from whose axis they spring. Spikelets small, $\frac{1}{2}$ inch long, close together. Scales acuminate. Nut trigonous, with very small hypogynous scales.

10. **Lepidosperma squamata** (Lab. Nov. Holl. i. 17. t. 16); pedalis, foliis angustis strictiusculis culmisque subaequilongis $\frac{1}{2}$-unc. latis utrinque convexiusculis et lineis profunde sulcatis notatis, vaginis nitidis, panicula ovata, ramis paucifloris.—Br. Prodr. 235; Kunth, En. ii. 318.


I have no specimens of this, which I follow Brown in referring to *Labillardière*'s *L. squamata*, though *L. linearis*, Br., appears to me more closely to resemble *Labillardière*’s figure. The present differs from *L. linearis* chiefly in the shining sheaths of the leaves, and slender grooves on the leaves and culms.

d. Culm and leaves angled.


Hab. Recherche Bay, *Labillardière*.

Distrib. New Zealand.

I have seen no Tasmanian specimens of this species, which I have described in the ‘Flora Novae Zelandiae’ as *L. australis*.—A tufted, rigid, almost leafless, Rush-like Sedge. Culms 1-1½ foot high, quite smooth, irregularly three- or four-angled, compressed or tetraquetrous, striated. Sheaths with rigid, subulate, compressed, three- or four-angled, erect leaves, 2-8 inches long. Spikelets crowded, spiked or fascicled, pale-brown, forming a terminal, short, oblong capitulum $\frac{1}{2}$ inch long. Bract shortly sheathing, with a subulate, erect point. Bracteoles mucronate, striate; scales six to eight, acuminate, terminal one with a single flower. Stamina and stigmas 3. Hypogynous scales six, connate into a six-lobed cup.—Kunth appears to have described *Cladium junceum* for this plant.

e. Culm and leaves terete or nearly so.

12. **Lepidosperma filiformis** (Lab. Nov. Holl. i. 17. t. 15); cespitosa, gracilis, 12-18-uncialis, culmis basi polyphyllis foliisque subfiliformis strictis erectis subcompressis, spica 2-3-flora involucro aquilonga, spiculis angustis lanceolatis bracteolam aristatam subaequilongibus, squamis lanceolatis acutis, squamulis hypogynis subulatis.—Chapelliera pauciflora, *Nees, ftd. Mueller*. (Gunn, 1439.)

Hab. Recherche Bay, *Labillardière*; Arthur’s Lakes, Gunn; wet ground near Brown’s River, Oldfield.—(Fl. Feb.)


A perfectly smooth, very slender, tufted species, much resembling *Cladium Gunnii*, H.f., 12-18 inches high, with numerous slender, erect leaves at the base of the culm.—Leaves grooved down the front, terete or very slightly angular or compressed. Spike simple, $\frac{1}{2}$-inch long, of two or three alternate, erect spikelets, arising from the axil of an erect, subulate, involucral leaf. Spikelet narrow, $\frac{1}{2}$ inch long.—Mueller’s specimens have an obscure groove down the culm as well as on the leaves; the nut is grey, obovate, trigonous, and the hypogynous scales are very minute.

Gen. XI. OREOBOLUS, Br.

*Flos* solitarius, glumis deciduis 2 inclusus. *Perianthium e squamis 6 biseriatis cartilagineis, post lapsum nucis pedunculo elongato persistens. Stamina 3. Stylus deciduus; stigmatibus 3. Nut obovata, crustacea, apice areola depressa.—Planta humilis, rigida, cespites convezos amplios in summis montibus efformans; culmis divisis, foliis distiche equitantibus v. undique imbricatis dense vestitis; folis lineari-
subulatis, strictis, ensiformibus, basi dilatatis, vaginantibus aquantibus; scapis axillaribus, brevibus, compressis, 1-floris, post anthesin elongatis, rigidis, strictis.

This remarkable genus is confined to the Andes, mountains of Fuegia, New Zealand, Tasmania, and Victoria, where its species form broad, dense, hard, cushion-like, bright-green patches, in bleak, open places.—Culms densely tufted, covered with the subulate leaves, which are equitant and distichous, or imbricating; sheaths shining. Flowers minute, solitary, pedicelled, the pedicel elongating after flowering, and forming a rigid, persistent scape. Scales or involucral leaves two, opposite, enclosing the flower, deciduous. Perianth of six ovate-lanceolate, cuspidate, coriaceous, minute scales, in two series, within which the three stamens rise. Style simple at the base, deciduous, with three stigmata. Nut crustaceous, obovate, with a broad, depressed, areolar apex, longer than the perianth-scales, which are appressed to it, and do not fall away with it, but remain on the pedicel. (Name from opos, a mountain, and basos, a ball.)

1. Oreobolus Pumilio (Br. Prodr. 237); foliis distichis, nuce trigona.—Kunth, En. ii. 367. O. pectinatus, Nob. in Fl. Ant. i. 87. t. 49; Fl. N. Zeal. i. 275. O. distichus, F. Muell. in Hook. Lond. Journ. Bot. viii. 385. (Gunn, 1435.)

Hab. Summits of all the mountains, alt. 3–5000 feet.—(Fl. Jan.) (v. v.)

Distrib. Mount Hotham, Victoria, Mueller; mountains of New Zealand and Lord Auckland’s group.

The leaves of the Tasmanian specimens are often shorter and blunter than the New Zealand and Victoria ones, but I find that they vary greatly, and I can discover no other difference.

Gen. XII. CLADIUM, Br.

Spiculae parvae, in paniculas spicase divisas terminales dispositae, 1–3-flore, monosperme; squamis undique imbricatis, plerisque vacuis. Squamulae hypogynae 0. Filamenta post anthesin non elongata. Nuæ trigona, apice bulboso-incrasata, rarius simplici.—Radix perennis; culmis erectis, simplicibus, foliisque teretibus angulatis v. ancipitibus; panicula basi ramisque basi bracteatis; bracteis interdum spathaceis.

It is impossible to define what the limits of this genus should be, except by examining a vast number of Australian species, and Cyperaceæ of many countries, which are more or less allied to these, and which have on various grounds been removed from it, and referred to Chapelliera, Banmaea, Vincentia, and other genera. The Tasmanian and all of the Australian species which I have examined, and which have been referred by Brown to Cladium, may be retained in that genus, for they form a sufficiently natural assemblage, most nearly allied to Lepidosperma, but differing in habit, in never having the sharp-edged cutting leaves and culms of that genus, in wanting the hypogynous scales attached to the base of the nut, and in having a thickened top to the nut in most species. As in Lepidosperma, the culms and leaves are flat and two-edged, or terete, or angled, but whereas the majority of Lepidospermae are two-edged, this is an exceptional character in Cladium. From Gahnia, Cladium is distinguished by its less rigid habit, and the filaments not being persistent; but C. Filum has the habit of Gahnia, and C. schenoides has that of Lepidosperma linearis. About twenty Australian plants are known to me that I should refer to Cladium. (Name from ελαζος, a branch; from the branched inflorescence of the European species.)

a. Culms and leaves terete or angled.

1. Cladium glomeratum (Br. Prodr. 237); culmis teretibus, foliis elongatis tereti-subulatis caulinis abbreviatis, panicula coarctata, spiculis 2–3-floris fasciculatis congestive, fasciculis paniculatis, bracteis spatheaceis, squamos ovatis acuminatis ciliolatis dorso scaberulis, nuce ovato-trigona hævi.—Kunth, En. ii. 304; Fl. N. Zeal. i. 275. Cladium dubium, Nees, Sieb. Agrost. n. 5. (Gunn, 1013, 1398.)

Hab. Abundant in clayey, sandy, and moist places generally.—(Fl. Dec.) (v. v.)
Distrib. New South Wales and Victoria; New Zealand.

Culms stout, tufted, 2 feet high, glabrous, terete, not jointed, soft, with several leaves at the base, and one or more above. Leaves terete, subulate. Panicle contracted, 2-4 inches long, with membranous, spathaceous bracts. Spikelets very numerous, fascicled, with dark, red-brown scales. Nut three-angled, polished.

2. Cladium laxiflorum (Hook. fil.) ; culmis teretibus, foliis elongatis tereti-subulatis caulinis nullis, panicula breviuscula subramosa pauciflora, spiculis subalternis unifloris, squamis ovato-lanceolatis acutis glabris, bracteis subspathaceis, nuce obovoidea turgida apice vix incrassata. (Tab. CXLVIII. A.)

Hab. Swamps near New Norfolk, Oldfield.

This very distinct species resembles the Australian C. glomeratum, Br., in the terete culms and radical leaves, but it is smaller, has no leaf on the sheath or the culm, and the inflorescence is very different. Panicle 1½-2 inches long, of three or four few-flowered branches, arising from spathaceous, long, acuminate bracts. Spikelets small, few, not fascicled. Scales pale red-brown, quite glabrous, acute. Nut broadly obovate, somewhat trigonous, with an obscurely thickened, grooved, blunt apex.—Plate CXLVIII. A. Fig. 1, spikelet; 2, scale and flower; 3, pistil; 4, nut:—all magnified.

3. Cladium junceum (Br. Prodr. 237) ; aphyllum, culmis gracilibus strictis teretibus basi et sub apice vaginatis, vaginis ungue brevi verticali laterali latissimae compresso terminatis, spiculis spicatis panicis subgeminis sessilibus unifloris, squamis oblongo-lanceolatis acutis dorso scabulis, nuce trigona obovoidae apice incrcassata hemisphaerica puberula.—Kunth, En. ii. 304. Lepidosperma striata, Herb. Mus. Brit. et Nob. in Fl. N. Zeb. i. 279, non Br. (Gunn, 969.)

Hab. Abundant in wet, sandy, and heathy places in the northern parts of the Island.—(Fl. Nov., Dec.) (v. v.)

Distrib. New South Wales, Victoria, and New Zealand.

A densely tufted, slender, wiry species, with long, stout, sheathed runners, recognized at once by the terete, naked, leafless culms, which bear at the base a long appressed sheath, terminated by a short, laterally flattened, sickle-shaped claw or leaflet. The inflorescence is a very short, simple, or sparingly branched, few-flowered spike, about an inch long.—I erroneously referred this plant to Lepidosperma striata in the "New Zealand Flora," from finding it so named in the British Museum Herbarium.

4. Cladium Gunnii (Hook. fil.) ; culmis nudis gracillimis strictis foliisque paucis equilongis teretibus levibus basi vaginatis, vaginis appressis obtusis, panicula gracili, ramis 1-floris brevibus alternis remotis, bracteis aristatis, squamis lanceolatis acutis glabris, nuce laevi obovoidae breve stipitata obscure tricostata apice in mammillam crassam abeunte supra basin subconstricta.—Gahnia sulcata, Mueller? (Gunn, 1498.) (Tab. CXLVIII. B.)

Hab. Near Formosa, Gunn.—(Fl. Dec.)

Distrib. ? Victoria, Mueller.

Culms quite leafless above, very slender, terete, wiry, densely tufted, 1-2 feet high. Leaves as long as the culms, also terete, subulate. Sheaths red, long, with acute apices. Panicle 1-3 inches long, very slender, simple, few-flowered, with erect, alternate, rather short branches, arising from small, aristate bracts, and bearing one or two small spikelets. Scales pale red-brown, linear-lanceolate, acute. Nut turgid, with a short pedicel, obscurely constricted above the base, its sides smooth and polished, dark-brown, with three obscure ridges; apex thickened, but not conspicuously so.—This is very nearly allied indeed to Gahnia sulcata, Mueller, if it be not the same plant; but it is more slender, and the branches of the panicle are shorter.—Plate CXLVIII. B. Fig. 1, spikelet; 2, scale and flower; 3, pistil; 4, nut:—all magnified.

5. Cladium tetraquetrum (Hook. fil.) ; robustum, culmis vaginatis compressis, foliis radicalibus acute
tetraquetris compressis, caulo lamina brevi ensiformi, panicula subcoarctata composita, spiculis congestis, squamis ovato-lanceolatis acuminatis ciliatis, nece turgida subtrigona rugosa mamilla conica terminata. (Gunn, 1896, 1899.) (Tab. CXLIX.)

Hab. Common in moist places throughout the Island.—(Fl. Dec.) (v. v.)

Distrib. New South Wales and Victoria.

Culms 18 inches to 2 feet high, robust, terete, compressed, and obscurely four-angled. Radical leaves numerous, stout, curved, rigid, acutely tetraquetrous, with striated faces. Panicle contracted, 2–3 inches long, of numerous, congested, dark red-brown, shining spikelets. Scales ciliated. Nut rugose.—Plate CXLIX. Fig. 1, spikelet; 2, scale and flower; 3, pistil; 4, nut:—all magnified.

b. Culms flattened.

6. Cladium schoenoides (Br. Prodr. 237); culmis aphyllis foliisque equitantibus plano-compressis levibus, vaginis imberbibus, spica subcomposita, spiculis 1-floris fasciculatis lanceolatis, squamis anguste lanceolatis glaberrimis, nece obovoidae trigona apice truncata.—Kunth, En. ii. 305. Schoenus acutus, Lab. Nov. Holl. i. 18. t. 18. (Gunn, 1897.)

Hab. Dry heathy places: Circular Head, Gunn; Cheshunt, Archer; New Norfolk, Oldfield.—(Fl. Nov.)

Distrib. New South Wales, Victoria, and Swan River.

Much the smallest Tasmanian species, about a span high; very similar to Lepidosperma globosa and linearis.—Rhizome stout, creeping, scaly. Leaves equitant, all radical, compressed, almost flat, longer than the culm, which is also compressed, and of about equal breadth (¼ inch). Panicle simple, 1 inch long; the branches, being few, short, and bearing fascicles of sessile spikelets, give it almost the appearance of a spike.

c. Culm terete. Leaves plane or involute.


Hab. Abundant in clay-soil about Hobarton and elsewhere.—(Fl. Nov.) (v. v.)

Distrib. South-eastern Australia.

Culms terete, leafy, 2–4 feet high. Leaves very long, slender, involute, slightly scabrous at the margins, with long, black sheaths. Panicle 3–8 inches long, slender, of alternate glomeruli an inch long, consisting of numerous crowded spikelets. Scales 3–8 inches long, slender, of alternate glomeruli an inch long, consisting of numerous crowded spikelets. Scales ovate-lanceolate; outer aristate; inner acuminat. Stamens three (four according to Brown). Nut pale, linear, trigonous, mucronate.

8. Cladium Mariscus (Br. Prodr. 236); culmus elato teretis laevi folioso, foliis planiusculis carina marginibusque asperis, panicula decomposita foliosa, spiculis capitato-glomeratis, floribus 3-andris, nece elliptico-ovoidea mucronata.—Eng. Bot. t. 950; Kunth, En. ii. 303.

Hab. Tasmania, Brown.

Distrib. Australia, Polynesia, India, Europe, America, Africa? (A native of England.)

I have seen no Tasmanian specimens of this very widely-diffused species. It may be readily known by its very leafy habit, scabrous keel and margins of leaves, much widely branched panicle, with divaricating branches, and the subcapitate, pale-brown spikelets.—Nuts pale-brown, with an acuminate apex.
FLORA OF TASMANIA.

Gen. XIII. GAHNIA, Forst.

Spicules parvae, 1-flora, in paniculam terminalem ramosam sepe effusam dispositae; squamis undique imbricatis, intima minima florem involvente. Filamenta 3, 4 v. 6, post anthesin elongata, persistentia. Nut obtusa trigona; stigmatibus divisis indivisis.—Herbae rigidae, erectae; culmis foliosis; foliis involutis, longe acuminatis.

A genus of erect, coarse, rigid, leafy Sedges, chiefly natives of Australia, Tasmania, and New Zealand, but there are a few Malayan and Pacific Island species. It is very closely allied to Cladium, but differs in the elongated, persistent filaments, by which the nut is often suspended after it has fallen away from the spikelet.—Nut very hard, obscurely trigonous; apex thickened; inner walls in some species grooved transversely, in others very slightly so, or quite even. Styles three, undivided or branched. (Named in honour of Dr. Henry Gahn, a Swedish botanist.)

§ 1. Lampocarya.—Seed not transversely grooved.

1. Gahnia trifida (Lab. Nov. Holl. i. 89. t. 116); folis bracteisque asperis spicis longe filiformibus, panicula coarctata interrupta, spiculis dense capitato-congestis, squamis longe acuminatis, staminibus 3, stigmatibus indivisis, nuce atra obtuse trigona obovoidea mucronata, semine lavi.—Lampocarya hexandra, Br. Prodr. 238. (Gunn, 335.)

HAB. Tasmania, Labillardière, Gunn.
DISTRIBUT. South-eastern Australia.

I have a very small Tasmanian fragment of this plant, gathered by Gunn, but excellent ones collected in Victoria (as Cladium Filum) by Mueller. The short, obovoid, black nut, and the long filaments of the stamens, which vary from three to four and six, distinguish it from Cladium Filum, which it most closely resembles in many respects.

—I have restored this plant to Gahnia, where Labillardière placed it, the genus Lampocarya appearing to me to be untenable, some plants being quite intermediate in characters between it and Gahnia. The present species further unites Gahnia with Cladium, through C. Filum. None of my specimens are hexandrous, as Labillardière’s appear to have been, whence Brown gave it the specific name of hexandra.

§ 2. GAHNIA.—Nut osseous. Seed transversely grooved.

2. Gahnia psittacorum (Lab. Nov. Holl. i. 89. t. 115); culmo robusto elato, foliis scabridis echinulatisve, panicula elongata interrupta decomposita atra, squamis plurimis obtusis, filamentis 6 corrugatis, stigmatibus bifidis, nucibus obovoideis rubris nitidis spicis areola sphacelata, semine transverse sulcato.

—Br. Prodr. 238. (Gunn, 982.)

HAB. Abundant in forest land, etc., throughout the Island.—(Fl. Dec.) (v. v.)
DISTRIBUT. New South Wales and Victoria.

A tall, very handsome Sedge, 4–8 feet high, forming large clumps, extremely dangerous from the severe ragged cuts its coarse, sharply scabrid foliage inflicts if drawn across the hand; easily known by its great size, stout, solid, cylindrical culms, as thick at the base as the middle finger, long leaves, and long black panicle of innumerable spikelets, which have black, blunt, closely imbricated scales, six long, crumpled, twisted filaments, and bright red, polished nuts.

3. Gahnia melanocarpa (Br. Prodr. 239); culmo gracili, foliis culmine superantibus echinulatis, panicula breviuscula coarctata ramosa, squamis acutis, staminibus 3, stigmatibus indivisis, nucibus atriis. (Gunn, 1400.)

HAB. Tasmania, Brown; near Hobarton, Gunn.—(Fl. Nov.)
DISTRIBUT. New South Wales and Victoria.

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FLORA OF TASMANIA.

[Cyperaceae.]

I have only seen two specimens of this species, both rather immature.—It is a small plant, 2-3 feet high, with slender stems, very long, involute leaves, as sharply roughened on the surface as those of $G. pittacorum$, and a small, contracted, brown panicle. Scales all acute. Stamens three.

Gen. XIV. CAUSTIS, Br.

$Spiculae$ 1-2-flore, paniculatae; squamis undique imbricatis, intima flore involvente. Filamenta 3-5, brevia. $Nux$ ventricosa, basi bulbosa, rostrata; $stylis$ bi-trifidis; semine laevi.—Herbae durae, aridae, rigidae, facie Restiaceous; culmis aphyllis, ramosis, semiteretibus, vaginatis; vaginis integris; ramis exo sphaceratis, hinc in mucronem concolorum subulatum producitis, ultimis foliiformibus; paniculis axillaribus terminalibusque, pedunculatis; pedunculis vagina inclusis.

An Australian genus of very remarkable-looking plants, resembling Restiaceae from having semiterete, leafless stems and branches, and discoloured sheaths. About four species are known to me, all of them natives of Australia.—Rhizome very stout and woody. Culms much branched, rigid; branches often curved, the terminal ending in subulate points. $Spikelets$ one-flowered, in branched, pedunled, axillary and terminal panicles, whose peduncles are enclosed in the sheaths. Outer scales larger than the inner, imbricated all round, acuminate; upper alone bearing one hermaphrodite flower. Stamens 3-5, included. Nut terminated by the bulbous base of the style. (Derivation of name unknown to me.)

1. *Caustis pentandra* (Br. Prodr. 239); rhizomatous crasso repente squamoso, culmis e basi ramosis, ramis curvis rigidis semiteretibus, squamis apice subulatis, staminibus 5. (Gunn, 1443.)

HAB. Sandy heaths: in the northern parts of the Island, Gunn. (Fl. Dec.)

DISTR. New South Wales and Victoria.

Gen. XV. CAREX, L.

(Auctore el. F. Boott, M.D.)


One of the largest genera of flowering plants, containing upwards of six hundred species, found in all parts of the globe, especially abounding in temperate countries and subalpine districts; some of the species have very wide ranges. Nearly twenty Australian and Tasmanian species have been investigated by my friend Dr. Boott, who has made this fine genus his especial study, and who alone has an intimate knowledge of its species and their distribution; he has favoured me with descriptions of the Tasmanian ones, as he did with the Antarctic and New Zealand species.—The genus Carex may be known by its paniced, rarely solitary, amentiform spikelets of imbricating, one-flowered scales. These spikelets are unisexual, or bear both male and female flowers, but on different parts. Male flowers of three stamens; female of a compressed ovary, with two or three stigmas enclosed in a utricular perianth, from whose contracted mouth the stigmas project. (Name of unknown derivation.)

§ a. Spike solitary, simple.

1. *Carex Archeri* (Boott); spica simplici triflora l androgyna apice inconspicue mascula fusco-purpurea; stigmatibus 3; perigynis elliptico-lanceolatis obtuse triquetris sensim cylindrico-rostratis, ore integro, nervis marginalibus superne dentatis, squama ovato-lanceolata ferruginea margine hyalina infima foliiformi plus minus elongata latioribus duplo vel folis triplo brevioribus.—(Archer, n. 71.) (Tab. CLV. A.)
Hab. Cuming’s Head, Archer.


A very small, slender plant, 4–6 inches high, with a solitary, minute, three-flowered, androgynous spike.—Plate CL. A. Fig. 1, spike; 2, male scale and stamen; 3, female ditto and perigynium; 4, perigynium:—all magnified.

§ b. Spike compound, composed of several androgynous spikelets. Stigmas 2.

* Spikelets with male flowers below.

2. Carex inversa (Br. Prodr. 242); spiculis 2–3 (rarius 1) androgynis basi masculis obovatis arcte contiguis pallidis longe bracteatis; perigyniis ovalibus rostratis bidentatis superne margine acutis serratis nervosis appressis, squamam ovatam acuminatam cuspidatam subsequantibus; stigmatibus 2.—Boott in Fl. N. Zeal. i. 281; Booth, Ill. Carex, ined.

Hab. Grassy pastures, South Esk River, etc.; probably not uncommon.

Distrib. New South Wales, Victoria, and Swan River; New Zealand.

A very slender species, with smooth, filiform culms, 6–9 inches long, and very narrow leaves. Bracts 2–4 inches long. Spikelets one to three, pale, small.

** Spikelets with male flowers at top.

3. Carex appressa (Br. Prodr. 242); spica oblonga vel elongata plus minus compacta basi ramosa, e spiculis numerosissimus parvis apice masculis; stigmatibus 2; perigyniis ovatis vel orbiculatis rostratis bidentatis, e medio sursum anguste alatis serratis nervatis, squama ovata acuta vel mucronata latioribus longioribusque.—Fl. Antarct. i. 91; Booth, Ill. Carex, t. 119, 120. (Gunn, 574, 769, 985, 1405.)

Hab. Abundant in open forest land, etc.—(Fl. Nov.)

Distrib. New South Wales, Victoria, Swan River, Lord Auckland’s Islands.

A stout, rigid, harsh species, with culms 1–5 feet in height, and a spike varying in its length and density, more or less branched, and with many spikelets having the male flowers at top.

4. Carex chlorantha (Br. Prodr. 242); spica oblongo-capitata, e spiculis 6–8 pluribusve ovalibus androgynis apice masculis congestis vel inferioribus discretis breve bracteatis composita; stigmatibus 2; perigyniis (floriferis) ovatis rostratis, ore membranaceo antice altius secto marginibus serratis, squama lanceolata cinnamomea margine late albo-hyalina angustioribus brevioribus. (Gunn, 579.) (Tab. CL. B.)

Hab. Northern parts of the Island, in pastures, etc., and probably common elsewhere, Gunn, Archer. —(Fl. Nov.)

Distrib. New South Wales and Victoria.

Culms 6–9 inches high, rigid, with sharp angles, rough. Leaves ½–1 line broad, shorter than the culm. Spike capitately, of six or eight crowded spikelets, 8–10 lines long, and 3–4 broad.—Plate CL. B. Fig. 1, male scale and flower; 2, female ditto; 3, perigynium:—all magnified.

§ c. Spikes several, simple, unisexual.

* Stigmas 2.

5. Carex Gaudichaudiana (Kunth, En. ii. 417); spicis 3–6 ovatis oblongis vel cylindraceis erectis, mascula purpurea pedunculata sepe altera breviore sessili ad basin sita, femineis 2–4 evaginatis glaucoscentibus purpureo pictis, superioribus vel omnibus apice masculis contiguis sessilibus vel infima remota pedunculata quandoque basi attenuato-laxiflora; stigmatibus 2; perigyniis ovatis vel elliptico-lanceolatis compressis rostellatis, ore integro sepsius emarginato rarissime bifurcato valide nervatis glauco-viridibus
demum ferrugineo-punctatis, squama oblonga vel lanceolata subacuta mutica rarius mucronata purpurea margine albida nervo pallido latioribus longioribusque.—C. cespitosa, Br. Prodr. 243. (Gunn, 416, 959, 1407, 1410.) (Tab. CLI. A.)

Hab. Lowland and mountain localities: abundant; Lake St. Clair and Marlborough, South Esk.—(Fl. Dec.) (v. v.)

Distrib. New South Wales.

Variat altitudine culmi, 2-24 poll.; spicis abbreviatis, ovatis vel elongatis, 3 lin.-2½ poll. longis, 2-4 lin. latis; perigynius ovatis, latioribus, vel lanceolatis, angustioribus, 1½⁻²⁻⁻⁶ lin. longis, ½⁻¹⁻⁵ lin. latis; ore sepius emarginato (in unam specimin e Tasmania bifurcato); squamae obtusae, muticis, rarius nervo excurrente mucronatis. Stigmata 2, vel in speciminebus (Hunter’s River, Wilkes) stigmata 2 et 3.—Ad C. vulgarem, Fries, accedens. Differt perigynius crebre valida plurinervis demum ferrugineo-maculatis, squamae subinde mucronatis.—Plate CLI. A. Fig. 1, male scale and flower; 2, female ditto; 3, perigynium:—all magnified.

**Stigmas 3.**

6. Carex barbata (Boott, Illust. Carex, t. 187); spicis 4-5 ovalibus vel oblongis gracilibus fusco-purpureis erectis contiguis, terminali mascula sessili, reliquis femineis, superioribus sessilibus evaginateis, infima subremota inserte vel subexserte pedunculata; bractea infima culmum longe superante; stigmatibus 3; perigynii elliptici acutis triquetris emarginato-bidentatis superne vel ore margiibusque scabris punctis resinosis ferrugineis notatis pallide castaneis leviter nervatione, squama ovata acuta mucronata vel obtusa mutica apice ciliata purpurea medio pallida carina scabra duplo longioribus. (Gunn, 1407, 1415.)

Hab. Woolnorth; Derwent River, New Norfolk, Gunn.—(Fl. Nov.)


7. Carex Gunniana (Boott, Linn. Trans. xx. 148; Illust. Carex, t. 185); spicis 4-5 oblongis vel cylindraceis erectis, terminali mascula clavata sessili straminea, reliquis femineis pallide flavescenti-viridibus, superioribus 1-2 sessilibus masculine arcte contiguis, inferioribus exserte pedunculatis, infima remota sepe nutante; bracteis superioribus culmo longioribus; stigmatibus 3; perigynii elliptico-ovatis trigonis sensim acuminato-rostratis bidentatis ventricosis nervatis superne ad margines scabris flavescenti-viridibus demum punctis nigrescentibus maculatis, squama late ovata acuta vel obtusa plus minus hispido-cuspidata ferruginea longioribus. (Gunn, 578.)

Hab. Tasmania, Gunn; Cheshunt, Archer.

Distrib. Victoria, Mueller.


8. Carex littorea (Lab. Nov. Holl. ii. t. 219); spicis 3-6 oblongis vel cylindricis ferrugineo-purpureis, masculis 1-4 gracilibus, femineis crassis longe breactatis, infima brevi exserte pedunculata; stigmatibus 3; perigynii tumide ovatis late rostellatis subbifurcati basi contractis leviter nervatis glabris crasse spongiosis rubro-ferrugineis, squama ovata acuta vel cuspidata purpurea margine albo-hyalina duplo longioribus.—Br. Prodr. 243; Boot in Fl. N. Zeal. i. 284. C. Urvillei, Brong. 1; Kunth, Eu. ii. 517. (Gunn, 978.)

Hab. Sandy shores of the Island; common.—(Fl. Dec.) (v. v.)

Distrib. New South Wales, Victoria, New Zealand, Japan?

This is probably the C. pumila, Th., of Japan. The rhizome creeps extensively in the sand, and the leaves and long bracts are rigid, with long, attenuated, curved extremities.
9. Carex cataractae (Br. Prodr. 242); spicis 4–6 parvis densifloris congestis, terminali mascula vel apice mascula sessili, reliquis femineis flavis subrotundis longe bracteatis, infima sepe remota brevi exserte pedunculata; stigmatibus 3; perigynis ovalibus turgidis recte rostratis bidentatis, ore pallido membranaceo facile rupto, nervosis glabris vel rostro apice dentato divergentibus inferioribus recurvatis, squama ovata obtusa fulva margine albo-hyalina nervo viridi longioribus. (Gunn, 1411.) (Tab. CLI. B.)

Hab. Alpine marshes: Arthur’s Lakes, Marlborough, Lake St. Clair, etc., Gunn, Archer.—(Fl. Jan.)

The culms are often only 3 or 3, or from 6–12 inches high. The generally compact yellow spicule are furnished with long bracts, and the upper ones occasionally have male flowers at top. It is scarcely distinguishable from C. flava, L., a very variable species.—Plate CLI. B. Fig. 1, and male flower; 2, ditto and female flower; 3, perigynium.—all magnified.

10. Carex fascicularis (Soland. MSS.); spicis 5 cylindricis pedunculatis, terminali omnino vel rarius basi mascula, reliquis femineis sepe apice sterilibus nutantibus vel demum pendulis evaginatis vel infima remota longe exserte pedunculata; bracteis inferioribus longissimis; stigmatibus 3; perigynis ovatis longe stipitatis cylindrico-rostratis obtuse trigonis bicuspidiatis nervosis divergentibus demum recurvatis, squama lancolata hispido-aristata castanea medio pallida scabra longioribus (arista) brevioribus.—Boott in Fl. N. Zeal. i. 283; Boott, Ill. Carex, t. 139, 140. C. Pseudocyperus, Br. Prodr. 243. (Gunn, 332.)

Hab. Common in marshy situations.—(Fl. Dec.) (v. v.)

Distrib. New South Wales, Victoria, Swan River, New Zealand.

This forms large tufts of long, pale-green, grassy foliage, like the European C. Pseudocyperus, which it closely resembles. The culms are 2–3 feet high, with four or five spikes, which, when pendulous, have the perigynium recurved. The lower bracts are very long.

11. Carex brevicolmis (Br. Prodr. 242); spicis 3–5 parvis oblongis contiguis sessilibus albo-viridibus, terminali mascula, reliquis femineis sepe apice masculis bracteatis; stigmatibus 3; perigynis ellipticis triquetris utrinque subattenuatis emarginatis nervosis viridibus pubescentibus, squama alba nervo viridi ovata longe cuspidata brevioribus.—Boott in Fl. N. Zeal. i. 283. t. 63.

Hab. Tasmania, Gunn; Cheshunt, Archer.

Distrib. New South Wales, Victoria, New Zealand.

A short, densely tufted, leafy species, with culms 1–3 inches high, the pale-green spikes concealed among the leaves, which are from 2–10 inches long, and 1–2 lines broad. It is distinguished by its pubescent perigynia.

12. Carex longifolia (Br. Prodr. 242); spica longissima, e spiculis pluribus cylindricis stramineis, masculis 2–4, infima sepe subremota exserte pedunculata, femineis fasciculatis 2–5-natis remotis longissime exserte pedunculatis pendulis; stigmatibus 3; perigynis ellipticis utrinque attenuatis plano-triquetris rostratis bifidis nervatis margine serratis, squama obtusissima rotundata vel emarginata mucronata angustioribus longioribusque.—Boott, Ill. Carex, ined. (Gunn, 333, 1406.)

Var. B. minor; spicis 6 singulis brevibus, foliis abbreviatis.—Boott, Ill. Carex, ined.

Hab. Derwent River, at New Norfolk, and South Esk River, Gunn.—(Fl. Nov.) (v. v.)

Distrib. New South Wales and Victoria.

A tall species, remarkable for its fascicled spikelets on long pendulous peduncles, the spikelets occasionally only fertile in the middle. The variety is probably only a young seedling state.

13. Carex Bichenoviana (Boott, MSS.); spica elongata fusco-purpurea, e spiculis oblongis vel cylindricis numerosis, superioribus congestis sessilibus masculis omnibus simplicibus vel inferioribus apice masculis remotis breve pedunculatis evaginatis basi compositis, infima simplici; bracteis inferioribus culmin
longe superantibus; stigmatibus 3; perigyniiis ovatis bicuspidatis glabris, squama lanceolata aristata bre-vioribus. (Gunn, 1415.)

_Hab._ Woolnorth, Gunn.

Too young for a definite character, but a very distinct species.—_Culm_ 2 feet high, rigid, smooth; _inflorescence_ a foot long. _Bracts_ very long and slender, the lower 2 feet! _Spikelets_ cylindrical, of a fine brown-purple colour, evaginate.

**Gen. XVI. Uncinia, Pers.**

_Spica_ terminales, solitaries, androgynae. _Squamae_ undique imbricatae, 1-flore. _Flores_ unisexuales.

_Masc. superiores._ **Perianthium** 0. _Stamina_ 3. _Fem._ **Perianthium** (perigynium) utriculus compressus, apice contractus, persistens, arista hypogyna exserta hamata. _Stigmata_ 2–3, exserta. _Nux_ perianthio aucto inclusa.—_Herbe_ habito Caricis.

A remarkable genus, confined almost wholly to the southern hemisphere, not infrequent in South America, both tropical and temperate. Eleven species are found in New Zealand, and four in Tasmania, whereof two have been detected in the Australian continent. _Uncinia_ is very nearly allied to _Carex_, but differs from most species of that genus in the solitary spike, and most conspicuously in the erect bristle, hooked at the apex, which, arising from close to the base of the ovary, projects from the mouth of the perigynium. A similar organ, but not hooked at the top, is found in many species of _Carex_, as Dr. Boott informs me; it is an elongation of the axis, and shows that the so-called perianthium or perigynium is not a floral organ, but a bract, or rather two connate bracts placed right and left to the axis, like the double upper palea of Grasses.—I am indebted to Dr. Boott for the descriptions of the species. (Name from _oxyuros_, _a small hook._)

1. **Uncinia tenella** (Br. Prodr. 241); spica pura ovala laxa albo-viridi apice parce mascula ple-rumque nuda; stigmatibus 3; perigynii lanceolatis triquetratis enerviiis glabris viridibus, squama lanceolata acuta alba nervo viridi decidua paulo longioribus. (Gunn, 975.) (Tab. CLII. A.)

_Hab._ Moist woods at Hobarton and Black River, etc., _Gunn_; Western Mountains, _Archer._

_Distrib._ Victoria.


A very soft, delicate species, growing in dense tufts, with setaceous culms and leaves. Mr. Gunn says it grows on stones and dead trees, among Mosses and _Jungermanniae_, in dark, dry forests, where few other plants thrive.—_Plate_ CLII. A. Fig. 1, male scale and flower; 2, female ditto and perigynium:—_both magnified._

2. **Uncinia riparia** (Br.); spica elongata filiformi laxiuscula albo-viridi, apice parce mascula; stigmatibus 3; perigynii angustae lanceolatissubnervosis glaberrimis viridibus, squama lanceolata subacuta carinata viridi ½ longioribus. (Tab. CLII. B.)

_Hab._ Tasmania, _Brown_; Cuming's Head, _Archer_.—(Fl. Dec.)

A very slender species, 1–1½ foot high.—_Leaves_ slightly scabrous, narrow, flat, as long as or longer than the culm. _Spike_ 2–4 inches long, very slender; _flowers_ rather distant. _Scales_ lanceolate, narrow, subacute, keeled, green, with pale margins. _Perigynia_ very long, narrow-lanceolate, smooth, nerved, considerably longer than the scale.—_Plate_ CLII. B. Fig. 1, male scale and flower; 2, female ditto and perigynium; 3, perigynium:—_all magnified._

3. **Uncinia nervosa** (Boott, MSS.); spica ovali densa nuda e viridi ferrugineae; perigyniiis lineari-
lanceolatus, ore integro obliquo, viridibus nervatis glabris, squama lanceolata subacuta ferruginea medio pallida nervosa, superne albo-hyalina angustioribus longioribusque.—Boott. (Tab. CLIII. A.)

Hab. Tasmania, Gunn (mixed with U. tenella).

Culmus 4-poll. 7, leavis, gracilis. Folia filiformia, firma, culmum subequantia. Spica 6 lin. longa, 2 lin. lata, apice subdimidiatim mascula. Squamae conformes: mascula angustiores. Perigynium 2, ½ lin. longum, ½ lin. latum.—Boott.—Plate CLIII. A. Fig. 1, male scale and flower; 2, female ditto; 3, perigynium:—all magnified.

4. Uncinia compacta (Br. Prodr. 241); spica oblonga ferruginea nuda vel bracteata, apice plus minus mascula basi demum laxiflora; perigynii oblongo-ellipticis triquetris viridibus, ore albo obliquo, nervatis, squama ovato-lanceolata acuta ferruginea concolori brevioribus vel aequantibus. (Gunn, 1408.) (Tab. CLIII. B.)

Hab. Summit of Mount Wellington, Gunn; Western Mountains, Archer.

Culmus 4–13 poll., triqueter, leavis, rigidus. Folia 1–1½ lin. longa, culmo breviora, plana, firma. Spica 8–15 lin. longa, 3 lin. lata, apice sepe dimidiatim mascula. Squamae conformes: infima sepius setaceo-cuspidata, rarius spica longior. Perigynium 2, ½ lin. longum, ½ lin. latum. Achenium 1–, ½ lin. longum, ½ lin. latum, inaequaliter triquetrum, castaneum, basi styli incassata. (Boott.)—Plate CLIII. B. Fig. 1, male scale and flower; 2, female ditto; 3, perigynium:—all magnified.

Nat. Ord. XVI. Gramineae.

This extensive and important Natural Order is very scantily represented in Australia, where (including Tasmania) only about 350 species have been found; hence, though one of the largest natural family of Monocotyledons, it here but little exceeds Cyperaceae in numbers, and is very much smaller than Leguminosae, Myrtaceae, Compositae, or Proteaceae. Altogether the Grasses form less than one-twentieth of the whole flowering plants of this part of the globe, a very much smaller proportion than they do in any other country of equal area. The Order varies much in relative numbers to other plants in the different quarters of the continent, the Tasmanian proportion rising to one-sixteenth of the flowering plants of that Island. The Swan River proportion is very much smaller, and the tropical greater.

In the determination of the Tasmanian Gramineae, I have received very great assistance from my friend Colonel W. Munro, through whose remarkable knowledge of this difficult and extensive Order of plants, many of my doubts and perplexities have been solved.

Gen. I. Tetrarrhena, Br.


New Holland and Tasmanian Grasses, with slender, simple or branched culms, flat leaves, and spiked or racemose inflorescence.—Spikelets of three flowers, imbricated on opposite sides of the rachis. Glumes two very small scales. Two lower flowers neuter; the lowest with one ovate, concave palea; upper neuter flower with one palea like that of the terminal flower. Upper flower hermaphrodite. Palae two, boat-shaped; lower ovate-oblong, blunt, notched at the apex; upper smaller, one-nerved. Scales two, alternate with the palea. Stamina four. Ovary sessile. Caryopsis enclosed in the persistent paleae. (Name from tetrapus, and apoew, a male; in allusion to the four stamens.)
1. *Tetrarrhena distichophylla* (Br. Prodr. 210); rigida, scaberula et pilosa, culmis basi ramosis cespitosis foliosis, foliis distichis brevisbus strictis planis concavisque vaginisque sulcatis ore ciliatis, spiculis scabris pilosis laxe imbricatis inferioribus pedicellatis, paleis nervosis, floris infimi hermaphroditoto multo breviore.—Ehrharta distichophylla, *Lab. Nov. Holl.* i. 90. t. 117. (Gunn, 1473.)

**Hab.** Dry woods, probably common: Hobarton and Penquite, *Gunn.*—(Fl. Nov.)

A very harsh, rigid, tufted Grass, a span to a foot high, variable in size, very rough to the touch, also covered with short, spreading hairs.—*Culmus* ascending, of many short branches, and a few long flowering ones, some of them prostrate, and covered with sheaths. *Leaves* more or less closely imbricated, distichous, strict and rigid, flat or concave, deeply grooved; sheaths hairy at the mouth; blade ½-1½ inch long. *Flowering culm* leafy to the top. *Spike* ½-2 inches long, erect; lower spikelets pedicelled. *Spikelets* scabrid and pubescent, blunt, ½ inch long. *Glumes* and lower *palea* short, broad, blunt.

2. *Tetrarrhena tenacissima* (Nees, in Hook. Lond. Journ. Bot. ii. 409); scabrida, culmis elongatis flexuosis intertextis laxe foliosis ad nodos ramosis, folii planis, vaginis ore ciliatis, culmis floriferis gracilibus, spiculis glabris, glumis obtusis nervosis, paleis obtusis inferiore ceteris ½ breviore.—*T. contexta, Mueller, MSS.* (Gunn, 987.) *(Tab. CLIV.)*

**Hab.** Moist places, near the sea, at Black River (north-west coast), *Gunn.*

**Distrib.** Victoria, Cape Otway, south-east coast of Australia.

A very remarkable Grass, climbing over bushes with its flexuous, branching culms, 6-7 feet long.—Whole plant very scabrid. *Culmus* deeply furrowed. *Leaves* remote, with long sheaths, hairy at the mouth and blades, 1-1½ inch long. *Spike* 1 inch long, of eight to ten distichous, smooth spikelets on a flexuous rachis, terminating the slender upper part of the culm. *Glumes* blunt, nerved; *lower palea* blunt, itself as long as the upper, which are also blunt, and 2 lines long.—*Plate CLIV.* Fig. 1, spikelet; 2, hermaphrodite flower; 3, ovary and squamule:—*all magnified.*

3. *Tetrarrhena acuminata* (Br. Prodr. 210); culmis decumbentibus, foliis brevisbus vaginisque glabris, spica oblonga 4-8, spiculis lanceolatis, palea inferiore nervosa acuminata, superiore breviore truncata.


**Distrib.** Victoria.

A slender, much branched species.—*Culmus* decumbent, about 6-12 inches high. *Leaves* short, 1-3 inches long, glabrous. *Spike* oblong, of four to eight large, lanceolate spikelets. *Palea* strongly striate; outer acuminate; inner shorter, truncate.

**Gen. II. MICROLÆNA, Br.**


A small genus of Australian, Tasmanian, and New Zealand Grasses, closely allied to *Tetrarrhena,* differing from it in the long villous pedicel to the florets, which are thus separated from the small glumes, as also by the narrow awned palea of one or both of the neater flowers, the linear, hyaline, upper palea of the terminal flower, and the linear, compressed Caryopsis; the stamens are four. (Name from μικρο, small, and χλώα, a covering; in allusion to the small glumes.)
1. **Microlena Gunnii** (Hook. fil.); culmis elongatis foliosis vaginis foliisque scaberulis pilosisve, racemo elongato subsimplici, pedicellis brevissulcis, glumis minimis acutis stipite florum aquilongis, arisit palearum inequalibus, paleis scaberulis v. dorso ciliatis inferiore intermedio \( \frac{1}{2} \) breviore, floris hermaphroditi inferiore acuminato v. subaristato. (Gunn, 1492.) (Tab. CLV. A.)

Hab. Penquite, near Launceston, Gunn; Cheshunt, Archer; Huon River, Oldfield.—(Fl. Nov.)

Culmus tufted, branched below, 2–3 feet high, leafy. Sheaths rough or polished. Leaves hairy or scabrous, rarely smooth, their blade 2 inches long. Panicle drooping, slender, 6–8 inches long. Spikelets sessile or on very short pedicels, 1½ inch long, including the long awns, the lower of which is fully one-third shorter than the other. Glumes very small, as long as the stalk of the flower, sharp-pointed. Palea deeply furrowed, rough or ciliated at the back; intermediate one acuminate, or with a very short awn.—Very nearly allied to *M. stipoides*, but larger, more rough and hairy, with a shorter pedicel to the flower.—Plate CLV. A. Fig. 1, spikelet; 2, hermaphrodite flower; 3, squamule, ovary, and stamens:—all magnified.

2. **Microlena stipoides** (Br. Prodr. 210); glabra v. vaginis foliisque parce pilosis, culmis gracilibus basi ramosis foliosis, panicula gracili nutante, pedicellis inferioribus elongatis, glumis minimis acutis stipite florum brevioribus, arisit paleraum subequalongis, paleis scaberulis subequalibus v. inferiore \( \frac{1}{2} \) breviore, floris hermaphroditi palae inferiore acuta v. breviter aristata.—Kunth, Agrost. p. 16; Fl. N. Zael. i. 289. Ehrharta stipoides, Lab. Fl. Nov. Holl. i. p. 16. t. 118. (Gunn, 997.)

Hab. Launceston and Flinders' Island, etc., Gunn.—(Fl. Nov.)

Distrib. South-eastern and South-western Australia, from Port Jackson to Swan River; New Zealand.

A slender Grass, 18 inches to 2 feet high, smooth or slightly hairy on the sheaths and leaves, which are short and flat (2–3 inches long).—Panicle branched at the base, long, slender, nodding. Lower spikelets on long slender stalks. Glumes very minute, deciduous, generally shorter than the bearded pedicel of the flowers. Flowers 1 inch long, the two lower of one palea each, their awns of equal length, in the lower \( \frac{1}{3} \) shorter than in the upper. Lower palea of the upper flower sharp or with a short bristle.

**Gen. III. DIPLAX, Banks et Sol.**

*Glumae minimæ, 3-flore; floribus sessilibus, approximatis, basi nudis; inferioribus neutris, 1-paletatis, paleis acuminatis v. aristatis; supremo hermaphrodito 2-paletae, palea inferiori acuminata, superiore hyalina. Squamulae 2, glabrae. Stamina 2–4. Caryopsis libera, paleis obtecta.—Culmis simplicibus v. ramosis; foliis elongatis, planis; panica nutante.*

A Tasmanian and New Zealand genus, very nearly allied to *Microlena*, but differing in the sessile flowers not hairy at the base, and the obscurely awned paleae of the neuter flowers. (Name in allusion to the two stamens of the first-described New Zealand species.)

1. **Diplax Tasmanica** (Hook. fil.); glaberrima, culmis caespitosis basi foliosis (foliis planis) supernae gracilibus, racemo brevi rarifloro, spiculis longe pedunculatis, gluma superiore obtusa inferiore ter majore paleis \( \frac{1}{4} \) breviore, fl. neutr. paleis breviter aristatis, fl. hermaph. palea inferiore subacuta, staminibus 2. (Gunn, 1481.) (Tab. CLV. B.)

Hab. Recherche Bay, Gunn.—(Fl. Dec.)

A perfectly smooth, tufted Grass, a foot high.—Culmus tufted and leafy below, very slender above. Leaves 4 inches long, \( \frac{1}{2} \) broad, flat. Raceae of six to eight large spikelets (\( \frac{1}{3} \) inch long with the awns), on slender, flexuous peduncles. Glumes very unequal, blunt, the upper largest, one-fourth as long as the paleae above it. Palea of the lower neuter flower shorter and with shorter awns than the upper. Lower palea of the fertile flower sharp. Stamina 2.—Plate CLV. B. Fig. 1, spikelet; 2, hermaphrodite flowers; 3, squamule, ovary, and stamens:—all magnified.

**VOL. II.**
Gen. IV. SPINIFEX, L.


A very remarkable and conspicuous genus of downy or silky Grasses, forming creeping, bushy tufts in sand, much branched. Spikes collected into globose bunches; male spikes solitary, placed at the base of a long, naked, subulate rachis; hermaphroditic (androgynous) spikes usually on separate plants. Spikelets two-flowered. Glumes two, membranous, nearly equal. Palea of the male spikes two, membranous; lower oblong, channelled; upper with two ciliated keels. Androgynous spikelets spiked, two-flowered; lower flower male or neuter, with two (rarely one) membranous palea; upper flower hermaphroditic, with two coriaceous, oblong, concave palea, the lower including the upper, which is two-nerved. Scales two, fleshy. Caryopsis enclosed between the paleae, free. (Name from spina, in allusion to the spinous rachis of the male spikelets.)

1. Spinifex hirsutus (Lab. Fl. Nov. Holl. ii. p. 81. t. 230, 231); vaginis sericeo-tomentosis v. inferioribus glabratis, foliis intus glabris inermibus, rachis spicis masculis spicam superante.—Br. Prodr. 198; Fl. N. Zeal. i. 292. (Gunn, 584.)

Hab. Sandy shores on both the north and south coasts.—(v. n.)

Distrib. Extratropical Australia; New Zealand.

A very strong-growing, silky and woolly Grass, with creeping, knotted, stout, rooting culms, branched here and there; the branches bearing long, involute, flexuose leaves, 1–1½ foot long.—Lower sheaths smooth and shining, upper, as well as the back of the leaf, covered with shaggy or silky tomentum or hairs. Male spikes numerous, peduncled, silky, 1 inch long, collected into an involucrate head, the rachis produced beyond the flowers. Hermaphroditic (androgynous) spikes also numerous, and collected into an involucrate head, formed of numerous silky spines, 4–5 inches long, that stick out in all directions; each of these is a peduncle or rachis, at whose base only the fertile flowers are to be found.

Gen. V. ANTHISTIRIA, L.

Spiculae 1–2-flora, fasciculatae (fasciculis paniculatis bracteatis); 4 inferiores 1–2-glumae, neutrae v. mascula, circa 3 superiores fasciculatae; superiorem 2 laterales bigluma, pedicellate, masculus; intermedia (fasciculo centralis) sessilis, hermaphroditis. Gluma inferior superiorem amplectens. Palea hyalina, membranacea; flosculis hermaphroditis 2; neutris masculisque plerumque 1; inferiores flosculi hermaphroditi aristato. Squamula 2. Stamina 3.—Gramina plerumque elata, planifolia.

A very curious genus, whose structure is not easily understood by the student, but this species may easily be recognized by its peculiar habit, spathaceous spikelets, and long, stout awns. The Tasmanian species (Kangaroo Grass) is particularly valuable as an aird and abundant fodder Grass in the dry seasons.—Spikelets pannicled, about seven together, one- or two-flowered, collected into bundles, and each bundle furnished with a large awned bract or spathe. Four outer spikelets in each bract sessile, whorled round three central ones, which are placed on a bearded pedicel, of one or two awnless or short-awned glumes, each containing one neuter or male flower that has only one pala. Of the three central flowers, the two lateral are stalked, awnless, or with short-awned glumes, male, and contain a unipaleate flower; the middle spikelet is sessile, and has coriaceous, blunt glumes, and uni- or bi-paleate, hermaphrodite flowers. Palea membranous, the outer one of the hermaphrodite flower with a long, strong, bent awn. Stamina 3. (Name, the Greek one for a species of Grass.)
1. **Anthistiria australis** (Br. Prodr. p. 200); culmis teretibus vaginisque glaberrimis, foliiis glabris scaberulisve, glumis spathisque imberbibus.—An var. A. ciliata? (Gunn, 591.) (Tab. CLVI.)

**Hab.** Abundant throughout the Island.—(Fl. Oct.–Dec.) (v. e.) Colonial name, “Kangaroo Grass.”

**Distr.** Throughout Australia (India, Abyssinia, and South Africa?).

A tall, glabrous, smooth Grass, 1–3 feet high.—**Culm** leafy. **Leaves** smooth or seabrid. **Ligula** membranous. **Spathe**s 2 inches long, with long, straight points. **Glumes** of outer spikelets acuminate, ½ inch long. **Pedice**l of central spikelets with a whorl of brown hairs at the top; two lateral male spikelets with subulate, almost awned glumes. **Outer glume** of central spikelet with a rigid, brown, flexuose, bent, strong awn, 1½–2 inches long.—This appears probably to be a glabrous state of the widely-diffused *A. ciliata*.—Plate CLVI. Fig. 1, fascicle of spikelets in bract; 2, lower spikelet; 3, lateral of the three central spikelets; 4, central hermaphrodite spikelet; 5, hermaphrodite flower; 6, squamule, stamens, and ovary:—all magnified.

**Gen. VI. HEMARTHRIA, Br.**

**Spica compressa**, semiarticulata. **Spiculae** quovis articulo utreque fertiles, binatae; altera (inferior) sessilis, per glumam superiorem rachi agglutinata; altera (superior) pedicellata, pediculo cum rachi arce connato, glumis liberis. **Flores** hyalini, mutici; inferior unipaleaceus, neuter; superior bipaleaceus, hermaphroditus. **Squamule**s 2, truncate, glabres.—Gramina *ramosa*, foliis *planis*; *ramulus monostachyis*, subsessile, *simplicibus*.

A very curious genus of Grasses, natives of Southern Europe, Australia, India, South Africa, and North America, belonging to a section of the Natural Order that has usually a jointed rachis to the spike, which is however hardly the case in *Hemarthria.*—**Inflorescence** spiked. **Spikelets** two together, the lower sessile, the upper apparently so also, but seated on a flat pedicel, which is attached throughout its whole length to the rachis of the spike. **Glumes** two, the inner (upper) one of the lower spikelet attached by its back to the rachis of the spike; glumes of the upper spikelet both free. **Flowers** included, two in each pair of glumes; the lower of one palea, neuter; upper of two paleae, hermaphrodite. **Scales** two, truncate. **Stamens** 3. (Name from *ноп, half, and αονός, a joint; in allusion to the structure of the spike.)

1. **Hemarthria uncinata** (Br. Prodr. p. 207); rigida, culmis strictis foliosis subcompressis glaberrimis, folii subbiﬁaris patulis brevibus basi vaginisque parce ciliatis, spica angusta elongata erecta, gluma superiore apice hamata. (Gunn, 417.)

**Hab.** Coasts of the northern parts of the Island, **Gunn.**.—(Fl. Dec.)

**Distr.** Australia.

This is, I believe, a littoral Grass, forming dense tufts.—**Culm** creeping, very hard and tough, leafy below 3 inches to a foot high, quite smooth and glabrous, compressed, often curving. **Leaves** distichous, coriaceous, smooth except at the base, where the margins, as also of the sheaths, are ciliated; blade 1–6 inches long. **Spike** 1½–4 inches long, narrow, slender. **Spikelets** closely pressed to the rachis, hardly imbricated, green or purplish, ½ inch long. **Outer glumes** flatish, nerved, acuminate, cuspidate; inner keeled, with an acuminate point, terminating in a sharply reflexed point. **Palea** membranous.

**Gen. VII. HIEROCHLOE, Gmel.**

**Spiculae** 3-florae; *floribus* lateralisbus masculis, intermedio hermaphrodito. **Gluma** 2, carinatae, subaquales. **Palea** 2, muticae v. inferior aristata, carinata; aristae terminali v. dorsali, recta v. incurva, brevi. **Squamulae** 2, bilobae. **Fl. 3. Stamina** 3. **Fl. 3. Stamina** 2. **Caryopsis** libera, paleis obtecta.—Gramina *odoras*, folii *planis* v. involutis; *spiculis* *punctatis*, *sedibus*, majusculis.
A very beautiful genus of sweet-smelling Grasses, found principally in the cold climates of both hemispheres, and on the lofty mountains of warmer ones. One southern species is common to Tasmania, New Zealand, and Fuegia; another to Europe, New Zealand, and Tasmania.—*Leaves* soft, flat or involute. *Culms* tufted. *Panicles* loose or compact, of many large, pedicelled, shining, often pale-yellow spikelets. *Glumes* equal, keeled, with three almost sessile flowers, the two lower male, with three stamens, the middle or upper hermaphrodite, with two stamens. *Palea* broad, blunt, or entire; lower keeled, with a short, straight or bent, terminal or dorsal awn; upper two-nerved; middle flower with shorter awns or none. *Scales* two, two-lobed. *Seed* free within the *palea*. (Name from *tepos*, sacred, and Χρυσόν, a *Grass*; the *H. borealis* being dedicated to the Virgin Mary.)


**Hab.** Common in wet places throughout the Island.—(Fl. Nov.) (v. v.)

**Distrib.** New Zealand, and the islands to the south of it; Fuegia.

A large and handsome *Grass*, conspicuous for its delicious odour, like that of the common vernal *Grass* (*Anthoxanthum*) of England, that gives the sweet scent to new-made hay.—*Culm* leafy, densely tufted, 2–3 feet long, herbaceous. *Leaves* flat, smooth or minutely scabrid to the touch; ligulæ membranaceous, broad. *Panicle* nodding, 6–10 inches long, of many shining, pale spikelets; branches capillary, hairy here and there; lower 2–3 inches long. *Glumes* shining, about ½ inch long, as long as the flowers; outer with sometimes two lateral, very short nerves at the base; upper three-nerved to the middle. *Lower palea* of the lateral flowers bearded below, downy above, the margins and back with long cilia, five-nerved; *awn* short, inserted below the top. *Lower palea* of the upper flower smooth or downy above, with a short *awn*.—For observations on the varieties of this *Grass*, see 'Flora Antarctica.'


**Hab.** Top of Mount Wellington and other mountains, *Frazer, Gunn, Archer.*—(Fl. Jan.)

**Distrib.** New Zealand, Arctic and Alpine Europe, Asia, and North America, as far south as Mexico.

A very distinct-looking *Grass*, much smaller than *H. redolens*, with shorter, more strict leaves, and a small, ovate panicle of fewer, smaller flowers.—*Culm* a foot high, tufted. *Leaves* 4–8 inches long, strict, quite smooth, flat. *Panicle* 2–3 inches long, ovate. *Spikelets* ½ inch long, broad. *Glumes* short, acute, as long as the flowers, three-nerved, the lateral nerves shorter, sometimes obscure. *Flowers* silky; outer palea with ciliated margins, and an *awn* which is very variable in length, inserted above or below the middle.—I had named this *Grass* *H. Frazeri* in the 'Flora Antarctica,' from Tasmanian specimens gathered by Mr. Frazer on Mount Wellington, but I quite agree with Colonel Munro in considering it identical with the *H. borealis*, a very common plant in the Arctic regions, and in the mountains of Northern Asia, Middle and Southern Europe, and North America. It varies greatly in the position and length of the *awn*, and size of the panicle.

3. **Hierochloe rariflora** (Nob. in Fl. Antarct. i. 93, in note); culmis gracilibus elongatis nodosis ramosis, foliis scaberulis strictis angustis subsetaceis flexuosisve, panicula ovata pauciflora, ramis flexuosis, glumis inaequalibus subacutis floribus brevioribus, floresculis muticis obtusis, palea inferiore glabrata marginibus ciliatis pubescentibusve. (Gunn, 1467.) (Tab. CLVII. A.)
Hab. Northern part of Tasmania, Gunn.—(Fl. Dec.)

Distrib. King George's Sound and Victoria.

A very distinct species, conspicuous for its slender, branched, leafy, knotted culms, 2–3 feet long, its narrow, strict, rigid leaves, rough to the touch, and small, loose panicle of small spikelets, on long, flexuous branches.—Glumes rather blunt, unequal, shorter than the flowers, which are nearly smooth, except at the margins, and have no awns.—Plate CLVII. A. Fig. 1, spikelet; 2, male flower; 3, hermaphrodite flower; 4, squamule, stamens, and ovary:—all magnified.

Gen. VIII. ALOPECURUS, L.

Glumes 2, naviculares, subaequales, basi connati, 1-flora. Palea 1–2, marginibus connatis v. liberis; inferior carinata, dorso sepius aristata; superior brevior, 1-nervis, v. 0. Squamule 0. Caryopsis elliptica, compressa, inter glumas induratæ paleasque libera.—Culmis sepius simplicibus; foliis planis; panicula conferta, spicaeformi, cylindrica, densiflora.

A genus almost wholly confined to the temperate and frigid regions of the northern hemisphere; but one species is common to the Arctic and Antarctic regions (Fuegia), and the Tasmanian one is found also in New Zealand and in Europe.—Culms generally simple, with flat leaves. Panicles contracted into dense, pale, cylindrical spikes. Spikelets one-flowered. Glumes laterally flattened, boat-shaped, keeled, joined together below. Palea one or two, free or connate; lower keeled, often awned at the back; upper, when present, smaller, one-nerved. Stamens three. Caryopsis compressed, free, included in the hardened glumes and paleæ. (Name from ἄλοπες, a fox, and οὖνος, a tail.)


Hab. In a rivulet, Formosa, Gunn. (Common Foxtail Grass of England.)—(Fl. October.)

Distrib. New South Wales and Victoria, New Zealand, Eastern, Central, and Northern Asia, North America, Europe.

The culms and leaves quite smooth, the former 1½–2½ feet high, ascending, bent below. Panicle a soft, downy, cylindrical, green spike, 1½–2½ inches long. Spikelets imbricated on a woolly rachis. Glumes downy and fringed. Palea with an awn of variable length inserted at or below the middle, sometimes at the base.

Gen. IX. STIPA, L.


A large genus, of generally handsome, rigid, wiry, shining Grasses, conspicuous for their very long awns, abundant in the temperate and warmer regions of the globe; rarer in the tropics or cold zones; differing from Dichelachne chiefly in the long glumes and coriaceous upper paleæ, the lower of which is entire at the tip, and the awn being jointed on to its summit.—Leaves involute, often setaceous, smooth, downy, or ciliated in the true species. Glumes two, equal, longer than the floret, generally transparent, shining, much acuminate. Floret solitary, stipitate, downy, villous below. Paleæ coriaceous, margins involute; lower with a terminal, twisted awn; upper shorter, two-nerved. Anthrum cells often bearded. Squamule three, attached to the stalk of the ovarium. Seed enclosed in the involute paleæ. (Name from στῦνη, tow; in allusion to the feathery awns.)
1. **Stipa semibarbata** (Br. Prodr. 174); culmis basi nodis vaginisque sericeis pubescentibusve, ligula ciliata, foliis infinis setaccis scabris pilosis glabraisve caulinis sepius latioribus glabris, panicula subcontracta, glumis flore \( \frac{1}{2} \) v. bis longioribus, palea inferiore sericea, arista longissima e basi ad v. ultra medium plumosa.—*Kunth, En. i. 183.* (Gunn, 1480, 1452.)

**Hab.** Abundant in dry soil throughout the Island.—(Fl. Nov.) (*v. v.*)

**Distrib.** Extratropical Australia.

A common, tall, harsh Grass, 2–3 feet high. —*Culmi* stout, silky or downy below, as are the sheaths and knots, often quite smooth above; ligula with a tuft of silky or woolly hairs. *Lower leaves* a span long, narrow, involute, rigid, rough or covered with spreading hairs, sometimes quite smooth; *upper* often broader. *Panicle* contracted, a span long and upwards. *Glumes* colourless or purplish, rough to the touch but not to the eye, about \( \frac{1}{2} \) inch long, twice as long as the silky palea. *Awns* 3 inches long, densely covered with silky hairs from the base to about or above the middle. —A variable Grass, like its congeners, in hairiness and pubescence of the leaves, sheaths, and culms. The feathered awn always distinguishes it from all except perhaps *S. mollis*, Br., of Port Jackson, which I cannot distinguish from this otherwise. Sieber’s specimen of *S. mollis* (Agristotheca, t. 60) is the same as Brown’s *S. semibarbata*. A very similar plant, but with shorter awns, inhabits the Swan River Colony.

2. **Stipa pubescens** (Br. Prodr. 174); glaberrima, v. culmis basi nodis vaginisque pubescentibus, foliis infinis setaccis patentim pilosis scaberulis glabrisve, ligulis nudis villosisve, panicula contracta, glumis flore \( \frac{1}{2} \) v. bis longioribus, palea inferiore sericea, arista longissima nuda v. infra medium pubescente.—*Kunth, En. i. 183.*  S. pubinodis, *Trin. et Rupr. Stip. 50.* (Gunn, 588, 996, 1453.)

**Hab.** Common in dry soils.—(Fl. Nov.) (*v. v.*)

**Distrib.** Extratropical Australia.

Very similar in habit and general appearance to *S. semibarbata*, differing chiefly in the awn not being feathery. The glumes vary a good deal in size, as do the awns, from 2\( \frac{1}{4} \)–3\( \frac{1}{2} \) inches long. In old specimens the glumes become truncate and erose at the apex.


**Hab.** Tasmania, probably common, *Gunn, etc.*—(Fl. Dec.)

**Distrib.** Southern and temperate Australia.

A tall slender species, 3 feet high, of which Mr. Gunn has sent copious specimens, but of the flowering culms only, without root and lower leaves, and with no precise habitat attached. —*Culmus* above and upper leaves perfectly smooth, as are the sheaths and involute blades; ligula very short, quite glabrous, or ciliated. *Panicle* narrow, erect, fewer-flowered than in *S. flavescens*, a span long. *Glumes* acuminate, not much longer than the flower. *Awn* quite smooth, or downy, 2 inches long.

4. **Stipa setacea** (Br. Prodr. 174); gracilis, foliis setaccis, vaginis brevibus membranaceis sericeis vaginis nodisque glabris pubescentibusve, panicula stricta rariflora effusa, ramis primariori brevibus subverticillati flexuosis, arista geniculata elongata nuda.—*Kunth, En. i. 183.* (Gunn, 1487.) (Tab. Cl.VII. B.)

**Hab.** Tasmania, *Brown*; Launceston, *Gunn*.

**Distrib.** Extratropical Australia.

A very pretty, slender species. —*Leaves* short, 3–5 inches, setaceus, smooth, glabrous or more or less downy, with a silky, short, membranous ligula (I do not find the ligula to be elongated as described by Brown). *Culmi* slender, about 18 inches high. *Panicle* a span long, erect, few-flowered. *Primary branches* capillary, flexuose,
very short, spreading, whorled or fasci-cled, one- to three-flowered. *Glumes* purple, \(\frac{1}{2}\) inch long, one-half longer than the flower. *Palea* silky. *Aven* 3 inches long, very slender, glabrous or faintly downy.—*Plate CLVII*. *B*. Fig. 1, spikelet; 2, flower; 3, ovary, squamulae, and stamens:—all magnified.

[Note.—*S. elegansissima* (Lab. Fl. Nov. Holl. i. p. 23. t. 29) is stated by Mr. Brown (Prodr. p. 175), on the authority of the late Mr. Lambert’s herbarium, to be a native of Tasmania. It is a native of S.W. Australia and Swan River, and may be recognized at once by the long, beautifully ciliated, capillary branches of the widespread panicle.]

Gen. X. DICHELACHNE, Endl.


Rigid, wiry Grasses, with subulate or convolute leaves, and narrow, rather dense panicles of shining flowers; natives of Australia, Norfolk Island, and New Zealand.—*Glumes* two, membranous, sharp, as long as or longer than the solitary flower, which has a short bearded stalk. *Palea* two, lower membranous or coriaceous, scabrid or silky, bifid, with a twisted awn from between the lobes, which is not jointed on to the palea; upper shorter, linear, two-toothed at the tip. *Scales* three, curved. *Seed* very narrow. (Name from \(\delta\alpha\gamma\phi\\lambda\nu\), cloven-footed, and \(\alpha\chi\varphi\), chaff; in allusion to the bifid palea.)


Hab. Throughout the Island, abundant.—(Fl. Aug.–Dec.) (v. v.)

Distrib. Extratropical Australia and New Zealand.

A very abundant and variable Grass, quite smooth, or with the lower leaves and sheaths covered with soft down. *Culms* annual, tufted, 1–3 feet high, stout or slender, leafy at the base and sometimes up to the inflorescence. *Panicle* 4–8 inches long, pale yellow-green, shining, contracted, dense and spike-like, rarely thin, with the branches conspicuous and few-flowered; always covered with the long flexuose awns. *Glumes* very long, slender, acuminate, scabrid at the keel, longer than the flowers by one-half or one-third. *Lower palea* long, scabrous, hard, with a contracted narrow entire or bifid point, and a dorsal awn, which is flexuous and not twisted, inserted above the middle. *Upper palea* shorter, narrow, membranous, bifid at the top.—This curious plant differs from *Dichelachne* in the awn not being twisted, from *Agrostis* in the pedicelled flower, from *Muhlenbergia* in the long glumes. I have followed Trinias and Ruprecht by placing it in the first-named genus, but have retained the original specific name of *crinita*, which is most appropriate and familiar, and used by Brown, Labillardière, Forster, and Linnaeus. MM. Trinias and Ruprecht, on the other hand, substitute that of *vulgaris* for the Australian specimens, and *Forsteriana* for the New Zealand ones.

2. **Dichelachne scurea** (Hook. fil. Fl. N. Zeal. 294); laevis, v. culmis basi vaginis foliisque scaberulis, folis planis v. involutis, panicula elongata laxa rariflora, glumis inequalibus acuminatis florem

Var. β; foliis velutinis.

Hab. Abundant throughout the Island. β Hobarton, Oldfield.

Distrib. New South Wales, Victoria, New Zealand, and Norfolk Island.

A more slender plant than D. crinata, but very closely allied to it, differing in the thin panicle, which is loosely branched, and comparatively very few-flowered. The glumes are shorter than in D. crinata, as long as the flower, and the twisted awn is not four times longer than the upper palea.—Plate CLVIII. A. Fig. 1, spikelet; 2, flower; 8, ovary, stamens, and squamules—all magnified.

3. **Dichelachne stipoides** (Nob. in Fl. N. Zeal. i. 294. t. 66); cespitosa, glaberrima, polita, foliis elongatis strictis setaceo-involutis, panicula erecta contracta paniciflora parce ramosa, glumis levibus longe setaceo-acuminatis florem ½ excedentibus, paleis subcoriaceis inferiori sericeo-villosa, arista geniculata glaberrima flore bis-ter longiore. (Gunn, 1490.)

Hab. Abundant, especially near the sea.—(Fl. Nov.) (v. v.)

Distrib. Extratropical Australia and New Zealand.

Also found in New Zealand, growing, as in Tasmania, near the sea.—A handsome, densely tufted, rigid, wiry, smooth and polished, yellow Grass, often forming large tussocks, with the habit and appearance of a Stipa.—Culmis 1½–3 feet high. Leaves slender, involute, wiry, erect, terete. Panicle contracted, 4–6 inches long, strict, erect, few-flowered, and sparingly branched; branches short, capillary, erect. Glumes ½–1 inch long, white or yellow, membranous, thin and shining, lanceolate, with a long slender point. Flower shorter than the glumes, covered with soft, silky, spreading hairs. Paleae rather coriaceous; lower with two small teeth at the top, one on each side the awn, which is curved, about an inch long, and quite glabrous.

Gen. XI. **PENTAPOGON**, Br.

**Spiculae** 1-florae; flore stipitato, basi barbato. **Glumae** 2, subaequales, carinate, subaristatae, flore minus. **Palea** 2, inferior apice 5-aristata, arista intermedia majore tortili, superior minor mutica. **Squamulae** acinaeiformes.—Gramina Australasica et Tasmanica; foliis planis v. involutis; spiculis paniculatis; panicula compacta.

A small genus, confined to Australia and Tasmania.—Leaves flat. Culmis simple or branched at the base. Panicle long, dense, crinite from the number of awns. Spikelets one-flowered, without any rudiment or pedicel of a second; flower bearded below, stalked. Glumes nearly equal, keeled, very acuminate, almost awned, shorter than the flower. Palea two, the lower with a narrow top ending in five rigid awns, of which four arise from the teeth, the fifth, larger, twisted, rises from the back of the palea behind and between the others. (Name πυται, five, and πυτων, a beard; in allusion to the five awns.)

1. **Pentapogon Billardieri** (Br. Prodr. 173); annua, cespitosa, villosa v. pubescentis, rarius glaberrima, culmis erectis sulcatis, foliis involutis, panicula subnutante contracta aristis flexuosis crinita, glumis subaristatis ciliatis, palea inferiore scaberula dura aristas brevisoribus duplo longiore, arista intermedia geniculata glumis bis-ter longiore.—Beauv. Agrost. t. viii. f. 11. Kunth, En. i. 239. Agrostis quadrifida, Lab. Fl. Nov. Holl. i. p. 20. t. 22. (Gunn, 1476, 1477, 1478.)

Hab. Probably common: Hobarton, Oldfield; Cheshunt, Archer; Launceston, Gunn.—(Fl. Nov.)

Distrib. Victoria.

Very variable in size and hairiness, smooth or softly villous, the culms sometimes 6 inches high, almost
filiform, with a very few-flowered panicle, at others stout, 2 feet high.—Leaves involute, smooth or downy. Panicle pale-coloured and shining, 2-6 inches long, narrow, much like that of *Dichelachne erinata*, drooping, covered with the long flexuose awns. *Glumes ciliatse.* Lower palea narrow, rigid, firm, smooth or scaberulous, half as long as the shorter awns. *Long awn* often purple, twice or thrice as long as the glumes, bent, twisted. *Upper palea* narrow, with two nerves, ciliated towards the entire top.

Gen. XII. AGROSTIS, L.


A large genus of Grasses, most abundant in temperate and cold climates, advancing as near to either Pole as any other phanerogamic plants do.—Culms often tufted. *Leaves* flat or involute. *Panicles* lax or dense, branches often whorled. *Glumes* two, nearly equal, keeled, one-flowered, with or without the pedicel of an upper flower. *Paleae* two, lower awnless, or awned at the back (often both in the same species), upper two-nerved, rarely absent. *Awn* never or very slightly twisted. *Squamae* two. *Stamens* three. *Caryopsis* quite free. (Name from *aupos, a field, the species abounding in open places.)

§ 1. Trichodium.—*Flower sessile, with no rudiment or pedicel of a second. Upper palea 0, or much smaller than the lower; lower awnless, or with a short dorsal awn, not hairy or silky at the base, or slightly so.*


A. gelida, *F. Mull. MSS.* (Gunn, 1011, 1448, 1449, 1471.) (Tab. CLVIII. B.)

Hab. Common in shady places, ascending to 4000 feet.—(Fl. Nov.-Jan.) (v. v.)

Distrib. Victoria, New Zealand.

A slender, tufted Grass, 6-8 inches high, erect or prostrate at the base, quite smooth.—*Culms* leafy upwards, or only at the base. *Leaves* very narrow, flat or involute. *Ligula* long, membranous. *Panicle* of few lax, capillary trichotomous branches, whorled in threes. *Spikelets* minute. *Glumes* about ⅓ longer than the flowers, nearly equal, scabrid along the keel. *Lower palea* quite glabrous, very membranous, broad, truncate, with faint nerves. *Awn*, when present, as in some specimens from New Zealand, dorsal, slender, included. *Upper palea* wanting in my specimens. —Panicles green or purplish; alpine specimens growing in exposed places have rigid, subulate leaves, and very short culms. It is very nearly allied to the *A. alpina* of the European alps, but the awn, when present, is never in basal, and the panicle is fewer-flowered.—Plate CLVIII. B. Fig. 1, spikelet; 2, flower; 3, stamens, squamule, and ovary; 4, caryopsis:—*all magnified.*

HAB. Dry grassy places; abundant.—(Fl. Oct.–Jan.) (v. v.)

DISTRIUB. Victoria.

Very similar to A. pareflora in slender habit, size, and general appearance, but conspicuously differing in the very much larger panicle, with more numerous, whorled, very slender, long branches, large spikelets, and the long awn inserted below the middle of the palea, which is usually rough. Also very near the European A. vulgaris, but the branches of the panicle are much longer; and to A. Lyallii of New Zealand, which has longer glumes and a silky palea.—PLATE CLIX. A. Fig. 1, spikelet; 2, flower; 3, pistil, stamens, and squameule:—all magnified.

§ 2. Bromidium.—Flower shortly pedicelled, with no rudiment or pedicel of a second. Upper palea present; lower with a fascicle of hairs at its base, and bi- to quadri-fid apex.


Var. A. lobata; elata, foliiis latisculis planis, panicula majuscula lobata, palea inferiore glabra.—A. lobata, Br. Prodr. 171. Bromidium lobatum, Nee, t. c. 415. (Gunn, 990.)

Var. B. montana; caespitosa, foliiis involuto-setaceis latis brevibus, panicula subcylindracea lobata v. interrupta, palea inferiore scaberula marginibus subscabris. (Gunn, 991.)

Var. γ. paniculata; elata, foliiis latis brevibus, panicula pyramidali, ramis inferioribus subverticillatis remotis patentibus reflexivse. (Gunn, 991.)

HAB. Abundant throughout the Island.—(Fl. Sept.–Dec.) (v. v.)

DISTRIUB. Extratropical Australia, New Zealand.

An extremely variable and very common Grass, presenting no constant characters by which the above-defined varieties may be always known from one another.—Culms a span to 3½ feet high, smooth or rough, as are the leaves and sheaths. Leaves broad or narrow, short or long, smooth or scabrid. Panicle densely spicate, cylindrical and continuous, or lobed, or more open and pyramidal, with the lower branches remote and spreading. Glumes ¾-½ inch long, always longer than the flower, but very variable in this particular. Flower on a short, villous pedicel. Lower palea scaberulous, rarely quite smooth, hard, concave, contracted at the point, and then bifid or ending in four little awns, which are very variable in relative length; great awn dorsal, inserted below the middle or towards the base, bent, twisted below; upper palea shorter, with two nerves that are scabrous at the back above, with sometimes a minute rigid pedicel at its base. Stamens three.—I have examined a vast number of Australian, New Zealand, and Tasmanian specimens of this most variable Grass, vainly trying to divide them into species or constant varieties. Brown’s specimens of Agrostis montana (in Brit. Mus.) resemble this, but have a slender panicle; florets as long as the glumes; palea rough, awned near the base.

§ 3. Deyeuxia.—Flower sessile or shortly pedicelled, furnished at the base of the upper palea with the (usually plumose) pedicel of a second flower, which is sometimes, but very rarely, perfect.

4. Agrostis aquata (Nees, in Hook. Lond. Journ. Bot. ii. 413); scaberula, culmis subelatis caespitosae erectis foliosis, foliiis planis ligula membranacea, panicula elongata effusa, ramis primariis plurimis verticillatis capillaris pedicellisque scabris, glumis ovatis subacutis scabris flore paulo longioribus, paleis firmis nervis inconspicuis inferiore truncata mutica superiore subbidentata basi extus pedicello gracili. — (Gunn, 1005.) (Tab. CLIX. B.)
Hab. Probably common, but no habitat given, Gunn.—(Fl. Jan.)

A tufted, handsome Grass, 2–3 feet high, everywhere slightly rough to the touch, similar in many respects to A. parviflora.—Culm erect, leafy. Leaves flat, rather narrow, with a membranous ligula. Panicle large, 8–10 inches long, spreading, very many-flowered. Primary branches numerous, whorled, capillary, as well as the secondary and long pedicels of the small spikelets scabrid. Glumes equal, ovate, acute, hardly longer than the flower, very scabrid, especially along the keel. Palea rather coriaceous, with obscure nerves, awnless; lower truncate; upper nearly as long, with two small teeth at the tip, and sometimes a small tuft of hairs at the base.—Plate CLIX. B. Fig. 1, spikelet; 2, flower; 3, pistil, squamule, and stamens; 4, caryopsis:—all magnified.

5. Agrostis Billardieri (Br. Prodr. 171); scaberula, folis latiusculis, panicula laxa, ramis primaris cito trichotomis, spiculis majusculis, glumis scaberulis glabrisve flore ½ longioribus, carina scaberula, palea inferiore basi sericea 4-nervi, nervis percurrentibus lateralibus arisitatis, arista ad medium paleae inserta glumis ½ ad bis longiore, palea superiori inferiore aequilonga lanceolata cuspidata setula ½ longiore.—Deyeuxia Billardieri, Kunth, Agrost. p. 244. Lachnagrostis Billardieri, Trin. Diss. in Index. Avena filiformis, Lab. Fl. Nov. Holl. i. p. 24. t. 31, non Forst. (Gunn, 592, 1007.)

Var. ½. setifolia; foliis angustae setaceis, arista prope basim paleae inserta.

Hab. Abundant throughout the Island.—(Fl. Oct.–Jan.) (v. v.)

Distrib. New South Wales, Victoria, and New Zealand.

A very elegant Grass, closely allied to the two following, if indeed all three be not varieties of the same species.—Culmus tufted, 1½ foot high. Leaves 6 inches long, 3½ inch broad, flat, smooth or rough to the touch. Panicle very lax, scabrid; branches very slender, whorled, trichotomus; pedicels long, slender. Spikelets larger than in the allied species, ½ inch long, often purple. Glumes narrow, smooth or scabrid, always scabrid at the keel. Lower palea silky at the base, ½ as long as the glume, with four nerves that project at the truncate top, the lateral of which are produced into short awns. Awn inserted at the middle of the palea, bent, one-half or twice as long as the glumes. Upper palea as long as the lower, with two short points, longer than the silky pedicel at its back.


Hab. Abundant throughout the Island.—(Fl. Oct.–Jan.) (v. v.)

Distrib. Extratropical Australia, New Zealand, Norfolk Island.

Generally a taller plant than D. Billardieri, with many more, much smaller, pale-green spikelets, and more silky flowers.—Culmus 1–3 feet high. Leaves flat, broad or narrow, quite smooth or scabrous. Panicle 4–8 inches long, of very numerous whorled, slender branches, that generally do not divide so soon as in the former species. Pedicels very slender. Spikelets ½–1 inch long. Glumes smooth, except along the keel, twice as long as the flower, and half as long as the awn. Lower palea very silky all over, truncate, the teeth produced into short points. Awn inserted at the middle. Upper palea shorter, blunt or two-toothed. Setula generally very small.

This plant is the Avena filiformis of Forster, in Herb. Hook., and also of Labillardière, in Herb. Hook. Mr. Brown
however refers Labillardière’s plant to his Agrostis Billardieri, with which the figure in Lab. Plant. Nov. Holl. agrees. The Agrostis emula appears an equally common and variable plant in Australia, Tasmania, and New Zealand, as Agrostis canina is in Europe.

7. Agrostis montana (Br. Prodr. 171); levis v. scaberula, foliiis plurumque setaceis filiformibus caulinis vagina elongata scaberula, panicula erecta contracta subcyllindracea, ramis erectis, spiculis subimbricatis, glumis scaberulis acuminatis flore equilongis, pala inferior scaberula chartacea apice contracta 4-cuspidata, arista basi torta versus basin palaee inserta glumis ⅓ longiore, superiore paulo breviore bidentata dorso apicem versus scaberula setula (flore secundo imperfecto rarius terminata) longe villosa bis longiore. (Gunn, 1479.) (Tab. CLX. A.)

Hab. Common on the mountains.—(Fl. Jan.)

Distrib. Alps of Victoria.

Very like some states of Agrostis quadririseta, but the panicles are smaller, the glumes no longer than the flower, and there is a villous setula at the base of the latter.—A foot and a half to a span high. Leaves much shorter than the culms, smooth or scaberulous to the touch; sheaths broad or narrow; lamina involute or flat, those on the culm with long sheaths. Panicle 1 ¼–3 inches long, erect, narrow, with loosely imbricated, erect spikelets, ¼ inch long. Glumes equal, sharp, scaberulous. Lower palea hard, scabrid, with two or four short points at the contracted tip. Awn inserted below the middle, twisted below, bent at the middle, not twice as long as the glumes. Upper palea shorter, with two nerves, which are scabrid at the back towards the bifid top. Setula half the length of the upper palea, with long, spreading, silky hairs.—A variable plant; alpine specimens have short, setaceous leaves; those from lower elevations have broader sheaths and flatter blades. I have occasionally seen a second imperfect flower produced on the setula.—Plate CLX. A. Fig. 1, spikelet; 2, flower; 3, pistil, squamulae, and stamina; 4, carypsis:—all magnified.

8. Agrostis scabra (Br. Prodr. 172); cespitosa, tota scaberula v. culmo superne levi, culmis foliosis, foliis angustis planis vaginis elongatis, ligula membranaceae, panicula laxa elongata, ramis primariis subfasciculatis, pedicellis glumisque scabris, glumis inter se et flore equilongis ovatis acutis, pala inferior rigida scaberula acuta mutica v. dorso ad medium breviter aristata, superiore paulo breviore bidentata setula parce villosa duplo v. triplo longiore.—Agrostis frigida, Mueller, MSS. A. rudis, Rüm. et Schult. Syst. ii. Lachnagrostis scabra et rudis, Trin. Diss. 217. An var. A. montana? (Gunn, 1461, 1462.) (Tab. CLX. B.)

Hab. Subalpine situations: foot of Mount Wellington, and Arthur’s Lakes, etc.; common, Gunn, Archer, Oldfield.—(Fl. Jan.) (v. v.)

Distrib. Victoria and New South Wales.

A slender, scabrid Grass, growing in woods, with culms 1–3 feet long.—Sheaths generally very rough to the touch, as are the flat, narrow, dark-green leaves; ligula membranaceous. Panicle long, slender, 2–6 inches long; branches very rough, three or four together, in distant bundles erect. Spikelets rough, often purple, ½ inch long. Glumes as long as the flowers, equal, ovate, acute, rough. Lower palea very rough, hard, sharp, nerves indistinct, awnless, or with a short, hardly exserted awn inserted at about the middle of the back. Pedicel or setula at the base of the upper palea silky, variable in length, sometimes bearing a second but very imperfect flower, sometimes very small.—Plate CLX. B. Fig. 1, spikelet; 2, flower; 3, pistil, stamina, and squamulae; 4, carypsis:—all magnified.

9. Agrostis contracta (Muell. MSS.); culmis gracilibus elongatis, foliis planis vaginis scaberulis, panicula nutante elongata contracta, ramis brevibus verticillatis 5–6-floris, glumis oblongo-lanceolatis acutis enervis flosculum æquantium, pala inferior acuta mutica enervi coriacea scaberula basi subbarbata, superiore æquilonga, setula brevi. (Tab. CLXI. A.)
Gen. XIII. ECHINOPOGON, Beauv.

Spicula uniflora, setula villosa accedente, coarctate. Gluma æquales, flore æquilongo. Paelæ 2, æquilongo; inferior basi villosa, apice bifida, longe aristata; superiore bicornata, apice bidentata; arista terminalis, haud torta. Stamina 3. Ovarium barbatum.—Gramen scaberulum; foliis planis; panicula spiciformis v. capituliformis.

The only known species is a very common extratropical Australian, Tasmanian, and New Zealand, harsh, scabrid Grass, differing from Agrostis in habit, capitata inflorescence, and terminal awn.—Spikelets crowded into an ovate or globose head, bristling with rigid, spreading awns. Glumæ equal, acuminate, rigid, as long as the solitary flower, which has a silky tuft of hairs at the base. Paelæ nearly equal; the lower with a bifid top, and rigid, not twisted awn; upper with a small, stiff, villosus bristle at its base. Stamina three. Ovary bearded at the top. (Name from εὐως, a prickle, and παυρω, a beard.)


Hab. Abundant throughout the Island, Brown, Labillardière, Gunn.—(Fl. Oct.—Dec.) (v. v.)

Distrib. Australia, New Zealand, and Norfolk Island.

A rough, scabrid, harsh Grass, growing in small tufts, common in extratropical Australia and New Zealand.—Culmis 6 inches to 2 feet high, leafy below. Sheaths of upper leaves long; ligula short; lamina flat. Panicle contracted into a cylindrical, blunt, short or long (½–1½ inch long) head, conspicuous from the spreading, stiff, scabrid awns. Spikelets shortly pedicellate.

Obs. I know nothing of E. Gunnianus, Nees (Lond. Journ. Bot. ii. 413), which is described as having the habit of Agrostis alba! and as having been picked out of Gunn’s specimens of Agrostis pareiflora (n. 1011).

Gen. XIV. POLYPOGON, Desf.

Glumæ 2, subaequales, carinatae, aristatae, 1-flore, flore molto longiores. Paelæ 2; inferiore apice truncata, emarginata, mutica v. sub apice aristata; arista haud tortili; superiore bicornata. Squamulae 2, subfalcatae, ovarium superantes. Caryopsis intra pales libera.—Folia plana; paniculae ramosisissimæ, æquilongæ contractæ, spiciformes; spicula pedicello continua.

Very elegant, often sea-side Grasses, conspicuous for the white awns on the pale, silky, contracted panicles. There are but few species, and these scattered over various temperate and tropical regions.—Glumæ longer than the solitary flower, nearly equal, keeled, awned, one-flowered. Paelæ two; lower abruptly notched at the tip, awnless, or with an awn below the tip; upper two-nerved. Scales two, longer than the ovary. Seed free, but included within the palea. (Name from πολυ, many, and παυρω, a beard.)

1. Polypogon Monspeliensis (Desf.) ; culmis simplicibus erectis, panicu la coarctata subcylindracea spiciformi oblonga obtusa densiflora, glumis pubescentibus ciliatis bilobis arista brevioribus, pala ine inferiore truncata aristata, arista glumæ vix superante.—P. imitans, F. Müell. MSS. (Gunn, 1460.)

Hab. Marshes near Launceston, Gunn; Richmond, Oldfield.—(Introduced?)

Vol. ii.
FLORA OF TASMANIA.

Distrib. Extratropical Australia, Europe, Middle and South Asia, North and South Africa, North and South America (probably often an introduced plant).

Culms tufted, erect, leafy, a span to a foot high. Leaves flat, $\frac{1}{4}-\frac{1}{2}$ inch broad, slightly scabrid. Panicle contracted into a dense cylindrical spike, 1-1$\frac{1}{2}$ inch long, nearly white, and covered, as it were, with long, spreading hairs, which are the awns. Awns of the glumes three times longer than the glumes; those of the downy palea hardly exserted.

Gen. XVI. Phragmites, Trin.

Spicule 3-6-flowered; floribus distis, remotis, sericeis, plumosis, infimo $\delta$; reliquis hermaphroditis. Glumæ 2, acute, carinato; superior major (interdum monandra). Palea 2, inferior angusta, subulata; superior bicornata. Squamule 2, integra.—Gramina elata, potamobia; foliis latis, planis; paniculæ ramosissimis, diffusis.

A genus consisting of a few large, tall, handsome Grasses, almost always growing in water: the species are found in all parts of the globe, the Tasmanian one being particularly widely distributed.—Leaves broad, flat, harsh. Panicle large, much branched, dark-purple, of large spikelets, which are three- to six-flowered. Flowers rather remote, distichous, very silky with long hairs, lower male, the rest hermaphrodite. Glumes narrow, sharp, keeled. Lower palea elongate, narrowed into a short awn. (Name from φραγμών, an enclosure; the Reeds being used for fencing.)

1. Phragmites communis (Trin. Fund. 134); foliis elongato-lanceolatis longissimae acuminatis, panicula erecta demum nutante effusa, glumis subaristatis inaequalibus floribus 4-5 longe sericeis brevioribus, palea inferior aristato-acuminata.—Kunth, En. i. 251. Arundo Phragmites, Linn. Sp. Pl. 120; Br. Prodr. 183. (Gunn, 418.)

Hab. Abundant in watery places: throughout the Colony.—(v. v.)

Distrib. Australia, and most temperate and some tropical countries. (Native of England.)

The largest Tasmanian Grass, 4-8 feet high, smooth, stout, erect. Leaves flat, harsh, with long narrow points. Panicle purple, 8-18 inches long, at first erect, then drooping, very feathery from the long silky hair of the flowers, which grows as the latter advance. Glumes unequal, almost awned, longer than the flowers. Flowers four or five, remote, lower palea very long.—This plant is the common English “Reed” much used for thatching, etc.


Spicule 2-3-flowered; floribus distichis, summo tabescente. Glumæ 2, carinato, muticæ, subaequales, floribus brevioribus. Palea 2; inferior supra basi arista, apice truncata, 4-dentata; arista brevi, recta; superior apice bifida, mutica. Squamula 2, integra. Caryopsis libera.—Spicule paniculata, pedicellata.

This genus is most abundant in the temperate and Arctic regions of the Northern Hemisphere, but is also found in Fuegia, Tasmania, and New Zealand.—Culmus slender, often branched. Leaves flat or convolute. Spikelets panicled, shining, pedicellate, two- or three-flowered, the upper flower imperfect. Glumes two, keeled, awnless, nearly equal, shorter than the flowers. Lower palea truncate, four-toothed, with a short, straight awn from above the middle; upper with two nerves, bifid, awnless. Scales entire. (Named in honour of M. Deschamps, one of the naturalists appointed to Lapeyrouse's disastrous expedition.)

1. Deschampsia cespitosa (Pal. Beauv. Agrost. 91. t. 18. f. 3); glaberrima, nitida, culmis cespitosus, foliis plerumque rigidis involutis, panicula diffusa, rhachi levi, ramulis verticillatis scabridis, glumis glabris, floribus 2 æquilongis acutis, paleis glaberrimis superiore basi sericea apice eosa arista æquilonga.

Hab. Frequent in wet places, on low grounds, and the mountains.—(Fl. Nov.) (v. v.)

Distrib. Victoria, New Zealand, Fuegia, throughout temperate and Arctic Europe, Asia, and North America. (Native of England.)

A very common and beautiful Grass, usually perfectly smooth, pale-yellow, and shining.—Culms tufted, 6 inches to 2½ feet high, slender, wiry. Leaves involute, sometimes selaceous. Panicle 3 inches to a foot long, loose, effuse; branches slender, whorled or fascicled, rough. Spikelets shining, yellow-green or purple, ¾ inch long, two-flowered, with the villous pedicel of a third. Glumes nearly equal, acute, as long as the flowers, which are silky at the base, the upper on a long pedicel. Lower palea truncate, toothed at the tip with a short dorsal awn; upper as long, bifid.

Gen. XVIII. TRISETUM, Kunth.

Spiculae 2-4-florae; flore summo interdum tabescente. Gluma 2, carinata, muticæ, subæquales v. inaequales, floribus breviores. Paleæ 2; inferior bifida, dorso aristata, rarius mutica, arista tortili; superior bicarinata. Caryopsis libera, glabra.—Gramina pteranthique monticola; foliis planis v. involutis; paniculis spicato-confertis, rarius diffusis.

The species of Triセット are not numerous, and are generally mountain plants. One (T. subspicatum) is found on the mountains of most parts of the globe, when these are of sufficient altitude, inhabiting the Antarctic islands of Fuegia, the Falkland Islands, Campbell’s Island, and Tasmania, but has not hitherto been found in New Zealand.—Culmus tufted. Leaves flat or convolute, smooth or downy. Panicles generally contracted and spike-like. Spikelets two- to four-flowered, the upper flower often incomplete. Glumes two, unequal or nearly equal, keeled, awnless, shorter than the flowers. Lower palea bifid, with two subulate teeth at the top, awned at the back (rarely awnless); awn twisted. Ovary glabrous. (Name from tres, three, and seta, a bristle.)


Hab. Common in alpine localities: Arthur’s Lakes, etc., Gunn, Archer.—(Fl. Jan.) (v. v.)

Distrib. Arctic Europe, Asia, and America, mountains of Middle and Southern Europe, of Asia from the Himalaya northward, and of both North and South America, Fuegia, the Falkland Islands, and Campbell’s Island.

An inconspicuous but very widely distributed Grass, variable in size and habit, 6-18 inches high, densely tufted.—Leaves soft and herbaceous, 4-8 inches long, smooth and glabrous, or pubescent. Culmus erect, always more or less downy, especially below the panicle. Panicle 1-3 inches long, much contracted, spicate and cylindrical. Spikelets imbricated, on very short pedicels, pale greenish-white, shining, 2 lines long, two- or three-flowered. Stalks of the florets with long hairs. Lower palea downy, bifid, with two sharp teeth, and a recurved awn inserted a short distance below the apex, as long as or longer than the palea. In Tasmanian specimens the leaves are quite glabrous, but are often very downy in other parts of the world.
Gen. XIX. DANTHONIA, DC.


—Gramina caespitosa, pilorumque rigida; foliis planis v. involutis; spiculis majusculis, pedicellatis, raccmosis v. paniculatis.

Generally harsh, tufted Grasses, growing in dry soils and climates, as Australia, South Africa, and the South of Europe. The Tasmanian species are extremely difficult of discrimination, and I suspect that the first three should be reduced to only one.—Leaves flat or involute. Panicles rather contracted, of few large, often shining spikelets. Flowers two or more, the upper often imperfect. Glumes two, awnless, nearly equal, as long or longer than the flowers. Lower palea concave, many-nerved, bearded, bisïd at the point, with a long or short flattened twisted awn. Ovary smooth, stipitata. Seed compressed. (Named in honour of M. Danthonia, a French Botanist.)

§ 1. Lower palea furnished with several tufts of silky hairs on the sides.


Hab. Abundant throughout the Island.—(Fl. Oct.–Jan.) (v. v.)

Distrib. New South Wales, Victoria, New Zealand.

A slender, tufted, rigid, wiry Grass.—Leaves setaceous, and culms (a span to 2 feet high) more or less covered with long scattered hairs. Panicle contracted, lanceolate or ovate, pale-green, 1 1/4–3 inches long. Spikelets erect, shining, with brown awns, six-flowered, 3/4 inch long. Glumes longer than the flowers. Lower palea with a tuft of silky hairs at the base, and a few small tufts above the middle; lateral awns twice as long as the palea, as long or longer than the glumes, half as long as the twisted middle awn.

2. Danthonia semi-annularis (Br. Prodr. 177); culmis vaginis foliisque glaberrimis, ore vaginæ longe barbato, foliis involutis elongatis setaceis, panicula contracta pauciflora subsimplici, glumis floribus 5–6 multo longioribus, palea inferiōre medioque barbata, fasciculis superioribus pilorum arista lateralibus (palea æqualongis brevioribusve) æqualongis v. 1/2 brevioribus, arista intermedia torta glumis æqualonga v. paulo longiore.—Lab. Fl. N. Holl. i. p. 26. t. 33; Trin. Sp. Gram. v. t. 52; Nob. in Fl. N. Zeal. i. 308. (Gunn, 1455, 1457.)

Hab. Abundant throughout the Island.—(Fl. Oct.–Jan.) (v. v.)

Distrib. Extratropical Australia and New Zealand.

None of my specimens of this very common and variable Grass agree exactly with Mr. Brown’s description or with Labilliardière’s or Trinius’s figures; nevertheless, after a very careful study of many forms and specimens from Tasmania and New Zealand, and of Labilliardière’s original ones, I am constrained to consider that neither plates nor descriptions answer to the common Tasmanian state of the plants, which have a short simple raceme, and awns generally longer than the glumes.—Culmis 6–20 inches high, and leaves and sheaths quite smooth and glabrous; mouth of the latter with long silky hairs. Panicle 2–4 inches long, narrow or effuse, eight- to fifteen-flowered, sparingly branched. Glumes 3/4 inch long, white or purple, five- or six-flowered. Flowers much shorter than the glumes, with an exserted, twisted middle awn (not so long, stout, and dark as D. pilosa). Lower palea
villous at the base, and with a series of tufts of hairs above the middle, which are generally shorter than the lateral awns: the latter do not exceed the glumes in length.—In New Zealand this Grass is as common and more variable than in Tasmania.

3. Danthonia setacea (Br. Prodr. 177); glaberrima, culmis folii setaceis vaginisque glaberrimis, ore longe barbatis, panicula subsimplici, glumis (magnis) purpureis floribus 5 longioribus, palea inferiore basi medioque barbata, fasciculils superioribus pilorum palea equilongis, aristis lateralibus filiformibus glumamææ quantibus, intermedia torta longe exserta.—(Gunn, 1454.)

HAB. Northern and central parts of the Island; common.—(Fl. Nov.)

DISTRIB. Victoria.

A stout, tufted species, very closely allied to D. semi-annularis, if not a mere variety of that plant, differing in the longer glumes, ½ inch long, and longer black awns, of which the lateral are as long as the glumes, and the middle one-third longer, and twisted.

4. Danthonia subulata (Hook. fil.); folii brevibus filiformi-setaceis vaginisque patentim hispidopilosis demum glabris, culmis gracillimis, panicula brevi erecta subsimplici pauciflora (purpurea), glumis sub-5-floris, palea inferiore basi medioque dense barbata pilis brevioribus, aristis lateralibus gracilibus palea duplo longioribus ultra glumamæ æquantibus, intermedia paulo longiore gracili subtorta.—An D. setacea, Br.? (Gunn, 1456.) (Tab. CLXI. B.)

HAB. Georgetown and Launceston, Gunn; Richmond, Oldfield.

DISTRIB. Victoria.

A small, slender, densely tufted, very pretty and distinct species.—Leaves very slender, filiform, pilose, curved, 2–3 inches long. Culms a span to 15 inches long, very slender. Panicle 1–2 inches long, small, erect, five- to seven-flowered. Glumes purple, much longer than the five florets. Lower palea densely silky, with shorter hairs than in the preceding species. Lateral awns slender, exserted, twice as long as the palea, not quite so long as the intermediate one.—PLATE CLXI. B. Fig. 1, spikelet; 2, flower; 3, pistil, squamulae, and stamens:—all magnified.

5. Danthonia pauciflora (Br. Prodr. 177); rigida, parvula, culmis cespitosis folii setaceis brevibus subulatis glaberrimis, racemo paucifloro, ramulis pubescenti-ciliatis, glumis subacutis fosculis 3–4 longioribus, palea inferiore basi medioque barbata, serie superiore villorum paleamææ quantibus, aristis lateralibus late subulatis paleamæ æquantibus, intermedia valida goniculata glumis inclusa. (Gunn, 1458.) (Tab. CLXII. A.)

HAB. Top of Mount Wellington, Western Mountains, etc., Gunn, Archer.

DISTRIB. Alps of Victoria.

A very pretty and distinct little species.—Culms tufted, rigid, harsh, and wiry, quite smooth and glabrous, 3 inches high. Leaves 1 inch long, setaceous, blunt at the point. Panicle three- to six-flowered; pedicels pilose and ciliated. Glumes short, purple, ½ inch long, with rather blunt points. Flowers three or four, short. Lower palea very villous, with tufts of long hairs above the middle; lateral awns broad, as long as the palea; middle one bent, very stout, short, included in the glumes.—PLATE CLXII. A. Fig. 1, spikelet; 2, flower; 3, pistil, stamen, and squamula:—all magnified.

§ 2. Amphibromus.—Lower palea hairy or silky, but without tufts of hairs.

6. Danthonia nervosa (Hook. fil.); seaberula v. glabra, spiculis racemosis, glumis obtusisculus crosis inequalibus inferiori basi 3-nervi superiore 5-nervi, fosculis basi villosis, palea inferiore seaberula coriacea 7-nervi bifida apicibus crosis dorso supra medium arista tortili elongata, superiore bidentata.—Avena? nervosa, Br. Prodr. 178. A. hydrophila, F. Muell. MSS. Amphibromus nervosus, Nees, in VOL. II.
A tall, slender, smooth- or slightly rough-leaved Grass.—**Culms** slender, 2–3 feet high, leafy. **Leaves** long and slender, flat; **ligula** very long, sharp, and membranous. **Panicle**, or rather raceme, inclined or nodding, a span long and upwards, with few slender, distant, one- or two-flowered branches, which, as well as the pedicels, are rough with short hairs. **Spikelets** pale-green, nearly ½ inch long. **Florets** pedicelled, about five, terete, much longer than the glumes; **pedicels** with hairy tips. **Glumes** unequal, pale and transparent, blunt, crosse; lower smaller, three-nerved at the base; upper five-nerved. **Lower palea** with a tuft of hairs at the base, opaque, hard, scabrous, seven-nerved, bifid at the top, the segments crosse. **Awn** arising from above the middle, bent, twisted, black, rigid, stout, three or four times as long as the palea. **Upper palea** narrow, with two sharp tips, and ciliated keels.—**Plate CLXIII. A. Fig. 1, spikelet; 2, flower; 3, stamens, squamule, and pistil; 4, caryopsis:**—all magnified.

7. **Danthonia Archeri** (Hook. fil.); panicula nutante, glumis 2–4-floris coloratis apice acutis erosis, floribus basi villosis, palea inferiore scaberula laciniiis brevibus subintegris muticus v. aristatis. (Gunn, 995.) (Tab. CLXXII. B.)

**Hab.** Northern parts of the Island, Gunn; Cheshunt, Archer.—(Fl. Dec.)

Panicle broader than in *A. nervous*, more erect; lower branches whorled. **Glumes** fewer-flowered. **Lower palea** more glabrous, with its divisions sometimes terminating in straight, black, subulate points or awns.—**Plate CLXXII. B. Fig. 1, spikelet; 2, flower; 3, stamens, squamule, and pistil; 4, caryopsis:**—all magnified.

Gen. XXI. GLYCERIA, Br.

**Spicule** multiforme; **floribus** distichis, imbricatis, hermaphroditis. **Gluma** 2, concave, obtuse; inferior brevior. **Palea** 2, subaequilongae; inferior ovato-elliptica, obtusa v. obtuse 3-loba, 7-nervis. **Squamula** solitaria v. 2 plus minusve inter se connate. **Stamina** 2–3. **Caryopsis** oblonga, libera.—**Gramina aquatica, repentina**; pollis planis; panicula simplices v. ramosae; ramis fasciculatis, subverticillatis.

A small genus of aquatic Grasses, whose seeds have been used as bread-corn in time of famine, and called Manna.—**Leaves** flat. **Culms** creeping below. **Panicle** long, simple, and racemose, or more branched with whorled branches. **Glumes** concave, blunt, many-flowered. **Florets** numerous, imbricated on a flexuous rachis, all hermaphroditic. **Lower palea** elliptical, oval, blunt, or with three blunt teeth and seven nerves; upper rather shorter. **Stamens** two or three. **Seed** free. (Name from γλυκός, sweet; in allusion to the eatable grains.)


**Hab.** Wet places; common.—(Fl. Nov.) (v. v.) (Native of Britain.)

**Distrib.** Australia, India, Europe, Northern Asia, North Africa, Northern and tropical America.

A tall Grass, 2–4 feet high, with slender, smooth or scabrid culms.—**Leaves** flat, with a membranous ligula. **Panicle** a span to a foot long, suberect or nodding, with few, slender, distant, sessile or pedicelled spikelets, that are five- to seven-flowered, and each ¹⁄₄–¹⁄₂ inch long. **Glumes** unequal, blunt, one-nerved. **Florets** distant, on a flexuous rachis. **Lower palea** blunt, seven-nerved, scabrous. **Squamula** solitary, fleshy. **Stigmas** very much divided.
2. Glyceria stricta (Nob. in Fl. N. Zeal. i. 304); glaberrima, culmis caspitosis strictis foliosis, foliis brevibus strictis involutis, panicula stricta erecta contracta, ramis pedicellisque brevibus strictis, glumis inaequalibus acutis superiore 3-nervi, flosculis 6-14 conflertis, palea inferiore glaberrima acuta coriacea, nervis inconspicuis, squamula oblonga.—Poa Syrtica, Muell. MSS. (Gunn, 1463.) (Tab. CLXII. B.)

HAB. Marsh at Launceston, Gunn.—(Fl. Nov.)

DISTRIB. Victoria, New Zealand.

A very different-looking species from G. fluitans, of a pale-yellow colour.—Culms 1½-2 feet high, strict, stout, leafy throughout, perfectly glabrous everywhere. Sheaths of leaves long, striate, rather swollen; ligula short, broad, membranous. Lamina short, 2-4 inches, subulate, strict, erect, involute. Panicle 4-6 inches long, very slender, strict, with short, stout, erect, appressed branches. Spikelets terete, rather crowded, pale-yellow, almost shining, ½ inch long. Flowers six or seven to fourteen, closely imbricated. Glumes unequal, sharp; upper three-nerved. Palea quite glabrous, coriaceous; lower three-nerved, with obscure nerves. Squamula ovate.—Tasmanian specimens are much larger than the New Zealand ones, but not otherwise different.—PLATE CLXII. B. Fig. 1, spikelet; 2, flower; 3, squamule, pistil, and stamens; 4, caryopsis:—all magnified.

Gen. XXII. POA, L.


A very large genus, found in all parts of the world, but most frequent beyond the tropics and in cold climates, where they often form extensive pastures.—Leaves generally soft and flat, sometimes setaceous. Spikelets two- or many-flowered; flowers sometimes unisexual, glabrous, or webbed with wool at the base. Glumes awned, nearly equal. Lower palea blunt, awnless. Stamens one to three. Seed free or adhering to the upper palea.—The species of this genus are extremely variable, especially those of Australia and New Zealand, which often assume widely different forms. (Name, the Greek one.)

1. Poa australis (Br. Prodr. 179); rigida, scabra v. glaberrima v. polita, culmis dense caspitosis foliiis setaceo-involutis filiformibus longioribus v. aequilongis, ligula brevissima, panicula effusa rarius contracta, ramis paniculifloris inferioribus capillaris, glumis scabris 3-7-floris, floribus remotis approximatisve, palea inferior 5-nervi apice scariosa obtusa basi plus minusve lanata v. nuda.—P. australis, P. lavis, et P. plebeja, Br. Prodr. l. c. Var. a. Billardieri; 1-2-pedalis, glaberrima, polita, culmis inferne ramosis foliiis spithameis tereti-involutis longioribus aequilongiavis, panicula lanceolata contracta, spiculis coniectis majusculis, glumis acutis floribusque 5 approximatis scabris basi parce lanatis: (descript. ab exempl. Labillard.).—Arundo poaformis, Lab. Fl. Nov. Holl. i. 27. l. 35.

Var. b. monticola; glaberrima v. scaberula, culmis brevibus densissime caspitosis pedalibus foliis setaceo-involutis longioribus, panicula ovata subcontracta v. effusa, spiculis majusculis 3-7-floris, glumis acutis floribusque remotis scaberulis, palea inferiore subtruncata purpurea marginibus albis apice seppissime membranacea basi parce villosa v. nuda.—P. lavis, Br. Prodr. l. c. (Gunn, 1466.)

Var. γ. Sieberiana; scabrida v. glaberrima, foliiis setaceis filiformibus culmo aequilongis brevioribusve, panicula ovata contracta v. effusa, ramis inferioribus capillarius elongatis, spiculis parvis purpureis

Var. $\delta$. capillifolia; scabrida v. glaberrima, foliis capillaceo-setaceis culmo brevioribus, panicula contracta v. rarius effusa, ramis inferioribus capillaceis elongatis, spiculis viridibus parvis 3–6-floris, glumis flosculisque remotis scaberulis, palea inferiore oblonga v. lineari basi nuda. (Gunn, 596, 1469, 1468, 1470.)

Hab. Throughout Tasmania; most abundant. Var. $\alpha$. By the sea-shore in sandy places. Var. $\beta$. Tops of all the mountains, forming the common pasture-grass. Var. $\gamma$ and $\delta$ are the most common Grasses in the Island. Var. $\delta$, "Silver Grass," not eaten by cattle (Oldfield).—(v. v.)

Distrib. Extratropical New Holland, and New Zealand.

I have, with reluctance, but latterly without hesitation, united the widely different-looking forms of Poa australis under one, after repeated examination of many hundreds of specimens collected in masses in many parts of Tasmania by Mr. Gunn, myself, and others, together with copious suites from New Holland and New Zealand, and I am further inclined to add to them the following (P. affinis). The Festuca ovina is one of the few equally variable British Grasses. The extreme states are: (1) a perfectly smooth, shining, stout Grass, with culms 2 feet high, branching below, long leaves that have broad sheaths, and rather compact panicles of scabrous ovate spikelets, having villous flowers placed close together; this I have called var. $\alpha$; it is described from Labillardière's specimens (of Arundo poiformis) and Mr. Gunn's, but does not agree (in not having scabrid leaves) with Brown's character of P. australis under which Labillardière's plant is quoted as a synonym: (2) var. $\delta$, a densely tufted Grass, often not so long as the finger (though sometimes $\frac{1}{2}$ foot high), with a dense brush of filiform, short or long leaves, a very slender culm, and effuse, capillary panicle, of small, nearly glabrous, green spikelets, having naked, linear, remote florets.—Between these widely different forms are the common one, of a rough or smooth, setaceous-leaved Grass, 1–2 feet high, with a slender culm, and effuse, erect, ovate panicle of green or purple spikelets.—Glumes scabrous, three- to seven-flowered. Flowers close or distant, oblong, or linear and narrow, glabrous or scabrous, bearded with long wool, or naked below.—I have no doubt that, as Mr. Brown suggests, his P. plebeja, P. levis, and P. affinis are all common varieties of this one plant, but his descriptions do not enable me to identify the common Tasmanian forms, nor do I find that Nees von Esenbeck, who named a set of Mr. Gunn's Grasses for Dr. Lindley's Herbarium, has divided them at all satisfactorily.

2. Poa affinis (Br. Prodr. 179); glabra, scaberula v. scabrida, culmis elongatis foliosis, foliis elongatis planiusculis involuto-setaceisve, ligula brevissima, panicula elongata contracta, ramis inferioribus elongatis erectis, spiculis scabris ovato-lanceolatis contractis, glumis acutis, floribus subremotis obtusibus subacutisve, palea inferiore 5-nervi inferne ciliata v. barbata.—P. australis, $\beta$; spiculis viridibus, foliis subinde planiusculis, Nees, in Hook. Lond. Journ. Bot. ii. 418. (Gunn, 1012, 595.)

Hab. Northern parts of Tasmania, Laurence, Gunn, etc.

Distrib. Australia, south of the tropics, New Zealand.

I refer this doubtfully to Mr. Brown's P. affinis, which is described as having the leaves smooth below, whereas these are scabrid. It is a common Australian and New Zealand Grass, and is both smooth and scabrid in these countries, and in all it approaches far too nearly P. australis, if indeed it should not rather be pronounced a variety of that plant.—A much larger plant than P. australis, 2–3 feet high, with a coarse, stout, leafy culm. Leaves longer than the culm, involute or almost flat. Panicle nearly a span long, contracted, with erect, appressed branches, and small green spikelets. Glumes acute, rather scabrid. Lower palea sometimes almost sharp, naked or bearded at the base.

3. Poa tenera (Mueller, MSS.); debilis, glaberrima v. scaberula, culmis ramosis tenuibus foliosis,
folis angustis planiusculis, ligula mediocri membranacea, panicula effusa, ramis capillaribus paucifloris, spiculis parvis pallidis 3-5-floris, floribus remotis, palea inferiore obtusa 5-nervi dorso marginibusque pubescente basi nuda v. parce barbata.—P. saxicola, Br. ?, var. effusa, Nees, in Hook. Lond. Journ. Bot. ii. 418. (Gunn, 1009.) (Tab. CLXIV. A.)

Hab. Common in woods and shaded places, Gunn, Oldfield, Archer.—(v. v.)
Distr. Victoria.

A much more flaccid, slender, and weaker straggling plant than any state of P. australis, well distinguished from it by the membranous ligula when that organ is present.—Culms slender, sometimes flaccid and climbing, 1–8 feet long, branched, leafy at the joints. Leaves very narrow, usually flat, green, with rather long, membranous ligule. Panicle slender, effuse or contracted; branches capillary. Spikelets few. Glumes three- to five-flowered, acute. Flowers distant. Lower palea glabrous, except at the back and margins, which are pubescent or ciliated, sometimes a little bearded at the base.—This cannot be Mr. Brown’s P. saxicola, though M. Nees has so considered it in Herb. Lindley, the panicle being effuse, not simple and contracted, the ligula is often wanting, the leaves are very narrow, and often involute.—Plate CLXIV. A. Fig. 1, spikelet; 2, flower; 3, pistil, stamens, and squamule:—all magnified.

4. Poa saxicola (Br. Prodr. 180); culmis cespitosis elongatis basi foliosis, folis brevisculis latis planis scaberulis, ligula lata mediocri membranacea, panicula coarctata subsimplex, spiculis coloratis elliptico-lanceolatis glabris, glumis obtusis margine pubescentibus 3–4-floris, floribus confluens, palea inferiore obtusa lata coriacea enervi glabellae margine pubescente, superiore carinis ciliatis. (Gunn, 1466.)
(Tab. CLXIV. B.)

Hab. Mount Wellington, Brown, Gunn.

Quite a different-looking Grass from any state of P. australis: I have very few specimens of it.—Culms strict, 18 inches high, smooth, leafy at the very base. Leaves 3–4 inches long, broad, linear, flat, scaberulous; ligula broad, membranous. Panicle 1½–2½ inches long, strict, erect, nearly simple, of few, short, appressed, one- to four-flowered branches. Spikelets shining, turgid, purplish. Glumes blunt, glabrous, with downy edges. Flowers closely imbricate, broad, and blunt. Lower palea smooth, glabrous, concaue, coriaceous, purple, with white, downy edges; upper with two ciliated keels. Squamule ovate.—Having so few specimens, some allowance must be made for probable variations from this description.—Plate CLXIV. B. Fig. 1, spikelet; 2, flower; 3, squamule, stamen, and pistil:—all magnified.

Obs. I have what is probably a fifth Tasmanian Poa, from Mr. Gunn (1491), Penquite; glabrous, with smooth, short, plane leaves, and membranous ligula, long, slender culm, and effuse panicle of whorled branches; the spikelets and flowers are nearly smooth, smaller than in P. saxicola, and sparingly woolly or ciliated below.

Obs. Poa annua, L., has been introduced into Tasmania. (Gunn, 1472, 1483.)

Gen. XXIII. KELERIA, Pers.


A small genus of Grasses, scattered over the temperate regions of the northern hemisphere, of which one European and American species is found in Tasmania and New Zealand, and in many other parts of the world it is scarcely distinguishable generically from Poa or Festuca.—Culmus tufted. Leaves flat or involute. Spikelets pedicelled, clustered into a dense cylindrical, whitish, shining spike, small, two- or three-, rarely many-flowered, the upper
flowers imperfect. *Glumes* keeled, unequal, awnless. Lower *palea* sharp, awnless or awned at the tip or back; upper bifid at the point. *Caryopsis* free. (Named in honour of G. L. Keeler, an author on French and German Grasses.)


**Hab.** Macquarrie Plains, and other parts of the Colony, Gunn.—(Fl. Nov.) (Abundant in Great Britain.)

**Distr.** Extratropical Australia, New Zealand, Europe, temperate North Africa, India, South Africa, and North and South America.

A handsome Grass, 1-3 feet high, conspicuous for its white, shining, spiked panicle of compressed spikelets, awnless, or with inconspicuous awns.—Whole plant more or less downy or glabrous. *Leaves* flat, a span long, narrow. *Panicle* spiked, erect, 3-5 inches long, interrupted at the lower parts. *Spikelets* very variable in size, imbricate, erect, two- to five-flowered. *Glumes* shorter than the flowers, unequal, acute. Lower *palea* acuminate or with a short awn at the apex or back below the point.

**Gen. XXIV.** **FESTUCA**, *L.*


A large genus of Grasses, almost confined to temperate and cold regions, forming extensive pasture-lands in the Alps of Europe and elsewhere.—*Leaves* flat or subulate. *Spikelets* pedicelled, panicled, or racemose, rarely spiked. *Flowers* often numerous, on a jointed partial rachis. *Glumes* two (sometimes one in § *Vulpia*), keeled. *Pala* two; lower acute, keeled, often with a terminal awn, or rarely toothed or bifid at the apex. *Scales* two, bifid, smooth. *Stamens* one to three. *Styles* terminal, or inserted below the apex. *Caryopsis* free, or adhering to the upper pala. I know of no certain technical character but the acuminate and often awned lower *pala* to separate this genus from *Poa*. (Name, a Latin one of uncertain application.)

a. Lower *pala* entire at the apex.

1. **Festuca durieuscula** (Linn. Sp. Pl. 108); stricta, erecta, glaberrima, culmis cespitosis basi foliosis, foliis setaceo-involutis strictis erectis v. patulis, panicula elongata coarctata, ramis brevibus elongatisve paucifloris, glumis 6-8-floris inequalibus acutis floribus brevioribus, floribus linearibus remotis scabridis, palea inferiore basi nuda acuminata aristata.—*Eng. Bot.* t. 470; *Fl. Antarct.* ii. 383; *Fl. N. Zeal.* i. 309. (Gunn, 994.)

**Hab.** Wet places: Formosa, Gunn.—(Fl. Nov.) (Native of England.)

**Distr.** Temperate and Arctic Europe, Asia, and America, New Zealand, Chili, and Fuegia.

A widely-distributed Grass, found in almost all temperate and cold climates. It forms a great proportion of the alpine pasture Grass in the moorlands of the British Islands, and is extremely variable in stature and habit.—Quite smooth, generally shining. *Culmis* densely tufted, leafy chiefly at the base, 1-3 feet high, strict, slender. *Leaves* setaceous, often long and filiform, sometimes short and rigid. *Panicle* an inch to a span long, erect, narrow, contracted or spreading, few-flowered; *branches* erect, long or short, slender. *Glumes* acuminate or acute, shorter than the flowers, four- to eight-flowered. *Flowers* narrow, remote, glabrous. Lower *pala* acuminata, awned, generally scabrid.

Var. B. tenella; culmis brevibus capillaribus 1–3-floris.

Hab. Abundant in dry pastures, etc. — (Fl. Oct.–Jan.) (v. v.) (A native of England.)

Distr. Throughout the northern temperate hemisphere; common also in the south, but generally introduced; Australia and New Zealand.

A very common Grass, native of Europe and (generally naturalized) of other parts of the world. It has possibly been introduced into Tasmania, though found by Mr. Brown there upwards of half a century ago.—An annual Grass, very variable in size, from 2 inches to 2 feet, always perfectly smooth. Culmis densely tufted, simple, more or less leafy upwards, slender; in var. B as slender as a thread. Leaves narrow, involute, filiform; sheaths long. Panicle generally 1–3 inches long, erect, contracted, rather dense, sometimes reduced in var. B to one spikelet; branches short, erect, appressed. Spikelets rather crowded, shortly pedicelled, three- to ten-flowered, ½ inch long with the awn. Glumae narrow, subulate, the upper much the longest, strongly nerved, placed at one side of the base of the spikelet. Flowers close together on a slender rachis. Lower palea scabrous or smooth, concave, narrow, lanceolate, tapering into a long, scabrid, hair-like awn.


Hab. Northern coast, growing on the shore, often within high-water mark.—(Fl. Nov.)

Distr. Extratropical coasts of Australia.

A rigid, harsh, perfectly smooth and polished Grass, forming large dense tufts near the sea.—Culmis a span to 1½ foot long, much branched, leafless below. Leaves spreading or erect, on opposite sides of the culm; sheaths round; blade involute, setaceous, 1–3 inches long, stiff; ligula very short. Panicle an erect, short, ovate, compressed raceme of about five large, shortly pedicelled, compressed spikelets, each ½–1 inch long, and eight- to ten-flowered. Glumae ovate, acuminate, concave. Flowers closely imbricate, striated, broadly ovate, acuminate. Stigmas purple.—I regret being obliged to place this plant in Festuca in opposition to Mr. Brown’s authority, who refers it to Poa; but I know of no natural limits between these two genera, and the only artificial one that appears useful or tenable lies in the comparative sharpness or bluntness of the lower palea, which in this plant is decidedly acuminate. The flowers are sometimes infested with the Ergot, which is a black cylindrical body, the diseased growth of the ovary after being attacked by a species of Fungus.

b. Lower palea sometimes minutely toothed at the apex.

4. Festuca Hookeriana (F. Muell. MSS.); elata, erecta, culmis vaginisque laevibus scaberulisve, foliiis breviusculis planis coriaceis utrinque scaberulis, ligula brevi coriacea, panicula effusa nutante, ramis elongatis, spiculis majusculis 6–8-floris, glumis carinae marginibusque ciliatis, inferiore 3-nervi superiore 5-nervi, rachilla pilosa v. barbata, palea inferiore 7-nervi apice aristata v. sub apice bifida breviter aristata carina scaberula, superiore apice bidentata carinis pectinati. (Tab. CLXV.)

Hab. Cheshunt, Archer.—(Fl. Nov.)

Distr. Alps of Victoria, Mueller.
This fine Grass resembles the Festuca spadicea of Europe, and still more the F. Kingiana of Fuegia. I have seen only one good Tasmanian specimen, and several Victoria ones, which latter, though all referred to one species by Mueller, present a good deal of variation, and may possibly belong to two. In all the young flowers, previous to expansion, the ovary has terminal stigmas, but in older ones, after flowering, the Caryopsis appears to be obovate, deeply furrowed, almost bilobed, with the stigmas placed on the broad face below the apex; the ripe Caryopsis again is nearly straight, with terminal stigmas. In some of Mueller’s specimens the upper palea is quite entire, terminating in a short awn; in others, and in the Tasmanian, it is split at the apex, and the short, straight awn arises from the fork. This plant hence oscillates (like Festuca Kingiana) between Festuca and Bromus, or else the specimens are of two species, so like as to be almost undistinguishable, but yet belonging to two different genera!—A tall, stout, handsome Grass, 2–4 feet high. **Culms** and leaves smooth or scabrid. **Leaves** flat, rigid, coriaceous, rough. **Panicles** drooping, 6–10 inches long, with slender, spreading branches; the lower branches geminate. **Spikelets** few, distant, on ciliate pedicels, about ½ inch long, pale-green when young, six- to eight-flowered. **Flowers** rather distant, on a hairy or sparingly villous rachis. **Outer palea** with seven nerves, scabrid margins and keel, and a short, straight awn, either terminal or rising from the split apex of the palea. **Squamule** acuminate, obliquely lanceolate, bilobed. **Ovary** glabrous.—**Plate CLXV.** Fig. 1, spikelet; 2, flower; 3, squamule, stamens, and pistil; 4, ovary; 5, Caryopsis; 6, spikelet, from Victoria specimen; 7, young Caryopsis from ditto; 8, Caryopsis of ditto:—all magnified.


**Hab.** Abundant; rocks and sand-hills near the coast.—(Fl. Nov.) (v. v.)

**Distrib.** East, west, and southern coasts of extratropical New Holland; New Zealand; Lord Auckland’s Island.

Forms dense hard tufts, of a pale-yellow colour.—**Culms** 1–3 feet high, and leaves perfectly smooth, glabrous and polished, shining, striated, rigid, wiry, branched at the base. **Leaves** involute, terete, sharp, almost pungent, longer than the culms. **Panicles** 3–10 inches long, slender, pale yellow-green, with a rigid rachis, and short, erect branches. **Spikelets** broad, compressed, five-flowered, ½–3 inch long. **Glumes** acuminate, shorter than the flowers, which are pubescent. **Lower palea** sharp, three-toothed at the tip.

Gen. XXV. TRITICUM, L.

**Spiculae** spicatae, rachi parallelae, tri-multifora, floribus distichis. **Glume** 2, suboppositae, inaequalis v. subaequalis. **Pala** 2; superior bicarinata, carinis ciliatis. **Squamulae** 2, integreae, sepium ciliatae. **Ovarium** spicis pilosum. **Caryopsis** libera v. paleis adnata.—Folia plana; spicae rachi continua spicatae; floribus rachiella sepium articulata sessilibus.

This genus, which includes the cultivated Wheat, is found in various parts of the world.—**Culms** branched at the base. **Leaves** flat. **Spikelets** arranged in generally a dense spike, parallel to the unjointed rachis, three- to many-flowered. **Glumes** two, nearly equal. **Pala** two; upper with two ciliated keels. **Scales** two, entire, often ciliated. **Ovary** hairy at the top, free, or with the pala adhering to it. (Name originally given to the wheat grain, from tritum, beaten; in allusion to the operation of threshing.)

1. **Triticum scabrum** (Br. Prodr. 178); culmis cespitosis gracilibus vaginisque lavibus (rarius

HAB. Common, especially in dry and sandy places near the sea, etc.—(Fl. Oct.–Dec.) (v. e.)

DISTRIB. Extratropical Australia and New Zealand.

A very common and variable Grass, never attaining so large a sized spikelet, and being generally more scabrid in Tasmania than in the moister climate of New Zealand.—Culms tufted, slender, 3 inches to 2 feet high, sometimes capillary with only one spikelet, varying in such cases just as Festuca bromoides does. Culms and sheaths generally quite smooth. Leaves usually very scabrid on both surfaces, 1–4 inches long, flat or involute. Spike 4–6 inches long, two- to eight-flowered. Spikelets scabrous, erect, alternate, 1½–2½ inches long, including the awns. Glumes unequal or nearly equal, often very small, sometimes half as long as the palea (without the awns), lanceolate, nerved. Lower palea smooth and nerveless below, keeled and scabrid above, produced into a long, rigid, slightly recurved awn twice or thrice as long as itself.

2. Triticum pectinatum (Br. Prodr. p. 179); culmis dense caespitosis strictis erectis basi foliosis inferne vaginisque levibus superne pubescenti-sabrerulis, foliis ciliato-scabridis, spica brevi, rachi flexuosa, spiculis patentibus demum reflexis 3–6-floris, glumis ovato-lanceolatis acuminatis nervosis parce ciliatis flosculo ½ brevioribus, palea inferiori ciliata nervosa in arista rigidam scabram palea breviorem angustata.


HAB. Hampshire Hills and Recherche Bay, etc., Gunn.—(Fl. Nov.)

DISTRIB. Victoria.

A remarkable and very distinct Grass.—Culms densely tufted and branched at the very base, ½–1½ foot high, glabrous and smooth below; upper part pubescent and rough, as is the flexuose rachi of the spike. Sheaths of the leaves quite glabrous and smooth. Leaves all at the base of the culm, ciliated with rigid, spreading, white hairs. Spike 2–3 inches long, of eight to fourteen spikelets, which are erect when young, spread horizontally when in flower, and deflexed in fruit: each is ½ inch long. Glumes ovato-lanceolate, nerved, ciliated, acuminate, ½ shorter than the palea. Florets three to six, spreading, ciliated with long white hairs, rigid. Lower palea strongly nerved, narrowed into a rigid, scabrid, sharp awn.

3. Triticum velutinum (Nees); totum molliter pubescentis v. velutinum, culmis caespitosis basi foliosis, foliis brevibus, spica pauci-6–8-flora, spiculis subconfertis breviusculis erectis 8-floris, flosculis patulis scaberulis, glumis nervosis subequalibus ovato-lanceolatis acuminatis paleis breviortibus, palea inferiore nervosa in arista brevem subulatam angustata.—Agropyrum velutinum, Nees, in Hook. Lond. Journ. Bot. ii. 416. (Gunn, 770.)

HAB. Middlesex Plains and Surrey Hills, Gunn.—(Fl. Jan.)

DISTRIB. Alps of Victoria.

Very distinct from either of the former species.—Culms ½–1½ foot high, strict, erect, stout, wholly covered, as are the leaves on both sides and their sheaths, with soft down. Leaves at the base of the culm short. Spikes short, 1½–2 inches long, of four to six broad, erect spikelets, which are rather crowded, and ½ inch broad. Glumes ovato-lanceolate, acuminate, shorter than the florets, which are about eight, and spreading. Lower palea nerved, scabrid, ending in a short, rigid, black awn.

VOL. II.
CLASS ACOTYLEDONES.

NAT. ORD. I. FILICES.

Tasmania, as compared with the drier continent of Australia, is very rich in Ferns (including Lycopodiaceae, etc.), but poor if compared with the New Zealand Islands, which have just twice as many Ferns, and not much more than half as many flowering plants, as Tasmania possesses. Tropical Australia contains about as many Ferns as Tasmania, almost all of them belonging to different species. New South Wales and Victoria (that is, South-eastern Australia) contain about as many as Tasmania, whilst South-western Australia presents scarcely a dozen species. The Tasmanian Ferns are almost unexceptionally identical with New Zealand ones, and many have a very wide range indeed.

Tribe I. GLEICHENIACEÆ, Br.—Capsules 2–4, sessile, bursting longitudinally, completely surrounded by an oblique or transverse striated ring.

Gen. I. GLEICHENIA, Smith.

Involucrum 0, v. e margine frondis revolute. Capsulae in quovis soro 1–6, sessiles, annulo completo cinctae, longitudinale dehiscentes.—Rhizoma repens.

A large genus, of coriaceous, rigid, opaque Ferns, chiefly natives of the tropics, Australia, and New Zealand. A few are found in Japan, Owhyhee, and temperate South America.—Rhizome creeping, often chaffy or woolly, as is the whole plant sometimes. Stipes erect, rigid, sometimes very small and slender. Frond dichotomously branched; divisions simple or pinnate. Pinnae narrow, pinnatifid; the segments generally convex, sometimes with revolute margins, which form an involucre. Sori of one to six sessile capsules, that burst longitudinally, each surrounded by a complete ring, placed at the end or middle or axil of the simple or forked veinlets.—The microscopic characters of a naked sorus, consisting of very few capsules, and a complete ring surrounding the sessile capsule, which bursts from the base to the apex, are certain marks of this genus. (Name in honour of K. W. F. von Gleichen, a German author on microscopic plants.)

§ 1. EUGLEICHENIA.—Sorae at the apex of a veinlet. Segments of the pinnae broad, short.


HAB. Common in loose forest land, etc.: Georgetown, Macquarrie Harbour, etc.—(v. v.)

DISTRIB. New South Wales and Victoria, New Zealand, New Caledonia, Malay Islands. (Cultivated in England.)

Frons 1½–3 feet high. Stipes terete, slender, generally smooth, often shining below, woolly or chaffy above. Branches dichotomous, spreading, a span to a foot long, forked and pinnate; rachis chaffy, and covered with scattered, stellate, rusty-red hairs. Pinnae 1½–2 inches long, ½ inch broad, shining above, often glaucous below, there covered with long, weak, lax, deciduous hairs, or perfectly glabrous; costa often chaffy in the young state, smooth in the old. Segments broadly oblong or rounded, not ciliate as in the following species. Capsules one to four.

—The G. Speluncæ figured in the 'Species Filicum,' from Tasmania (Gunn, 34), appears to be a young specimen of this species.
2. *Gleichenia dicarpa* (Br. Prodr. 171); fronde dichotome ramosa, ramis divaricatis pinnatis, pinnis pinnatifidis subtus densissime ferrugineo-lanatis squamosisque glabris glaberrimisve, segmentis orbiculatis saeclatis lato margine cinetis, capsulis binis, rachi costisque lanatis paleaceisque rarius glabris.—*Hook. Sp. Fil.* i. p. 3. t. 1 C; *Fil. Exot.* t. 40; *Kunze, Farnkr.* p. 164. t. 70. f. 2. G. Vulcanica, Blume, *En. Fil.* Jav. 251. (Gunn, 1504.)

Var. *β. alpina*; minor, densius ferrugineo-lanata et paleacea.—*G. alpina*, *Br. et Hook.* l.c.; *Hook. et Grev. Lc.* Fil. t. 58. (Gunn, 1504, in part.)

HAB. Abundant, especially in subalpine districts; var. *β* ascending to 4000 feet.—(v. v.) (Cultivated in England.)

Distrib. Alps of Victoria, New Zealand, New Caledonia; lofty mountains of Java and Celebes, and Malacca.

This is a rather common Tasmanian plant, and varies extremely in the amount of woolly clothing it bears. Sometimes the whole plant, from the rhizome upwards, is covered with a soft brown wool and chaff (such is especially the case with alpine specimens); at other times the plant is nearly glabrous throughout, and the under surface of the lobes is glaucescent. Tasmanian specimens attain nearly as large a size as *G. semivestita*; New Zealand ones are smaller, and more slender. The pinnas are more slender than in *G. semivestita*, and the sacate lobes, which look like closed boxes with transverse slits, at once distinguish this specifically. I have in vain attempted to distinguish *G. alpina* as a species; it is certainly only an alpine, and consequently stunted, and often woolly state of *G. dicarpa*: I have not only gathered these varieties passing into one another, but Mr. Gunn’s magnificent suites of specimens show every transition state. Some of my specimens of var. *β* *alpina*, from Mount Wellington, are as glabrous as any of *G. dicarpa*.

§ 2. MERTENSIA.—Sorus at the middle or fork of a veinlet. Segments of the pinna linear.

3. *Gleichenia flabellata* (Br. Prodr. 161); fronde submembranacea dichotome ramosa prolifer a flabelliformi bipinnata, pinnulis ascendentibus linearibus acutis serrulatis utrinque concoloribus subtus glaberrimis pubescentibusve, capsulis 4–6 exsertis, costa rachi stipiteque nudis glaberrimis v. rarius pubescentibus.—*Hook. Sp. Fil.* i. p. 6; *Fil. Exot.* t. 71. (Gunn, 23.)

Var. *β. tenera*; submembranacea, pinnulis linearibus integerrimis.—*G. tenera*, *Br. Prodr.* 161. (Gunn, 1506.)

HAB. Damp shaded places, but not very common: Yorktown, Gunn.—(v. v.) Var. *β* Calder’s Pass, on the road from Lake St. Clair to Macquarie Harbour.

Distrib. New South Wales and Victoria, New Zealand, New Caledonia. (Cultivated in England.)

A much larger plant than any of the former, 2–4 feet high, with larger, broader, more membranous and proliferous fronds, having several tiers of branches rising above one another.—*Pinnules* narrow, long, serrate, green on both sides. *Slices, costa, and rachi* without bullate scales.—The *G. tenera*, Br., appears to me to be only a more membranous state.

Tribe II. CYATHEAE.—Sorus globosus. Capsules with an incomplete vertical ring, sessile or stalked, placed on an elevated receptacle, often mixed with jointed hairs.

Gen. II. ALSOPHILA, Br.


A very large genus of tropical Tree-Ferns, of which more than fifty species are enumerated, but few of them grow in the south temperate zone; of these one is an Australian plant, found also on the north coast of Tasmania;
another is the *A. excelsa* of Norfolk Island, which is the loftiest of Tree-Ferns, and said to attain 80 feet; and the third is a native of New Zealand. The genus is distinguished from *Polypodium* by the arborescent habit and elevated receptacle of the sorus, which has no involucre, and often bears long jointed hairs amongst the capsules. (Name from ἀλός, a grove, and φαλα, to love.)

1. **Alsophila Australis** (Br. Prodr. 158); glabra, fronde bipinnata, pinnulis lineari-lanceolatis attenuato-acuminatis pinnatifidis subtus glaucis, segmentis oblique ovatis acutis integerrimis v. subseriatis, soris 1–6.—*Hook. Sp. Fil.* i. 50. t. 19 A. (Gunn, 1507.)

Hab. Not rare; in shady forests: Macquarrie Harbour, Backhouse; Asbestos Hills and Georgetown, Gunn.

Distrib. New South Wales and Tasmania.

A very handsome Tree-Fern, attaining a height of 30 feet, conspicuously differing from *Dicksonia Antarctica* in the black trunk being covered with the persistent bases of the fallen fronds.—*Fronds* 12–14 feet long, bipinnate, somewhat glaucous beneath.

Gen. III. **DICKSONIA, L'Hérit.**


A large genus of Ferns; many, like the Tasmanian *D. Antarctica*, are arborescent.—Sori on the margins of the pinnules. *Capsules* on an elevated receptacle, enclosed in a two-valved involucre. *Inner valve*, or true involucre, coriaceous, but less than the outer, arising from the end of a vein; *outer*, the recurved segment or tooth of the pinnule, opposite the inner. (Named in honour of Mr. James Dickson, a Scotch botanist.)

1. **Dicksonia Antarctica** (Lab. Nov. Holl. ii. p. 100. t. 249); arborea, stipite rachiche levi, partialibus costisque molliter patentim pilosis demum glabras, fronde coriacea bipinnata, pinnis lineari-lanc-


Hab. Tasmania, *Brown, Gunn* (no habitat).
Distrib. New South Wales.

A very different plant in habit from D. Antarctica, and appearing to belong to a different genus, but there are numerous intermediate species in various tropical countries.—Fronds 2–5 feet high, rather coriaceous, pale, arising from a stout, creeping rhizome, tripinnate. Pinnae deeply divided; pinnules obliquely oblong-lanceolate, pinnatifid. Sori near the apices of the lobules; upper valves of the involucre formed of the coriaceous recurved lobule of the frond; lower small and membranous.

Tribe III. Hymenophyllum.—Sorae at or beyond the edge of the frond. Capsules sessile, on a filiform or club-shaped, often elongated receptacle, girt with an oblique ring. Frond very delicate, transparent, and reticulated.

Gen. IV. Hymenophyllum, Sm.

Sori marginales. Capsule receptaculo cylindraceo fronde immerso v. exserto subsessiles, depresse, annulo completo transverse cinctae, longitudinaliter ruptae. Involucrum textura frondis, bivalve, urceolatum v. compressum; valvis planis v. convexis, extus libera.—Frondes membranaceae, pellucide, cellulis magnis reticulatus, costa valida percurse.

One of the largest and most beautiful genera of Ferns, generally of small size, easily recognized (except from Trichomanes) by the transparent pellucid texture of the delicate green, glistening fronds, which are beautifully reticulated when seen through the microscope.—Rhizome slender or stout, wiry, filiform, creeping. Fronds generally glabrous, often flaccid, pinnately or pinnatifidly divided into linear, blunt, dichotomously branched segments, through which runs a stout midrib. Sori at the axils or ends of the segments, sunk in the substance of the frond, which forms a cup-shaped or box-like, often flattened, two-valved involucre over them. Sometimes the involucre is produced beyond the frond, and stalked; its two valves or lips are entire or toothed, and open outwards. Capsules sessile, on a filiform or cylindrical receptacle, that is sometimes exserted, like a thread, beyond the involucre, sessile, depressed, surrounded with a complete ring, and bursting longitudinally. (Name from ἀμφε, a membrane, and φύλλον, a leaf.)

§ A. Fronds quite glabrous; margins toothed or serrate, not ciliate.

1. Hymenophyllum Tunbridgense (Sm. Fl. Brit.), var. β. cupressiforme; fronde elongata erecta rigida, pinnis distantibus decurvis, segmentis angustissimis, involucris lobulo frondis quasi stipitatis liberae.

Hab. Abundant in shady places, on the ground, and on rotten trunks of trees.—(v. v.) (Cultivated in England.)

Distrib. Victoria, New Zealand, South Chili, Fuegia, and Brazil, South Africa.

The H. Tunbridgense is a scarce English Fern, and a great favourite with cultivators. The Tasmanian state of the species has a narrower and more decumbent frond, often remarkably curved downwards on to the ground, and narrower segments.—Fronds 2–4 inches high, ovate or linear, pinnate below, pinnatifid (rachis winged) above, quite glabrous. Pinnae very narrow, distant, rigid; segments long or short, spreading or curved downwards, deeply and sharply toothed. Involucrum orbicular, compressed at the axils of the segments, erect, projecting beyond the frond, in which their bases are sunk, their lips spinulose or irregularly toothed, rarely nearly entire. The ordinary state of H. Tunbridgense, with short, broad, oblong, flat, bright-green fronds, with broad, short pinnae and segments, and involures more sunk in the segments, is a different-looking Fern from its deep-green, sparingly branched var. β, and also from H. unilaterale, but these characters vary in whatever parts of the world they both inhabit, and the β. cupressiforme seems all but intermediate.

2. Hymenophyllum unilaterale (Willd. Sp. Pl. v. p. 521); frondibus cespitosis lineari-oblongis

HAB. Common, especially on trunks of trees, in damp forests.—(v. v.)

Distrib. New South Wales, Victoria, New Zealand, Chili, Fuegia, South Africa, Great Britain.

This differs from H. Tunbridgens, B. cypressiforme, only in the entire lips of the involucre, otherwise these plants appear identical. I find the amount of toothing in the valves of H. Tunbridgens, β, to vary extremely, sometimes amounting to a mere erosion, and at others the lips being even lacinated and spinulose, so that I can hardly doubt these two proving eventually the same species.

§ B. Fronds quite glabrous, or with the costa and rachis only setose; margins neither toothed nor ciliate.

a. Fronds pinnatifid, rarely pinnate below; rachis, and generally the stipes, winged.


HAB. Abundant in damp forests, often clothing trunks of Dicksonia Antarctica.—(v. v.)

Distrib. New Zealand, South Chili and Fuegia, South Africa, Ceylon.

A very beautiful Fern, varying extremely in size and habit wherever found. It clothes trunks of Tree-Ferns with a glistening garment of the most delicate and beautiful green, the fronds hanging down and overlapping one another in profusion. It may be readily recognized by its hair-like stipes and rachis, transparent membranous fronds, and broad, short, terminal involucres.—Fronds 1–8 inches long, broad or narrow, linear, bipinnatifid. Pinnae short, often very irregular and unequal, distant, or close and overlapping one another. Segments short, broad. Involucres rhomboid, wholly sunk in the ends of the segments, very flat, with short, broad, entire lips.


HAB. Damp woods, abundant on stones and trunks of trees, etc.—(v. v.)

Distrib. Victoria, New Zealand Islands, Ceylon, Himalaya Mountains.

Fronds 2–8 inches high, erect, lurid green, bi-tripinnatifid. Segments linear, 1⁄10 inch broad, flat, undulated or crisped. Involucres often very numerous, terminal, ovate, turgid, broader than the segments of the frond, deeply divided into two valves, whose lips are quite entire or erose. Stipes and rachis with a broad, flat or crisped wing. Rhizome quite glabrous, creeping.

b. Frond pinnate below. Rachis not winged below.

5. Hymenophyllum flabellatum (Lab. Pl. Nov. Holl. ii. p. 101. t. 250. f. 1, non Br. Prodr.); glaberrimum, nitenis, fronde pendula v. decurva lineari-oblonga rarius ovata, pinnis plerumque basi cuneatis late ovatis flabellatim dilatatis pinnatifidis v. bipinnatifidis, segmentis linearibus furcatis brevibus caudato-elongatis, involucris segmenta lateralia terminantibus orbicularibus oblongisve ad basin fere bivalvis,
FLORA OF TASMANIA.


HAB. Damp forests, abundant, especially on Tree-Ferns.—(v. v.)

DISTRIB. Victoria, New Zealand.

A very beautiful small species, often clothing the trunks of Tree-Ferns with its pale-green, glistening fronds.

—Rhzomae rigid, wiry. *Stipes* 2–4 inches long, wiry, glabrous, except at the very base, where there is a tuft of soft, pale-brown, woolly hairs. *Fronds* broadly ovate when erect, linear or oblong when pendulous, 2–6 inches long, pinnate below, pinnatifid above, perfectly smooth, transparent. *Pinnae* twice pinnatifid; *segments* linear, quite entire and smooth, generally broadly cuneate at the base. *Involucres* small, terminal on lateral segments, orbicular or oblong, the valves entire or toothed.

Obs. I know nothing of *H. australis*, Willd. *Sp. Pl.* v. 527 (said to be found in Tasmania by Labillardière), except it be the *H. rarum*, as conjectured in the 'Species Ficium,' p. 108.

Gen. V. TRICHOMANES, Sm.

*Sori* marginales. *Involucrum* tubulosum, textura frondis, basi attenuatum, apice dilatatum v. bivalve. *Capsula* receptaculo filiformi sepius exserto sessiles, depressa, annulo completo transversali cinctae, longitudinaliter ruptae.—*Frondes* plerumque membranaceae, pellucide, cellulis magnis reticulatae.

A more tropical genus than *Hymenophyllum*, to which alone it is very closely allied, and from which it differs in the tubular or trumpet-shaped involucre, which is less obviously two-lipped, often quite circular at the mouth, and having a generally exserted, filiform receptacle. (Name, an ancient one of uncertain application.)

1. **Trichomanes venosum** (Br. *Prodr.* 159); rhizomate repente filiformi, fronde parvula pendula nitida membranacea pinnata, pinnis remotis late lineari-oblongis ligulatis simplicibus v. basi furcatis obtusis v. emarginatis margine non incrassato repandis, costa flexuosa, venis furcatis, involucris ad basin pinnarum fronde immersis liberisve tubulosae-urecolatis, ore dilatato breviter bilabiato, receptaculo plerumque capillari, rachi apice alata inferne stipiteque capillari.—*Hook. et Grev. Ic. Fil.* t. 78; *Hook. Sp. Fil.* i. p. 132; *Fl. N. Zeal.* ii. 17. (Gunn, 1515.)

HAB. Abundant, clothing the trunks of Tree-Ferns.—(v. v.)

DISTRIB. New South Wales, Victoria, New Zealand.

An extremely delicate and beautiful Fern, often clothing Tree-Ferns, as *Hymenophyllum flabellatum* and *H. rarum* do.—Rhzomae creeping, and *stipes* capillaries. *Fronds* 2–5 inches long, linear, pinnate, membranous. *Pinnae* distant, linear-oblong or strapshaped, cuneate at the base, not margined, blunt or emarginate, waved along the edge, simple or divided at the base, ¼–1½ inch long, ½–1 inch broad; *costa* flexuose, giving off branching veins. *Involucres* on the upper edge of the pinna at its base, sunk in the frond or in a lateral segment. *Receptacle* included, or capillaries and exserted. The upper pinnae are often of irregular length, sometimes very long and caudate.

Tribe IV. POLYPODIÆ.—*Sori* near the margin of the frond or dorsal, rounded or linear. *Capsules* not placed on an elevated receptacle, stalked, partly gilt with a vertical ring, bursting transversely on the side where the ring is wanting.

Sub-tribe A.—*Sori* covered with an involucre (indusium), or with the more or less altered margin of the frond.

Gen. VI. CYSTOPTERIS, Bernh.

*Sori* globosi, dorsales. *Involucrum* superficiale, membranaceum, cucullatum, basi inflata infra sorum.
insertum, medio vene impositum. *Vena* furcata, simplices.—*Rhizoma caspitosum* v. *repens*; frondibus *flaccidis, membranaceis, bi-tripinnatifidis*.

A small genus of Ferns, natives chiefly of temperate and subarctic regions, of remarkably flaccid texture. *C. fragilis* is found in very parts of the globe, and is a very variable plant.—*Frond* 3–6 inches high, lanceolate or oblong-lanceolate, pinnate or bipinnate. *Rhizome* shortly creeping, tufted. *Stipes* short, slender, brittle; *rachis* winged above. *Pinnae* irregularly inciso-lobate; upper decurrent. *Sori* scattered over the back of the pinnules, small, sometimes confluent. *Involucre* white, membranous, attached below the sori by a broad, convex, arching base, ovate, acuminate, at length reflexed. (Name from κυτός, a box, and πτερω, a wing.)


Distrib. Var. *a*. Europe, Arctic regions, North India, Abyssinia, North America, South Africa.

Of the two varieties one accords precisely with the European *dentata*; the other differs in its less-divided frond, broader pinnules, and very small sori.—PLATE CLXVI. Fig. 1, portion of frond and sori; 2, involucre:—both magnified.

Gen. VII. **LINDSE.A, Dry.**

Sori lineares, marginales v. intra-marginales, continui v. interrupti. *Involucrum* exterius liberum, e membranis 2 parallelis, superiore textura frondis, inferiore ex apicibus venarum (une v. plurim.) oriente. *Vena* simplices v. anastomosantes.—Frondes (species *Tasmaniacis*) parvula, coriacea, pinnate.

A large genus of chiefly tropical Ferns, the Tasmanian species of which are small, coriaceous, and glabrous, and simply pinnate or bipinnate, with erect, stipitate, tufted fronds, rising from a creeping rhizome.—*Sori* linear, running along the edge of the pinnules continuously or interruptedly, covered by an involucre formed of two parallel lamellae or plates opening outwards; of these the upper is coriaceous, and formed of the frond, the lower membranous, and rising from the ends of one or more veins. (Named in honour of Mr. John Lindsay, author of Observations on the Germination of Ferns.)

1. **Lindseaea linearis** (Sw. *Fil.* t. 3. f. 3); frondibus e rhizomate crasso subdistantibus linearibus pinnatis, pinnis sessilibus late cuneato-flabelliformibus marginibus demum revolutis integris crenatiave, soris continuis, stipite rachiique nitido.—*Br. Prodr.* 156; *Kunze in Schk. Suppl.* p. 30. t. 16; *Hook. Sp. Fil.* i. p. 206; *Fl. N. Zeal.* ii. 19. (Gunn, 20, 1535.)

Hab. Abundant in heathy places.—(v. r.) (Cultivated in England.)

Distrib. Extratropical Australia, New Zealand.

A very common Fern, easily recognized by its stout, creeping, scaly rhizome; erect, linear, simple, pinnate fronds, 2–18 inches high; and broadly cuneate pinnules, which are spread out like a fan, and have entire or crenate anterior margins; the latter become revolute when dry.—*Pinnae* ¼ inch broad, distant; *sori* nearly continuous along their outer edge. *Stipes* and *rachis* stout, purplish-brown, shining.

2. **Lindseaea trichomanoides** (Dryand. in Linn. Soc. Trans. iii. p. 43. t. 11); rhizomate repente palpeceo, frondibus subcespitosis late lanceolatis pinnatis bipinnatisve, pinnis primariis basi cuneatis stibi-

Var. B. Lessoni; fronde pinnata v. basi bipinnata, pinnis oblongo-lanceolatis obtusis integris lobatis pinnatifidisve.—L. Lessoni, Bory, in Duperrey Voy. p. 278. t. 37. f. 2; Hook. Sp. Fil. i. p. 217; Fl. N. Zeal. ii. 19. (Gunn, 2057.)

HAB. Dense forests near Macquarie Harbour, Milligam, Gunn.—(v. v.)

DISTR. New Zealand.

An extremely variable little Fern.—Rhizome creeping, scaly, and having pilose roots. Fronds pinnate or bi-rarely tri-pinnate, numerous, ovate or linear-oblong, rather tufted, erect, 2–18 inches high. Stipes scaly at the base, and rachis slender, stiff, trigonous, polished. Pinnae rather distant; in var. Lessoni simple, oblong-lanceolate, with a cuneate base, blunt, lobed, bearing sori on the lobes, more often pinnatifid, with cuneate lobes, very frequently bi- and even tri-pinnate. Pinnules always broadly cuneate, rounded in front, with a deep, continuous, intramarginal sora. The pinnules vary from \( \frac{1}{2} \)–\( \frac{1}{2} \) inch long; the larger are lobed, and bear a sora on each lobe.

Gen. VIII. ADIANTUM, L.

Sori marginales, punctiformes v. elongati. Involucri sori conformes, e margine frondis reflexo, disco venoso capsuliferro, limbo membranaceo libero.

Beautiful terrestrial Ferns, natives chiefly of the tropics, but of which one species is found in Europe, and several occur in Australia, Tasmania, and New Zealand.—Rhizome creeping. Stipes generally black, often polished. Fronds bi-tripinnate in the Tasmanian species, with stipitate, broadly cuneate pinnules. Sori marginal, short, or linear and continuous. Involucrum formed of the reflexed, often kidney-shaped edge of the frond, opening inwards, its surface veined, the veins continuous with those of the pinnules. (Name from adbaros, in allusion to the dry texture of the fronds.)


HAB. Pasture-land, behind rocks and logs of wood; also in rocky places, frequent.—(v. v.)

DISTR. Throughout Australia, New Zealand, and many tropical countries. (Cultivated in England.)

A. assimile was regarded as a distinct species from A. Ethiopticum, till the author of the 'Species Filicum' pointed out its identity with that plant. It is found in all tropical countries, and throughout the south temperate hemisphere, but is hardly known in the north temperate. Everywhere perfectly glabrous, flaccid, membranous, pale-green or yellowish. Stipites tufted, slender, 4–10 inches long. Frond oblong, often elongated, tri-quadriflora; primary branches alternate, distant. Pinnules \( \frac{1}{2} \)–\( \frac{1}{2} \) inch broad, broadly cuneate, stipitate; upper margin rounded, deeply lobed. Sori few. Involucres very large, pale, kidney-shaped, placed in notches of the pinnules. Rachis slender, flexuose; partial ones and stalks of the pinnules capillary.

Gen. IX. HYPOLEPIS, Bernh.

Sori punctiformes, marginales, distincti. Involucrum e spice venulae ortum, lobulae frondis recurvæ formatum, coriaceum v. submembranaceum.
It is difficult to distinguish this genus by technical characters of the fructification from Adiantum, from which it is widely different in habit and general appearance. The sori are small, placed on the margins of the pinnules, in a sinus, and are covered with a small reflexed lobe of the frond, which is never so membranous as in Adiantum, but is green and herbaceous. Sometimes the reflexion of the pinnule’s margin is so slight that the sorus is really naked, and then I cannot distinguish the genus from Polypodium, or the species H. tenuifolia from P. rugulosum, Lab. (Name from πέδον, beneath, and λέπος, a scale.)


Hab. Not uncommon in forests, etc.—(v. v.) 

Distrib. Australia, New Zealand, and various south temperate and tropical regions of the Old and New Worlds. (Cultivated in England.)

A tall, handsome, spreading Fern, 2–5 feet high. It varies a good deal in the colour, hairiness, and membranous or coriaceous consistence of the fronds, as they grow in more shaded or open localities.—Frond sometimes 2 feet broad, deltoid, tri-quadrupinnate; primary pinnae or branches spreading; secondary and tertiary narrow, oblong, acuminate; ultimate, or pinnules, sessile, linear-oblong, 1½–2 inches long, deeply pinnatifid. Lobes linear-oblong, blunt, bluntly crenate. Sori generally two or three on each side of the lobe, covered by an involucre formed of a portion of the recurved margin of each crenature. Costa hairy; rachis yellow-brown, glandular and hairy. Stipes stout, often viscid, glandular, hairy, and rough.—There is a New Zealand variety of this species with nearly glabrous rachis and stipes, more distant and acuminate secondary and tertiary pinnae, narrower pinnules, which are deeper lobed, and bear more numerous sori, scarcely covered by the involucre, and which hence passes into Polypodium rugulosum, Lab.

Gen. X. CHEILANTHES, Sw.

Sori punctiformes, marginales, distincti. Involucra ut in Hypolepis, sed plerumque confluentia.

Though the Tasmanian species of Cheilanthes does not at all resemble Hypolepis, it is not readily characterized, except by having confluent involucres; i.e. instead of solitary isolated teeth or lobes of the pinnules being reflexed over the sorus, longer portions of the margin of the frond are so, to a greater or less degree, forming a continuous involucre. (Name from χείλος, a lip, and αἵβος, a flower; from the form of the involucre.)


Hab. Abundant, especially in stony places.—(v. v.) 

Distrib. Australia, New Zealand, Malay Islands, China, India.
The true *C. tenuifolia* is a very widely diffused tropical Fern, of which Australian and New Zealand plants are smaller, and have often a more contracted frond than the Indian, and have hence been made into another species (*C. Sieberi*). The immense suite of specimens preserved in the Hookerian Herbarium, however, shows that all are one and the same plant, from which the *C. Preissiana* of the Swan River has been distinguished by the presence of a few hairs towards the base of the stipes, a character I find present and absent in different fronds of the same specimen.—*Rhizome* very stout, thickly covered with silky, long scales. *Stipes* tufted, stout, glossy, red-brown, quite glabrous, or with a few spreading hairs towards the base. *Fronds* 3 inches to a span or a foot long, narrow-ovate or oblong, rarely deltoid, much contracted from the erect pinnae, tripinnate. *Pinnae* distant; secondary scattered. *Pinnules* perfectly glabrous, few and small, coriaceous, 3-5 lines long, yellow-green, linear-oblong, blunt, crenate, their margins very revolute, lobed or pinnatifid; margins of all the lobes reflexed, forming a continuous, coriaceous, crenate involucre, with membranous edges. *Capsules* very numerous and prominent, often covering the pinnules. *Rachis* red-brown, shining, quite smooth.—This is anything but a handsome Fern in colour, form, or texture, always looking starved and dry, the small, narrow, scattered pinnules, with revolute margins, bearing a small proportion in size to the stout stipes and rachis. The pinnules often appear as a mass of fructification. In some specimens the primary pinnae are reduced to small crumpled lobes, not half an inch long.

Gen. XI. **PTERIS, Br.**

*Sori* lineares, marginales, continui; capsulis sinu involucri insertis. *Involucrum* marginale, continuum, scariosum, intus liberum.

One of the largest and most extensively distributed groups of Ferns, which has been divided (on so many and various grounds) into so many genera, that, were they adopted here, one might perhaps be found for each Tasmanian species. Such dismemberments of genera, though extremely useful to the skilled botanist when working upon a multitude of species from all parts of the world, are, when not absolutely necessary, highly inconvenient for local Floras, rendering these impracticable to the student. I have therefore, in this case, adopted the old genus, as defined in Brown’s *Prodromus Flora Australis,* and introduced as sections those of the new that are natural. *Pteris,* thus characterized, contains all those Ferns whose sori run continuously, or nearly so, along the edge of the whole pinnule, and are covered with a continuous, scarios or membranous involucre, formed of the incurved edge of the frond. It is distinguished from *Cheilanthes* only by the greater continuity and regular outline of the membranous involucre. (Name from *Crepus, a plume.*)

§ 1. **PLATYLOMA, J. Sm.—Frond pinnate (in the Tasmanian species); veins forked, free.**


*Hab.* Common in forests, etc.—(v. v.)

*Distrib.* New South Wales, Victoria, New Zealand, Penang, Malacca, and the peninsula of India. (Cultivated in England.)

*Fronds* erect, coriaceous, rigid, tufted, 1-3 feet high, narrow-linear, pinnate. *Pinnae* quite glabrous, linear-lanceolate or oblong, 3/4-1 inch long (in Australian specimens 2/4 inches), shortly stipitate, falcate, acute or mucronate, oblique at the base, which is very broadly cuneate; the upper margin sometimes produced into a lobe, or gibbous. *Sori* broad, continuous all round the pinnule, partially covered with a very narrow involucre. *Rachis* stout, densely villous, and covered with spreading, scaly hairs. *Stipes* black, hispid.

§ 2. **PTERIS, L.—Fronds bi-tripinnate. Veins forked, free, united at their ends by the continuous receptacle.**

2. **Pteris aquilina** (L.), var. *esculenta; fronde rigida coriacea tripinnata glabra v. subitus parce

HAB. Var. esculenta abundant throughout the Island.—(v. v.)

Distrib. Australia, New Zealand, Pacific Islands, Malay Islands, India, South America.

One of the most common Tasmanian Ferns, of which the roots roasted were formerly an article of food with the natives. The same variety grows in Australia, New Zealand, and the Pacific Islands, and differs very slightly from the P. aquilina of the north temperate zone, which is found in one form or another in all parts of the world.—Rhizome subterranean, creeping, often as thick as two fingers. Stipes sometimes 10 feet high, grooved on one side, stout, pale-yellow, shining, glabrous. Frons 2–4 feet long, broadly deltoid, tri-quadripinnate, of a very hard, rigid, coriaceous texture, glossy above. Pinnules linear, decurrent, and united with one another by forming a wing to the rachis, often hairy below. Sori continuous, frequently surrounding the pinnules, and even continued along their decurrent bases to those of the pinnule below them. Involucres very coriaceous. Midrib very thick, often grooved and hairy.

3. Pteris tremula (Br. Prodr. 154); fronde elata glaberrima submembranacea bi-quadripinnata, pinnis primariis ascendentibus, pinnulis linearibus adnatis decurrentibus subacutis stellatusibus rarius integerrimis crenato-dentatis fertilibus plerumque integris, venis furcatis omnibus libeis, rachis stipiteque glaberrimis.—Fl. N. Zeal. ii. 25; Hook. Sp. Fil. ii. 174. t. 120 B. (Gunn, 41, 1537, 1538.)

HAB. Common in shaded places, forests, etc.—(v. v.)

Distrib. New South Wales and Victoria, New Zealand, Chili, and Juan Fernandez. (Cultivated in England.)

This is a very common Tasmanian plant, which so closely resembles P. arguta of the south of Europe, the Atlantic Islands, Abyssinia, Africa, and the East Indies, that I think it possible that it may prove to belong to that widely-diffused species. Extremely variable in size, from 1–5 feet, in consistency from membranous to coriaceous, in colour from pale light-green to olive-green, in amount of the division from bi- to quadri-pinnate, or almost decompound, and in breadth and length of the pinnules, which are quite entire or crenate. Its general characters are those of a perfectly glabrous, tripinnate frond, rather membranous, broadly deltoid, with ascending branches; the pinnules 1–2 inches long and ½ broad, linear, blunt, adnate, decurrent, crenate, with forked, free veins, and a glabrous, shining costa and rachis: specimens in which all the pinnules are soriferous have these much narrower, more coriaceous, with the involucres sometimes reaching to the costa.

§ 3. Litobrochia.—Veins more or less anastomosing.


HAB. Common in damp woods, and ascending to 3000 feet.—(v. v.) (Cultivated in England.)

Distrib. Extratropical Australia, New Zealand, India, South Africa, temperate and tropical South America.

Frons perfectly glabrous, tall (2–4 feet), ample, broadly deltoid, membranous, glaucous below, bi-tripinnate:
small specimens are sometimes simply pinnate. **Primary pinnule** ovate-lanceolate; **secondary** linear, sometimes pinnatifid; **pinnules** broadly oblong or rounded, quite entire, adnate and decurrent, rarely linear; **costa** flexuose; **veins** forked, often joining at the base in the lower pinnules. **Stipes** and **rachis** very pale-yellowish or brown, channelled in front, shining, often glaucous.


HAB. Tasmania, Gunn; no localities attached, but it probably inhabits damp, shaded ravines, in the forests.—(v. v.)

Distrib. New Zealand, Norfolk Island, Juan Fernandez, Pacific Islands.

This species approaches so closely to *P. comans*, Forst., that in the New Zealand Flora I united it with that plant; but the pinnules are always shorter and less acuminate.—A very similar plant to *P. tremula*, but with broader fronds and pinnules, which are very variable in size; it is best known from that plant by the veins being always connected by branches near the costa. In some New Zealand specimens the frond appears pinnate, or bipinnate at most; the pinnae pinnatifid, with very broad segments, 1½ inch long, and nearly ¾ inch broad, acute and serrated at the tips only; in these the veins branch and anastomose repeatedly.

**Gen. XII. LOMARIA, Willd.**

**Sori** frondibus distinctis, lineares, continuos; **capsulis** demum superficiem totam pinnulam contracte operientibus. **Involucrum** marginale, scariosum, continuos, intus liberum v. dehiscentes.—**Frondes coriaceae, cespitose, fertiles sepissime sterilibus distincte.**

A large tropical and south temperate genus of Ferns.—**Fronds** tufted, usually pinnatifid or simply pinnate, the central ones in the tufts bearing fructification, the outer barren, with broader pinnae; sometimes one side only, or only a few pinna of the frond are fertile. **Sori** as in *Pteris*, but generally occupying the whole under surface of the pinnule. **Involucra** marginal, scarious, continuous, often reaching the costa. (Name from λώμα, a fringe; in allusion to the scarious indium.)

§ 4. Sterile frond usually simple.

1. **Lomaria Patersoni** (Spr. **Syst. Veg.** iv. 62); frondibus simplicibus indivisis v. pinnatifidis pedalibus suberectis, sterilibus lanceolatis crenato-dentatis acuminitis, fertilibus angustie linearis-longatis, stipite basi palaeaco.—*Kunze in Schkuhr Fil. Suppl.** p. 69. t. 34; **Hook. Fil. Exot.** t. 49. Stegania Patersoni, Br. **Prodr.** 152.

HAB. Port Dalrymple, Paterson. (Cultivated in England.)

Distrib. Victoria (Mueller).

This remarkable Fern has not been found in Tasmania since Colonel Paterson's visit, in the very early part of this century, but it has long been cultivated at Kew from spores either taken from the dried plant, or that came over in soil with other plants. It is at once distinguished by its simple, rarely pinnatifid fronds, of which the sterile are linear-lanceolate, acuminate, and crenate, the fertile very narrow and linear-longate.
§ b. Sterile fronds pinnate. All, or at least the lowest pinnae, contracted at the base, or stipitate.


Var. a; elata, robusta, valde coriacea, pinnis sterilibus basi oblique truncatis v. late cuneatis.

Var. β; omnia var. a, sed pinnis sterilibus basi auriculo-cordatis.

Var. γ; omnia var. a et β, sed pinnis sterilibus basi angustatis.

Var. δ. minor; pallide viridis, minus coriacea, pinnis sterilibus subobtusi basi subtransversa superioribus adnati.—? Stegania minor, Br. Prodr. 154.

Hab. Abundant (especially the var. a) in wet, shady places, throughout the Island.—(v. v.) Var. δ. Macquarrie Harbour, etc., A. Cunningham, Gunn.—(v. v.)

Distrib. Throughout the temperate, damp regions of the southern hemisphere. (Cultivated in England.)

A common and extremely variable Fern, of a very coarse texture, which I cannot distinguish specifically from the West Indian L. lineata, the South American L. Chilensis, and the South African L. Capensis. It differs from the Antarctic American L. Magellanica in the broader and shorter paleace at the base of the stipes.—Fronds a span to 4 feet high, tufted, growing from a stout caudex that often becomes woody and frutescent. Stipes very stout, generally paleaceous at the base. Rachis generally naked and glabrous. Sterile fronds pinnate, short, and broadly ovate or lanceolate. Pinnae three to twenty pairs, distant, or approximate and imbricating at the base; the upper generally adnate, lower stalked, extremely variable in length, from 2-12 inches long, and from ½-1½ inch broad, broadly oblong or linear, and almost strap-shaped, blunt, acute, acuminata or tailed; the base acute, cuneata, truncate, cordate, or produced into great lobes above and below, which sometimes lap over those of the pinna above it and the rachis; of a very rigid texture, marked with close grooves between the veins; margins finely and minutely toothed. Terminal pinna long or short, sometimes erect, and much larger than the lateral ones. Lowest pinna sometimes obliquely ovate, or even orbicular-reniform. Fertile pinnae on separate fronds, or occupying half (one side) of the sterile, or a few pinnae or portions of them only are soriferous, narrow-linear, 3-8 inches long, sometimes so narrow as to be filiform. Costa naked or paleaceous.

3. Lomaria fluviatilis (Spr. Syst. Veg. 64); frondibus caespitosis linearibus elongatis pinnatis, pinnis sterilibus pluriis membranaceis oblongo-rotundatis lineari-oblongisve obtusis crenatis margine undulatissive infinis breve stipitatis supremais basi lata adnatis confluentibusve, pinnis fertilibus brevibus linearibus erectis obtusis, rachi stipiteque brevi squamiis patentibus, rhizomate crinito-paleaceae.—Fl. N. Zeal. ii. 28. L. rotundifolia, Raoul, Choix des Plantes Noves, Zél. p. 9. t. 2 B.; Col. in Tasm. Phil. Journ. Stegania fluviatilis, Br. Prodr. 154. (Tab. CLXVII.) (Gunn, 26, 1524.)

Hab. Covering shaded precipices near the Acheron River, on the road to Macquarrie Harbour, Gunn.—(v. v.)

Distrib. South-eastern Australia, New Zealand.

A very distinct species, though varying a good deal in size and form of pinnae.—Rhizome stout, often woody, and base of the short stipes thickly clothed with long scales. Fronds 8-18 inches high, tufted, very narrow. Pinnae numerous; of the sterile fronds rounded or linear-oblong, blunt, waved or crenate at the tip, ½-1½ inch long, lower shortly stipitate, upper adnate by a broad base; top ones confluent: of the fertile fronds fewer, erect,
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linear, narrow, blunt, $\frac{1}{2}-\frac{3}{4}$ inch long. Stipes and rachis covered with more or less spreading scales.—Plate CLXVII. Fig. 1, fertile pinnae; 2, transverse section of the same; 3, capsules; 4, spores:—all magnified.

§ c. Frond pinnatifid, or pinnate, when the lower pinnae are adnate by a very broad base to the rachis.


Hab. Franklin River, and other mountainous parts of the Colony, Gunn.

Distr. New Zealand; lofty mountains of Java.

A very distinct species, easily recognized by the often deltoid coriaceous frond, the two lower pinnae of which are deflexed.—*Rhizome* usually very stout and woody, sometimes (in New Zealand) as thick as the wrist. *Fronds* terminal, 4–18 inches long, tufted, on long stipes, ovate or lanceolate, deltoid, coriaceous. *Pinnae* close, 1$\frac{1}{2}$–3 inches long, falcate, acuminate (rarely blunt), perfectly entire or irregularly crenate, glabrous or pubescent on the costa and nerves below (especially in Java specimens). *Fertile fronds* with much narrower pinnae, and marginal sori sometimes covering the whole pinna. *Rachis* and *stipes* pale, the latter crinita with long, black, scaly bristles at the base.

5. *Lomaria lanceolata* (Spr. Syst. Veg. 62); frondibus fertilibus utrinque concoloribus submembranaceis caespitosis glabris anguste elongato-lanceolatis acuminatis basi angustatis breviter stipitatis pinnatifidis basi pinnatis, pinnis plurimis approximatis oblongo-lanceolatis obtusis acutis v. acuminatis subfalcatis integerrimis v. subsinuato-crenatis, inimis rotundatis nunc discretis, rachi costae glaberrimae, fronde fertili sterilibus breviore, pinnis patentibus linearibus acutis v. acuminatis, stipite basi squamato suberinito.


Hab. Abundant in subalpine moist forests, etc., by streams of water.—(v. v.)

Distr. South-eastern Australia, New Zealand, Norfolk Island, New Caledonia, Loyalty Islands.

*Fronds* tufted, on a very short, erect caudex, 2 inches to 2 feet high, firm in texture, but not coriaceous, pale-green, paler below; barren ones quite glabrous, long, linear-lanceolate, acuminate, much narrowed below, often produced to the base of the short stipes, pinnae below, pinnatifid above. *Pinnae* very numerous and close, narrow or broadly oblong-lanceolate, $\frac{1}{2}$–2 inches long, blunt or sharp, quite entire or bluntly toothed towards the tip, transversely ribbed by the forked veins. *Fertile fronds* shorter; pinnae distant, spreading, narrow-linear, acute or acuminate. *Rachis* and *costa* quite smooth and glabrous. *Stipes* with long, subulate, blackish scales at the base.

—Norfolk Island specimens are very much larger than Tasmanian or New Zealand ones, and have almost filiform fertile pinnae, with subulate tips.

HAB. Abundant in damp forests, etc.—(v. v.)

DISTR. South-eastern Australia, New Zealand.

It is generally easy to distinguish this from L. lanceolata by the red colour of the under surface of the frond, but this is not always the case, either in New Zealand or in Australian and Tasmanian specimens. Labillardière hence made a new species of the Tasmanian, which has been retained by Mr. Brown; but I find the colour to vary from green to red-brown, and there is no other character whereby to separate them.—Fronds tufted on the top of a very short, woody, erect, thick caudex, forming an elegant crown, 1–3 feet long, narrow, linear-lanceolate, perfectly glabrous, rather coriaceous, pinnatifid. Pinnae very numerous, close, and placed at right angles to the rachis, with a narrow slit between the contiguous pairs, straight, linear-oblong or lanceolate, blunted, sharp, or acuminate, 1½–4 inches long, obscurely serrate or quite entire; lowest smaller, sometimes distant. Fertile fronds pinnate or pinnae; pinna spreading, stout, linear, dilated, adnate, or contracted and almost stipitate at the base; lower pinnae often quite barren, and like those of the barren frond. Costa and rachis quite smooth, the latter very stout, often black, deeply channelled in front. Stipes short, stout, scaly at the base.


HAB. Abundant in boggy places, and on the tops of all the mountains.—(v. v.)

DISTR. Mountains of Victoria, New Zealand, South Chili, Fuegia, and the Antarctic Islands. (Cultivated in England.)

A small, coriaceous species, with creeping rhizome and very cespitose narrow fronds, of which the fertile are always much the longest; weak, elongated specimens have less coriaceous fronds, with obscurely sinuate pinnae.

—Fronds 2 inches to 2 feet high, with long stipes, linear, ½–¾ inch broad, narrowed above and below, deeply pinnatifid or pinnate. Pinnae twenty to fifty pairs, very close together, linear-oblong, blunted, sessile on very broad bases. Fertile fronds pinnate; pinna spreading, sometimes deflexed, remote, linear, blunt, curving upwards, rarely straight and short; lowest remote, small, rounded, often without sori. Involucres distinct, scarious. Rachis and stipes stout, smooth, sometimes with a few palea. Rhizome paleaceous.

Gen. XIII. ASPLENIUM, L.

Sori lineares, sparsi, superficie (arius marginis) frondis, venis paralleli. Involucrum e vena laterali ortum duecess, margine superiore libero.

One of the largest and most widely diffused genera of Ferns, of which the species also have an extensive geographical distribution, and are extremely variable. The genus is distinguished by bearing on the back of the frond linear sori, covered with a linear membranous involucre Involucrum attached lengthwise to a veinlet (with which the sori are parallel), opening lengthwise and inwards; sometimes the fronds are cut or divided between every veinlet, when the sori become marginal, and the involucres appear to open outwards, but if the whole pinna be carefully regarded, it will be seen that the involucre really opens towards its costa. (Name from α, privative, and σπελεα, the spleen; in allusion to some supposed medicinal qualities.)
§ a. Fronds simply pinnate; pinnae toothed, scarcely lobed. Involucre with one free margin.

1. Asplenium flabellifolium (Cav. Prael. 1801. p. 258); parvulum, flaccidum, frondibus decumbentibus, lineari-elongatis pinnatis, pinnis rhombeis breviter stipitatis antice crenato-dentatis, rachi lavi filiformi apice elongato radicante.—Sw. Fil. p. 81. t. 31. f. 2; Br. Prodr. 150; Fl. N. Zeal. ii. 33. (Gunn, 22.)

HAB. Abundant in most parts of the Island, especially in rocky or stony soil.—(v. v.)

DISTRIB. South-eastern and Western Australia, New Zealand. (Cultivated in England.)

Fronds tufted, straggling, prostrate or pendulous, slender, weak, flaccid, 3-8 inches long, pinnate, quite glabrous. Pinnae very variable in size and shape, \( \frac{1}{4}-\frac{3}{4} \) inch long, shortly stipitate, rhomboid or orbicular, broadly cuneate or rarely reniform at the base; outer margin coarsely crenate or lobed. Sori radiating from the base of the pinna. Rachis filiform, elongated, its apex without pinna, often rooting.—This is a very distinct species from any of the following.

2. Asplenium Trichomanes (Linn. Sp. Pl. 1540); frondibus parvulis pinnatis subcoriaceis cespitosis erecto-patentibus lineari-elongatis, pinnis rotundatis oblongisve obtusis crenatis basi cuneato-truncatis, rachi stipiteque nigris.—Eng. Bot. t. 576. (Gunn, 37, 1532.)

HAB. Clefts of rocks by the Acheron and Franklin Rivers, Gunn.—(v. v.)

DISTRIB. New South Wales, Victoria, South Africa, Pacific Islands, South America, and throughout the temperate regions of the northern hemisphere. (Common in Britain.)

A less straggling plant than A. flabellifolium, readily distinguished by its black stipes and rachis, and more coriaceous fronds that do not root at the apex.

3. Asplenium obtusatum (Forst. Prodr. n. 480); frondibus coriaceis cespitosis erectis v. pendulis pinnatis, pinnis breviter stipitatis oblongisve oblongo-lanceolatis obtusis acutis acuminate serratis crenatis basi oblique cuneatis rotundatis truncatis, rachi crassa marginata glaberrima v. sparse subsquamoso-pilosa, stipite basi squamato, squamis nitidis.

Var. a; fronde erecta, pinnis valde coriaceis obtusis acuminate, venenis ut plurimum simplicibus.—A. obtusatum, Forst. Prodr.; Lab. Fl. Nov. Holl. ii. p. 93. t. 242. f. 2; Br. Prodr. 150; Schkuhr, Fil. i. p. 6. t. 65; Fl. Antarct. p. 108; Fl. N. Zeal. ii. 33; Hook. Fil. Exot. t. 46. (Gunn, 1527.)


HAB. Very abundant, especially on maritime rocks.—(v. v.)

DISTRIB. South-eastern Australia, New Zealand, Lord Auckland's and Campbell's Islands, South Africa. (Cultivated in England.)

The form I have called var. a is an extremely abundant Fern in the southern hemisphere, especially on maritime rocks, and represents in these regions its very near ally, the common A. marinum of England, from which it differs chiefly in the upper pinna being confluent into a broader terminal pinna, and in the generally simple veins, characters which I fear may prove inconstant.—Fronds very thick and leathery, tufted, 3 inches to 3 feet long, erect or pendulous, pinnate; pinnae 1-4 inches long, stalked, linear- or oblong-lanceolate or oblong, blunt or sharp; base truncate, cuneate, or rounded; margin coarsely crenate or serrate. Veins often quite simple. Rachis very stout, compressed, margined, glabrous or with a few scattered soft hairs. Stipes covered at the base with long, broad; erect, shining, subulate scales.—Small plants have only one or two pairs of pinnae, which are often short and blunt. Sometimes the lower pinnae are lobed or pinnate at the base.
4. *Asplenium lucidum* (Forst. Prodr. n. 427); frondibus submembranaceis caespitosis pinnatis, pinnis ovato-v. oblongo-lanceolatis longe acuminatis stipitatis basi angustatis grosse crenatis, soris elongatis, rachi gracili non marginata, stipite basi squamato, squamis nitidis.—Schkuhr, Fil. t. 72; Fl. N. Zeal. ii. 33.

**HAB.** Mount Wellington, Frazer.

**DISTRIB.** New Zealand.

Most probably only a variety of *A. obtusatum*, but a very distinct-looking one in its ordinary state. It may be distinguished by its larger size, more membranous texture, deeper green colour, shining surface, more narrowed longer pinnae, which have longer stalks, and by the rachis not being margined.—I have seen only a fragment of a specimen collected by Frazer, and labelled as above, but which may possibly have been collected in New Zealand, where this Fern is very common.

§ b. Fronds bipinnatifid, bipinnate, or decompound, sometimes irregularly divided into many elongated pinnules. Sori on the backs or margins of the lobes. Involucre as in § a.

5. *Asplenium bulbiferum* (Forst. Prodr. n. 433); fronde bi-tripinnata lanceolata flaccida glabra sepius prolifera, pinnis primariae elongato-lanceolata acuminatis, pinnulis linear-o-oblungis stipitatis incisolobatis soris (brevibus) marginet remotis v. inciso-pinnatifidis soris marginalibus, lobulis obtusis, rachi marginata v. elata, glabrata v. parce paleacea, stipite subcompresso basi nudiusculo.—Schkuhr, Fil. t. 79; Hook. Ic. Pl. t. 423. (Gunn, 1530.)

Var. B. laxa; frondibus sepius pendulis minoribus.—Fl. N. Zeal. ii. 34. A. laxum, Br. Prodr. 151.

Coenopteris appendiculata, Lab. Nov. Holl. ii. 94. t. 243. (Gunn, 25, 1529.)

Var. 7; frondibus pendulis, pinnis inciso-lobatis basi pinnatis, pinnulis obovatis obtuse incisis.—Fl. N. Zeal. ii. 34. Ad A. flaccidum, Forst., tendet.

**HAB.** Abundant in damp woods throughout the Island.—(v. v.)

**DISTRIB.** South-eastern Australia and New Zealand. (Cultivated in England.)

The most highly developed form of this Fern is a very beautiful one, and easily recognized by its habit of bearing germinating bulbs on its pinnules, whence its name; but this character is not always present, and then the species becomes *A. laxum*, Br. Pendulous specimens of the var. laxa pass into *A. flaccidum*, Forst.—**Fronds** 1–3 feet high, flaccid, glabrous, broadly ovate-lanceolate or linear-lanceolate, erect or pendulous, bright-green, not so pale and coriaceous as in *A. flaccidum*, bi-tripinnate, generally bipinnate. **Pinnae** 6–10 inches long, with a margined or winged rachis; **pinnules** stipitate, linear-ovobate or oblong; or broadly ovate, lobed or pinnatifid. **Sori** short, marginal in pinnatifid fronds; sometimes the fronds are simply pinnate, and the pinnæ lanceolate lobed or toothed, or pinnate below and lobed above; or sometimes the pinnules are distant and stalked, or pinnatifidly cut into linear distant lobes, as in *A. flaccidum*. **Rachis** glabrous, or with a few scattered paleæ. **Stipes** generally compressed or angled, sometimes margined, more or less paleaceous at the base.


**HAB.** Not uncommon on exposed rocks, etc.—(v. v.)

**DISTRIB.** New South Wales and New Zealand. (Cultivated in England.)
A very variable Fern, more coriaceous and generally less divided than *A. bulbiferum*, of a paler colour, and with more often linear-elongate segments.

§ Allantodia.—*Involucrum membranous, arched, both margins attached to the vein, hence cylindrical.*


Hab. Not rare in dense shaded forests: Fingal and Circular Head, Gunn; Huon River, *J. D. H.—(v. e.)*

Distrib. New South Wales, New Zealand, Malay Islands. (Cultivated in England.)

One of the most delicate and beautiful Ferns in Tasmania, and very similar to, if not identical with a species from the Society Islands, East Indies, and South America.—*Fronds* very membranous, flaccid, quite glabrous, 2–4 feet high, broadly deltoid, spreading, bi-tripinnate. *Primary pinnae* linear-oblong, acute or acuminate; *secondary* (or pinnules) 1–2 inches long, oblong-lanceolate, shortly stipitate, pinnatifid or pinnate; *segments* linear-oblong, blunt, crenate or inciso-serrate, rarely quite entire. *Sori* generally numerous, 1–2 lines long, nearer the costa than the margin. *Rachis* quite glabrous, slender, rather flexuous. *Stipites* long, smooth, glabrous, or scaly at the base.—Small specimens of this plant, growing in drier situations, have narrower fronds, not so membranous, and nearly entire lobes of the pinnules.

Gen. XIV. DOODIA, Br.

*Sori* lunulati v. lineares, 1–2-seriati, costae parallae. *Involucrum* e ramulo anastomosante venae ortum, planum, intus liberum.—Frondes *caspiotinae, rigidiusculae, duriusculae, pinnatae.*

A small genus of Ferns, natives chiefly of the tropics and south temperate zone, being found in India, the Malay and Pacific Islands, and in Australia and Tasmania.—*Fronds* in *D. caudata* very harsh, coriaceous, erect, 3–18 inches long, tufted, linear-lanceolate, pinnate, the apex often dilated or running out into a linear tail. *Stipites* short. *Rachis* glabrous or pubescent. *Pinnae* 3–2 inches long, spreading; upper confluent or adnate by a broad base, linear-oblong or ovate-oblong, blunt; the lower smaller, shortly stipitate, cordate, truncate, rounded or subdilated at the base, sharply toothed, glabrous or pubescent below; the veins prominent when dry, forked, united by a transverse branch. *Sori* short, linear or crescent-shaped on the back of the pinnae, forming one or two rows parallel to one another on each side of the costa. *Involucrum* linear, placed on an arching veinlet that joins two veins, opening towards the costa. (Named in honour of S. Doody, an old author on English Cryptogamic Botany.)


Hab. Abundant in dry, stony places, as well as in shaded situations.—(v. e.)

Distrib. Extratropical Australia, New Zealand. (Cultivated in England.)

Gen. XV. POLYSTICHUM, Schott.

*Sori* globosi, dorsales, medio venarum venularumque inserti. *Involucrum* orbiculare, peltatim medio sori affixum, substipitatum, undique liberum.—*Rhizoma* breve *v. elongatum.* *Frondes alternae* *v. caspitota, bi-tripinnata.*
A very large genus of Ferns, found in all parts of the globe, and of which the species are very widely distributed and variable.—Frons (in the Tasmanian species) bi-tripinnate, coriaceous, lobed, serrate, or spinulose. Sori round, placed on the middle of the veins at the back of the pinnules, remote from the margin. Involucrur orbicular, peltately attached by a short stalk to the centre of the sorus, its edges free all round. (Name from πολύς, many, and στήχος, a row; from the numerous sori.)


Hab. Not uncommon in forests, etc.: St. Patrick’s River, Gunn; sides of Mount Wellington, J. D. H. (v. v.)

Distrib. Throughout the tropics and south-temperate regions of the globe. (Cultivated in England.)

This plant varies a good deal in stature and amount of division of the fronds, number, distance, and length of the pinné; the fronds are always extremely coriaceous, and pale-brown when dry.—Rhizome stout, creeping, clothed with large membranous scales. Frons 6–24 inches high, very firm and thick in texture, ovate, deltoid or oblong-lanceolate, pinnate or bipinnate. Pinnules stalked, ovate or linear-oblong, entire or lobed; lobes rounded, quite entire or crenate. Sori large, brown or black. Rachis generally with spreading, scale-like hairs. Stipes stout, covered with scattered large paleae, rarely naked.


Hab. Abundant in subalpine situations, as on Mount Wellington, from 3000 feet to the summit.—(v. v.)

Distrib. South-eastern Australia, New Zealand, Malay Islands, extratropical South America. (Cultivated in England.)

A very handsome and variable Fern. Mr. Brown’s A. proliferum, founded on a proliferous plant, supposed both by Mr. Brown and myself (see ‘Flora Antarctica’) to want the broad scales, is the same as this; for Mr. Gunn has sent specimens of it equally possessing the scales in a young state, and the P. vestitum is often proliferous in New Zealand. In Lord Auckland’s Group it becomes subarborescent, having a stout caudex 2–4 feet high.—Frons very numerous, spreading like a crown from a stout rhizome, 1–3 feet high, rigid, coriaceous, linear or ovate-oblong, bipinnate. Pinna linear-lanceolate, acuminata. Pinnules numeros, shortly stipitata, ovate-oblong, entire, sharply toothed or almost pinnatifid, the lobes often pungent; the lower outer margin produced into a short, broad, blunt auricle. Rachis woolly, and as well as the stipes covered with large, ovate-lanceolate, acuminata, membranaceous scales, that are often lacerated, and are deep brown; those at the base of the stipes of large specimens have a white margin, and are very densely set, an inch long, and curved.

Gen. XVI. NEPHRODIUM, Br.

Sori globosi, dorsales, medio v. ad apicem venularum inserti. Involucrum reniforme, sinu affixum.

A large genus of Ferns, natives of both hot and cold climates, chiefly distinguished from Polystichum by the
involute being reniform and attached by the sinus, and not orbicular or peltately attached. (Name from nephros, a kidney; in allusion to the form of the involucre.)

1. **Nephroidium decompositum** (Br. Prodr. 149); frondibus glabris puberulis vel pubescentibus ovatis v. deltoidis bi-tri-quadrripinnatis membranaceis, pinnulis decurrenti-coadunatis ovato-v. oblongo-lanceolatis inciso-lobatis pinnatifidissive, lobulis dentatis acutis obtusisve, rachibus tenuiter marginatis, stipite gracili basi nudo.—*Fl. N. Zeal.* ii. p. 39. t. 79. (Gunn, 53.)

Hab. Woods near Hobarton.—(v. e.)

Distr. South-eastern Australia, New Zealand. (Cultivated in England.)

A common and very variable plant.—*Frond* a span to 3 feet high, ovate-lanceolate, broadly ovate, or deltoid, sometimes pentagonal from the first division of the lowest branch being elongated, tri-quadrripinnate or bipinnate only, quite smooth or more or less downy, sometimes covered with resinous, glandular points. *Pinnae* often elongate and even caudate, especially in Tasmania. *Pinnules* small, decurrent, oblong or ovato-lanceolate, pinnatifid, lobed or toothed; divisions very sharp or blunt. *Sori* small, numerous, placed on the middle of a veinlet. *Involucre* glabrous or hairy. *Rachis* with a very narrow wing or margin, or naked, smooth or pubescent, as is the *stipes*, which is slender, and bears at the curved base a few short chaffy scales.

Sub-tribe B.—*Sorus* naked, neither covered by an involucre, nor by the inflexed margin of the frond.

Gen. XVII. **POLYPODIUM**, Presl.

*Sori* globosi, dorsales, nudi, medio venularum inserti. *Vene* furcatae, nunquam anastomosantes.—Frons pinnatifida v. bi-tripinnata.

An extensive genus, principally of temperate and tropical Ferns, which may be readily characterized by having round, naked sori, placed on the middle of forked, free veinlets. One of the Tasmanian species (*P. rugulosum*) appears to me to pass into *Hypolepis tenuifolia*, the sori sometimes approaching the margin of the lobes, and the latter becoming more or less recurved. The other species totally differs in habit and appearance from the above. (Name from polus, many, andous, a foot; in allusion to the habit of some Fern to which the name was applied by the ancients.)


Hab. Abundant in damp and rather dry woods.—(v. e.)

Distr. Common in the subtropical and temperate regions of the southern hemisphere. (Cultivated in England.)

Whole plant more or less covered with rufous glandular pubescence, a span to 3 feet high.—*Frond* bi-tri-quadrripinnate, broadly deltoid or ovato-lanceolate, more or less membranous, rarely coriaceous. *Pinnae* very variable in length, lanceolate, acuminated. *Pinnules* adnate by a broad base, linear-oblong, blunt, deeply pinnatifid; lobes entire or crenate, blunt. *Sori* on the middle of a veinlet. *Stipes* and *rachis* generally dark-brown, slender, scabrid, sometimes muricate, often hispid with scattered hairs, rarely glabrous. *Rhizome* rigid, woody, creeping, scaly and hispid, sending up distant fronds.—I have found it quite impossible to give distinctive characters to the numerous varieties of this very common plant. Mueller’s *P. Kippistianum* appears to be a more glabrous state, found in Australia, New Zealand, and Tasmania.

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FLORA OF TASMANIA. [Filices.

Obs. Amongst Gunn's specimens of this plant and Hypolepis tenuifolia, I find specimens of Hyp. tenuifolia, Hook. (a New Zealand species), which I regret having overlooked previously. It may be known by its small size and simply bipinnate fronds, and is perhaps only a small state of H. tenuifolia. Mr. Gunn's specimens are from the cataracts of the South Esk River and Western Mountains, elev. 2000 feet (n. 1544 and 1544 b).

2. Polyopodium Grammitidis (Br. Prodr. 147); fronde glaberrima lineari v. lineari-oblonga profunde decursivo-pinnatifida, pinnis linearius integris lobato-dentatis v. rarius pinnatifidis, lobis interdum elongatis caudatissve, soris globosis oblongissve.—Fl. Antarct. p. 111; Fl. N. Zeal. ii. 41. Grammitis heterophylla, Lab. Fl. Nov. Holl. ii. p. 90. t. 239. Xiphopteris heterophylla, Spr. Syst. Veg. iv. 44. (Gunn, 11, 1543.)

Hab. Abundant on subalpine rocks, forming matted patches.—(v. v.)

Distrib. New Zealand, Java.

Roots fibrous. Fronds an inch to a span long, tufted, linear-oblong, ovate or lanceolate, coriaceous, opaque, scaly at the very base of the stipes, perfectly glabrous elsewhere, deeply pinnatifid. Pinnules somewhat distant, linear, blunt, dencurrent or entire, or lobed, or subpinnatifid, often irregularly, with one or two lobes lengthened or running out into a tail. Sori round or oblong. Rachis and short stipes winged nearly to the base.—Dwarf states have small, linear, lobed fronds.

Gen. XVIII. PHYMATODES, Presl.


A very excellent tropical genus of Ferns, generally growing on trunks of trees, distinguished by the naked (large) sori partly sunk in a pit of the frond, and the anastomosing veins. The fronds are coriaceous, simple or pinnatifid, perfectly glabrous, rising from a stout, creeping rhizome. (Name from φυά, a swelling; in allusion to the thickened base of the articulated frond.)

1. Phymatodes Billardieri (Presl, Pterid. 196); frondibus coriaceis glaberrimis integris pinnatifidisque, pinnis remotis approximatis anguste linearibus v. late oblongis margine incrassatis, soris sub-saccatis solitariis, rhizomate glaucescente crasso subsquamoso.—Fl. Antarct. i. 111; Fl. N. Zeal. ii. 42. Polypodium, Br. Prodr. 147. P. scandens, Lab. Fl. Nov. Holl. ii. p. 91. t. 240 (non Forrest.) (Gunn, 6.)

Hab. Abundant on rocks and trunks of trees.—(v. v.)

Distrib. Australia, New Zealand, Pacific Islands, Malay Islands. (Cultivated in England.)

A very common and variable plant.—Rhizome stout, creeping, generally quite glaucous, partially scaly, sometimes thickly covered with membranous paleae. Fronds numerous, 3 inches to 1½ foot long, coriaceous, perfectly smooth, shining, with a thickened margin; some entire, lanceolate, acute, others broader and pinnatifid; pinnules close or distant, narrow-linear or broadly oblong; margins thickened, blunt or acute. Sori numerous, large, glabrous or oblong, partially sunk in the frond. Costa very stout and prominent. Stipes stout, scarcely winged above, obscurely jointed on to the rhizome.

Gen. XIX. GRAMMITIS, Sw.

Sori medio venulae affixi, oblongi v. lineares, uniseriales (in sp. Tasmaniæ), costæ obliqui, nudi. Vena simplices v. furcatae, immersæ, liberae.—Rhizoma repens, squamosum, breve v. elongatum. Frondes caespitose, coriacea; venis immersis, inconspicuis.

Rhizome creeping, often short, scaly. Fronds densely crowded, ½ inch to a foot long, quite glabrous, rarely
pubescent, sometimes pilose or ciliated, erect, very coriaceous, linear-lanceolate or obovate-lanceolate, blunt, or narrowed at the point, quite entire, narrowed into a short winged or margined stipes. Sori oblong or linear, oblique, in one series on each side the obscure costa, in small varieties becoming confluent into a mass. Veins wholly immersed, forked, free. (Name from γυμνός, a line; in allusion to the linear sori.)

1. **Grammitis australis** (Br. Prodr. 146); rhizomate repente squamoso, frondibus dense cespitosis erectis linearibus lineari- v. obovato-lanceolatis integerrimis obtusis subacutis glaberrimis rarius ciliatis hispusi-sve basi in stiptem brevem angustatis, soris linearibus oblorgesves (exemplaribus parvis confluentibus).—Pl. Antarct. i. 111. G. Billardieri, Willd. Sp. Plant. v. 139; Pl. N. Zeal. ii. 44. G. ciliata, Col. in Tasm. Phil. Journ. G. scolopendrina, Bory, in Duperrey Voy. p. 257. t. 30. f. 1. (Gunn, 12, 1545, 1546.)

Hab. Abundant on damp rocks and trunks of trees throughout the Island, ascending to 4500 feet.—(v. v.)

Distrib. South-eastern Australia and New Zealand, Fuegia, and the Falkland Islands.

This is an extremely variable Fern, often ciliated with caducous hairs, especially on the stipes. Alpine specimens form dense Moss-like patches of small, obovate, coriaceous, blunt fronds, ½ inch high, with confluent sori towards the apex. In dry rocky places, again, it assumes the form of a very narrow, rigid, wiry frond. The scales on the rhizome also vary extremely in length and colour.

Gen. XX. GYMNOGRAMMA, Desv.

Sori nudi, lineares, dorso venarum venularumque siti, demum confluentes. Vena furcata, libera.—Rhizoma brevissimum v. nullum. Frondes cespitosa, pinnata v. bi-tripinnata.

Principally tropical Ferns, with (rarely simple) pinnate, bi-tripinnate, tufted fronds, having no rhizome or a very short one.—Sori naked, linear, occupying the veins and venules, hence often running in lines and forking; also covering the spaces between the veins, and then becoming confluent. (Name from γυμνός, naked, and γυμνός, a line; in allusion to the linear sori, which has no indusium.)


Hab. Common in shaded, dry, stony places.—(v. v.)

Distrib. Australia, New Zealand, Pyrenees of Northern Spain.

This little plant is abundant in extratropical Australia and Tasmania, and has also been gathered in the Pyrenees, but I know of no other countries which it inhabits.—Fronds densely tufted, 3-5 inches long, villous, often glandular, pinnate; roots of numerous tufted fibres. Pinnae 2-5 lines long, alternate, distant, shortly stipitate, cuneate or flabellate, more or less incised or lobed, rarely quite entire. Sori linear, scattered, often confluent.


Hab. Spring Bay, in a cave near the Tamar River, Gunn.
Distrib. East and West Australia, New Zealand, North and South Africa, extratropical South America, the Himalaya Mountains, and shores of the Mediterranean, Jersey.

This beautiful little Fern is remarkable for its wide geographical distribution in the northern hemisphere.—Fronds an inch to a span high, perfectly glabrous, membranous and shining, pale-green, oblong-lanceolate, bi-tripinnatifid. Pinnales 2–4 lines long, obovate-cuneate, twice or thrice lobed or crenate, the lobes blunt. Partial rachis winged. Stipes and main rachis usually red-brown, brittle, shining, grooved in front.

Tribe V. Schizææ.—Sori arranged in imbricated spikes, or on resupinate divisions of the frond.
Capsules sessile, striated at the apex (the horizontal ring being terminal).

Gen. XXI. SCHIZÆA, Sm.

Capsula ovoidæ, basi insertæ, reticulata, apice striata, secus laciniias lineares incurvas frondis resupinatae biseriatim insertæ. Indusium nullum v. e margine laciniarum inflexa formatum.—Rhizoma repentæ, breve, squamosum. Frondes capspitosaæ, erectaæ, simplices v. dichotome ramosaæ, filiformes, sulcataæ, rapiant cristam terminalæ profunde pinnatifidam gerentes; pinnis linearibus, conniventiis, pagina superiore soriferis.

A very curious genus, rare in the north-temperate zone, common in the south-temperate and tropics. The species have erect, generally simple, sometimes dichotomously or flabellately branched, linear, flattened or filiform fronds, which bear at their apices a small, inclined, pinnatifid limb or comb, upon whose divisions the capsules are arranged.—Capsules in two series, close together on each side of the costa of each division, partially covered by the incurved margin, ovoid, sessile by the broad end, reticulated, striated at the smaller end, bursting laterally. Spores with rounded angles.—The fructification deceptively appears borne on the upper surface of the frond in this genus, the upper portion of the latter being resupinate; the groove of the stipes, which indicates the true upper surface, will be found on the opposite side from the capsules. (Name from σχίζω, to divide; from the split frond.)


Hab. Heathy places: near Georgetown, Gunn.—(v. v.)

Distrib. Australia, New Zealand, East Indies, tropical America, Antarctic Islands.

Rhizome short, stout, subterranean, thickly covered with red-brown paleaceous hairs. Fronds numerous, tufted, wiry, erect, rough to the touch, a few inches to ½ foot long, simple or once branched, semiterete, grooved on one side. Comb or appendix inclined, of eight to ten pairs of pinnæ, with lacinate-crinite edges.—The S. australis of Auckland Island seems to be a small variety of this species.

Tribe VI. Osmundaceæ.—Sori naked. Capsules stalked, with a broad, dorsal, incomplete ring, bursting vertically.

Gen. XXII. TODEA, Willd.

Capsula pedicellatæ, globosa, nuda, annulo dorsali brevi lato, superficie inferiorie frondis sparsæ, venis simplicibus furcativse insidentes. Spora ovoidæ.—Frondes fasciculate, coriaceæ.

The only Tasmanian species of Todea is a tall, handsome, tufted Fern, with glabrous, bipinnate, coriaceous fronds, the lower pinnæ on each division of which are generally densely covered with large, crowded, pale-brown

Hab. Fringeing the banks of the Yorktown rivulet; abundant; scarce elsewhere, *Gunn*; Recherche Bay, *Oldfield*.—(v. v.)

**Distrib.** New South Wales, Victoria, New Zealand, South Africa. (Cultivated in England.)

A noble Fern, with a caudex at times 5 feet high and 6-9 in circumference. **Fronds** sometimes 8¾ feet long.

—**Plate CLXVIII.** Fig. 1, capsules; 2, spores.—magnified.

**Tribe VII. Ophioglossae.**—Sori in stalked spikes or panicles. **Capsules** sessile, without a ring, globose, coriaceous, bursting transversely into two valves.

Gen. XXIII. *OPHIOGLOSSUM*, L.

**Capsules** sessiles, globose, in spicam elongatam distichic biseriatim coadunatae, coriaceae, rima transversa dehiscentes. **Sporæ** minutissime, globosissimo-triangularia.—Radix *e fibris carnosis*. **Fronds** simplex, erecta, folium solitariun (varius 2) simplex reticulatum nervosum gerens, in spicam elongatam pedunculatum deinvenens.

A very curious genus, found in almost all latitudes to which Ferns extend. Upwards of thirty species have been made of it, many of which do not differ even as varieties from the common *O. vulgatum* of Europe, and most of them may, I think, be safely referred to that plant.—**Root** of long fleshy fibres, sometimes descending from a thickened base of the frond or tuberous rhizome. **Frond** simple, erect, 1 inch to a foot long, bearing one (rarely two) coriaceous, simple, linear or lanceolate or ovate, opaque or translucent leaf, with reticulate venation. **Fructification** a long flattened spike, which is shorter or longer than the leaf, and consists of two opposite rows, each of six to thirty globose capsules, cohering together and to a central axis, each bursting transversely. **Spores** very minute, rounded and trigonous. (Name from *opus*, a serpent, and γυώγορα, a tongue.)

1. *Ophioglossum vulgatum* (L.).

Var. *β. costatum*; fronde ovata v. lanceolata reticulatum venosa costata v. costata.—*Fl. N. Zeal. ii.

50. O. costatum, Br. Prodr. 163. (Gunn, 1552.) (Tab. CLXIX. A.)


**Distrib.** Australia, New Zealand, and many other both tropical and temperate parts of the globe.

**Plate CLXIX. A.** Fig. 1, capsules; 2, spores.—magnified.

Gen. XXIV. *BOTRYCHIUM*, L.

**Capsule** globose, sessiles, distinctae, in spicam di-trichotome divisam biseriatim dispositae, rima transversa dehiscentes. **Sporæ** trilobatae. —Radix subtuberosa, fibris crassis. **Fronds** simplex, erecta, folium solitariurn pinnatum v. bi-tripinnatum divinum gerens; venis pinnatis radiatisae, simplicibus v. furcatis. **Spica** pedunculata; pedunculo e basi foliis orto.

A genus of few (perhaps only two) species, found in various temperate and tropical countries.—**Root** of very thick, fleshy fibres. **Frond** solitary, 3 inches to 2 feet high, of a very thick texture, consisting of one pinnate or bi-tripinnate or ternately decompound stipitate leaf, and a long, erect peduncle, bearing a deltoid or ovate, pinnate...
or trichotomously branched spike of capsules, with unilateral branches. **Pinnules** lobed and crenate, blunt, obscurely veined; **costa, stipes, and rachis** glabrous or pubescent or woolly. Capsules globose, separate from one another, distichously arranged on the branches of the spike, each bursting transversely. **Spores** very minute, three-lobed, or of three conuate spheres. (Name *Borpus, a cluster*; from the branched clusters of capsules.)


   **HAB.** Moist shaded places, *Gunn.—(v. v.)**

   **DIST.** South-eastern Australia, New Zealand, Himalaya Mountains, Norway, America.

**Frond** trichotomous, with pinnatifid or bipinnatifid segments, which are lobed or crenate.—**PLATE CLXIX. B.** Fig. 1, capsules; 2, spores: —magnified.


   **HAB.** Grassy places, meadows, etc.; common, ascending to 4000 feet, *Gunn.—(v. v.)**

   **DIST.** Victoria, Fuegia, and throughout the north-temperate and subarctic zones. (A native of Britain.)

A smaller plant than *B. Virginianum*, with a simply pinnate frond of rounded, rhomboid, or lunate pinnæ, with radiating veins.

**NAT. ORD. II. Lycopodiaceæ, DC.**

**GEN. I.** **Phylloglossum, Kunze.**

Capsula in spicam bracteatum pedunculatum dispositive, axillis bracteis sessilibus, reniformes, 2-locularaes, 2-valves, rima verticali transverse dehiscentes, sporis minutissimis trigonis farctæ.—*Folia omnia radicatæ, paucæ linearisubulata, teretis.* Radix tuberosa; tuberibus didymis, Orchideis referentibus.

A very remarkable plant, discovered almost contemporaneously by M. Preiss at Swan River, Mr. Gunn in Tasmania, and by myself in New Zealand.—Whole plant quite glabrous, rather fleshy, 1–3 inches high. **Root** of two ovoid tubers, quite like that of an *Orchis*, with long simple fibres from the crown. **Leaves** few, terete, subulate, grass-green, erect, rising from the tubers of the present year. **Stem, scape, or peduncle** solitary, erect, terete, rising from among the leaves, bearing a small terete spike of imbricating, trigonous, pedicelled scales. **Capsules**, like those of *Lycopodium*, placed in the axils of the scales. (Name from φύλλον, a leaf, and γλῶσσα, a tongue.)


   **HAB.** Georgetown, *Gunn.—(v. v.)**

   **DIST.** South-western Australia, New Zealand.

**GEN. II.** **Tmesipteris, Bernh.**

Capsulae solitariae ad axillam folii furcati sessilæ, obovata, coriacea, biloba, lobis divaricatis subacutis, bivalves, rima verticali dehiscentes. Spora minutissima, obovata, curvæ.—Frons pendula, coriacea, foliosa. Stipes angulatus. Folia alterna, verticalia, plana, costata, enervia, obtusa, mucronata, basi decurrentia, fertilia stipitata biloba (seu didyma).

A remarkable genus, containing only one species.—**Fronds** leafy, pendulous, flaccid, elongated, simple or dichotomously branched, 6 inches to 2 feet long. **Stipes** angled. **Leaves** vertical, decurrent, oblong or ensiform,
sessile by a broad base, acuminate, blunt or truncate and retuse, with an exserted costa, opaque, coriaceous, \( \frac{1}{2} \)–1 inch long. Fertile pinnae didymous, stipitate. Capsule large, oblong, two-lobed, the lobes divaricating, splitting into two valves through both lobes, placed at the forking of a pinnaule. Spores very minute, oblong, curved.—Two species have been made of this plant, one for the truncate-leaved, and the other for the acuminate-leaved, but both forms may be found on one specimen. (Name from \textit{rýmpos}, a notch, and \textit{ðýmpas}, a Fern; from the split pinnaules.)


Hab. Not uncommon, hanging from trunks of tree-ferns, rocks, etc.—(v. v.)

Distrib. Victoria, New South Wales, New Zealand, Pacific Islands, California.

Gen. III. \textbf{LYCOPODIUM, L.}

\textit{Capsulae} sessiles, axillares, uniloculares, reniformes, rima longitudinali dehiscentes, bivalves, sporis minutissimis trigonis linea tricuris notatis replete.—Frondes coriaceae, plerumque foliosa, erecta, volubiles v. pendulae. Capsulae in spicam imbricatum dispositae v. foliis axillares.

A large genus, whose species are generally very widely diffused, several being found in most climates and latitudes. The genus has been monographed by M. Spring in the fifteenth and twenty-fourth volumes of the 'Memoirs of the Brussels Academy.'—Frondes erecta from a creeping rhizome, climbing or pendulous, leafy. Leaves small, distichous, trifarious, quadriarious, or imbricated. Capsules in sessile or peduncled, terete, angled, or square spikes, or sessile in the axils of the leaves, kidney-shaped, sessile, one-celled, bursting longitudinally all round, and full of minute trigonous spores, each marked with three diverging lines. (Name from \textit{λέκως}, a wolf, and \textit{πους}, a foot; from some fancied resemblance.)

\S a. \textit{Selago}.—Leaves imbricatæ all round the stem. Capsulae axillariae in the upper leaves or in the bracts of terminal, sessile, quadriarious spikes.


Hab. Mount Wellington, in bogs.—(v. v.)

Distrib. Temperate and alpine regions in all parts of the world. (Native of Britain.)

This is a very widely diffused plant, always growing in morlands or open boggy grounds, often on mountains. —Stems stout, rigid, tufted, branched or simple, often decumbent at the base, erect, cylindrical, 4–8 inches high, blunt, \( \frac{1}{2} \)–\( \frac{3}{4} \) inch diameter. Leaves closely imbricatæ up and round the whole stem, rarely spreading, broadly subulate or lanceolate-subulate, acute or acuminate, 2 lines long. Capsules sessile amongst the upper leaves.—Plate CLXX. A. Fig. 1, leaf and capsule:—magnified.

2. \textit{Lycopodium varium} (Br. Prodr. 164); canae robusto ramoso basi decumbente dein erecto folioso, foliis decurrentibus lineariis obtusiis acutisve arcte imbricatis squarroso-patentibusve, spicis robustis cernuis simplicibus v. parce dichotome ramosis, squamis brevibus obtusiis rariusve foliaceis.—\textit{Spring}, Monog. p. 57, et pl. 2. p. 24; \textit{Fl. Antarct.} p. 115; \textit{Fl. N. Zeal.} ii. 52; Hook. et Grev. Ic. Fil. t. 112. (Gunn, 52, 1554.) (Tab. CLXX. B–F)

Hab. Abundant on the ground and trunks of trees in the forests.—(v. v.)

Distrib. New South Wales and Victoria, New Zealand, Pacific Islands, South Africa.

A common plant, of which several varieties occur: of these, one with weaker stems passes into \textit{L. Billardieri},...
§ b. *Leaves imbricated all round the stem*. Spikes cylindrical, sessile.

3. **Lycopodium densum** (Lab. Fl. Nov. Holl. ii. p. 104. t. 251. f. 1); caule erecto superne fastigiati ramossissimo, foliis sex-multiparum imbricatis erectis et appressis v. patulis et squarrosis subulato-lanceolatis integris longe imminutis piliferis, spicis terminalibus solitariis sessilibus ramulis latioribus oblongo-cylindraceis squarrosis, squamis squarrosis triangulari-ovatis, sporis hispidis.—*Br. Prodr.* 165; *Spring, Monog.* p. 87; *Fl. N. Zeal.* ii. 53. (Gunn, 49, 323, 1556.)

**Hab.** Abundant in heathy places, etc., throughout the Island.—(v. v.)

**Distrib.** Victoria and New South Wales, New Zealand, Pacific Islands.

A very handsome plant, which, though variable in foliage, cannot be confounded with any other.—**Stems** prostrate below, then tall, erect, rigid, woody, stiff, 1–3 feet high, copiously fastigiately branched; branches rarely spreading and lax, densely covered with squarrose, spreading or closely imbricated, appressed, subulate, acuminate, rarely hair-pointed leaves: the character of the branches depends on the form and disposition of the leaves, which are sometimes short, erect, closely appressed, sexfariarum imbricatibus, when the branches are slender; when the leaves are spreading and incurved, the branches appear stouter. **Spikes** cylindrical, ½–¾ inch long, sessile, blunt, squarrose from the spreading, scarios, yellow scales, which are peltate, triangular, serrulate or erose. The **spores** are hispid with short blunt projections.

4. **Lycopodium laterale** (Br. Prodr. 165); caulibus repenibus, ramis ascendentibus erectis et elongatis foliis simpliciibus v. divisis, foliis undique imbricatis squarrosi-patentibus incurvis angustis subulatis integris, spicis brevibus latioribus cylindraceis, squamis subquadriarum imbricatis late triangulari-ovatis coriaceis.—*Lab. Sert. Aust. Caled.* p. 10. t. 15; *Spring, Monog.* p. 82; *Fl. N. Zeal.* ii. 53. (Gunn, 57.)

**Var.** β. *diffusum*; caulibus diffusis prostratis, ramis ascendentibus.—*L. diffusum, Br. Prodr.* l. c. (Gunn, 1558.)

**Hab.** Var. a. Rocky Cape, Gunn. **Var.** β. Alpine bogs, common.—(v. v.)

**Distrib.** Victoria, New South Wales, New Zealand, Pacific Islands.

A variable plant in habit.—**Stems** procumbent, sparingly branched below; **branches** slender, erect, simple or sparingly divided, 3 inches to a span tall, covered with patent, flexuous, squarrose, narrow subulate leaves, which are ¾ inch long. **Spikes** axillary, sessile, erect, ¾ inch long. **Scales** quadrifarious, coriaceous, very broadly ovate or rounded, suddenly contracted to a rather long stiff point; margin scarios, white, very narrow.—In alpine places this plant becomes procumbent, shorter, stiffer, and with broader, shorter leaves; such specimens appear to me to be *L. diffusum*, Br.

§ c. *Leaves imbricated all round the stem* (sometimes obscurely secund or bifarious). Spikes peduncled.

5. **Lycopodium Carolinianum** (Linn. Sp. Pl. 1567); caule repente radicante, foliis ascendentibus
curvis lanceolato-subulatis, pedunculis lateralibus strictis erectis elongatis foliosis, spica elongata stricta solitaria, squamis peltatis sub-6-fariam imbricatis erecto-patentibus e basi late ovata longe acuminatis margini scariosis serrulatis integrisve.—**Dill. Musc. t. 62. f. 6**; **Spring, Monog. p. 98**; **Fl. N. Zeal. ii. 53**. L. Drummondii, **Spring, Monog. pt. 2. p. 35**. L. serpentinum?, **Kunze, in Plant. Preiss. i. 108. (Gunn, 4.)**

**Hab.** Boggy places; not uncommon.—(v. v.)

**Distr.** Victoria, Swan River, New South Wales, New Zealand, South Africa, and many subtropical and temperate parts of the globe.

**Stems** creeping, rooting, 3-5 inches long, covered with curved, ascending, lanceolate-subulate leaves, ¼ inch long and upwards. **Peduncle** erect, stiff, 1-4 inches long, covered with small, erect, subulate leaves. **Spikes** 1-2 inches long, erect, cylindrical. **Scales** peltate, arranged in about six rows, stiff, spreading, broadly ovate below, with long rigid points, and scarious, more or less toothed margins, being sometimes nearly entire.—The leaves appear to be bifarious in some specimens from South Africa and South America.

6. **Lycopodium clavatum** (L.), var. **Magellanicum**; caule vague repente elongato, ramis erectis fastigiatim ramulosis, foliis lineari-subulatis squarroso-incurvatis patentibusve integerrimis, pedunculis terminalibus solitariis geminis strictis erectis sparse foliosis, spicis elongatis cylindraceis, squamis peltatis e basi trapezoidea subulato-acuminatis recurvis margini scariosis denticulatis, sporis granulatis.—**Fl. Antart.** p. 113; **Fl. N. Zeal.** ii. 54. L. Magellanicum, **Swartz, Syn. Fil. 180**; **Spring, Monog. pt. 2. pp. 97, 16**. L. fastigiatum, **Br. Prodr. 165**; **Spring, Monog. pt. 1. p. 88, pt. 2. p. 41**. L. Pichinchense, **Hook. Ic. Pl. t. 85**. L. heterophyllum, **Hook. et Grev. Ic. Fil. t. 113**. L. diffusum, **Spring, Monog., non Br. Prodr. (Gunn, 48, 56, 1557.)**

**Hab.** Moist boggy subalpine places; abundant.—(v. v.)

**Distr.** Victoria, New Zealand, and the Antarctic Islands, Cordillera of South America, and cooler regions of the Pacific Islands.

In the **Flora Antartica** I have discussed at some length the variations of **L. clavatum**, of which I believe this plant to be a southern state, distinguishable in most cases by the quite entire leaves, that have not a hair-like point. In the South Sea Islands and the Cordillera of South America it is found passing into the **L. clavatum** of the north-temperate hemisphere, a cosmopolitan plant.—**Stems** extensively creeping, stout, woody, sending up strict, erect, fastigiately branched or panicked branches, 3-12 inches high. **Leaves** imbricated, spreading, incurved or squarrose, linear-subulate, entire. **Peduncles** terminal, solitary or two together, strict, erect, more or less leafy, the leaves often whorled. **Spikes** 1-2½ inches long, erect, cylindric. **Scales** peltate, trapezoid and toothed at the base, with long recurved points. **Spores** granulated on the surface.—Very stunted alpine specimens have procumbent branches and subsecund ascending leaves. I have seen specimens with short peduncles, approaching **L. densum** in general appearance, but the form of the recurved scales of the spike distinguishes this at once.

§ 4. **Leaves bifarious.**

7. **Lycopodium scariosum** (Forst. Prodr. n. 48); caule basi repente vage ramoso, ramis subcomplanaatis divaricatim ramulosis, foliis alis majoribus bifariis decurrentibus integerrimis falcato-lanceolatis acutis coriaceis opacis marginibusve et apicibus scariosis aliiis minoribus cauli appressis subulatis stipuliformibus, spicis terminalibus longe v. brevissime pedunculatis subsecundariim imbricatis pedunculo folioso, squamis et basi ovata acuminatis denticulatis erectis demum recurvis apicibus sepe scariosis, sporis laxe reticulatis areolatis, areolis depressis.—**Fl. Antart.** p. 112; **Hook. Ic. Plant. t. 966**; **Spring, Monog. p. 106**; **Fl. N. Zeal.** ii. 55. L. decurrens, **Br. Prodr. p. 165**. L. Jussieui, **Desv. Encycl. Bot.**; **Hook. Ic. Plant. t. 185**; **Spring, l. c. p. 108**. L. Hænkii, **Preal. (Gunn, 50.)**

VOL. II.
HAB. Common in boggy places on the mountains.—(v. v.)

DISTRIBUTION. Alps of Victoria, New Zealand, Lord Auckland’s Group, etc.; alps of South America to Fuegia.

STEMS creeping, stout, rooting, often 2 feet long, sending out flattened, flabellately-divided, compressed branches. Leaves of two kinds; the larger bifarious, decurrent, falcate, ovate-lanceolate, acute or acuminate, laterally flattened, very coriaceous; smaller on the under side of the branches only, more numerous, subulate, appressed to the stem. SPIKES 1–2½ inches long, cylindrical, solitary or geminate, on long or short terminal peduncles, which are often 8 inches long, and covered with imbricate, subulate leaves. SCALES somewhat sexfariaceous disposed, ovate, with rather broad recurved points and toothed margins.

Gen. IV. SELAGINELLA, Beauv.

Capsules biformes, sessiles, uniloculares; aliae reniformes, rima longitudinali dehiscentes, bivalves, sporis minutissimis trigonis linea tricruri notatis repletse; aliae 2–3-lobae, 2–3-valves, corpusculis 1–6 farctse.—Frondes herbacea, complanata, distiche v. bifaria, ramosa; folia quadrifaria, lateralia patula verticalia, antica et postica scape stipulaformia, cauli appressa; spicis terminalibus, 4-fariis.

1. Selaginella uliginosa (Spring, Monog. Lycop. ii. 60); caule erecto, ramis erecto-patentibus bifariis suboppositis, foliis parvis confertis 4-fariis uniformibus patentibus ovatis acuminatis integerrimis subcarinatis basi subtortis, amentis 4-angularibus sessilibus.—Lycopodium uliginosum, Lab. Fl. Nov. Holl. ii. 104. t. 251. f. 2; Br. Prodr. 165; Gaud. in Freyc. Voy. Bot. 284. (Gunn, 51, 1559.)

HAB. Probably common in marshy places: Hobarton, Georgetown, etc.—(v. v.)

DISTRIBUTION. New South Wales and Victoria.

S. uliginosa is a small, distichously or bifariously branched, slender plant, 2–4 inches high, with small quadri-farious leaves, those on the upper and under face of the branches appressed, the lateral spreading, all ovate-acuminata, quite entire. SPIKES sessile at the apices of the branches, tetragonal.—A very large tropical genus of Lycopodiaceae, of which no species has hitherto been found in New Zealand, and very few in Australia.

Gen. V. ISOETES, L.

1. Isoetes, sp.? (Gunn, 1563.)

HAB. At the bottom of alpine lakes; abundant.

My specimens, being in an immature state and barren, are not capable of satisfactory determination. They may belong to I. lacustris of Europe, a plant of wide distribution, but the leaves are more rigid, short, and blunt. —A perennial submerged plant, growing in dense tufts. Leaves narrow-linear or subulate, cellular, 2–6 inches long, enlarged at the base where the capsules are inserted. Capsules usually of two kinds, those of the outer leaves with large grains cohering originally in fours, those of the inner filled with very minute spores.

NATURAL ORDER III. MARSILEACEÆ, Br.

Gen. I. AZOLLA, Lam.

1. Azolla rubra (Br. Prodr. 167). (Gunn, 438.)

HAB. Floating on the surface of marshes and ponds: Circular Head, etc.—(v. v.)

DISTRIBUTION. A native of Australia, Tasmania, New Zealand, South America, and probably many other parts of the world.

A pretty, small water-plant, of a vinous-red or red-purple colour, subtriangular in outline, 1–2 inches long,
easily recognized by its floating habit, closely distichously-branched stem, and minute imbricating leaves. The fructification forms small globular masses on the under surface of the frond.

Gen. II. PILULARIA, L.

Hab. Marshy ground near Penquito, Gunn, and probably common elsewhere, but easily overlooked.
Distrib. Swan River, Europe, North Africa. (A native of England.)

Dr. Valentine, who has examined this plant in Tasmania, says that it might be distinguished from the European by the curved pedicels and pendulous capsules, but I find precisely similar states in English specimens. In Swan River specimens of *P. globulifera* the capsules are placed as in the European plant.—Rhizome slender, creeping, often submerged, rooting at the nodes. Leaves capillary, 2-4 inches high, bright-green. Capsules like pills, sessile or shortly peduncled, 2 lines in diameter, covered with hairs, four-celled, four-valved at the top, containing spores of two sorts, one large, the other very minute.

NAT. ORD. IV. CHARACEÆ.

The Characea are all fresh-water plants (very rarely inhabiting brackish water), often forming densely matted patches. They are leafless, with whorled branches, and minute axillary fructification. There are probably very many Tasmanian species, but they are difficult of investigation. The following enumeration of the known Tasmanian species is by Professor Alexander Braun, of Berlin, who is preparing a work on the Order; the descriptions of several have not, I believe, been published. In an able paper on the Australian and Antarctic Chara, by Professor A. Braun, of Berlin, in Hooker's 'London Journal of Botany,' 1849, that learned author remarks that in Australia the greatest number of species are dioecious, whilst in Europe the contrary is the case; as also that all the true Chara of Australia belong to the division Haplostephanæ, while in other parts of the world the division Diplostephanæ prevails, which latter seems to be entirely absent in Australia.

Gen. I. CHARA, L.

1. Chara gymnopitys (A. Braun).
Hab. Derwent River, rivulets at Launceston, etc. (Gunn, 1578, 1568, 1568?)

2. Chara myriophylla (F. Mueller).
Hab. Ponds at Georgetown; shallow muddy water, Lake St. Clair. (Gunn, 1568, 1569.)

   Hab. South Esk River, near Launceston. (Gunn, 1565, 1000.)
   Distrib. Swan River, Victoria, New South Wales, New Zealand.

Hab. Mixed with Triglochin; Georgetown, near the sea, in places dry in summer. (Gunn, 1568, 1569.)

Hab. South Esk River, near Perth. (Gunn, 1001.)

6. Chara mollusca (A. Braun).
Hab. Lake St. Clair; abundant. (Gunn, 1570, 1571.)
7. Chara fragilis (Desv.).
Hab. Derwent River, at Glen Leith. (Gunn, 1576.)
Distrib. Common in Europe and other parts of the world.

Hab. Brackish water at Georgetown, with Ruppia. (Gunn, 1568**.)
Distrib. Swan River.

Gen. II. NITELLA, Ag.

Hab. South Esk River. (Gunn, 1566.)
Distrib. Swan River.

2. Nitella Hookeri (A. Braun, l. c. 199).—Fl. N. Zeal. ii. 56. Chara australis, Tayl. in Herb. Hook. etc.
Hab. Yorktown, Lake St. Clair (with C. mollusca). (Gunn, 1571, 1567.)
Distrib. New Zealand, Kerguelen’s Land.

3. Nitella penicillata (A. Braun, l. c.).
Hab. Tasmania. (Gunn, 1002.)

4. Nitella diffusa (A. Braun).
Hab. Distillery Creek, Launceston; rivulet near Penquite. (Gunn, 1574.)

5. Nitella gelatinosa (A. Braun, l. c).
Hab. Rivulets near Launceston, St. Patrick’s River, etc. (Gunn, 1566*, 1557, 1566?)
Distrib. Swan River.

Hab. South Esk River. (Gunn, 1570*, 1571*, 1575.)

NAT. ORD. V. MUSCI, Juss.

By W. Wilson, Esq.

Of the Tasmanian Mosses (about 250) here described, the majority (180) were collected by Mr. Gunn and myself, and have been elaborated by Mr. W. Wilson; the remainder consists of additions to the Tasmanian Flora, chiefly made by my friend W. Archer, Esq., F.L.S., of Cheshunt, and which have been examined and described by Mr. W. Mitten. Mr. Mitten has indeed prepared a paper on Mr. Archer’s Mosses, which will be presented to the Linnean Society of London; and I have to acknowledge my great obligations to him for allowing me to insert his descriptions of the new species here, as well as for some valuable notes on Gunn’s Mosses and my own; these I have appended to Mr. Wilson’s descriptions as this work was passing through the press.

There are no doubt very many fine Mosses to be discovered in Tasmania, especially on the lofty mountains, and on the damp western and southern coasts. A large proportion will probably prove identical with New Zealand species, and with those of Fuegia and the Antarctic Islands. In the New Zealand Flora upwards of 250 species of Mosses are described by Mr. Wilson, and many have been discovered since, especially by Mr. Knight, raising the number known to upwards of 300.—J. D. H.
FLORA OF TASMANIA.

Suborder 1. ANDREACEÆ.

Gen. I. ANDREÆA, Ehrh.

Theca in receptaculo exserto sessilis, fere ad basin valvulis quatuor dehiscens; valvulis apice operculo persistente connexis. Calyptra mitraeformis.


Hab. On rocks, elev. 1500–3000 feet; Lake Echo, J. D. H. ; the Falls, Cheshunt, Archer. (Gunn, 1702.)

Distrib. Europe, and all other temperate parts of the world.

2. Andreaea montana (Mitten); "A. alpina simillima, foliis parte superiore sensim acutis vix acuminatis margine integerrimo, margine parte inferi oris minute crenulato, cellulis basi oblongis elongatisque parallelogrammaticis cito in minutus longitudine 1/4 latitudine 1/2 unciae metientes transeuntibus."—Mitten, in Journ. Linn. Soc. ind. (Tab. CLXXI. Fig. 1.)

Hab. On rocks: rivulet near Cumming’s Head, Western Mountains, Archer.

“Closely resembling A. alpina in size, habit, colour of its leaves, and general appearance, but the outline of its leaves, when compressed, is ovate, slightly acuminate, the cells at the base distinctly parallelogrammatic, and those of the upper portion larger. A. acutifolia has much narrower leaves.” Mitten, l. c.—Plate CLXXI. Fig. 1; 1–3, leaves:—all magnified.

3. Andreaea acuminata (Mitten); “A. acutifolia simillima, foliis e basi erecta caulem amplectente patulis apicibus incurvis explanatis ovato-lanceolatis margine parte erectae minute crenulato dorso apicem versus inconspicue papillosis, cellulis ex apice ad medium minutis quadrato-rotundatis diametro circiter 1/8 unciae metientibus deinde in oblongas subparallelogrammaticas parietes latitudine superantes inferne in longioribus angustis fuscidulis parietibus crassioribus transeuntibus, perichaetialibus ovalibus tenuiter acuminatis convolutis.”—Mitten, l. c. (Tab. CLXXI. Fig. 2.)

Hab. On rocks: Cheshunt, Archer.

“Very nearly allied to A. acutifolia, Hook. fil. et Wils. Fl. Antarct. p. 118, but with leaves a little wider, and cells in the upper portion smaller and more numerous, all with much narrower walls, those just below the middle of the leaf with walls narrower than their own width and pellucid. From A. petrophila it recedes in the form of its leaves, as well as in their cellular structure already described.” Mitten, l. c.—Plate CLXXI. Fig. 2; 1, perichaetium and capsule; 2, leaves:—both magnified.

4. Andreaea nitida (Hook. fil. et Wils.); caulibus suberectis laxe cespitosis parce ramosis, foliis erecto-patentibus ovato-oblongis obtuse apiculatis concavis enervis nitidis marginibus reflexis, perichaetialibus paulo longioribus erectis.—Fl. Antarct. i. p. 118. t. 57. f. 3; Mitten, l. c.

Hab. On stones: rivulet near Cumming’s Head, Western Mountains, Archer.

Distrib. Lord Auckland’s Islands.

5. Andreaea subulata (Harvey); caule subramoso, foliis falcato-secundis subulatis attenuatis basi dilatatis crassinervis, perichaetialibus convolutis.—A. subulata, Harvey, in Hook. Ic. Plant. iii. t. 201; Fl. Antarct. i. 119; Mitten, l. c.

Hab. On rocks: Jackey’s Plain Creek, and rivulet near Cumming’s Head, Western Mountains, Archer.

Distrib. Cape of Good Hope, Lord Auckland’s Group, and Campbell’s Island.

Suborder 2. Sphagnaceae.

Gen. II. Sphagnum, L.

Theca globosa, in receptaculo exserto sessilis, stomate nudo exannulato. Calyptra medio rupta, basi persistente. Fructificatio axillaris.

1. Sphagnum cymbifolium (Dillen. Hist. Musc. i. 32. f. 1); caule robusto elongato, ramis confluentes brevibus tumidis, foliis rotundo-ovatis concavis obtusis apice dorso muricatis, utriculis (cellulis ramularum externis) spiraliter striatis.—Bridel, Bryol. Univ. Sphagnum obtusifolium, Hook. et Tayl. ex parte, var. condensatum. (Gunn, 1.)

Hab. Western Mountains, elev. 3000 feet, in bogs, Gunn, 1578; swamp, New Norfolk, Oldfield, 62, J. D. H.; Cheshunt, Archer.

Distrib. Europe, and all parts of the world.

2. Sphagnum compactum (Brid. Sp. Musc. i. 18, et Bryol. Univ. i. 16); caule robusto, ramis dense approximatis patentibus crassis strictis, foliis rameis imbricatis ovato-oblongis concavis apice subtenuissimis truncatis denticulatis.—Nees et Hornsch. Bryol. Germ. t. 2. f. 5.

Var. γ. ovatum; foliis brevioribus ovatis subacutis.

Hab. In bogs: Huon River, Oldfield, 61.

Distrib. Campbell’s Island, New Zealand. The ordinary form of the species frequent in Europe and in North America.

The var. γ much resembles S. cymbifolium, but the leaves are not muricate at the dorsal apex, and the utricles of the branches are destitute of spiral striae. Foliose of a pale fawn-colour.


Hab. Huon River, Oldfield.

Distrib. Campbell’s Island.

“Very similar to S. cymbifolium and to S. Antarctici, but in structure allied only to the latter, from which it recedes in the form of its branch-leaves. S. compactum is immediately distinguished from these species by its cortex being composed of a single series of cells.”—Mitten, l. c.

4. Sphagnum contortum (Schultz, Suppl. Fl. Starg. 64); caule elongato rigido-sculo, foliis ovato-lanceolatis imbricatis acutis concavis subcoriaceis. (Oldfield, 29.)

Var. 2. laxum; ramulis distantibus attenuatis patulis. (Gunn, 41.)

Var. 3. scorioides; ramis dense confluentes singulis brevibus patentibus sursum curvatis, foliis elongatis apice praemorsis, rameis erectis subsecundiis. (Gunn, 2.)

Var. 4. intermedium; caule humili, ramulis dense confluentes attenuatis, foliis laxer eticulatis. (Gunn, 3.)


Distrib. Europe.
Var. 4, from the lax texture of the foliage, resembles \textit{S. acutifolium}, but the stem has a single layer of cortical cells as usual. Var. 3 has a singular aspect, and may perhaps be a distinct species, with purplish foliage.

5. \textit{Sphagnum molliculum} (Mitten, in Linn. Soc. Journ. ined.); "\textit{S. plumosum} simile, caule cortice ex strato unico cellularum formato, foliis subelliptico-ovalibus basi brevissime calcaratis apice rotundatis subtruncatis minute denticulatis spatiis intercellularibus ut plurimum repletis margine et serie triplici cellularum angustissimarum composito, ramulis flaccidis cortice cellulis inanibus foliis ovatis acuminatis marginibus superne incurvis apice cucullato-concavis rotundatis argute denticulatis in caulinis spatiiis angustis elongatis spiris repletis poris nullis?"

\textit{Hab.} Cheshunt, Archer.

"Habit intermediate between \textit{S. acutifolium} and \textit{S. plumosum}, but approaching more nearly to the latter."—Mitten, \textit{l. c.}

6. \textit{Sphagnum cymbifolioides} (C. Mueller, Bot. Zeit. 1851, p. 546); "caulis procerus flaccidus, ramis subremitis breviusculis cuspidatis curvatis patentibus vel recurvatis, comalibus erectis brevioribus denticulis, folia caulina e basi latissima plana ovalia, apice involucrata obtusae brevi, haud truncata, e cellularis brevi-sculis basi laxioribus longioribus, ductibus subheteromorphis predictis, ubique fere repletis reticulata, immarginata, e ceteris rameis similia; ramea ovalis apice hauf involuta, erecto-appressa nec falcata nec secunda, summum apice truncato dentibus circiter octo coronato, tenuiter marginata, e cellularis teneris amplis flexuosis valde repletis constructa; cellulae ramorum inane."—Mitten, \textit{l. c.}

\textit{Hab.} Cheshunt, Archer.

"The description above quoted, according to Mossman's specimens, is incorrect, for the cauline leaves have a margin of three rows of narrow cells. In this species the cortical cells are in a single stratum, and the leaves of the ramuli have the intercellular spaces with a pore between every turn of the spiral fibre."—Mitten, \textit{l. c.}

7. \textit{Sphagnum confertum} (Mitten, in Journ. Linn. Soc. ined.); "habitu \textit{S. compacti}, ramulis dense confertis breviusculis, caule cortice e serie cellularum triplici formato serie externa fibris repleto, foliiis oblongis apice rotundatis suberosulis spatiis intercellularibus superioribus fibris repletis inferioribus inanibus margine nullo, ramulis cortice cellulis inanibus foliis ovatis concavis obtusis apice truncatis denticulatis margine serie unica cellularum angustissimarum superne minutissime serrulato spatiis latiusculis fibris spiris approximatis repletis poris singulis."

\textit{Hab.} Rivulet near Cumming's Head, Western Mountains, Archer.

"Appearance and habit similar to \textit{S. subsecundum}, but the cortical cells disposed in a triple series."—Mitten, \textit{l. c.}


Section 1. Acrocarpi.—Fruit terminal.

Tribe I. Phasceæ.

Gen. III. Phascum, L.

Subgenus 1. Ephemerum.—\textit{Planta humillima; foliis ovali-lanceolatis, plerumque profunde dentatis; areolatione laxa. Capula immena. Calyptra campanulata.}

1. \textit{Phascum} (Ephemerum) crystallum (Hook. et Wils.; Icon. Plant. Rar. t. 737 A); monoicum, exiguum, basi filis protothalli instructum; folia spatulato-lanceolata acuminata inciso-dentata, laciniiis den-
tato-ciliatis, dorso ciliato-cristata; theca imersa subsessilis ovali-globosa acutiuscula; calyptra campanulata rufo-fusca.—Mitten, in Journ. Linn. Soc. ined.

Hab. Cheshunt, Archer.
Distrib. Swan River.


Hab. Cheshunt, Archer.
Distrib. Swan River.


Var. turgidum; foliis internis turgide concavis longioribus.—Mitten, in Journ. Linn. Soc. ined.
Hab. Cheshunt, Archer.


4. Phascum (Pleuridium) gracilentum (Mitten); “monoicium, habitu P. alternifolii, gracile, foliis inferiioribus et basi ovali subulato-lanceolato-acuminatis nervo subulam superiorem totam occupante margine ad basin partis subulati indistincte crenulato vel levi cellulis inferioribus oblongis parallelogrammaticis superioribus minoribus, perichaetialibus thecam non tgentibus patulis anguste ellipticis subulato longe attenuatis canaliculatis spicce parce denticulatis integrerrimis laxe areolatis, theca in pedunculo brevi subgloboso leptoderma operculo brevissimo, calyptra cucullata ad thece mediam descendente.”—Mitten, in Journ. Linn. Soc. ined. (Tab. CLXXI. Fig. 3).
Hab. West side of Tower Hill, Cheshunt, Archer.
Distrib. King George’s Sound, New Holland (Menzies).

“Excepting that the perichaetial leaves are less straight and bristly, in general appearance scarcely different from P. alternifolium, but its leaves are of a different form.” Mitten, l. c.—PLATE CLXXI. Fig. 3; 1, fruiting specimen; 2, caule, and 3, perichaetial leaves; 4, male flower; 5, operculum:—all magnified.

5. Phascum (Pleuridium) tenellum (Mitten, in Journ. Linn. Soc. ined.); “monoicium, habitu staturaque P. nitidi, flore masculo gemmæformi minuto in foliorum caulinarum axillis cellulis foliorum paululum brevioribus firmioribusque.”
Hab. Cheshunt, Archer.

“When dry, firmer than P. nitidum, with which it corresponds very closely, excepting in the male inflorescence, which has been observed on a single individual only. The substance of the leaves is firmer, and the whole plant pale-brown. It appears to be distinct, but requires further examination in living specimens.”—Mitten, l. c.
Mueei, by W. Wilson.]

FLORA OF TASMANIA.

Gen. IV. BRUCHIA, Schwagr.


§ 1. SPORLEDERA (Hampe).—Subacules; theca subequalis vel pyriformis.

1. Bruchia minuta (Mitten, in Journ. Linn. Soc. ined.); monoica, perpusilla, brevicaulis, foliis patentibus lanceolatis angustatis nervo percurrente, margine superne serrulato, cellulis laxiusculis, theca suborbicular-ovata acuta collo sensim attenuato sessili erecta, calyptra apice rugulosa thecae tertiam partem obtengente, flore masculo gemmeformi.” (Tab. CLXXI. Fig. 4.)

Hab. Sides of ditches: Cheshunt, Archer. “Plants very minute, brownish, considerably smaller than B. brevipes.—Leaves, when dry, appressed. In appearance it resembles the smallest states of Pleuridium nitidum.” Mitten, l.c.—Plate CLXXI. Fig. 1, fruiting specimen; 2, leaf:—both magnified.

Tribe II. WEISSIA.

Gen. V. GYMNOSTOMUM, Hedw. (in parte).


1. Gymnostomum calcareum (Nees et Hornsch. Bryol. Germ. i. 153. t. 10); compacte cespitulosum, caule ramoso tenerrimo, foliis patulis lineari-lanceolatis obtusiusculis margine planis, capsula ovali-oblonga brevicolla erythrostoma, operculo subulato-conico.—Bryol. Europ. t. 32.

Hab. North-west Bay, on rocks. (Oldfield, 313.)

Distrib. New Zealand, Europe.


Hab. On the ground, amongst Lichens and other Mosses. (Oldfield, with 327.)

Barren specimens.—Stems loosely tufted, slender. Leaves distant, widely spreading, recurved, of firmer texture and more opaque than in G. calcareum, loosely twisted when dry, at first yellowish, brownish when old, linear, obtusely apiculate, papillose at the back, slightly denticulate at the apex; nerve pellucid; areolae roundish, minute.

Gen. VI. WEISSIA, Hedw.


1. Weissia flavipes (Hook. fil. et Wils. Fl. N. Zeal. 59. t. 83. f. 2); monoica, cespitosa, foliis erecto-patentibus siccitate intortis lineari-lanceolatis angustatis margine incurviusculis subplanis costa percurrente mucronulatis, seta elongata luteola, capsula subcylindrica erecta erythrostoma, peristomii dentibus perforatis, operculo tenuirostri.

Hab. Gullies Road, Brown’s River, and Deep Gully, on Mount Wellington, Oldfield, 265. (Gunn, 1617.) South Port, Stuart.
DISTRIBUTION. New Zealand.

Closely allied to *W. controversa* (Hedw.), distinguished by its pale-yellow fruit-stalks.—Leaves longer and narrower, the margins nearly plane. Teeth of the peristome perforated. **Annulus** none.


HAB. Cheshunt, Archer.

DISTRIBUTION. All parts of the world.

3. *Weissia microcarpa* (Hook. fil. et Wils.) monoica, caespitosa, folii erecto-patentibus subincurvis siccitate crispulis lineari-lanceolatis carinato-concavis margine subreflexis, perichedialibus subvaginatiis caulinis similis, seta longiuscula gracescente, capsula ininuta ovali erecta, operculo longirostri, peristomii dentibus brevibus apice subbifidis.—Holomitrium cirrhatum, Mitten, in Journ. Linn. Soc. ined. (Tab. CLXXI. Fig. 5.)

HAB. On rocks and stones: Glen Leith, and on Mount Nelson, J. D. II.; Cheshunt, Archer.

Closely allied to *W. cirrhata* (Hedw.).—Capsule much smaller, oval, scarcely contracted at the mouth, reddish-brown. Teeth of the peristome shorter, slightly bifid, bright-red, not trabeculate at the back. Operculum with a reddish border. Seta longer and more slender. Leaves yellowish, longer and more acute, less reflected in the margin, less crisped when dry; areoles at the base smaller, not pellucid. **Perichaetial leaves** longer and less sheathing. —**Plate CLXXI.** Fig. 5; 1, fruiting specimen; 2, leaf; 3 and 4, capsule; 5, calyptra; 6, teeth:—all magnified.

Gen. VII. SYMBLEPHARIS, Montagne.

**Peristomium simplex; dentes** 8, breves, bigeminati (vel 32, quaternatim approximati), erecti, siccitate in conum conniventes. **Capsula** subcilindrica, erecta, microstoma. **Calyptra** cylindrica-subulata, elongata, dimidiata. **Perichaetii folia** longissima, vaginantia.—Holomitrium, Bridel. Sprucea, Hook. fil. et Wils. in Fl. Antarct.


Trichostomum perichaetiale, Hook. Musc. Exot. t. 73. Holomitrium perichaetiale, Bridel.

HAB. Tasmania. (Gunn, 18.)

DISTRIBUTION. Mauritius, Campbell’s Island, New Zealand.

Tribe III. FISSIDENTEA.

Gen. VIII. FISSIDENS, Hedw.

**Peristomium simplex; dentes** 16, aequidistantes, longiusculi, linea media percursa, in crura duo rario tria inaequalia subulata fissi, crebre articulati, hygroscopici, siccitate geniculati incurvi. **Calyptra** euctuliiformis, raro conico-mitraformis. Fructificatio in caule primario vel in ramis brevibus secundariis terminalis.—Folia disticha, equitantia, alternantia, dorso in alam et apice in laminam verticalem scalpelliformem producta, compresso-canaliculata, semiamplexiculata.

Distinguished from *Dicranum* by the distichous, equitant, vertical leaves.
1. **Fissidens incurvus** (Schwaegr. Suppl. i. 2. p. 5. t. 49); caule simplici decumbente, foliis lanceolatis marginatis lamina dorsali supra basin discontinuata nervo subcontinuo, capsula cernua incurva, operculo conico-acuminato, fl. masc. terminali vel basilari gemmæformi.—*Br. et Sch. Bryol. Europ. ex parte.*

Var. 1; folii laminis dorsalibus verticalibusque vix marginatis.

Var. 2; foliis cuspidatis rigidulis flexuosis lutescentibus, seta pallida.

Hab. Var. 1. St. Patrick’s River; on the ground, in shady forests. (Gunn, 1622.) (Oldfield, 333.)

Var. 2. By the sea-side, South Port. (Gunn, 15.)

**Distrib.** Europe, America.

2. **Fissidens vittatus** (Hook. fil. et Wils.); caule subramoso, foliis incurvis secundisve ovato-liguvalatis marginatis siccitate crispatis involutis basi undulatis infra marginem vittatis, seta terminali, capsula ovata cernua, operculo conico-rostellato. (Tab. CLXXI. Pig. 6.)

Hab. Circular Head, on the ground. (Gunn, 1697.)

**Distrib.** Swan River, South-eastern Australia.

3. **Fissidens rigidulus** (Hook. fil. et Wils. Fl. N. Zeal. p. 61. t. 83. f. 3); dioicus?, caule gracili elongato ramoso polyphyllo, foliis rigidulis siccate subcrispi ovato-lanceolatis acutiusculis (lamina verticali brevi) margine valde incrassatis, nervo valido pellucido continuo, capsula terminali ovali suberecta, operculo rostellato, fl. masc. terminali.

Hab. Circular Head; on stones in running water, Mount Wellington; Tent rivulet, Cheshunt, and on rocks, Stackhouse Falls, Archer. (Gunn, 1699.) (Oldfield, 250.)

**Distrib.** New Zealand.

4. **Fissidens brevifolius** (Hook. fil. et Wils. Fl. N. Zeal. p. 61. t. 83. f. 4); caule longiusculo, ramis fructiferis basilaribus brevioribus, foliis caulinis confertis ovatis brevissimis cymbiformibus basi vagnante tantum marginatis, rameis dissitis longius acuminatis, lamina dorsali discontinua, capsula suberecta. 

Var. *ß. floribundus*; foliis longioribus siccate crispatis, florisbus fem. et masc. numerosis axillaris.

Hab. Shady banks by the Derwent, New Norfolk. (Oldfield, 218.)

**Distrib.** New Zealand, South Africa, South America.

5. **Fissidens Taylori** (C. Mueller); monoicus, humillimus, simplex, laxe aggregatus; caulinibus sterilibus flexuosis, foliis 7–8-jugis infra laxis superne confertis erecto-patentibus oblongis obtusissimis nervo apiculatis; lamina dorsali supra basin desinente; planta fertili folis 2–3-jugis erectis adpressis amplex tantibus acuminatis; seta subflexuosa; theca ovali, inclinata, operculo rostrato breviore.—*C. Mueller, Synops. Musc. Fron. i. 65; Mitten, in Journ. Linn. Soc. ined. F. pygmaeus, Taylor, Lond. Journ. Bot. 1846, p. 66.*

Hab. On the earth, in copses, forests, etc.: Cheshunt, Archer.

**Distrib.** Australia.

§ b. **Folia immarginata.**

6. **Fissidens strictus** (Hook. fil. et Wils.); monoicus, caule longiusculo gracili subramoso, ramis...
floriferis axillaribus polyphyllis, foliis strictis rigidiusculis carnosis confertis suberectis lineari-lanceolatis acutiusculis integerrimis subevanidinervis, seta brevi crassa, capsula turbinata parva suberecta pachyderma, operculo rostrato capsule equali, calyptra parva mitræformi.  (Tab. CLXXI. Fig. 7.)

Hab. Yorktown rivulet. (Gunn, 1610.) On a charred log, under water, in the river Derwent. (Oldfield, 37.)

Stem ½ inch in height. Fertile ramuli not 2 lines in length. Seta 1–2 lin. Capsula very small, roundish or turbinate. Peristome red. Male flowers terminal on axillary ramuli.—In habit like F. grandifrons (Bridel), but not half the size. Leaves of thinner texture, with larger areole and more evident nerve, which is reddish in the older leaves. Colour of the foliage lurid in age, at first pale-green.—Plate CLXXI. Fig. 7; 1, fruiting specimen; 2 and 3, leaves; 4, section of ditto; 5, capsule; 6, calyptra:—all magnified.

7. Fissidens tenellus (Hook. fil. et Wils. Fl. N. Zeal. p. 62. t. 83. f. 6); caule pusillo decumbente 6–8-phyllo, foliis lineari-lanceolatis acutis crenulatis basi vaginante denticulatis nervo valido concolore sub-excurrente, capsula erecta, operculo longirostri, calyptra papillosa mitræformi, fl. masc. basilari gemmæformi.

Hab. On the ground. (Gunn, 17 b.) (Oldfield.) Sandstone Hill, Archer.
Distrib. New Zealand.


Hab. North-west Bay, on rocks. (Oldfield, 313 d.) Cataract Hill, Archer.
Distrib. New Zealand.

9. Fissidens integerrimus (Mitten, in Journ. Linn. Soc. ined.); “dioicus?, caule humili caespitoso ramoso, foliis pluri-jugis in frondem linearem approximatis patentibus lineari-lanceolatis apice obtusiusculis, nervo concolori sub apice evanido lamina vera ad median producta inaequali uno latere rotundata, dorsali basi sensim angustata omnibus lam. immarginatis integerrimis cellulis diametro circiter 3–4 unciae metentibus limitibus crassiusculis, perichaetialibus conformibus, theca in pedunculo breve apicali crassiusculo suberecta breve ovali, operculo subulato breviore.” (Tab. CLXXI. Fig. 8.)

Hab. Cheshunt, Archer.

“Half an inch high. Seta scarcely 2 lines long.—In general appearance nearly allied to F. oblongisfolius, but its leaves are entire, the cells smaller, with thicker walls. Male flowers absent. In the few specimens yet seen the plants are, above, brownish-yellow; below, black.” Mitten, i.e.—Plate CLXXI. Fig. 8; 1, part of stem and leaves; 2, capsule:—both magnified.


Hab. On the ground. (Specimen barren and scanty.) (Gunn.)
Distrib. New Zealand.

11. Fissidens adiantoides? (Dill. Hist. Musc. 264. t. 34. f. 3).
Var. caule gracili polyphylo, foliis confertis brevioribus (oblongo-ovalis) siccitate incurvis.

Hab. On the ground? (Gunn, 45.) (Specimen barren and scanty.) Small island at the foot of Top Paddock, Woolmers, Archer.
Distrib. Europe, America.
Tribe IV. LEUCOBRYACEAe.

Gen. IX. LEUCOBRYUM, Hampe.


1. Leucobryum candidum (Dicranum, Schwegr. Suppl. t. 187 β); caule ramoso dichotomo fragili, foliis confertis erectis secundis subfalcatis ovato-lanceolatis concavis dorso tuberculatis orruhoti, ramulis fructiferis axillaribus numerosis brevissimis, capsula cerna strumosa sulcata.—Fl. N. Zeal. p. 64.


Distrib. New Zealand, Australia.

Tribe V. DICRANACEAe.

Gen. X. DICRANUM, Hedw. (in parte).


Hab. Specimen barren and scanty, growing with D. pungens.—(Gunn.)

Distrib. Australia, New Zealand.


Var. B. spinosum; caule elatiore, setis numerosior longirobris.

Hab. In dense moist woods: Back River Gully, New Norfolk, Oldfield, 36 (J. D. H.) (Gunn, 1682); Cheshunt and elsewhere, frequent, Archer; Wellington Falls, Mount Wellington, Mossman.

Distrib. Australia, New Zealand.

3. Dicranum Billardieri (Bridel, Br. Un. i. 401); caule elatiore, foliis falcato-secundis ovato-lanceolatis acuminatis concavis membranaceis tenuinerviis striatiis apice serrulatis, seta longiore, capsula subcylin- drica curvata basi strumifera, operculo longirostri.—Schweigr. Suppl. t. 121; Fl. Antarct. 129, 407.

Hab. Common at the roots of trees: summit of Mount Wellington, Brown’s River Gully. (Gunn, 1551, 11 b; Stuart; J. D. H.; Oldfield, 110, 112, 113, 200.)

Distrib. Lord Auckland’s Island, Fuegia, New Zealand, Australia.
4. Dicranum angustinerve (Mitten, in Journ. Linn. Soc. ined.) ; "dioicem, D. Billardieri simile, caulis brevibus ramosis, foliis patentibus subsecundis et basi subovali elongata sensim angustatis nervo angusto percurrente dorso marginibusque apiicem versus serrulatis cellulis elongatis angustatis alaribus oblongis quadratisque flavide fuscis in massam quadratam utrinque dispositis, perichaetialibus convolutis internis vaginantibus subito in acuminem brevem setiformem angustatis, theca in pedunculo brevisculo semiuncialu arcuata inclinata basi strumosa, peristomii dentibus rubris dicranis.” (Tab. CLXXI. Fig. 9.)

Hab. On dead wood: Cheshunt, Archer. Gathered also by Mr. Gunn, and communicated amongst some other Tasmanian Mosses by Mr. J. Nowell.

“Nearly allied to D. Billardieri, but with somewhat the aspect of D. reflexum, C. Mueller. It differs from D. Billardieri in the form of the larger portion of its leaves being more elongate, and the narrow upper part being shorter. The internal perichaetal leaves are also furnished with a bristle-like point, which seems wanting in D. Billardieri.” Mitten, t. c.—Plate CLXXI. Fig. 9; 1, cauline leaf; 2, perichaetium; 3, capsule; 4, teeth:—all magnified.


Hab. Among rocks and running water: summit of Mount Wellington. (Gunn, 12.) (Oldfield, 109, 255.) Cheshunt, Archer.

Distrib. Lord Auckland’s and Campbell’s Islands, Australia.


Hab. Cheshunt, Archer.

Distrib. Lord Auckland’s Group, Campbell’s Island, Kerguelen’s Land, Fuegia, and New Zealand.


Hab. Springs, Mount Wellington. (J. D. H.) (Oldfield, 107.)

Distrib. New Zealand, Lord Auckland’s Group, and Campbell’s Island.


Var. B. rigidum: foliis rigidioribus minus confertis nigro-viridibus patulis subfalcatis, caule robustiore.

Hab. Dense forests. (Gunn, 10.) River Acheron. (Gunn, 1582 b.) Cheshunt, Archer.

Distrib. Antarctic Islands, New Zealand.

9. Dicranum angustifolium (Hook. fil. et Wils.); caule longiusculo, foliis confertis suberectis e basi lanceolata longe setaceis integerrimis apice siccatite flexuosis, nervo angusto excurrente. (Tab. CLXXII. Fig. 2.)

Hab. In bogs: Mount Wellington, Gunn, Oldfield. (Barren specimen only.)
Nearly allied to D. tenuifolium (Hook. fil. et Wils. Fl. Antarct. t. 152. f. 7).—Leaves erect, not falcate, longer, of firmer texture; nerve well defined, less capillary at the apex; alar cells subquadrate, coloured.—In the lurid hue and general aspect it resembles Didymodon longifolius, var. penicillatus (Fl. Antarct.).—Plate CLXXII. Fig. 2; 1 and 2, leaves.—magnified.

HAB. Brown's River. (Oldfield, 326 f.) (Barren and dwarf specimens only.)
Distrib. Europe.
Leaves lanceolate-setaceous, entire; nerve narrow, well defined.

HAB. (Barren specimen.) (Gunn)
Distrib. Europe, America?
Stem 1 inch long. Leaves yellowish, subulate-lanceolate, entire; nerve strong, excurrent.

12. Dicranum (Leptotrichum) ferrugineum (Mitten, in Journ. Linn. Soc. ined.); "dioicium, caulibus cespitosis radiculis ferrugineis dense intertextis, foliis e basi erecta ovale-oblonga sensim attenuatis patentibus integerrimis nervo percurrente cellulis basi utrinque ad margines pluribus oblongis quadratisque parallelogrammaticis superioribus inequalibus perichaetialibus conformibus, theca in pedunculo rubro erecta globosae-ovata, operculo conico-rostrato, peristomio et dentibus latis rubris dicranoides, annulo latiusculo composito." (Tab. CLXXII. Fig. 1.)
HAB. On the ground: plain near Cumming's Head, Western Mountains, Archer.
"Whole plant dull ferruginous-green. Stems from half an inch to 1 inch in height.—In general appearance it has some resemblance to D. Jamesoni (Tayl.), but it is smaller, compactly cespitose, and interwoven with intensely ferruginous radicles. The seta is about 3 lines long, rather stout, pale-red. The small, subglobose, erect capsule distinguishes it readily from its allies." W. Mitten, i. c.—Plate CLXXII. Fig. 1; 1 and 2, leaves; 3, capsule and calyptra; 4, teeth—all magnified.

HAB. Wet cliffs. (Gunn, 1607.) (Oldfield.) Fossiliferous limestone: Meander River, Archer.
Distrib. New Zealand.

Gen. XI. BLINDIA, Br. et Sch.


**Hab.** On rocks: Johnny’s Creek. (Oldfield, 135.) On stones: rivulet near Cumming’s Head, Western Mountains, Archer.

**Distrib.** Falkland and Hermite Islands.

**Gen. XII. CAMPYLOPUS, Bridel.**


1. **Campylopus introflexus** (Hedw. Sp. *Musc.* t. 29); caule ramoso, folii imbricatis et basi lata concava marginibus pellicida acuminato-lanceolatis piliferis, nervo lato, pilo spinuloso divaricato, capsula obovata inaequali.

**Hab.** Abundant on dry ground and in swamps, *J. D. H.* Georgetown. (Gunn, 1584 a.) (Lawrence, 4.) (Stuart) Back River. (Oldfield, 229.) On logs and on the ground: Cheshunt, Archer.

**Distrib.** Falkland and Campbell’s Islands, Australia, New Zealand.

2. **Campylopus clavatus** (Brown); caule dichotomo fasciculato, folii lanceolato-acuminatis piliferis solidinerviis strictis auriculis, capsula pendula striata.—*Schwaegr. Suppl.* t. 255 a. (Dicranum).—*W. Mitten*.

**Hab.** Tasmania, Brown, G. Sieber, Oldfield.

**Distrib.** New Zealand; found in all the islands.

“*This species entered into the composition of Hornschuch’s D. pudicu*, being intermixed with the stems of *D. introflexum.*”—*W. Mitten*.

3. **Campylopus insittitius** (Hook. fil. et Wils.); caule rigidulo interrupte comoso subgracili, folii erecto-patentibus subrecurvis sicciatae incurvis, caulinis lanceolato-subulatis canaliculatis muticus, comalibus lanceolato-acuminatis recte piliferis latierviis dorso clammellatis, perichaetialibus ovato-lanceolatis sensim piliformi-acuminatis, seta pallida, capsula elliptica subaequali vix strumosa. (Tab. CLXXII. Fig. 3.)

**Hab.** Southport, Stuart. Bogs: in gullies about Brown’s River; common. (Oldfield, 305–8.)

*Stem* 1–3 inches long, blackish below. *Leaves* with a short pellicid base; areolae oblong-elliptical. *Peristome* red; teeth distantly barred, striated, colourless at the apex.—Dithers from *C. introflexus* in the form and texture of the leaves, capsule, and peristome.—*Plate* CLXXII. Fig. 3; 1, portion of stem and capsule; 2 and 3, leaves; 4, capsule; 5, calyptra; 6, teeth:—all magnified.

(This appears to me to be identical with Brown’s *C. clavatus*, W. Mitten.)

4. **Campylopus capillatus** (Hook. fil. et Wils.); caule gracilente rigidisculo rufo-tomentoso, folii erecto-patentibus subsecundis subrecurvis sicciatae laxis subflexuosis, caulinis et basi ovato-lanceolata repente subulato-setaceis latierviis dorso sublamellatis apice subintegris inferne pellicidis, perichaetialibus vaginantibus membranaceis apice setiformi-attenuatis, capsula subbellipecta lepoldema, calypra brevi breviter fimbriata.—Dicranum pyriforme, Schultz; *Mitten in Journ. Linn. Soc. ined.* (Tab. CLXXII. Fig. 4.)

**Hab.** Bogs: Brown’s River, with the preceding species. (Oldfield, 305–8.) South Port, Stuart.

Allied to *Dicranum niveum* (C. Mueller), and to *C. torfuscus* (Br. and Schimper).—*Stem* 1–2 inches or more. *Leaves* bright-green, glossy; areolae quadrate, at the base rectangular and pellicid. *Sets* pale. *Capsule* almost
symmetrical. *Peristome red.* Spores small.—Plate CLXXII. Fig. 4; 1, leaf; 2, capsule and calyptra; 3, ditto, with calyptra removed; 4, teeth:—all magnified.

5. *Campylopus bicolor* (Hornsch. in Musc. Sieb. n. 9); foliis strictis conflortis lanceolato-subulatis obtusis apice concavis.—Fl. N. Zeal. p. 69.
Hab. (Barren specimen only.) (Gunn, 13.)
Distr. New Zealand, Australia.

Hab. West-end Rivulet, Cheshunt, on decayed logs, Archer.
Distr. New Zealand, Australia.

"So very much does this species resemble *D. pyriforme* (Campylopus), Schultz, that it may readily be passed over as a state of that species, having the same soft appearance. The species referred to in the ‘Flora of New Zealand’ as the typical form, gathered by Professor Jameson in the Andes of Quito, is a more robust species, with stiffer, less finely attenuated leaves, and a capsule rough at the base. *Dicranum nodosum*, Beauv. in Herb. Hook., is a much larger Moss, with leaves having a longer base, stouter nerve, and stiffer habit; it is in all probability synonymous with *Campylopus nicalis*, Brid. If *Campylopus* could be defined so as to distinguish it from *Dicranum*, there would be no necessity to alter the name of the present species, but it seems impossible to separate them in an extensive herbarium, notwithstanding the difference in the aspect of some of the species; and there being a *Dicranum pallidum* from North America previously published by Bruch and Schimper, an alteration has become unavoidable."—Mitten, l. c.

Gen. XIII. **TREMATODON, Richard.**


1. **Trematodon flexipes** (Mitten, in Journ. Linn. Soc. ined.); "dioicus?, cespitosus, caule breviusculo, foliiis erecto-patentibus lanceolato-subulatis integerrimis nervo lato totam fere folii partem superiorem occupante, perichaetialibus latis vaginantibus, theca in pedunculo brevi gracili flexuoso stramineo subrecta rufo-fusca, collo pallidio sequilongo, operculo curvirostrate, peristomio et dentibus rubris dicranoidesis, annulo composito." (Tab. CLXXII. Fig. 6.)
Hab. On the ground: plain near Cumming’s Head, Western Mountains, Archer.

"Very nearly resembling *T. brevicollis* but with leaves in which the nerve occupies the whole of the upper three-fourths, the seta flexuosa, and the peristome with distinctly cleft teeth." Mitten, l. c.—Plate CLXXII. Fig. 6; 1, leaf; 2, perichaetium; 3, capsule and calyptra; 4, teeth:—all magnified.

Tribe VI. **TRICHOSTOMEE.**

Gen. XIV. **DESMATODON, Bridel.**

*Peristomium simplex; dentes* 16, bi-trifidi; *crura* tetragona, remote articulata, granulosa, plerumque


**Hab.** On dry earth, banks, etc., abundant, *J. D. H.*; Cheshunt, Archer.

**Distrib.** New Zealand, Europe, America.

Dr. Hooker’s specimen has the peristome longer than usual, approaching to that of *Tortula*. Nearly allied to *Tortula recurvata* (Hook.), but the leaves are shorter and more thickly nerved.

**Gen. XV. TORTULA, Schreb.**


1. **Tortula Knightii** (Mitten); “monoica, habitu statura coloreque *T. Northiana* simillima, foliiis siccitate crispatis humido patentibus et basi paululum latiore subovata lanceolatis apice acuminatis, comalibus sensim ad apicem angustatis lanceolatis marginibus undulatis integerrimis nervo concolore excurrente mucronatis, cellulis basi hyalinis elongatis utrinque ad margines altiores quam in medio adscendentibus subito in minutis virides obscuras transeuntibus, perichetalibus longioribus paululo latioribus, theca in pedunculo rubro cylindrica, operculo subulato, theca dimidio breviore peristomio et flore masculo *T. Northiana*.”—Mitten, in *Journ. Linn. Soc.* ined. *T. cuspidosa*, var., Hook. fil. et Wils. in *Fl. N. Zeal.* p. 70. (Tab. CLXXII. Fig. 11.)

**Hab.** Wellington Falls, Mount Wellington, Mossman.

**Distrib.** New Zealand.

“Distinct from *T. Northiana* (Grev.) = *T. cuspidosa* (Schwgr.) in the much narrower leaves, with undulated margins.” *Mitten*, l.c.—*Plate* CLXXII. Fig. 11; 1 and 2, leaves; 3, capsule; 4, ditto, with operculum removed; 5, male flower:—all magnified.

2. **Tortula recurvata** (Hook. *Musc. Exot.* t. 130); monoica, caule humili, foliiis patentibus siccitate erectis inflexis ligulato-lanceolatis concavisculis nervo crasso excurrente apiculatis margine revolutis, seta elongata gracili, capsula oblonga suberecta, annulo simplici, operculo conico-subulato.

**Hab.** On wet ground: Mount Dromedary. (*Oldfield*, 335.)

**Distrib.** South Africa.

Nearly allied to *Desmatodon nervosus*, twice as tall, and of more slender habit.—Leaves almost ligulate, the nerve not so much thickened upwards. *Seta* very pale reddish, 1 inch long. *Capsule* elongated, tapering at the base and in the upper part, pale reddish-brown. *Peristome* twisted, and perfectly conformable to the genus.


**Hab.** Cheshunt, Archer.

4. **Tortula Australasie** (Hook. et Grev. in *Brewst. Journ. Sc.* i. 301. t. 12); caule breviscule
subsimplici, foliis lineari-lanceolatis acutis patentibus subrecurvis siccitate crispis tortilibus carinatis margine subreflexis nervo rubello percurris, capsula ovato-cylindracea, operculo brevi-rostrostrato.

Var. folii laxioribus. (Oldfield.)

HAB. Hobarton, on the ground, Lyall; west side of Cataract, Launceston, Archer.

DISTR. New Zealand, Australia.

5. **Tortula calycina** (Schwægr. Suppl. t. 119); caule brevissimo subramoso, foliis lanceolatis subundulatis margine planis crassinerviis, perichaetialibus elongatis vaginantibus, capsula elliptico-oblonga suberecta, operculo longissimo subulato.—T. flexuosa, var.?, Hook. Musc. Exot. t. 125.

Var. folii longioribus acutioribus attenuatis. (Gunn.)

HAB. Hobarton; on stones and at the foot of trees, dry hills: Brown's River, etc., Lyall. (Oldfield, 331, 132.) (Gunn, 1620, 1587.) Port Sorrell, Archer.

DISTR. New Zealand, Australia, East Indies.

6. **Tortula pungens** (Hook. fil. et Wils.); dioica, caule longiusculo subramoso rigidulo, foliiis erecto-patentibus subrecurvis siccitate crispato-tortis lanceolato-ligulatis margine revolutis dorso papillatis nervo valido concorle in mucronem laevem brevisculum excurrente, perichaetialibus longioribus erectis lanceolatis membranaceis subvaginantibus, capsula cylindrica curvula.—T. luteola, Mitten, in Kew Miscel. 1857, p. 258! T. Tasmanica, Hampe, in Linnaea? (Tab. CLXXII. Fig. 7.)

HAB. Common on rocks: Grass Tree Hill, etc., J. D. H., Gunn; on a high hill called the Dromedary, Johnny's Creek. (Oldfield, 59, 317, 115.) Cheshunt, Archer.

DISTR. Australia.

Nearly allied to T. pilifera (Hook. Musc. Exot. t. 12).—Leaves wider, not piliferous, less dilated below, more crisped when dry. Perichaetial leaves less sheathing. Seta longer (1 inch), reddish below, yellowish above—Plate CLXXII. Fig. 7; 1, leaf; 2, capsule; 3, calyptra:—all magnified.

7. **Tortula Antartica** (Barbula, Hampe, C. Mueller, Syn. Musc. i. 638); synnoica, laxe cespitosa, caule inferne radiculoso subgravicli longiusculo, foliiis erecto-patentibus subrecurvis siccitate laxe tortis lanceolato-ligulatis obtusis canaliculato-carinatis nervo crasso rubente in aristam hyalinam spinulosam producere margine revolutis basi pellucide reticulatis superne dense minute areolatis chlorophyllosis tenuissime papillosis, capsula in pedicello stricto rubenti-stramineo erecta.—T. Muelleri, Fl. Antarct. p. 103; Fl. N. Zeland. p. 71. Syntrichia princeps, De Not. ex parte Mitten, in Journ. Linn. Soc. ined. (Tab. CLXXII. Fig. 8.)

HAB. Hobarton, J. D. H.; Port Sorrell, Archer.

DISTR. Falkland Islands, New Zealand.

Leaves fawn-coloured, more lax and more twisted when dry than in T. Muelleri (Br. et Sch.), to which it is more nearly allied than to T. laevipila (Schwægr.), which has spatulate leaves.—Plate CLXXII. Fig. 8; 1, leaf; 2, capsule; 3, calyptra:—all magnified.

8. **Tortula cuspidata** (Hook. fil. et Wils.); synnoica, caule longiusculo crassiusculo subramoso, foliiis confertis erecto-patentibus subrecurvis siccitate incurvus ligulatis obtusis margine revolutis nervo crasso rubente in mucronem longiusculum laevem producto basi pellucide reticulatis superne minutissime densius areolatis papillosis, capsula in pedicello rubello torto erecta.—Syntrichia princeps, De Not. ex parte Mitten, in Journ. Linn. Soc. ined. (Tab. CLXXII. Fig. 9.)

HAB. Moist earth, in woods, on Mount Wellington, Oldfield; Kangaroo Bottom, J. D. H.; Cheshunt, Archer.

DISTR. New Zealand.
Leaves more crowded than in T. Antartica, wider above; areolation less opaque; colour green, tinged with red.—Closely allied to T. Muelleri. Leaves narrower, less appressed when dry.—Plate CLXXII. Fig. 9; 1, leaf; 2, capsule; 3, ditto, with operculum removed; 4, calyptra.—all magnified.

9. **Tortula rubella** (Hook. fil. et Wils.); monoica, caule brevissullo parce ranoso, foliis confertis erecto-patentibus subrecurvis siccitate conduplicate-incurvis oblongis subspathulatis obtusiusculus margine supere plano inferne revolutis, nervo rubro crasso in pilo hyalino scabriusculo excurrente, seta longiuscula gracili, capsula subcylindrica lepoderma, peristomii tubo basilari longiusculo.—Syntrichia princeps, ex parte Mitten, in Journ. Linn. Soc. ined. (Tab. CLXXII. Fig. 10.)

Hab. On banks, rare: Glen Leith, J. D. H., Gunn; Port Sorrell, Archer.

Distrib. New Zealand. (Knight, 87.)

Closely allied to T. leviipila (Schwgr.).—Habit more slender. Antheridia naked, axillary. Leaves narrower, more erect, scarcely recurved; areolae smaller, dense and opaque. Seta more slender, red, nearly 1 inch long. Peristome tubular halfway.—Omitted in the New Zealand Flora.—Plate CLXXII. Fig. 10; 1, leaf; 2, apex; and 3, section of ditto; 4, capsule and calyptra; 5, ditto, with calyptra removed.—all magnified.


Hab. On trees, Gunn.

Distrib. Probably throughout the temperate parts of the world, Australia, the Cape of Good Hope, Britain, and Canada.

"This small species is readily distinguished by the green granules on the surface of the nerve in the upper portion of the leaf, and when dry by the involucre of the margins."—Mitten, in lit.

11. **Tortula mnioxides** (Schwgr.); foliis laxe imbricatis patulis siccitate crisps undulatis ovato-lanceolatis acuminatis pellucido-marginatis.—Schwgr. Suppl. t. 310; Mitten, in Journ. Linn. Soc. ined.

Hab. On logs, in copses: Cheshunt, Archer; Mount Wellington, Mossman.

Distrib. New Zealand, and, if identical with Schwägrichen’s Moss, which it appears to be, South America.

Gen. XVI. **TRICHOSTOMUM**, Hedw., Brid. (ex parte).

Peristomium simplex; dentes 32, plus minus perfecti, per paria approximati, filiformes, tetragoni, granulosi, crebre articulati, intorti. Capsula oblonga, erecta. Calyptra cucullata.—Florescentia monoica vel dioica, fl. masc. gemmaformis.

1. **Trichostomum elongatum** (Hook. fil. et Wils.); monoicum, caule longiusculo rigidulo simplici, foliis laxis erecto-patentibus subsecundis parum flexuosis rigidulis e basi elliptica majuscula amplexicaule membranea pellucida longissime subulato-setaceis solidinerviis canaliculatis granulooso-serrulatis, seta elongata, capsula elongata cylindrica erecta, operculo conico-subulato. (Tab. CLXXIII. Fig. 1.)

Hab. Moist clayey soil: Mount Wellington, Grass Tree Hill, hills about Hobarton, J. D. H., Fraser; Cheshunt, Archer.

Distrib. New Zealand.

Allied to T. longifolium (Brid.), distinguished by the pellucid margin of the large, sheathing, elliptical base of the leaf.—Seta 1 inch long, reddish. Capsule pale-brown long, cylindrical. Annulus large. Operculum half as
long as the capsule. Male flower often terminal on a branch.—Omitted in the New Zealand Flora.—PLATE CLXXIII. Fig. 1; 1, leaf; 2, capsule; 3, ditto, with operculum removed; 4, teeth and annulus:—all magnified.


_Hab._ Amongst rocks: Cataract, near Launceston, *Mossman._


_Hab._ On hills about Hobarton, on moist clayey ground. (_J. D. H._) *Oldfield._

_Distr._ New Zealand, South Africa, South America.


_Hab._ On the ground. (_Oldfield, 154._)

“Very near to _Leptotrichum affine_, C. Mueller, in size and appearance, but with leaves about twice as wide at the oblong base, and thence subulate.”—_Mitten, l. c._


_Hab._ Cheshunt, Archer.

_Distr._ New Zealand, Falkland, Lord Auckland’s, and Campbell’s Islands.

“This most distinct Moss has been wrongly described with dioicous inflorescence and striated leaves. In the specimens collected by Mr. Archer the stems are 4 inches high, but the seta is not longer than in the shorter states of the plant. The capsules in all the specimens are too old to afford an idea of the perfect peristome, but in every other particular the structure is similar to that observable in the species of _Leptotrichum_, and not at all different from that of *Wissia stricta*, _Hook. fil. et Wils. Fl. Antarc._ _Crypt._ p. 98. t. 152. f. 4, which is also referable to the same genus.”—_Mitten, l. c._

**VOL. II.**
Gen. XVII. DIDYMODON, Br. et Schimp.

Peristomium breve, simplex; dentes 16, lineari-lanceolati, secus lineam medium integri vel pertusi et bifidi, tenerrimi, fugacissimi. Capsula, etc., ut in Trichostomo.

1. Didymodon papillatus (Hook. fil. et Wils. Fl. N. Zeal. p. 78. t. 85. f. 2); laxce caespitosus, caule elongato rigidulo subramoso, ramis filiformibus erectis, foliis trifariis patenti-recurvis ovato-lanceolatis sicmirriulatis carnatis subsolidinervii integerrimis utrinque papillatis, perichai labiis convolutis, capsula oblonga erecta, operculo conico-subulato.


Gen. XVIII. CERATODON, Bridel.


Var. 2; foliis suberectis confertis sicccitate strictioribus, nervo crassiore, seta elongata.


Distrib. All parts of the world.

2. Ceratodon stenocarpus (Br. et Schimp. in Monogr. Ceratodon. p. 4, memoratus); dioicus, habitus C. purpurei, capsula in pedicello flavido plus minus cylindrica cerna angulata evidentius strumosa, peristomii dentibus brevioribus angustioribus fuscos subunicoloribus ad basin usque fere fissis.

Hab. On the ground; frequent in the bush. (Oldfield, 70.)

Distrib. South Africa, Nilgherry Mountains, Mexico, Columbia.
Musci, by W. Wilson.] FLORA OF TASMANIA. 179


Hab. Port Sorrell, and north side of Cataract, Launceston, Archer.

Distrib. New Zealand.


Var. β. australis; caule breviore, foliis brevibus acuminatis iniminitatis, seta brevi.


Distrib. New Zealand, Australia, Antarctic Islands, South America, South Africa, Guadeloupe.


Distrib. Europe, America.


Distrib. Swan River, Australia, Europe.

Our specimens agree with those from Swan River, except that the leaves are less spreading, and not subsecund.

Tribe VIII. Grimmie.

Gen. XX. Grimmia, Auct.

Peristomium simplex; dentes 16, majusculi, lanceolati, trabeculati, cribrosi, simplices vel apice bi-trifidi, siccitate reflexi. Calyptra mitreformis, basi lobata vel obliqua, cucullata.


1. Grimmia apocarpa (Hedw. Musc. Frond. t. 39); laxe cespitosa, foliis e basi erecta patentibus
ovato-lanceolatis margine reflexis apice hyalinis evanidinerviis, perichaetialibus latioribus, capsula immersa elliptica pachyderma exannulata.

Var. foliis muticis.


DISTRIB. New Zealand, Europe, America.

§ 2. Grimmia.—Calyptra lobata vel cucullata. Capsula in pedicello curvato emersa vel exserta.

2. Grimmia pulvinata (Hook. et Tayl. Musc. Brit. 38 t. 13); dense pulvinata, foliis lanceolato-oblongis superne carinatis repente piliferis evanidinerviis margine recurvis, capsula in pedicello arcuato demissa ovali striata, annulo duplice, operculo rostrato, calyptra mitraformi.


HAB. On trap rocks: near Glen Leith, J. D. H. Seaside, South Port. (Gunn, 1692, 8.) (Oldfield, 332.) Cheshunt, and on rocks; Port Sorrell, Archer.

DISTRIB. New Zealand, Australia, Europe, Africa, America.

3. Grimmia trichophylla (Greville, Scot. Crypt. Fl. t. 100); dioica, laxe pulvinata, foliis lineari-lanceolatis flexuosis sensim in pilo diaphano sublaevi attenuatis siccate crisulis, capsula in pedicello cyneo subpendula ovali striata siccate angulosa, operculo conico-rostrato, annulo lato, peristomii dentibus bifidis.

HAB. Mount Wellington, etc., on rocks. (Gunn.) (J. D. H.) (Oldfield, 337 b.) Cheshunt, Archer.

DISTRIB. Europe, Asia Minor.


HAB.? (Barren specimen only.) (Gunn.)

§ 3. Orthogrimmia.—Capsula pedicellus rectus.

5. Grimmia leucophsea (Greville, Trans. Wern. Soc. iv. t. 6); dioica, foliis erecto-patentibus siccate appressis ovato-oblongis concavis piliferis margine planis tenuinerviis, capsula ovalis in pedicello breviter exserto erecta microstoma, operculo recto rostrato, annulo lato, peristomii dentibus bi-trifidis cri-brosis.—G. campestris, Hook. Musc. Exot. t. 129.


DISTRIB. Europe, North America, Africa, Australia.

Gen. XXI. PTYCHOMITRIUM, Br. et Schimp.


1. Ptychomitrium acutifolium (Hook. fil. et Wils.): caule humili incrassato ramoso, foliis con-fertis patenti-incurvis siccate intortis lanceolato-subulatis acutis planiusculis solidinerviis basi pellucide areolatis, capsula majuscula ovali erecta annulata, peristomii dentibus breviusculis leviusculis subfissis membrana basilari connexis. (Tab. CLXXIII. Fig. 2.)

HAB. On banks and trap rocks near the Derwent, Glen Leith, very rare, J. D. H. On rocks: Port Sorrell, Archer.
Distrib. South Australia. (C. Prentice, Esq.)

Stem 2 lines long. Leaves crowded, yellowish-green; margin subreflexed; upper areoles quadrate-punctiform, lower ones rectangular. Seta 2 lines, pale. Anulus large. Spores brownish. Male flowers aggregate, gemmiform, axillary. —Close ly allied to P. crassinitum (Schimper), but differs in the peristome, and in the larger areoles. P. Drummondii is smaller, and has no annulus; and from P. crispa our Moss differs in the acute tapering leaves.

—Plate CLXXIII. Fig. 2; 1, fruiting specimen; 2, leaf; 3, capsule; 4, teeth; 5, calyptra: —all magnified.

2. Ptychomitrium serratum (Mitten, in Linn. Soc. Journ. ined.) "P. polyphyllo minor, foliis patenti-recusris e basi ovata lanceolatis sensim acutis margine apicem versus serrato inferne recurvo, nervo percurrente, cellulis basi paucis elongatis max in rotundatis a se renotusculis diametro circiter 1400 unciae metentibus transeuntibus, perichaetialibus cauliniis similibus, theca in pedunculo quadrilineari ovali-cylindrica, operculo subulato subequilongo, peristomio dentibus longiusculis rubris asperulis profunde fissis basi geminatim approximatis, calyptra P. crispa."

(Tab. CLXXIII. Fig. 3.)

Hab. On rocks: north side of the Cataract, Launceston, Archer.

In size and habit so nearly resembling P. acutifolium as to be readily mistaken for it, but safely distinguished by the serrated leaves, which are shorter and less narrowed towards the apex than those of P. polyphyllo. Mitten, l.c.—Plate CLXXIII. Fig. 3; 1, capsule, with calyptra; 2, leaf; 3, teeth: —all magnified.

Gen. XXII. Racomitrium, Bridel.


1. Drypodon.—Planta dichotome ramose, innovationibus simplicibus, fastigiatis.

1. Racomitrium (Drypodon) crispsulm (Hook. fil. et Wils. Fl. Antarct. 124. t. 57. f. 9); foliis erecto-patentibus subrecurvis ovato-oblongis acuminatis carinatis margine basi reflexa apice subdiaphanis, nervo continuo, seta perbrevi, capsula elliptico-oblonga, operculo conico-subulato, peristomii dentibus biidentis siccitate reflexis.—Fl. N. Zeal. p. 75.

Var. 1; foliis brevioribus muticis.

Var. 2; foliis longioribus muticis.


Distrib. Antarctic Islands, New Zealand.

2. Racomitrium.—Planta irregulariter ramose, ramulis brevibus, innovationibus und fastigiatis.

2. Racomitrium symphyodon (Grimmia, C. Mueller, Syn. Musc. i. 809); caule gracili elongato, ramulis subfasciculatis gracilibus, foliis patentibus subsecundis siccitate erectis ovato-lanceolatis acuminatis hyaline apiculatis margine inferne recurvibus, perichaetialibus acutiusculis, capsula in pedunculo flavido tenuissimo breviisculo cylindrica microstoma, peristomii dentibus brevibus curtibus coherentibus, calyptra apice scabriuscula.—R. fasciculare, var. 2 and 3, Hook. fil. et Wils. in Fl. Antarct. p. 96. Grimma
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emersa, C. Mueller, Bot. Zeit. 1851, p. 562; conf. Mitten, in Journ. Linn. Soc. ined. (Tab. CLXXIII. Fig. 4.)


Distrib. Hermite Island, Cape Horn.

Plate CLXXIII. Fig. 4; 1 and 2, leaves; 3, capsule and operculum; 4, ditto, with operculum removed; 5, teeth; 6, calyptra:—all magnified.

3. Racomitrium heterostichum (Hedw. Musc. Frond. ii. 70. t. 25); caule fasciculatim ramoso, foliis patentibus subsecundis lanceolato-acuminatis in pilum plus minus elongatum hyalinum flaccidum productis sulcatis margine recurvis, areolis superne quadratis, capsula elliptico-cylindracea et obovato-oblonga microstoma, peristomii dentibus profunde bifidis.

Var. β. alopecurum; foliis brevipilis, capsula minori brevi-pedicellata. (Gunn, 1627 b.) (Oldfield.)

Var. γ. gracilescens; foliis obtusis. (Gunn, 1627 a.)

Hab. On stones and rocks, abundant, Gunn, Oldfield, etc.

Distrib. Europe, Falkland Islands, New Zealand.

4. Racomitrium lanuginosum (Hedw. Musc. Frond. iii. 3. t. 2); caule clato fasciculatim ramoso, foliis patentibus recurvis elongatis lanceolato-acuminatis apicem versus membranaceo-marginatis papillosis eroso-dentatis et appendiculatis in pilum hyalinum productis, capsula in pedicello breviusculo scabro minuta ovata, peristomii dentibus in crura filiformia bipartitis.

Var. pruinomin; foliis apice inciso-serratis valde incanis.

Hab. Mount Wellington. (Barren specimens.) (Gunn, 20, 1580.)

Distrib. Falkland Islands, Fuegia, New Zealand, and all parts of the world.

Tribe IX. ENCALYPTAE.

Gen. XXIII. ENCALYPTA, Schreb.


1. Encalypta vulgaris (Hedw. Sp. Musc. p. 60); foliis ligulatis evanidinerviis, capsula plerumque gymnostoma, calyptra ad capsule collum vel infra producta basi integra.

Var. β. obtusa; foliis muticis obtusis.

Hab. On banks? A scrap only, growing with Tortula pungens and T. Australasie. (Lyall.) (Gunn.)

Distrib. Europe.

2. Encalypta australis (Mitten, in Journ. Linn. Soc. ined.); "monoica, E. vulgaris simillima, foliis inferioribus ligularibus, comalibus subelliptico-spathulatis obtusi-secundus nervo percurrente dorso apice parce denticulato scabrose margine ob papillarum prominentiam erosum, theca cylindrica levi gymnostoma operculo subulato subaequilonga, calyptra apice levi."

Hab. Near the Cataract, Launceston, and on the fossiliferous limestone near Cheshunt, Archer.

Distrib. New Zealand.

Differs from E. vulgaris in the less rounded apices of its leaves, and smooth point of the calyptra.—Mitten, l. c.
Tribe X. Orthotrichaceae.

Gen. XXIV. Macromitrium, Bridel.

Peristomium duplex vel simplex, interdum 0; externum intus sub ore capsulæ adnatum, dentes 16, per paria plus minus approximati, plani, lanceolati; internum, membrana multiformis. Calyptra conico-mitriformis, longitudinaliter plicata sulcatave, basi hand appendiculata, inferne in plures lacinias partita, glabra vel pilosa. Capsula ovata, basi attenuata, vix apophysata, eaequalis, erecta, examulata, longipedunculata, pachyderma, ore siccatice sepia pisic octo contracta. Operculum rectum, rostratum.—Folia multifaria, lanceolato-oblonga; areolis minimis, circularibus, punctiformibus. Caulis repent; surculus erectis, confertis.


Hab. Hobarton, etc.; rocks, at an altitude of 1400 feet. (J. D. H.) (Gunn, 29.)

Distrib. New Zealand.

2. Macromitrium Reinwardti (Schw. Suppl. ii. p. 69. t. 173) ; monoicum, foliis patentibus incurviusculis siccatatis crispulis et basi lanceolata anguste acuminata areolatis elongatis superne guttulatis, perichaetialis late lanceolatis acuminatis excurrentirnervis, capsula in pedunculo elongato ovata brevicolla laevi ore plicata, peristomii dentibus 16 angustis, calyptra glabra.

Hab. (Specimen very scanty and imperfect.) (Gunn.)

Distrib. Java.

3. Macromitrium pusillum (Mitten, in Journ. Linn. Soc. ined.) ; "dioicium, M. microstomum simillimum, foliis siccatatis spiraliter tortis madore patentibus lineari-lanceolatis apice breviter apiculatis nervo fusco sub apice evanido carinatis integerrimis cellularis basi angustis elongatis superioribus rotundatis diametro circiter 3/10 uncis metientibus breviter papillosis distinctis, perichaetialis internis brevioribus ovatis acuminatis, theca in pedunculo circiter trilineari ovali plicata, ore intiensiore colorato, calyptra nuda." (Tab. CLXXIII. Fig. 5.)

Hab. On stones: Cataract Hill, Archer.

Leaves longer and narrower than those of M. microstomum, with cells far larger, those of the last-named species having a diameter of 3/10 of an inch. Mitten, l.c.—Plate CLXXIII. Fig. 5; 1 and 2, leaves; 3, capsule; 4, calyptra:—all magnified.

4. Macromitrium Archeri (Mitten, in Journ. Linn. Soc. ined.) ; "M. hemitrichodi simillimum, foliis siccatatis tortis subcirrispatis madore patentibus interne ellipticis inde lanceolatis obtusiusculis nervo excurrente carinatis brevissime apiculatis margine minutissime eroso cellularis basi pro spatio brevi elongatis mox in rotundatis transcurrentibus papillosis apicum versus obscurores, perichaetialis brevioribus duplo latioribus acutis, theca in pedunculo tri-quadrilineari elongato ovali sub ore intiensiore colorato plicata, peristomio nullo; operculo subulato, calyptra nuda." (Tab. CLXXIII. Fig. 6.)


Fulvous. In size and general appearance scarcely different from M. hemitrichodes, to which, at least in part, belongs M. australum, Hornsch., according to authentic specimens, but in the present the leaves, although agreeing in form, have their cells more widely separated, rather larger, and not obscure, as in M. hemitrichodes, in which too the leaves are smoother. Mitten, l.c.—Plate CLXXIII. Fig. 6; 1 and 2, leaves; 3, capsule and calyptra; 4, ditto, with operculum:—all magnified.

HAB. On trees, in creeks and damp woods, *Archer.*

DISTRIB. New Zealand, Australia, South Africa.

Gen. XXV. ORTHOTRICHUM, Hedwig.


Var. foliis confertis suberectis minus acutis angustierviis, areolis laxioribus pellucidis, vaginula epilosa, seta longiori, calyptra parva.

HAB. St. Patrick’s River. (*Gunn, 1614.*) Trunks of trees: Mount Wellington, rare. (*J. D. H.*)

DISTRIB. Europe.

2. **Orthotrichum luteum** (Mitten); "monoicum, dense pulvinatum, fulvo-luteum, foliis siccitate crispatis madore patentibus e basi obovata concava erectiuscula lineari-lanceolatis nervo flavo sub apice evanido carinatis, cellulis basi utrinque ad margines ovatae circiter quadratis oblongis parallelogrammaticis hyalinis interioribus angustissimis elongatis luteis superioribus rotundis diametro $\frac{1}{6}$ unciae metientibus in seriebus 10–12 inter marginem et nervum in folii medio dispositis papillosis margine minute crenulato et, ubi basis in partem superiorem angustatur, recurvo, perichaetialis lanceolata latioribus, vaginula glabra, theca in pedunculo vix duplo longiore ovali-cylindrica plicata, collo elongato crassiusculo, operculo convexo brevi-rostrato, peristomii dentibus 8 bigeminatis ciliis 8 angustis tertio brevioribus, calyptra ramentis exstantibus elongatis pilosis." — *Ulota lutea, Mitten, in Journ. Linn. Soc. ined.*


DISTRIB. New Zealand.

Corresponding in size with *O. crispum*, but with leaves of a different form at the base, erose margins, and cells in the upper portion larger and further apart. The capsule is also thinner.—*Mitten, l. c.*


4. **Orthotrichum Lawrencei** (Mitten, in Journ. Linn. Soc. ined.); "monoicum, habitu statuaque *O. leptocarpi*, foliis patentibus e basi late ovali breviter late lanceolatis acutis nervo sub summio apice
Musci, by W. Wilson

FLORA OF TASMANIA.

Evanido carinatis marginibus superne erosulis inferne incurvis cellulis omnibus conformibus minutis rotundatis minute papillosis, perichaetialibus caulinis similibus, internis basi cellulis paucis longioribus, theca in pedunculo dimidio breviore sensim attenuata elliptico-cylindracea siccitata ovali-cylindrica fere ad basin plicata, operculo brevi-rostellato, peristomio dentibus 8 flavidis siccitate reflexis, ciliis 8 latis colore structuraque dentibus simulantibus."

Hab. Tasmania, Lawrence.

From O. leptocarpum, B. and S., this species differs in the finer plicate capsule and acute leaves; from O. Tasmanicum and O. speciosum, Nees, in the very much wider leaves, not patent or divergent from a ravenol base, having elongated narrow cells, but uniform in their direction throughout their length, and composed of cells everywhere minute and round. The cilia, like those of O. Tasmanicum, agree in substance, size, and colour with the teeth of the external peristome. The calyptra has not been seen. Mitten, l. c.—Plate CLXXII. Fig. 5; 1, leaf; 2, theca; 3, peristome:—all magnified.

Tribe XI. ZYGODONTLE.

Gen. XXVI. ZYGODON, Hook.

Peristomium duplex, simplex, vel 0; externum, dentes 16, per paria connexi, plani, siccitate reflexi; internum, cilia 8 vel 16, dentibus alternantia, linearia, hyalina, horizontalia. Capsula erecta, clavato-pyriiformis, striata, pedicellata vel immersa, exannulata. Operculum oblique rostratum. Calyptra cuculliformis, obliqua.

a. Folia integra.

* Peristomium simplex.


** Peristomium duplex.

3. Zygodon Brownii (Schwaegr. Suppl. t. 317 b); dioicus, caule ramoso fastigiato, foliis squarrosis oblongis acutis, peristomio duplici.
Hab. Common on rocks, bark of trees, etc., throughout the Island.
Distr. New Zealand.

4. **Zygodon minutus** (C. Mueller et Hampe, Plant. Muell. in Linnæa, 1855, p. 209); "dioicus, dense cespitosus, humilis, flavescentis, caule tenello brevissimo densifolio innovando subramoso, foliis caulinis dense imbricatis madore et siccitate strictis angusté oblongo-lanceolatis acuminatis carinatis margine convexis nervo valido flavido excurrente, e cellulis rotundatis incrassatis laevibus basi pancae laxis parenchymaticis areolatis, perichaetialibus angustioribus, theca in pedicello brevissimo flavido erecta pyriformi-ovali operculo oblicho acuminato instructa octo-sulcata, peristomii dentibus exterioribus arete conjunctis brevissimis 16-geminatis, cilia 8 internis in membrana tenerima reticulata."—Mitten, in lit.

Hab. On trees, Gunn.
Distr. Australia.

Similar to **Z. Menziesii** *(Codonoblepharum)*, Schwægr., but easily distinguished by the excurrent nerve of its more sharply pointed leaves and different peristome. Mitten, l.c.

b. Folia dentata.


Var.; foliis siccitate minus crispa-tortuosis, areolis majoribus quadratis.

Hab. On the ground; Dromedary, New Norfolk. (Oldfield, 139.) Cheshunt, Archer.

Distr. South America, New Zealand, South Africa.

Gen. XXVII. **CODONOBLEPHARUM**, Schwægr.

Peristomium duplex; externum **Zygodontis**; internum, cilia 16, e membrana basilari brevissima in campanulâ formam elevata. **Calytra cuculliformis**.

1. **Codonoblepharum Menziesii** (Schwægr. Suppl. t. 137); caule erecto subdiviso fastigiatim ramoso, foliis confertis erectiusculis lingulatis integerrimis solidinerviis, capsula pyriformi infra orem contracta sulcata, operculo conico-rostellato.—**Zygodon Drummondii**, Taylor, MSS. Z. Menziesii, Mitten, in Journ. Linn. Soc. ined.

Hab. On the bark of trees; on the ground, near the sea. (Gunn.) (Oldfield, 290.) On trees, in open ground, and in the forests. Cheshunt, Archer.

Distr. New Zealand, Australia.

Tribe XII. **Bryaceae**.


1. **Leptostomum inclinans** (R. Br. in Linn. Trans. x. p. 321. t. 23); foliis erecto-patentibus laxius

_Hab._ On moist rocks: top of Grass-tree Hill, etc., near Hobarton. (Gunn, 22, 1586.) (J. D. H.) (Lawrence, 259.) (Oldfield.) Cheshunt, Archer.

_Distr._ New Zealand.

2. _Leptostomum macrocarpum_ (R. Br. l. c. p. 322); foliis elliptico-oblongis subobovatis con-cavis margine revolutis piloso-ramoso terminatis, capsula erecta ovato-oblonga microstoma, operculo obtuse conico.—Bryum macrocarpon, Hedw. Musc. Frond. iii. t. 10.

_Hab._ Mount Wellington, _R. Neill._

_Distr._ Tahiti, New Zealand, Australia.

Gen. XXIX. LEPTOTHECA, Schwagr.

_Peristomium_ duplex; _externum_, dentes 16, lanceolato-lineares, erecti; _internum_, membrana tenera in cilia totidem linearia cum ciliorum interpositorum rudimentis fissa. _Capsula_ cylindrica, erecta, equalis. _Calytra_ dimidiata.


_Distr._ Australia.

Inflorescence certainly dioieous (contr. Schwagr.). Perichaetial leaves longer and narrower than the rest. _Annuulus_ large, adhering to the mouth of the capsule. _Outer peristome_ pale-yellow, erect.

Gen. XXX. MNIOPSIS, _Mitten._

_Acrocarpica._ _Folia_ cellulis hexagonis areolata. _Peristomium_ externum dentibus 16, internum processibus alternantibus in membrana exsertis. _Calytra_ mitreformis, parva.

1. _Mniopsis Plumula_ (Mitten, _in Journ. Linn. Soc._ ined.); "dioica, gregaria, caulibus simplicibus erectis inferne foliis minuti remotis superne majoribus in caule fertili horizontaliter insertis patentibus ovatis, comalibus perichaetialibusve ligulatis obtusis in caule sterili distichaceis verticalibus oblongo-ovatis acutis obtusisve patentibus decurrentibus omnibus integerrimis nervo sub apice evando, cellulis hexagonis limitibus crassiusculis, theca in pedunculo bilineari graecii ovali-cylindrica equalis, operculo subulato recto, peristomio externo dentibus longissimis angustis rubris siccitate incurvis cirrhatisque interno processibus ciliformibus brevibus in membrana brevi exserta, flore masculo feminei simul in caulium apicibus parvo capituliforme, antheridiis minuti brevibus, paraphysibus nullis." (Tab. CLXXIII. Fig. 7.)

_Hab._ Below the quarry, Ovens Creek, _Archer_; sent also in a barren state by Mr. Oldfield.

_Stems_ from one-fourth to half an inch high, dull-green, considerably resembling some small species of _Fissidens_; its affinity is however to _Schistostega_, with which it agrees in the vertical insertion of the leaves of its barren stems, but recedes in the presence of a rather stout nerve and the regular hexagonal cells. In the structure of its peristome it approaches to _Aulacomnion_. The calyptra is smaller in proportion than that of _Tetruphh_ or _Tetrodontium_. _Mitten, l. c._—PLATE CLXXIII. Fig. 7; 1–3, plants; 4, leaf; 5, capsule; 6, peristome: _all magnified._
Gen. XXXI. ORTHODONTIUM, Schwegr.


—Musci graciles, casptosii, habitu Bryis angustifolii affines. Florescentia monoica; *fl.* masc. gemmaformes, axillares, sequae aggregati. Folia longiuscula, lineari lanceolata, tenuia, laxe areolata; areolis subparalelogrammaticis, evanidinerviis.


**Distrib.** Falkland Islands, Hermite Island.

Gen. XXXII. LEPTOBRYUM, Br. et Schimp.


**Hab.** Back River Gully, on rotten wood, with *Ceratodon purpureus*. *(Oldfield, 312.)*

**Distrib.** Europe, Asia, America.

Gen. XXXIII. BRACHYMEMENIUM, Hooker.


1. **Brachymenium lanceolatum** (Hook. fil. et Wils.); monoicum, caule brevisculo, innovationibus crassiucusulis, foliis erecto-patentibus flaccidis siccitate subflexuosis lineari-lanceolatis acuminatis carinatis integerrimis laxe pellucide areolatis nervo continuo, seta longa, capsula subereecta ovali-pyiformi brevicolata, operculo conico brevi. *(Tab. CLXXXIII. Fig. 8.)*

**Hab.?** (Specimen scanty.) *(Gunn.)*

Very like *Acidodontium Kunthii*, Hach., but differing in the inflorescence.—Leaves twice as long, with larger areole, yellowish. Capsule shorter. Teeth of the peristome pale, gradually tapering, trabeculate externally. Inner peristome nearly as long as the outer. Annulus yellow, adhering to the mouth of the capsule. Male and female flower contiguous. Seta red.—**PLATE** CLXXXIII. Fig. 8; 1 and 2, leaves; 3, capsule; 4, peristome:—all magnified.
Gen. XXXIV. MIELICHHOFERIA, Hornsch.

Fructificatio in ramulis brevibus secundariis nonnunquam ad plantae basin nascentibus terminalis. Peristomium plerumque simplex, rarius duplex vel nullum; externum sæpius nullum; internum, cilia 16, articulata, pallida, subplana, in membrana basilari brevi posita, vel libera. Capsula pyriformis, cerna, annulata. Calyptra cucullata.—Florescentia synoica, monoica, vel dioica.

1. Mielichhoferia Eckloni (Hsch. in Linn. 1841, p. 118); monoica, caule fertili subbasilari brevisimo, innovati in nudis superne dense foliosis, folis suberectis lanceolatis ovato-lanceolatis acuminatis planiusculis apice serrulatis evanidinervis, perichaetialibus minoribus erectis, seta elongata, capsula cerna obovato-pyriformi hinc gibba, peristomio duplici.—Schizhymenium bryoides, Harvey, in Hook. Ic. Plant. t. 202; Schwegr. Suppl. t. 317.

Hab. On the ground: Gullies Road, Brown’s River. (Oldfield.) (Gunn, 25 b.) Cheshunt, Archer.

Distrib. South Africa.

Some of the Cape of Good Hope specimens, though not in good condition, distinctly show a double peristome.

—Outer teeth sixteen, imperfect. Inner peristome sixteen filiform cilia connected occasionally at the top by trabecule, and united at the base into a narrow membrane. Annulus large.

Gen. XXXV. BRYUM, Dillen.


§ 1. WEBERA.—Planta gracilis, simplices, e basi innovantes. Folia lanceolata, superiora multo longiora.

1. Bryum nutans (Schreb. Fl. Lips. p. 81); monoicum, caule brevisculo, foliis superioribus elongato-lanceolatis apice serratis inferioribus ovato-lanceolatis integerrimis, capsula nutante vel pendula oblongo-pyriformi, operculo majuscule convexo papillato, antheridiis in foliorum perichaetialium axillis per paria insertis.—Bryol. Europ. t. 347.

Hab. Western Mountains. (Gunn, 1588.) Mount Wellington. (Oldfield, 306, 126.) Roadside, Splitters Hill, Archer.

Distrib. Lord Auckland’s Group, Hermite Island, North Asia, America, Europe.

§ 2. Bryum.—Planta sub apice prolifero innovantes.

a. Flores synoica (♀ et ♂ immixtas).


Hab. Turf-banks: Glen Leith, J. D. H.

Distrib. New Zealand?, Europe.


Habitus *B. palllescens* sed hermaphroditum; a *B. bimo* differt, foliis longioribus, magis acuminatis, nervo longe excurrente.— *Hampe*.

Mr. Archer's specimens are too old to show the true structure of the internal peristome, but it appears to be that of *Pohlia*.— *Mitten, in lit.*

4. **Bryum bimum** (Schreb.); hermaphroditum, foliis patentibus ovato-lanceolatis carinatis margine reflexis nervo excurrente mucronatis siccitae subtortilibus, capsula pendula obovato-pyriformi, operculo majuscule convexo mamillato.— *Fl. N. Zeal. p. 85; Mitten, in lit.*

Hab. Cheshunt, Archer.

Distrib. New Zealand, Europe, North America.

5. **Bryum torquescens** (Br. et Schimp. Bryol. Europ. t. 358); foliis cauliniis et ramulinis remotis elongato-lanceolatis complicato-carinatis margine reflexis subflexuosis, comalibus confertis ex ovato oblongo-lanceolatis concavis omnibus integris (limbo perangusto nervo in cuspidem laevem excedente) siccitae arcte contortis, capsula elongato-obconica subincurva rufo-brunnea, operculo lato mamillato purpureo nitido.


(Specimens few and imperfect.)

Distrib. New Zealand, Australia, Europe, South Africa.

b. **Florescentia dioica**.

6. **Bryum rubiginosum** (Hook. fil. et Wils.) caule elongato rigidulo, foliis laxis erecto-patentibus apice recurvis siccitae crisps subtortis ellipticis acutiusculis decurrentibus pellucide areolatis evanidinerviis margine inferne reflexis. (Tab. CLXXIII. Fig. 9.)

Hab. In wet places? (*Gunn, 1667.*) (Barren specimens only.)

Stem 1–2 inches long or more, bright-red. Leaves distant, yellowish-green, membranous. — Resembling *B. Duvalii* (Bryol. Europ.), but differing in the form of the leaf.—*Plate CLXXIII. Fig. 9; 1, portion of stem and leaf; 2, leaf:—both magnified.*


Var. *B. luridum*.

Hab. (Scanty and imperfect specimen.) (*Gunn.*)

Distrib. New Zealand, Antarctic Islands.


Hab. On wet rocks? (*Lawrence.*) (*Gunn, 1588.*) Cheshunt, Archer.

Distrib. Antarctic Islands, Fuegia.

9. **Bryum argenteum** (Linn. Sp. Pl. 1586); foliis imbricatis late ovalibus apiculatis concavis laxe areolatis integerrimis seminerviis albido-sericeis, capsula pendula ex ovali oblonga.— *Bryol. Europ. t. 384.*
Var. *niveum*; innovationibus obtusis, foliis arcte imbricatis niveis brevissime apiculatis submuticis, perichaetialibus longioribus acuminatis.

**HAB.** Surrey Hills. (Gunn, 1615.)
**DISTR.** All parts of the world.

10. *Bryum clavatum* (Hook. fil. et Wils. Fl. N. Zeal. p. 84. t. 85. f. 3); foliis erecto-patentibus incurvis elliptico-lanceolatis suborbiaces concavis nervo crasso excurrente cuspidatis, seta breviuscula, capsula clavato-oblonga arenata majuscula subpendula, operculo subconico.

**HAB.** On the ground. (Gunn.)
**DISTR.** New Zealand.


**HAB.** On rocks. (Oldfield.) (Specimens few and imperfect.)
**DISTR.** All parts of the world.

12. *Bryum obconicum* (Hornsch. in Bryol. Eur. t. 367); foliis oblongo-ovatis acuminatis nervo excurrente cuspidatis submarginatis apice serrulatis siccitate vix tortilibus margine reflexis, capsule subpendula clavata longicolla, operculo convexo mamillato.

**HAB.** Circular Head. (Gunn, 1701.) (Specimen small and imperfect.)
**DISTR.** New Zealand, Europe.


—R. balanoides, Tayl. MSS. (Gunn, 23, 1621 b.) (Oldfield, 56.)

Var. *β*; foliis angustioribus, nervo crassiori. (Gunn, 25.)

Var. *γ*. *inflata*; foliis subrotundis valide concavis apice incurvis. (Oldfield, 56.)

**HAB.** Dry earth: Macquarrie Plains, J. D. H. Hospital Bay Hill, South Huon. Grass-tree Hill, with var. *γ*. Cultivated soil: Mount Richmond, Gunn, Oldfield, etc.

**DISTR.** Australia, New Zealand.

Very like *B. atropurpureum*, Wahl., in general aspect and size.—Leaves not recurved in the margin. Nerve stronger, more excurrent, red. Capsule more like that of *B. coronatum*, Schwagr.


Var. *crinitum*; foliis subpiliferis, seta longiori, capsule oblonga.

**HAB.** Dry ground: Hobarton. (Gunn, 24.) (J. D. H.) Port Sorrell, Archer. (Specimens few and immature.)
**DISTR.** Europe, Africa, America, Antarctic Islands, Fuegia.

15. *Bryum crassum* (Hook. fil. et Wils. Fl. N. Zeal. p. 86. t. 86. f. 1); caule longiusculo rigidulo ramoso tomentoso, ramis apice tumidis inferne foliis minutis vestitis, foliis erectis arcte imbricatis siccate
appressis substratiis concavis ovato-oblongis coriaceis acutis solidinerviis margine reflexis apice subintegris, capsula pendula oblongo-pyriformi, operculo conico-apiculato.


Distrib. New Zealand.

16. Bryum Billardieri (Schwgr. Suppl. t. 76); foliis superioribus in rosulam congestis patenti- bus apice recurvis siccitate crispato-undulatis erectis obovato-oblongis acutiusculis immarginatis apice serratis nervo subexcurrente apiculatis margine inferne reflexis, seta crassiuscula apice in collo arcuato, capsula subito desinente, capsula nutante clavato-pyriformi arcuata, operculo subconico.


Distrib. New Zealand, New Zealand, Australia, Falkland Islands, South Africa, South America.

17. Bryum rufescens (Hook. fil. et Wils.); Bryo Billardieri valde affine, caule gracili, foliis spathulatis mollioribus basi pellucide areolatis rubellis margine vix recurvis, nervo rubello, capsula clavata arcuata subpendula ore purpurascente. (Gunn, 1691.) (Tab. CLXXXIV. Fig. 1.)

Var. B. mamillatum; foliis patentiibus laxioribus, nervo longius excurrente, operculo hemisphaericum mamillato, capsula subaquale. (Lyall, 101.) (Gunn, 1585 c.)

Var. $\gamma$. brevifolium; foliis brevioribus concavis siccitate minus crispatis, capsula breviori. (Gunn, 1585 b.) (Oldfield, 334.)


Closely allied to the preceding species.—Plate CLXXXIV. Fig. 1; 1, fruiting plant; 2, leaf; 3, capsule:—all magnified.

18. Bryum truncorum (Bridel, Mant. Musc. 119); caule elongato, foliis terminalibus in rosulam congestis patentiibus apice recurvis siccitate tortuosis erectis obovato-acuminatis submarginatis apice argute serratis margine inferne reflexis, nervo subexcurrente, seta elongata apice in collo arcuato in collo arcuato capsulae desinente, capsula elongato-cylindrica arcuato-nutante, operculo conico-apiculato brevi.—B. Polla-truncorum, Bridel, Br. Univ. i. 699. B. leptotheicum, Taylor, MSS.

Hab. Damp ground: Penquite. Rivulet by Lightwood Bottom, South Huon. (Gunn, 26 a, 1585.) (Oldfield, 55, 119.) Cheshunt, Archer. On sandy ground, Mossman.

Distrib. Isle de Bourbon.

Gen. XXXVI. AULACOMNION, Schwgr.


1. Aulacomnion palustre (Schwegr. Suppl. t. 216); caule radiculis ferrugineis tomentoso, foliis flexuoso-patentibus siccitate torquatibus lineali-lanceolatis margine reflexis apice eroso-denticulatis, capsula curvula.

Var.; caule gracili, foliis minoribus acutis subintegris densius subopace areolatis siccitate valde cris- patis.—An species distincta ?

Hab. Formosa. (Barren specimens only, with pseudopodia.) (Gunn.)

Distrib. Europe, North America, Siberia.
Tribe XIII. BartramiaceÆ.

Gen. XXXVII. Bartramia, Heal.

Peristomium duplex, simplex, vel nullum; exterum, dentes 16, lanceolati, leaves, trabeculati, linea media exarati, sieci incurvi, rusi; internum, membrana sedecies plicata, in dentes 16 lanceolatos carinatos lato de in lacinias duas divergentes articulatas fissas producta, ciliis interjectis vel nullis. Capsula pleurumque spherica, microstoma, exannulata, siccieta sulcata, inclinata, erecta, vel curnua. Operculum plano-conicum, breve. Calyptra parva, dimidiat.—Folia angusta, rigida, serrata, papillosa.

§ 1. Bartramidula.—Capsula gymnostoma, estriata, in pedicello arcuato horizontalis vel pendula. \[Florescentia monoica.\] Planta parens, tenera, sub apice fertili verticillato-ramulosa.

1. Bartramia pusilla (Glyphocarpa, Hook. fil. et Wils. Lond. Journ. Bot. 1844, p. 545); caule brevissimo gracilloso subramoso, foliis erecto-patentibus minutis ovatis acutiusculis laxe reticularis marginis partim evanidinervis, perichaetialibus brevibus erectis, seta apice arcuata brevi, capsule pendula globosa, operculo subconico planisculo. (Tab. CLXXIV. Fig. 2.)

Hab. On rocks: near Hobarton, Lyall.

Scarcely 2 lines in height, the very short stem growing from a creeping stolon. Branches few, subfasciculato-curved, slender. Leaves very small, pellucid, with a very faint nerve. Capsule reddish-brown, lined at the mouth with a faint annular membrane adherent to the apex of the columella, which closes the orifice. Spores yellow, rather large. Seta pale. Inflorescence synoico and monocoic.—A smaller species than Bartramidula Wilsoni, Bryol. Europ., with leaves of both stem and perichaetium one-third as small, without serratures. Capsule globose.—Plate CLXXIV. Fig. 2; 1 and 2, plants in fruit; 3, portion of stem and leaves:—all magnified.

§ 2. Philonotis.—Capsula peristomio instructa, striata, pachyderma. Canalis sub apice florifero fasciculato-ramusus. \[Florescentia monoica et dioica; fl. masc. discoideus.\]

2. Bartramia remotifolia (Hook. fil. et Wils.); dioica, caule humili gracili fasciculatam ramoso, rami gracilibus brevibus subrecurvis, foliis glaucescentibus distantiis patentibus siccieta.laxe crispatis lanceolato-acuminatis serrulatis margine planis nervo pellucido angusto excurrente, perichaetialibus longioribus erectis, seta elongata crassiuscula, capsule suberecta.—Philonotis appressa, Mitten, in Journ. Linn. Soc. sed. (Tab. CLXXIV. Fig. 3.)

Hab. Gullies Road, Brown’s River, Oldfield. (Specimen very scanty and immature.) On rocks: Elliott Rivulet. Rivulet near Cumming’s Head, Western Mountains, Archer.

Stem ½ inch, very slender, not thicker than the fruit-stalk. Foliage pale, glaucescent, with small, dense, opaque areoles. Seta nearly 1 inch long, red.—Allied to B. gracilis, Arnott; habit more slender; leaves crisped when dry.—Plate CLXXIV. Fig. 3; 1, portion of stem and leaves; 2, leaf:—both magnified.

This appears to me to be the fertile state of B. appressa, Fl. N. Zeal. ii. 89.—Mitten, in lit.

3. Bartramia tenuis (Taylor, in Phytol. 1844, p. 1095); dioica, caule gracili apice fasciculatam ramoso, rami gracilibus flexuosis, foliis laxis patentibus secundis anguste lanceolatis serrulatis margine planis nervo longe excurrente dorso spinulosos acuminatos, perichaetialibus setaceo-acuminatos erectis, seta longiuscula gracili, capsule inclinata, peristomii interni processibus elongatis apice connexis, flore masculo capituliformi, foliis perigonialibus apice patenti-incurvis longe acuminatos serrulatis. (Tab. CLXXIV. Fig. 4.)

Hab. Deep Gully, Mount Wellington, near springs, Oldfield.
Distrib. Norfolk Island, New Zealand (vide Taylor).

Closely allied to B. mollis (Dz. and Molk. Ann. Sc. Nat. 1844, ii. 300).—Leaves less crowded, more patent, of laxer texture; areoëole larger, rectangular, flexuose at the apex; margin not reflexed; serratures larger and more distant, less evidently in a double series.—The specimens are too few to admit of more than one capsule being examined, but if the character of the inner peristome prove constant, it will be a good mark of the species.—Plate CLXXIV. Fig. 4; 1, portion of stem and leaves; 2, leaf; 3, capsule:—all magnified.

This I take to be the B. uacina, Schwægr., of Fl. N. Zeal. ii. 89.—Mitten, in text.


Distrib. New Zealand, Australia.


5. Bartramia pendula (Hook. Muse. Exot. t. 21); dioica, caule fasciculatum ramoso tomentoso, foliis patentibus ovato-lanceolatis longe acuminatis serrulatis striatis excurrentinerviis, seta elongata, capsula pendula oblonga sulcata.—Schwægr. Suppl. t. 239.


Distrib. New Zealand, Hermite Island, Campbell’s Island.

This I take to be the true B. Sieberi.—Mitten, in text.

6. Bartramia crassa (Hook. fil. et Wils.); dioica, caule tomentoso robusto longiusculo parce vagueque ramoso, foliis confertis patentibus plerumque secundis e basi ovata amplexicaule lanceolato-acuminatis plicatis serrulatis nervo angusto subexcurrente, seta longa, capsula inclinata oblonga.—B. gigantea, Schwægr. Suppl. t. 161. (Conf. B. Sieberi, Hornsch.; C. Mueller, Syn. Muse. i. 491.) (Tab. CLXXIV. Fig. 5.)

Hab. Near springs: top of Western Mountains. Mount Wellington. Creek above the Wellington Falls. (Gunn) (Oldfield, 101, 104, 106, 111.)

Stem 1 inch, rigid. Leaves yellowish, glossy, not crisped when dry. Seta 1½ inch. Capsule large.—Allied to B. pendula; leaves more sheathing at the base, less acuminatae; serratures more evident; areoëole narrower. The true B. gigantea (Schwægr. Suppl. t. 63) is a larger Moss, with more widely spreading leaves.—Plate CLXXIV. Fig. 5; 1 and 2, leaves; 3, capsule:—all magnified.

7. Bartramia Sieberi (Hornsch. in Muscis Sieberianis, n. 131); “dioica, caule procumbente sub-erecto ramulis brevibus fasciculatis ramoso innovante iterumque ramoso inferne dense radiculoso, foliis haud nitidis e basi brevi erectiuicula ad insertionem contracta patentibus lanceolatis estriatis nervo angusto in acuminem setaceo-pungentem excurrente marginibus serrulatis inferne recurvus cellulis omnibus elongatis angustis papillosis, perichaetialis formibus, theca in pedunculo rubro unciali apice flexura angusto pendula ovalis plicata, operculo depresso conico, peristomio parvo, normale?, flore masculo foliis quadruplo latioribus late ovatis patulis nervo superni evanido.”—Mitten, in Journ. Linn. Soc. ined. (Tab. CLXXIV. Fig. 6.)
HAB. Mount Wellington, J. D. H., Oldfield.
DISTRIB. New Zealand, Sieber.

Stems in all the Tasmanian specimens scarcely exceeding an inch in height; colour of the foliage yellowish-green, without gloss; leaves narrow; cells in the upper portion elongated, everywhere distinctly papillose; alary cells few, indistinct. In all the allied species the cells of the upper portion of the leaf are shortened. Mitten, l.c.

—Plate CLXXIV. Fig. 6; 1, leaf; 2, capsule:—both magnified.

8. Bartramia divaricata (Mitten, in Journ. Linn. Soc. ined.); “dioica, caule elongato inferne tormentoso subsimplici, folii e basi brevi caulem amplectente, cellulis hyalinis pluribus ad angulos marginum congestis, divaricatis lanceolatis plicatis papillosis margine serrulatis nervo tenui excurrente mucronatis, sicciatae subflaccidae, perichaetialibus ovatis integerrimis nervo angustissimo, theca in pedunculo elongato horizontali oblongo-ovali, collo pyriformi attenuato, operculo conico, peristomio normali.”

HAB. Cheshunt, Archer.
DISTRIB. New Zealand.

Resembles the larger states of B. pendula, but differs in its divaricated leaves, which have, when dry, a subflaccid appearance, a differently formed base, and the stems almost simple. Mitten, l.c.

9. Bartramia comosa (Mitten, in Journ. Linn. Soc. ined.); “dioica, caule erecto inferne fusco tormentoso superne ramis pluribus comosis ramoso, folii e basi breviter erecta superne dilatata utrinque ad marginem sericeos pluribus cellularum hyalinorum majorum limbata inde patentibus divergentibusque sensim angustatis lanceolatis plicatis minute papillosis margine serrulatis nervo excurrente setiformi sicci- tate tenui mutatis, perichaetialibus minoribus ovato-lanceolatis, theca in pedunculo elongato sesquincualis ovali inclinato pliecta operculo conico peristomio normali.” (Tab. CLXXIV. Fig. 7.)

HAB. Rocks: East Creek and Cumming's Head, Western Mountains, Archer. Wellington Falls, Mount Wellington, Mossman.
DISTRIB. New Zealand.

This fine species differs from all the states of B. pendula in the short, erect base of its leaves, which is widest at the point from which the superior portion is deflexed, and composed of cells which are everywhere far shorter. Mitten, l.c.—Plate CLXXIV. Fig. 7; 1, leaf; 2, apex of ditto; 3, capsule:—all magnified.


DISTRIB. Europe, North and South America, New Zealand.


HAB. On rocks. (Gunn, 29.) Dry Hill, Back River. (Oldfield, 228.) East side of Ovens Creek, Archer.
Distrib. New Zealand.

Resembles *B. ithyphylla*, Brid., but differs in the inflorescence.

12. **Bartramia fragilis** (Mitten, in Journ. Linn. Soc. inéd.); "dioica?, dense caespitosa, caule erecto subsimplici, foliiis densis fragilimis erecto-patentibus e basi appressa laxe vaginanate oblonga superne paululum dilatata iique tenuiter hyalino-marginata laxe areolata subito subulata longe lanceolatæ cellulæ obscuris densis nervo percurrente margine dorseque serrulatis, perichaetialibus lanceolatis inconspicuis, theca in pedunculo breviusculo rubro globosa plicata erecta, operculo brevi conico, peristomio externo normale interno processibus brevissimis rudimentariis." (Tab. CLXXIV. Fig. 8.)

Hab. On rocks: rivulet behind Cumming’s Head, Western Mountains, Archer.
Distrib. New Zealand.

More densely and compactly caespitose than *B. papillata*, the subulate portion of the leaf wider, less papillose, and not so obscure. The inflorescence appears to be dioicus. The leaves are so densely congested that the vaginant base is not erect, but only appressed to those above it, and the slightest touch suffices to detach them from the stem. *Mitten, l. c.—Plate CLXXIV. Fig. 8; 1, leaf; 2, capsule; 3, teeth:—all magnified.*

**Gen. XXXVIII. CONOSTOMUM, Swartz.**


Hab. Rivulet behind Cumming’s Head, Western Mountains, Archer.
Distrib. New Zealand, Fuegia.


Hab. Sides of banks: Hill, Back River. On rocks. (Oldfield, 124.) The Falls, and rivulet behind Cumming’s Head, Western Mountains, Archer.
Distrib. New Zealand.

**Tribe XIV. FUNARIACEÆ.**

**Gen. XXXIX. PHYSCOMITRIUM, Brid.**


Hab. The Hummocks, Archer.

Distrib. New Zealand, Australia.


Hab. On stones: rivulet near Cumming’s Head, Western Mountains, Archer.

Distrib. Kerguelen’s Land, Australia.


Hab. Leith’s Creek, Archer.

Less than the usual states of *P. pyriforme*, but very similar to it in appearance.—Mitten, l.c.

### XL.ENTOSTHODON, Schwagr.

*Peristomium simplex; dentes 16, infra capsule orificium adnati, simplices vel gemelli, lanceolati, intus trabeculati, siccitate erecti. Capsula erecta, pyriformis, symmectrica. Operculum plano-convexum. Calyptra vesiculare-cucullata.—Florescentia, habitus, etc., Funaria.*

1. *Entosthodon gracilis* (Hook. fil. et Wils. Fl. N. Zeal. p. 91. t. 86. f. 7); caule brevissimo, foliis erectis conniventibus subellipticis acutis concavis subcarinatis integerrimis evanidinervis, seta gracili elongata sinistrorsum tortili, capsula erecta ex apophysi angustiore plicata pyriformi exannulata, operculo planiusculo.

Hab. Gullies Road, Brown’s River, growing with *Hypnum limatum*. Hillside, among grass: New Norfolk. (Specimens few and immature.) (Oldfield, 337.)

Distrib. New Zealand.

2. *Entosthodon productus* (Mitten, in Journ. Linn. Soc. ined.); “monoicus, parvulus, humilis, foliis inferne ovatis in acumen lanceolatum angustatis integerrimis evehinervis, seta gracili elongata sinistrorsum tortili, theca in pedunculo bilineari parva ovali, operculo depresso-convexo umbonato, peristomio nullo?” (Tab. CLXXV. Fig. 1.)

Hab. On the earth: behind Cumming’s Head, Western Mountains, Archer.

A small species, allied in the form of its leaves to *E. Mittenii*, Dz. and Molk. The fruit too young to exhibit the peristome, if indeed that organ is present. *Mitten, l.c.—Plate CLXXV. Fig. 1; 1, leaf; 2, capsule:—both magnified.*

Gen. XLI. FUNARIA, Schreb.


_Hab._ Grass-tree Hill, Brown’s River, Back River, New Norfolk. (J. D. H.) (Gunn.) (Oldfield, 127, 133, 137–8.) (Lyall.) On stones of fossiliferous limestone, and walls, Cheshunt, Archer.

_Distr._ All parts of the world.

2. *Funaria crispula* (Hook. fil. et Wils.); folii patentibus siccitate laxe crispati obovatis apiculatis concaviusculis subserulatis evanidinerviis, seta breviuscula sinistrorsum torta, capsula globoso-pyriiformi curvata brevicolla, operculo planisculco.—F. radians, Mitten, in Journ. Linn. Soc. ind. (Tab. CLXXV. Fig. 2.)

_Hab._ On rocks: on the Kermandie Rivulet, South Huon. (Oldfield, 57.) (Specimens few and imperfect.) Port Sorrell, bank near Cheshunt, and on rocks, north side of Cataract, Launceston, Archer.

Allied to *F. glabra*, Taylor, but differs in the form of the capsule and in the crimped foliage.—Peristome double, inner yellow. _Annulus_ none? _Sperae_ rather large, granular, reddish.— _Plate_ CLXXV. Fig. 2; 1, plant; 2, leaf; 3, apex of ditto; 4, peristome: _all magnified._

**Tribe XV. Splachnese.**

_Gen XLII. SPLACHNUM, Linn._


§ 1. *Eremodon* (Bridel).— _Dentes_ 8, equeidistantes, siccitate erecto-incurvi.

1. *Splachnum (Dissodon) calophyllum* (C. Mueller, Bot. Zeit. 1851, p. 546); “cespitea laxi, inferne tomento purpuroe intertexti, lati; caulis tenerrimaris, ascendens, subelatus, late foliosus, amoena palide virens, flaccidus; folia caulina laxe imbricata, tenerrima, flaccida, e basi angusta late spatulato-ovalia, cuspidata, ubique e cellulis maximis amoena chlorophyllosis tenerrimis mollissimis rhombes basi elongate quadratis chlorophyllosis reticulata, margine et medio usque ad apicem summum argute serrata, nervo subtenui virente excurrente percursa; perichaetialia longius cuspidata, omnia cuspidi flaccidissimo molli; theca in pedunculo longiusculo crassiusculo rubente geniculato ascendente, sensim in collum thecae longiusculum angustum incrassato erecta, anguste cylindrica, sed medio amplior, microstoma, olivacea, dein fuscascens, sepsius madore ad partem dimidiam superiorum obliqua, operculo cupulato obtuso obliquo brevisimo; peristomii dentes erecti, madore conniventes, breves, infra orificium oriundi, flavescentes, opaci.”—C. Mueller, l. c. (Mitten, in lit.) _Eremodon robustus_, Hook. fil. et Wils. Fl. N. Zeal. p. 93. t. 87. f. 2.

_Hab._ Fern-tree Valley, Mount Wellington, Mossman.

_Distr._ New Zealand.

2. *Splachnum Octoblepharum* (Hook. Musec. Exot. t. 167); folii obovatis longe acuminatis sub-


Hab. Moist places, not uncommon on cow-dung. (Gunn, 7, 1624.) (J. D. H.) Near South Port. Coal River Tier, near Richmond, and Brown’s River Gully. (Oldfield, 67, 331, 335.) Sand Hill. On logs: Smith’s Creek. (Archer.) Var. y. Johnny’s Creek. (Oldfield, 122.) Found by Mr. Valentine growing on the bones and decayed clothing of a bush-ranger, at the base of the Western Mountains, Feb. 1845.

Distrib. New Zealand, Australia, Antarctic Islands.


Hab. On dead Fern-trees: Acheron River. (Gunn, 1625.)

A very remarkable species.—Capsule with a large oblate apophysis, pale (as if pulverulent), of firm texture, scarcely altered when dry. Seta red. Leaves tinged with red, pale, not crisped when dry.—Whole plant about | inch in length. Dioicous?

Tribe XVI. BUXBAUMLE.

Gen. XLIII. BUXBAUMIA, Haller.


1. Buxbaumia Tasmanica (Mitten, in Journ. Linn. Soc. ined.); "B. indusiata simillima, foliis parvis ciliatis, pedunculo nitido subseabra, theca subrecta ovata superficie superiore planiiscula immarginata, inferiore convexa, operculo conico."

Hab. Cheshunt, Archer.

Closely resembling B. indusiata, but differing in its nearly smooth, shining seta.—Peristome apparently composed of smooth bladdery cells, scarcely free from the internal membrane.—All the capsules yet seen, although fully formed, are too immature to show the perfectly developed peristome, or if the external capsular wall rolls off as in B. indusiata.—Mitten, l. c.

Tribe XVII. POLYTRICHACEE.

Gen. XLIV. POLYTRICHUM, Dill., Linn.

Peristomium simplex; dentes 32–64, raro 16, brevess, ligulati, inflexi, duriusculi, e filis inarticulatis duplici lamina dispositis contexti, haud hygroscopicci, epiphragma inter apices dentium sustentun. Calyptra parva, cuculliformis, plerumque indumento villoso vestita, interdum nuda.


Var. polysetum; setis aggregatis.

Hab. South Port Narrows, and Creek Town, etc. (Gunn, 25.) (Oldfield, 68.)

Distr. Europe, North America, East India.


2. Polytrichum australie (Hook. fil. et Wils. Fl. N. Zeal. p. 95. t. 87. f. 6); dioicum, caule brevi, foliis laxe patentibus ovato-subulatis rigidiulis canaliculatis integerrimis dense lamellatis sicciitate erectis incurvis, seta breviuscula, capsula inclinata ovata ventricosa microstoma, operculo rostrato, calyptra brevi apice scabra.

Hab. Hobarton, J. D. H. On stones and on the earth: rivulet behind Cumming’s Head, Western Mountains, Archer.

Distr. New Zealand, Hermite Island, Cape Horn.

3. Polytrichum (Psilopilum) crispulum (Hook. fil. et Wils.); dioicum, foliis laxe patentibus subflaccidis sicciitate crispulis incurvis lanceolato-oblongis acutiusculis denticulatis anguste lamellatis, seta elongata, capsula inclinata ovata microstoma, operculo rostrato, peristomii dentibus 32 minutis angustis.—Fl. N. Zeal. p. 95. t. 87. f. 3.

Hab. Western Mountains, Archer.

Distr. New Zealand.


Distr. New Zealand, Antarctic Islands, South America.


5. Polytrichum (Pogonatum) alpinum (Linn.); foliis e basi vaginante longe et anguste lineali-lanceolatis concavis margine argute serratis apice dorso spinulositam lamellis margine sensim incrassatis, capsula erecta vel obliqua ovata et ovali-oblonga laevi colo perbrevi tumidulo instructa, operculo longius rostello, calyptra villo fuscascense capsulam ex parte vel omnino obtengente, peristomii dentibus breviusculis, subirregularibus.—Bryol. Europ. p. 9. (Mitten, in lit.)

Hab. The Falls, and rivulet behind Cumming’s Head, Western Mountains, Archer.

Distr. Australia, Europe, North America.


Var. β; caule gracili breviore, folii brevioribus erecto-patentibus confertis siccitate erectis.

Hab. Bogs on hillside, Brown’s River. (Gunn, 1591.) (Oldfield, 327.) Cheshunt, Archer. Var. β. Bogs near the Huon. (Oldfield, 297.)

Distrib. Common in all parts of the world.

7. Polytrichum juniperinum (Hedw. Sp. Musc. t. 18); folii patentibus subrecursis e basi vaginantibus lineari-lanceolatis margine membranaceo indefinitis integerrimis brevi-aristatis, capsula quadrangulari siccitate horizontali, operculo rostellato.—Bryol. Europ. t. 423.

Hab. On the ground: summit of Mount Wellington. Falls, New Norfolk. (Gunn, 5.) (Lyall, 103.) (J. D. H.) Elliott Rivulet, Archer; gathered also by Mossman.

Distrib. Europe, Asia, North America.

Gen. LX. DAWSONIA, Brown.


Hab. Emu Bay. (Gunn, 1590.) Cheshunt, Archer.

Distrib. New Zealand.

Section 2. Pleurocarpi.

Tribe XVIII. LEUCODONIAE.

Gen. XLVI. LEUCODON, Bridel.


Hab. On dry rocks, at an altitude of 1000 feet, near the top of Mount Wellington, on the south side. (J. D. H.) (Oldfield, 116.) Cheshunt, Archer.

Distrib. Campbell’s Island, Hermite Island, Straits of Magellan.

Leaves very glossy, bright green, nerveless or two-nerved at the base, variable, sometimes single-nerved half-
way. *Seta* near 1 inch long. *Peristome* white. *Oerculum* above half as long as the capsule. *Calyptro* large, longer than the capsule, cucullate, pale yellowish-brown. *Male surculi* extremely slender, very different in aspect from the fertile stems with which they are intermixed, bearing piliferous leaves variable in shape, often lanceolate and very small. *Male flower* with a few roundish antheridia, and no paraphyses.


*Distrib.* New Zealand.


*Hab.* Tasmania, *Gunn*.

*Distrib.* New Zealand, South America.

Tribe XIX. LESKEACE.E.

Gen. XLVIII. LESKEA, Hedwig.


1. **Leskea imbricata** (*Hook. fil. et Wils.*); monoica, caule repente, *surculis* erectis vage parceque ramosis, *ramulis* curvulis superne incrassatis, foliis patentibus siccatae appresso-imbricatis confertis rotundovatis conceviusculis margine subplanis *nervo* valido sub apice evanido subrotundis minutis. (Tab. CLXXV. Fig. 3.)

*Hab.* Moist rocks? on Mount Wellington. (Oldfield.) (Specimens few, and without fruit.)

*Stem* ½ inch. *Foliage* brownish or lurid.—In habit approaching to *Pterogonium gracile*.

This is perhaps a young state of *Cryphaea. Mitten, in lit.*—Plate CLXXV. Fig. 3; 1, portion of branch; 2 and 3, leaves: — all magnified.
Tribe XX.  PILOTRICHEAE.

Gen. XLIX.  METEORIUM, Bridel.


*Hab.* On trees, Gunn, Lawrence.  (Barren and scanty specimens.) Cheshunt, Archer.  *Distrib.* New Zealand, Norfolk Island, East Indies.

3. *Meteorium cerinum* (Hook. fil. et Wils.); *caule* pendulo elongato, *ramis* patentibus simplicibus, *foliis* laxe imbricatis erecto-patentibus siccatite erecte subapressis cordato-ovatis semi-amplexicanibus apiculatis integerrimis evanidinerviis, auriculis subintegris.—Trachypus cerinus, Mitten, in Journ. Linn. Soc. ined.  (Tab. CLXXV. Fig. 4.)


More robust than *M. cuspidiferum.*—*Leaves* yellowish, their auricles larger and reflexed when dry, texture more membranous, border pale; *areola* small, rhomboid, opaque; *alar cellules* oblong, narrow.—"Plate CLXXV. Fig. 4.; 1, portion of branch and leaves; 2 and 3, leaves:—magnified.

4. *Meteorium filipendulum* (Hook. fil. et Wils.); *caule* pendulo gracili elongato, *ramis* patentibus flexuosis simplicibus filiformibus attenuatis, *foliis* erecto-patentibus apice incurvus siccatite appressis ovatis acuminatis integerrimis estriatis margine planis basi subauriculis seminerviis.  (Tab. CLXXV. Fig. 5.)

*Hab.* On trees.  (Barren specimens only.) (Gunn, 26, 1606.) (Lawrence.)

Allied to *M. flexicaule*, Taylor, in Pl. N. Zeal. p. 101, of which it was once considered to be a slender variety.  —*Leaves* less concave, with entire auricles.—"Plate CLXXIV. Fig. 5.; 1, portion of stem and leaves; 2, leaf:—all magnified.


*Hab.* Cheshunt, on trees, Archer.  *Distrib.* New Zealand, Australia, South America.
FLORA OF TASMANIA.

[Musci, by W. Wilson.]

Gen. L. CRYPHÆA, Mohr, Bridel.


Hab. On dead timber: Coal River Tier, near Richmond. (Oldfield, 58.) (Gunn, 26.)

Distrib. New Zealand.

2. Cryphæa Tasmanica (Mitten, in Journ. Linn. Soc. ined.) "monoica, ramis elongatis inferne sepe denudatis superne ramulis brevibus ut plurimum fertilibus dense approximatis, foliis patentibus orbiculari-ovatis acutis nervo subsummo apice evanido margine e medio ad apicem minutissime sed dense serrulato nullibi recurvo cellulis minutis ovoideis ad basin angustis elongatis, perichetialibus et basi ovali subulatis thecam ovatum longe superantibus, operculo convexo acuto peristomio interno processibus angustis dentium longitudinis in membrana brevissima, annulo duplici." (Tab. CLXXV. Pieg. 9.)

Hab. On rocks: Jackey’s Plain Creek, Archer.

More robust than C. dilatata or C. Muelleri, the margins of its leaves not recurved below, and the perichetal leaves more subulate, but of the same habit and colour. Mitten, l.c.—PLATE CLXXV. Fig. 6; 1, leaf; 2, perichætium; 3, teeth:—all magnified.

Tribe XXI. Neckeraèæ.

Gen. LI. NECKERA, Br. et Schimp.


Hab. On trees. (Gunn, 1601.) Johnny’s Creek. (Oldfield, 66.) Rivulets and damp copses, on trunks and branches of trees, Archer. Bek River, below Launceston, Mossman.

Distrib. New Zealand, Europe, North and South America, South Africa, East Indies.

Gen. LII. OMALIA, Bridel.


Hab. Tasmania. (Barren specimens only.) (Gunn.)

Distrib. New Zealand.

**Gen. LIII. TRACHYLOMA, Bridel.**


1. **Trachyloma planifolium** (Neckera planifolia, Hook. Musc. Exot. t. 23); dioicum, surculo erecto pinnatim ramoso, ramis complanatis, foliis distichis imbricatis erecto-patentibus ovatis apice serratis subenervis, capsula erecta subcylindrica, operculo conico subulato.—*Bridel, Bryol. Europ. ii. 278; Mitten, in Journ. Linn. Soc. ined.*

Hab. On dead trees, in the forests of the Esk River, Mossman.

Distrib. New Zealand.

**Tribe XXII. ISOTHECIACEÆ.**

**Gen. LIV. ISOTHECIUM, Bridel.**


§ 1. Fronde diffusa, subrecta.

1. **Isothecium Arbuscula** (Hookeria, Smith, Linn. Trans. ix. p. 280. t. 23); dioicum, surculo bipinnatim ramoso, foliis imbricatis patentibus ovatis concavis integrerrmis basi obsolete binervis, seta breviuscula flexuosa, capsula ovata subrecta vel cernua, operculo conico.—Hypnum Arbuscula, Hook. Musc. Exot. 112; Schweagr. Suppl. t. 300.


Hab. On trees, in dense forests. (Gunn, 42, 43, 1595 a.) St. Patrick’s River. (Gunn, 1595 b, 1596.) Johnny’s Creek, Back River Gully. (Oldfield, 87, 88.)

Distrib. New Zealand.


Hab. On stones, in rivulets: Jackey’s Plain Creek, near Cheshunt, Archer.

Distrib. Lord Auckland’s Islands, New Zealand.
3. Isothecium pumilum (Hook. fil. et Wils.); dioicium, caule dendroido pinnatim ramoso inferne squamoso, ramis complanatis, foliis quadrifariis ovatis vel oblongo-ovatis serrulatis nervo tenui ultra medio, perichaetialibus subsquarrosis ovato-ligulatis, seta breviuscula, levii, capsula ovata cervua annulata, operculo rostrato.—Neckera (Thammium) rivalis, Mitten, in Journ. Linn. Soc. ind. (Tab. CLXXV. Fig. 7.)

Hab. On rocks. (Gunn.) On stones and rocks: copse, West End Rivulet and Stackhouse Falls, Cheshunt, Archer.

Thrice as small as I. pandum, Hook. fil. et Wils. Fl. N. Zeal. p. 105. t. 89. f. 1. — Leaves more evidently serrate, with a short, very faint nerve. Stem 1 inch. Seta scarcely ½ inch. Operculum as long as the capsule. Peristome double; outer teeth pale yellow.—Plate CLXXV. Fig. 7; 1, part of stem and leaves; 2, leaf; 3, perichaetium and capsule, etc. — all magnified.


Hab. In woods, rare. Back River Gully, New Norfolk. (Gunn.) (J. D. H.) (Oldfield, 65.) On the ground, and on stones in the bed of rivulets: Cheshunt, Archer.

Distrib. New Zealand, Australia.

5. Isothecium Archeri (Mitten); "dioicium, ramis erectis inferne simplicibus sparse foliosis superne pulchre pinnatis plumiformibus, ramulis patentibus distichis in frondem brevem subtriangularem dispositis, foliis bifaricis compressis ovato-lanceolatis acutis nervo percurrante, dorso apice denticulato, marginibus simpliciter serratis, cellulis longitudine circiter 2/10 latitudine 1/10 unc. metiencibus dorso minuto papillosopo-punctatis, seriebus foliorum in latere dorsali minoribus sed conformibus, perichaetialibus e basi late ovata tenui acuminatis erectis, theca in pedunculo vix unciali horizontalis oblonga sulcata, operculo longi-curvirostrato, peristomio normale."—Trachyloma Archeri, Mitten, in Journ. Linn. Soc. ind. (Tab. CLXXV. Fig. 8.)

Hab. Ovens Creek, Cheshunt, Archer.

Two or three inches in height, pale yellowish-green, shining. Nearly allied to H. arcuatum, Hedw., but its branches are more regularly disposed, forming a subtriangular frond, and readily distinguished by its minutely dotted leaves and short capsule. Mitten, l.c.—Plate CLXXV. Fig. 8; 1, leaf; 2, ditto of perichaetium; 3, capsule: — all magnified.


Hab. Tasmania. (Barren specimens only.) (Gunn.)

Distrib. New Zealand, Lord Auckland's Islands.

7. Isothecium Sieberi (Hypnum, C. Mueller, Musc. Syn. ii. 504); dioicium, laxae cespitosum, caule robusto tomentoso apice lateraler ( nec verticillatim) comoso, ramis crassis curvatis cirrhatis apice
subeuspidsatis, foliis erecto-patentibus confrertis anguste lanceolatis sensim acuminatis superne grosse serratis nervo valido concolori excurrente (acumen hand omnino occupante) carinatis margine subincrassatis, setis aggregatis mediocribus tortis, capsula horizontali sulcata, operculo longirostri.—Trachyloma comosum, Mitten, in Journ. Linn. Soc. ined.

HAB. Woods on Mount Wellington. (J. D. H.) (Oldfield, 64, 103.) River Acheron, Gunn, 1593. Cheshunt, Archer.

DISTRIBUT. New Zealand and Lord Auckland's Islands.

Leaves longer than in I. comosum, more crowded, with large serratures and areole, more distinctly striated when dry; nerve less solid, not cylindrical, but keeled at the back. Branches longer, deflexed. Habit more robust. Colour greenish, not fulvous.

8. Isothecium Colensoi (Hook. fil. et Wils.); dioicium, laxe cespitosum, caule breviusculo tonen
toso apice lateraliter pinnatim comoso, ramis breviusculis decorvatus, foliis laxiusculce patentiibus subsecundis rigidiusculis e basi cordato-lanceolata setaceo-acuminatis apice argute serratis nervo crassiusculo inferne dorso punctulata apice argute spinulooso excurrente, seta prelonga, capsula subpindula elongate cylindrica curvula octosulcata, operculo longirostri.—I. comosum, Hook. fil. et Wils. Fl. N. Zeal. 106, ex parte. (Tab. CLXXVI. Fig. 1.)

HAB. Tasmania. (Barren specimens only.) (Gunn.)

DISTRIBUT. New Zealand.

Overlooked as a variety of I. comosum in the 'Flora of New Zealand,' but on examination it appears to be quite distinct. It differs from both of the preceding species in the elongated capsule and seta, and from Hypnum comatum, C. Mueller, Syn. Muse. ii. 692, in the more strongly and sharply serrated apex of the leaf, which has the nerve constantly punctulata at the back, more solid at the excurrent apex, where it is cylindrical and spinuloso.—Areole of the leaf wider; alar cells oval-oblong, numerous, not coloured. Colour of the foliage deeper green. Stem shorter than in I. Sieberi. Branches few, scarcely ½ inch long, not attenuated, more rigid, not whorled, but forming a lateral frond. Capsule (with the operculo) about ¼ inch long. Teeth of the peristome pale yellow.

"This appears to me to be the H. comatum, C. Mueller." Mitten, in lit.—PLATE CLXXVI. Fig. 1; 1, leaf; 2, capsule.—both magnified.

Tribe XXIII. HYPNACEE.

Gen. LV. HYPNUM, Linn.

Peristomium duplex; externum, dentes 16, lanceolati, reflexiles, intus trabeculati, linea media notati; internum, membrana carinato-sulcata in processus 16 carinatos ciliis interpositis mediotesus fissa. Calyptre cuculliformis, glabra. Capsula inequalis, arcuata, cernua, plerunque annulata, longe pedicellata.—Habitus varius. Caulis pinnatis repens, vage vel pinnatim ramosus.

§ 1. TAMARISCINA.—Caule pinnatim ramoso, stupa viridi et floris ramosis compostis villosa.

1. Hypnum laeviusculum (Mitten); "dioicium, H. tamariscino simillimum, caule foliolis brevibus dense vestito, foliis ejusdem latitudinis subequislakti triangularibus nervo crasso concolori in acumen angustum elongatum flexuosum excurrente, marginibus inferne recurvis integerrimis cellularis minutis sub-obscuris laeviusculis, rameis basi ovatis acuminatis obtusiusculis concavis ramulinisque ovato-oblongis compressis obtusis obscurs subintegerrimis minutissime papillosis sublevibus, perichætialibus erectis palallis ovato-lanceolatis in acumen elongatum flexuosum suberrulatum attenuatis, margine apicem versus partis latioris ciato, theca in pedunculo elongato rubro cylindrica arcuata horizontalis peristomio normale."—Leskea laeviuscula, Mitten, in Journ. Linn. Soc. ined.
Hab. Cheshunt, without fruit, *Archer*.

Distrib. New Zealand.

Size, habit, and colour of *H. tamariscinum*, but with leaves more nearly resembling those of *H. cymbisfolium*, Dz. et Molk., having the nerve excurrent into a long, flexuose, slender point, and scarcely anywhere serrulate or papillose. *Mitten, l. c.*

2. *Hypnum furfurans* (Hook. fil. et Wils. Fl. N. Zeal. 107. t. 88. f. 7); dioicium, caule elongato rigidulo procumbente furfuroso crebre bipinnato, ramulis gracilibus attenuatis, foliis cauliniis squarrosis cordato-acuminatis carinato-concavis pilatis evanidinervii rameis e basi patula erectusiisicus siccatite incurvis ovatis acuminatis apice denticulatis dorso papillatis evanidinervii perichystalibus anguste acuminatis denticulatis, seta lavi, capsula oblonga cernua, operculo rostrato.—*Leskea hastata* (*Hypnum*), *C. Mueller*; *Mitten, in Journ. Linn. Soc. ind.* (Tab. CLXXVI. Fig. 2.)

Hab. On dead timber and stones: Back River Gully. (*Gunn*) (*Oldfield, 80, 323.*) On stones, by rivulets: Owens Creek, Cheshunt, and Cumming's Head, Western Mountains, *Archer*.

Distrib. New Zealand.

Plate CLXXVI. Fig. 2; 1 and 2, leaves; 3, capsule:—*all magnified*.

3. *Hypnum unguiculatum* (Hook. fil. et Wils.); dioicium, caule tenui procumbente plus minus remote bi-(subtri-)pinnato parvis parcis vestito, ramis ramulisque patentibus longiusculis attenuatis gracilibis, foliis cauliniis patentibus cordato-acuminatis distantiis subplicatis subintegris crenulatis erecto-patentibus sicciitate arcuato-incurvis ovatis acutiis valde concavis subintegris dorso laevibus, nervo tenui pellucidio evanido areolis minute rotundis subopacis, perichystalibus longe piliformi acuminatis denticulatis intimis laciniatis, seta lavi, capsula oblonga arcuata, operculo rostrato. (Tab. CLXXVI. Fig. 3.)

Hab. Yorktown. (*Lawrence.*) (*Gunn, 1598, 37.*) Rocks: North-west Bay. (*Oldfield, 313 b.*)

Distrib. New Zealand. (*Sinclair.*)

Allied to the last, but more slender in habit.—*Stem* about 2 inches long, distantly branched. *Stem-leaves* small, not concealing the stem. *Branch-leaves* distant, much bent inwards when dry, but not appressed. *Seta* 1 inch. *Vaginula* hairy. *Teeth* yellow, longer than in *H. furfurans*. *Inner peristome* reddish, with cilia.—A larger species than *H. sparsum*, Hook. fil. et Wils. Fl. N. Zeal. 109. t. 89. f. 5; leaves more acute, very concave, and more incurved when dry.—Plate CLXXVI. Fig. 3; 1, portion of branch; 2, leaf; 3, ditto of perichystem; 4, capsule, with calyptra; 5, capsule and operculum:—*all magnified*.


Hab. Tasmania, *Stuart*.

§ 2. ADUNGA.—*Foliis falcatis, nervosis*.

5. *Hypnum hispidum* (Hook. fil. et Wils. Fl. Antarct. 28. t. 61. f. 2); dioicium, caule arcuato
vage vel subpinnatum ramoso, foliis imbricatis secundis rigidis et basi ovata subplicate longe subulato-setaceis integerrimis nervo crasso excurrente, seta breviuscula levi, capsula ovata cernua, operculo curvirostro.—


HAB. Stones in running water: Back River Creek. (Barren specimens.) *Gunn,* 44.) *(Oldfield, 120, 121.) Bank by Stackhouse Falls, on fossiliferous limestone: Cheshunt, *Archer.*

DISTRIB. New Zealand, Norfolk Island, Australia, Lord Auckland’s Islands.


HAB. In wet places: Yorktown. (Barren specimens.) *(Gunn,* 1626.)

DISTRIB. Europe, North America, Hermite Island, Campbell’s Island.

§ 3. *Folis seminereis patentibus, undique imbricatis.*

a. PRELONGA.—Seta scabra. Operculo rostrato.


HAB. Circular Head. *(Gunn,* 1694.) Hobarton. *(J. D. H.)*

DISTRIB. New Zealand, Norfolk Island.

8. *Hypnum austriunum* (Hook. fil. et Wils. *Fl. N. Zeal.* 108. t. 89. f. 4); monoicum, caule repente vage ramoso, ramis suberectis incurvis subsimplicibus, foliis patentibus subsecundis cordato-ovatis acutis concavis serrulatis nervo ulteriori, perichaetialibus erectis attenuatis, seta scabra, capsula ovata cernua, operculo rostrato.

HAB. Wet places, by streams? Johnny’s Creek and Back River Gully. *(Oldfield,* 85, 294.)

DISTRIB. New Zealand.

In habit much like *H. ruscifolium,* Neck., but differing in the rough seta, more concave, less rigid leaves, and thinner nerve.

9. *Hypnum asperipes* (Mitten, in *Journ. Linn. Soc.* ined.); “monoicum, caule procumbente, ramis pinnatis, foliis patentibus latissimae ovatis acuminatis serrulatis nervo tenui medio evanido cellulis longitudine circiter \( \frac{1}{3} \) latitudine \( \frac{1}{3} \) unci. metienteibus, perichaetialibus latis in acumen breve attenuatis theca in pedunculo subunciali aspero oblongo-ovalis horizontalis operculo longirostro peristomio normali.

(TAB. CLXXVI. Fig. 4.)

HAB. Cheshunt, *Archer.*

More densely branched, and with more acuminated leaves than *H. hians,* Hedw., to which in size and general appearance it is nearly allied. *Mitten,* i.e.—PLATE CLXXVI. Fig. 4: 1, leaf; 2, perichaetium; 3, capsule: —all magnified.

b. CONFERTA.—Seta levi. Operculo rostrato.


VOL. II.
Var. β. laxifolium; caule elongato, ramis longioribus, foliis distantiis, seta longiore.

Var. γ. minus; caule erecto gracili parce ramoso, ramis erectis gracilibus vix compressis, foliis erecto-patentibus.

Var. δ; capsula inclinata recta fere symmetrica.

Hab. On decayed wood, etc., in damp, shady places. (Gunn.) Var. β. Back River Gully. (Oldfield, 83.) Var. γ. At the foot of trees: Coal River Tier, Richmond. (Oldfield.)

Distrib. New Zealand.

In general aspect much like H. serrulatum, Hedw., but distinguished by the pinnated disposition of the branches, and wider, concave, minutely-serrated leaves of closer texture. Var. β has the setae nearly 1\(^{\circ}\) inch long. Var. γ is a small form, closely resembling H. megapolitanum, Bland., but the leaves are roundish-ovate, not cordate, more shortly acuminate; areoles very narrow and elongated; alar cells few and inconspicuous.—Plate CLXXVI. Fig. 5; 1, part of branch and leaf; 2, leaf; 3, perichaetium and capsule; 4, capsule:—all magnified.

11. Hypnum aristatum (Hook. fil. et Wils.); monoicum, caule pinnatim ramoso, ramis gracilentibus attenuatis, foliis patentibus subcompressis siccate laxe flexuosis ellipticis piliformi-acuminatis con-cavis serrulatis (margine haud reflexis), perichaetialibus erectis acuminatis, seta lævi, capsula oblonga cernua arenata, operculo brevirostri. (Tab. CLXXVI. Fig. 6.)

Hab. Growing with H. collatum. (Gunn, 48 b.) Cheshunt, Archer.

Distrib. New Zealand.

A smaller species, with leaves almost piliferous, dark green, and not glossy.—Peristome, outer reddish-brown; inner yellow, with solitary cilia. Spores small, yellow. Annulus small, adhering to the mouth of the capsule.—Plate CLXXVI. Fig. 6; 1, part of branch and leaves; 2, leaf; 3, perichaetium; 4, capsule:—all magnified.

c. Rutabula.—Seta scabra. Operculo conico.


Var. 2; floribus synoicis turgidis.


Distrib. Europe, America, Antarctic Islands.


Hab. Woolmers, near Longford, Archer.

Distrib. Europe, Asia, North America.

Musci, by W. Wilson.]

HAB. Cheshunt, Archer.
Distrib. Hermite Island, South-west Australia.

§ 4. Folius squarrosum.
  a. STELLATA.—Capsula levi.

15. Hypnum decussatum (Hook. fil. et Wils. Fl. N. Zeal. p. 110. t. 90. f. 2); dioicium, caule procumbente pinnatim ramoso, ramis simplicibus, folii patulis squarroso-recursiv ovatis longiusculae acuminatis subintegris nervo subcontinuo.
  HAB. Bog near the Derwent, New Norfolk. (Oldfield, 91.)
  Distrib. New Zealand.

A larger Moss than H. glaucocarpon, Schwegr. Suppl. t. 228.—Leaves reddish or tawny, nerved almost to the apex, where they are more tapering. Fruit not yet observed.


16. Hypnum aciculare (Labill., Bridel, Musc. Recent. ii. 2. 158. t. 5. f. 2); dioicium, caule vage ramoso, ramis simplicibus elongatis crassis, folii squarroso-patulis ovatis longius acuminatis apice inciso-serratis enerviis, capsula subcylindrica arcuata sulcata, operculo lângirostri.—Schwegr. Suppl. t. 92. Stereodon (Achyrophyllum) acicularis, Mitten, in Journ. Linn. Soc. ined.
  HAB. On the earth, in woods, J. D. II., Lyall. Back River Creek. (Gunn, 38.) (Oldfield, 23.)
  Cheshunt, Archer.
  Distrib. Australia, New Zealand, Fuegia, Antarctic Islands, South America, Society Islands.

§ 5. Cochlearifolium.—Folius calde concavis, obtusis, imbricatis, subenerviis.

  HAB. Hobarton, J. D. H. On rocks: Elliott Rivulet, Meander River, Archer.
  Distrib. New Zealand, Australia, Lord Auckland’s Islands, Campbell’s Island.

18. Hypnum clandestinum (Hook. fil. et Wils. Fl. N. Zeal. 111. t. 90. f. 3); quasi monoicum, fl. masc. nidulante, caule repente, surculis erectis vage ramosis subuncurvis rigidiis, folii patulis imbricatis subrotundis obtusissimis inflato-concavis subenerviis, perichaetialibus subsquarrosis, seta breviuscula, capsula ovata curnua, operculo conico.
  HAB. Banks of Huon River, on moist trunks of trees. Back River Gully. (Gunn, 41.) (Oldfield, 73, 78.) Near the summit of Mount Wellington, J. D. H.
  Distrib. New Zealand.

19. Hypnum divulsum (Hook. fil. et Wils. Fl. N. Zeal. 111. t. 90. f. 4); dioicium, surculis erectis rigidiis vage ramosis, ramis subsimplicibus subuncurvis, folii patulis laxe imbricatis obovato-subrotundis concavis obtusiisculis minute serrulatis seminerviis areolis punciformibus, perichaetialibus squarrosis, capsula ovata curnua, operculo conico acuminato.
  HAB. Shady places: Gully, foot of Grass-tree Hill. Johnny’s Creek and Brown’s River. (Oldfield.)
  Back River. (Gunn, 1086, 41.)
  Distrib. New Zealand.
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FLORA OF TASMANIA.


Smaller than the preceding.

20. **Hypnum chlamydophyllum** (Hook. fil. et Wils. Fl. Antarct. t. 61. f. 1) ; monoicum, caule prostrato vage ramoso, ramis simplicibus elongatis cuspidatis erectis, foliis patentibus imbricatis quadrato-rotundatis basi truncatis auriculatis concavis integerrimis auriculis pellucidis, nervo evanido brevi, seta elongata, capsula ovato-oblonga cernua, operculo conico.—**Stereodon auriculatus** (Hypnum), Mont. ; Mitten, in Journ. Linn. Soc. ined.


_Distrib._ New Zealand, Cape Horn, Campbell’s Island.

§ 6. **Cupressiformia.** — _Foliis secundis, enerviis._


_Hab._ Moist rocks: North-west Bay. (Gunn.) Mount Wellington, J. D. H. Back River Gully. (Oldfield, 81, 89, 102, 313.) Fern-tree Valley, Mount Wellington, Mossman.

_Distrib._ All parts of the world.

22. **Hypnum patale** (Hook. fil. et Wils. Fl. N. Zeal. 112. t. 90. f. 6) ; dioicum, caule procumbente pectinatim ramoso, ramis superne planiusculis confertis patulis, foliis lateralis distichae patulis omnibus falcato-secundis ovato-lanceolatis acuminatis apice subsecundulosis enerviis, perichaetialibus setaceo-acuminatis erectis serratis, seta elongata, capsula ovato-oblonga horizontali, operculo conico apiculato.—**Stereodon chrysogaster** (Hypnum), C. Mueller ; Mitten, in Journ. Linn. Soc. ined.

_Hab._ On trees. (Gunn.) (Oldfield.) Cheshunt, Archer.

_Distrib._ New Zealand.

Allied to _H. cupressiforme._—Leaves more spreading, pale-green, glossy, yellowish at the base.

23. **Hypnum leptorrhynchum** (Bridel, Bryol. Univ. ii. 621, ex parte) ; monoicum, caule repente subpinnatim ramoso, foliis falcato-secundis lineari-lanceolatis acuminatis siccitate torquecentibus apice serrulatis enerviis margine subreflexis, seta gracili lævi, capsula oblonga nutante, operculo longirostri.—**Schwegr. Suppl. t. 93.** Stereodon cyparoideae, Bridel ; Mitten, in Journ. Linn. Soc. ined.

_Hab._ Hobarton, etc., on trees, Gunn, Stuart, J. D. H. Johnny’s Creek. (Oldfield, 98.) On logs, frequent: Cheshunt, Archer.

_Distrib._ New Zealand, Australia, Antarctic Islands, Isle of Bourbon, South America, South Africa.

24. **Hypnum cyparioides** (Bridel, Musec. Recent. ii. 2. 138. t. 3. f. 4) ; _H. leptorrhyncho_ similimum, foliis minus falcatis latioribus subdistichae lateritali patentibus brevioribus, perichaetialibus angustioribus sensim acuminatis, seta gracilla breviore apice arcuata, capsula ovali pendula minuta sub ore constricta leptoderma.

_Hab._ South Port, with the preceding. (Stuart.)

_Distrib._ Australia.

25. **Hypnum cerviculatum** (Hook. fil. et Wils. Fl. N. Zeal. p. 113. t. 91. f. 2) ; dioicum, caule repente subpinnatim ramoso, foliis falcato-secundis lanceolatis acuminatis apice attenuatis serratis margine
Musci, by W. Wilson.] FLORA OF TASMANIA.


Distrib. New Zealand, Lord Auckland’s Islands.


Distrib. New Zealand, Lord Auckland’s Islands.

27. Hypnum tenuirostre (Hook. Musc. Exot. t. 111); monoicum, caule repente divisionibus subpinnatim ramosis, ramis elongatis erectis, foliis falcato-secundis ovato-lanceolatis, perichaetialibus ovato-lanceolatis, capsula ovato-oblonga, operculo longirostri.

Hab. St. Patrick’s River. (Gunn, 1600.) (Oldfield.)

Distrib. New Zealand.


Hab. On rocks, not uncommon. (Gunn, 36, 1691.) (Oldfield, 64.) Rocks facing the sea at Eaglehawk Neck, J. D. H. South Port, Stuart.

Distrib. Australia, Lord Auckland’s Islands, Campbell’s Island.

Leaves purplish or golden-brown, glossy.

29. Hypnum Jolliffii (Mitten, in Journ. Linn. Soc. ined.) ; “monoicum, H. Loxensi habitu statuturaque simile, ramis apicibus cuspidatis, foliis patentibus laxi imbricatis ovali-ellipticis acuminatis concavis obsolete binerviis enerviis integerrimis vel apice subruratatis cellulis angustis elongatis alaribus utrinque tribus majoribus hyalinis perichaetialibus interioribus tribus erecto-patentibus caulinais conformibus, theca in pedunculo gracili parva ovali inclinata horizontali, operculo rostro aquilongo, peristomio dentibus flavis processibus solidis cilis in uno breviore coalitis in membranam ad ½ exsertis, annulo simplici.”—Stereodon Jolliffii, Mitten, in Journ. Linn. Soc. (TAB. CLXXVII. Fig. 1.)

Hab. On stones and the earth: Western Creek, Cheshunt, Archer.

Distrib. New Zealand.

Very much like H. Loxense, Hook., but with a leaf of a different form. Mitten, l. c.—PLATE CLXXVII. Fig. 1; 1 and 2, leaves; 3, perichaetium; 4, capsule; 5, peristome:—all magnified.

30. Hypnum contiguum (Hook. fil. et Wils.); monoicum, caule subpinnatim ramoso, ramis apice subcuspisidatis, foliis erecto-patentibus sursum subsecundis strictis laxiusculis lanceolatis piliformi-acuminatis
integerrimis enerviis concaviusculis basi flavidis cellulis alaribus vesiculaeformibus, perichaetialibus longioribus erectis, seta breviscula laevi, capsula pendula elliptico-oblonga, operculo longirostri. (Tab. CLXXVII. Fig. 2.)

Hab. Trunks of trees: Mount Wellington. (Gunn, 51 b.) (Oldfield.) On logs and upon the ground, Cheshunt, Archer.

Allied to H. subsimplex, C. Mueller, Musc. Syn. ii. 283, from Trinidad, and of the same pale glossy hue.—Leaves less crowded, turned upwards. Capsule larger, pendulous. Male flower smaller.—From H. leptorrhynchum it differs in the wider and shorter leaves, which are not at all falcate, and are somewhat scariose.—Plate CLXXVII. Fig. 2; 1, portion of branch, with perichaetium and capsule; 2, capsule and operculum: —all magnified.

§ 7. Folis distichae imbricatis vel compressis, subenerviis.

a. Folis piliferis.

31. Hypnum extenuatum (Bridel, Bryol. Univ. ii. 484); dioicum, caule elongato rigidulo procumbente inordinate bipinnatifidum ramoso, ramis nunc simplicibus nunc apice fasciculatis flagelliferis fragileibus, foliis patentibus ovato-lanceolatibus piliformi-acuminati enerviis, rameis superioribus appressis muticis angustioribus, perichaetialibus erectis apice capillaceis integerrimis, seta longiuscula laevi, capsula ovata inclinata.

Hab. Barren specimens only, growing amongst Dicranum pungens. (Lawrence.) (Gunn.)

Distrib. Australia (solitary specimen with capsule, found amongst other species). New Zealand, J. D. H. (barren specimens only.)

After much investigation we conclude (C. Mueller contr.) that H. extenuatum, of Bridel, is distinct from our H. crinitum; or, if not, that Bridel's description is so erroneous as to render identification impossible. The Moss here assumed to be Bridel's species is larger than H. contiguum.—Stem creeping, 3 inches long or more, with short, erect branches, often fasciculate with numerous flagelliform branchlets. Leaves yellowish, somewhat glossy, more decidedly piliferous, but less so than in H. crinitum. Seta ½ inch long, red.

32. Hypnum crinitum (Hook. fil. et Wils. Fl. N. Zeal. 114. t. 91. f. 4); dioicum, caule procumbente elongato inordinate pinnatifidum ramoso, ramis remotis patentibus planisculis subpinnatis acutis, foliis subcompressis erecto-patentibus concavis et basi oblongo-ovata obtusa longe piliferis subserulatis enerviis, perichaetialibus erectis piliferis, seta elongata laevi, capsula ovata cernua, operculo conico.—H. filiferum, Taylor, MSS.

Hab. On trunks of live trees, near springs, etc: Mount Wellington, Lyall. Yorktown and St. Patrick's River. (Gunn, 1589, 1669.) Back River Gully and Johnny's Creek. (Oldfield, 68, 99, 158.)

Distrib. New Zealand.


Hab. Damp ground, Johnny's Creek. (Oldfield, 94.) On rocks, with Bartramia Halleriana. (Gunn, 1631.) Mount Wellington, Mossman.

Distrib. New Zealand, Kerguelen's Land, Cape Horn, Chili.

Branches 1 inch long. Leaves bright-green, glossy, crowded, much compressed. Seta 1 inch. Operculum above half the length of the capsule. Calyptra dimidiate, coriaceous.

**Hab.** Johnny’s Creek. (Oldfield, 140.) (Scanty and imperfect specimen, growing amongst *Leptotheca Gaudichaudii*.) Cheshunt, Archer.

**Distrib.** Hermite Island, Cape Horn, Europe, North America.

**Tribe XXIV. Rhizogoniaceae.**

**Gen. LVI. RHIZOGONIUM, Bridel.**


1. **Rhizogonium distichum** (Bridel, Bryol. Univ. ii. 663); dioicum, foliis distichis ovato-oblongis apice grosse dentatis nervo crasso sub apicem evanido, capsula oblonga horizontali, operculo conico-rostellato.—B. Muelleri, *Hampe, in Planta Muellerania in Linnae ! (ex Mitten).* *Hypnum distichum, Schweagr. Suppl. t. 87.*

**Hab.** On rocks, Gunn. On stones: Leith’s Creek, Cheshunt, Archer. Mount Wellington, Mossman.

**Distrib.** New Zealand.

2. **Rhizogonium Novae-Hollandiae** (Bridel, Bryol. Univ. ii. 664); dioicum, foliis distichis submarginatis oblongo-ovatis denticulatis nervo valido excurrente breviter cuspidatis, capsula oblonga horizontali, operculo rostrato.—Leskea Novae-Hollandiae, Schweagr. Suppl. t. 83.

**Var. folii secundis.** (Gunn.)


**Distrib.** New Zealand, Australia, Lord Auckland’s Islands.


**Hab.** On stones, in wet places. Gullies: Brown’s River, Back River Gully. (Oldfield, 289, 326.)

**Distrib.** New Zealand.


b. Folii muticis.

**Hab.** Hobarton (barren specimens only), on dead wood, *J. D. H.* Cheshunt, Archer. Mount Wellington, Mossman.

**Distrib.** New Zealand, Norfolk Island, Antarctic Islands, South America, West Indies, Florida, Mexico, Sandwich and Pacific Islands, East Indies, Philippine Islands, Java, Ceylon, and South Africa.


**Var. γ. luteens**; surcula humili, foliis confertis lanceolatis (non basi dilatatis) siccatate parum crispatis, areolis majoribus.


**Distrib.** New Zealand, Antarctic Islands, Fuegia, South America.

**Gen.** LVII. HYMENODON, Hook. fil. et Wils.

**Peristomium simplex**; *dentes* 16, membranacei, aequidistantes, linearisubulati, planiuseci, fugaces, apicibus coherentes, membrana basali angusta connexi. **Calyx** dimidiata. **Capsula** subcurnua. **Operculum rostratum**.—**Florescentia dioica**. **Habitus** Rhizogonii. **Vita arborea**. **Folia distiche imbricata**, elliptica, plana, pilifera, papillosa; areolis subrotundis, minutis.


**Hab.** On dead wood, not uncommon. (Gunn, 44, 45 b.) Cheshunt, Archer.

**Distrib.** Cape Horn, Hermite Island.

1. **Hymenodon pilifer** (Hook. fil. et Wils. Fl. N. Zeal. 117. t. 92. f. 3); dioicus, surculis simplisubulatis, foliis laxe distichique imbricatis patentibus elliptico-oblongis planis longe piliferis excurrentiaervis papillosis margine crenulatis, perichaetialibus lanceolato-acuminatis erectis, seta basali elongata gracili, capsula inclinata ovali ore coarctata.—**Hypnum Mougeotianum**, D’Urvile?
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Tribe XXV. Hypopterygle.

Gen. LVIII. HYPOPTERYGIUM, Bridel.


Var. foliis siccitate magis crispatis, tegminibus oblongis, seta graciliori apice evidentius arcuata. (Lawrence.)

Hab. Hobarton, etc. (Gunn, 49, 65.) Kangaroo Bottom, J. D. H. Gullies round Brown's River. (Oldfield, 60.) Top of Grass-tree Hill, South Port, Stuart. On living trees: Western Creek, and other rivulets; Cheshunt, Archer. (Lyall, 95.)

Distrib. New Zealand, Norfolk Island.

Gen. LX. LOPIDIUM, Hook. fil. et Wils.

Peristomium duplex Leskea; internum, ciliis nullis. Calyptra conico-subulata. Capsula aequalis, inclinata vel cernua, annulata, brevipedunculata. Operculum rostratum.—Caulis repens. Sureuli subdendroidei, pinnatim ramosi; fronde elongata, erecta; ramis haud radiatis. Folia tristicha, oblonga, lateralia obliqua. (Name from λοπίς, a scale.)

1. Lophidium pallens (Hook. fil. et Wils. Fl. N. Zeal. p. 119); monoeicum, surculo erecto bipinnatim ramoso inferne nudo, foliis bifarisis verticalibus oblongo-ovatis acuminulatis marginaulis apice denticulatis siccitate crispulis subtortilibus, tegminibus cordato-acuminatis, perichelialibus brevioribus, seta scalarula longiscula gracili, capsula horizontali annulata, operculo rostrato, peristomii dentibus crebre trabeulatis.—Leskea concinna, Schwagr. Suppl. t. 269 (non Hook.). Hypopterygium Struthopteris, Bridel; Mitten, in Journ. Linn. Soc. ined.


Distrib. New Zealand, South America, Chiloe.

Essentially distinguished from L. concinna, Hook. Muse. Exot. t. 34, by the inflorescence, and by the rough seta.


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Hab. Tasmania, Gunn.

Distrib. New Zealand.

Gen. LXI. CYATHOPHORUM, P. Beauv.

*Peristomium* duplex, *Hypnii.* Calyptra mitreformis, parva. Capsula æqualis, annulata, brevissime pedunculata, pedunculo vaginula tumida cyathiformi inserto. Operculum convexo-acuminatum. Florescentia dioica; antheridia paraphysibus clavatis suffulta. —Caulis erecti, surculi simplices, Jilicoidei. Folia tristicha, lateralia verticalia, patentia, obliqua, dorsalia segregata, tegminibus subrotundis apiculatis, cauli appressa. (Name from *κυάθος, a cup,* in allusion to the vaginula.)


Var. *S. minus*; foliis distantibus acutis.


Distrib. New Zealand, Lord Auckland’s Islands.

Tribe XXVI. RACOPIACEÆ.

Gen. LXII. RACOPILUM, P. Beauv.


Hab. Johnny’s Creek. (Oldfield, 93, 147.) (Specimen imperfect.) Cheshunt, Archer.

Distrib. New Zealand.

2. *Racopilum cristatum* (Hook. fil. et Wils. Fl. N. Zeal. p. 121. t. 92. f. 5); monoicium?, caule repente, foliis lateribus distichis patulis siccitate conniventibus ovali-oblongis obtusiusculis apice serrulatis nervo concolore excurrente cuspidatis, intermedia cordato-acuminatis duplo minoribus, seta longiuscula

Hab. St. Patrick’s River. (Gunn, 1654.) Huon River, on the ground. (Oldfield, 53.) Kangaroo Bottom, J. D. H. Kermandie Rivulet, South Huon, on logs, stumps, etc. Woodburn, near Richmond, damp ground. Cheshunt, Archer.

Distrib. New Zealand.

Tribe XXVII. Hookeriaceae.

Gen. LXIII. Hookeria, Smith.

Peristomium duplex; externum, dentes 16, lanceolato-subulati, acuminati, incurvi, intus trabeculati, dorso costis prominentibus plus minus distantibus biliratis; internum, membrana plicata in processus 16 carinatos, raro ciliis interpositis, fissa. Calyptra mitreformis. Capsula cernua, ovata, longius pedunculata.—Caulis repens, vel prostratus, vago ramoso. Rami; planata, lateralia obliquata, areolae * hexagonis.

1. Hookeria tenella (Hook. fil. et Wils. Fl. N. Z. pleasant p. 122. t. 92 f. 8); dioica, caule humili vago ramoso, foliis confertis imbricatis suberectis secundis oblongo-ovatis acutiusculis margine reflexis enervis laxe reticulatis pellucidis siccitate plicato-striatis, capsula subcernua ovata parva, operculo rostrato, calyptra nuda mitreformi.

Hab. St. Patrick’s River. (Gunn.) Dead wood, dark shady places by the Kermandie Rivulet, South Huon. (Oldfield, 97.) Near springs: Mount Wellington. (J. D. H.) On logs: Cheshunt, and on rocks, Jackey’s Plain Creek, near Cheshunt, Archer.

Distrib. New Zealand.


* Foliis marginatis.

2. Hookeria apiculata (Hook. fil. et Wils. Fl. Antarct. t. 155. f. 6); dioica, foliis subrotundospathulatis apiculatis marginatis enervis, seta scabriuscula, capsula cernua, calyptra pilosa basi fimbriata.

Hab. Circular Head. (Gunn, 1689.)

Distrib. New Zealand, Fuegia.


Hab. Tasmania. (Gunn, 1612 d.)

Distrib. New Zealand.

4. Hookeria sinuosa (Hook. fil. et Wils.); dioica, ramis compressis, foliis obovatis obtusis marginatis evanidinervis margine planis siccitate undulato-crispatis. (Tab. CLXXVII. Fig. 3.)
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Hab. Arthur’s Lakes. (Gunn, 1652.) Hobarton. (Oldfield.) (Specimens few and imperfect.)

Distrib. New Zealand. (Dr. Sinclair.)

Closely allied to *H. amblyophylla.*—Leaves yellowish, much crisped and undulated when dry, more crowded, of firmer texture; areolae smaller, except at the base, near the nerve, where they are larger, lax, and pellucid; cartilaginous border wider. Perichaetial leaves small, obtuse. Seta 1 inch, smooth, glossy, red, and strong. Calyptra densely fringed at the base, roughish at the apex.—Plate CLXXVII. Fig. 3; 1, branch and leaf; 2, leaf; 3, male inflorescence:—all magnified.

5. **Hookeria pulchella** (Hook. fil. et Wils. Fl. Antarct. part 1. t. 62. f. 1); dioica, ramis subflaccedis compressissulis, foliis confertis distichic imbricatis undulatis obovatis obtusis mucronulatis marginatis integerrimis seminerviis, perichaetialibus obtusis, capsula inclinata apophysata, operculo rostrato, calyptra fimbriata apice glabra.

Hab. With *H. amblyophylla* and *Bartramia Halleriana* (Gunn, 13.) (A few fragments only.)

On rocks: rivulet near Cumming’s Head, Western Mountains, Archer.

Distrib. New Zealand, Lord Auckland’s Islands.


Hab. Leith’s Creek, Cheshunt, Archer.

Distrib. New Zealand.

**Foliis immarginatis.**


Hab. Grass-tree Hill, in wet places, seldom in fruit. (Gunn.) (Oldfield, 327, 287.) Ovens Creek, and other rivulets, Cheshunt, Archer.

Distrib. New Zealand.


8. **Hookeria nigella** (Hook. fil. et Wils. Fl. N. Zeal. p. 124. t. 93. f. 6); dioica, caule humil’ erecto-incurvo rigidulo subramoso, foliis remotiusculis complanatis lateralibus spathulatis basi angustatis dentatis seminerviis intermediiis obovatis dentatis, perichaetialibus rotundu-ovatis concavis, capsula sub-rotundo-ovata pendula, calyptra nuda.


Distrib. New Zealand.

Leaves lurid, shrinking when dry. Seta 1 inch long. Capsule subpyriform, with a rostrate operculum of nearly the same length. Calyptra subconical. Teeth of the peristome with two rather distant red dorsal ridges.

9. **Hookeria** (*Pterigophyllum*) **obscurum** (Mitten); caule bi-tripollicari latitudine cum foliis
fere trilineari parce ramoso, foliiis distichaco-compressis, lateralibus patentibus late elliptico-spathulatiss
angulo apicali obtuso basi angustatis intermedii patentibus dimidio brevioribus subtrapezoideis obtusis,
iiis caulae parallelis medii dorsalis et ventralibus erectis appressis late obovatis apice rotundatis, omnibus,
foliorum, nervo ad medium brevi-furcato evanido, marginibus superioribus crenulato-serratis, cellulis partis
superioris circiter $\frac{1}{2}$ unc. diametro metiuentibus.”—Mitten, in Journ. Linn. Soc. ined. (Tab. CLXXVII.
Fig. 4.)

HAB. Cheshunt, Archer.

Whole plant obscure, blackish-green. Allied to P. denticulatum and P. nigellum, but with its lateral leaves
very much narrowed towards the base, and these, as well as the intermedial and medial, of a different form. The
species of this genus, from the neglect in their descriptions of the very different forms of the leaves in the several
series, are hardly intelligible. Mitten, l.c.—Plate CLXXVII. Fig. 4; 1, portion of branch and leaves; 2, 3, and
4, leaves:—all magnified.

Gen. LXIV. DALTONIA, Hook. et Tayl.

Peristomium duplex, Neckeroidenum; externum, dentes sedecim, angusti, subulati, trabeculati, humiditase
reflexi; internum, cilia totidem similia, cum dentibus alternantia, membrana basali fere carentia.
Capsula erecta. Operculum conico-subulatum. Calyptra mitriformis, basi eleganter fimbriata. Flora-
centiæ monoica vel synoica.

1. Daltonia pusilla (Hook. fil. et Wils.); monoica, caule humili decumbente subsimplici, foliiis
remotiusculis patentibus plus minus secundis siccitate laxis subcrispis anguste lanceolatis acuminatis plani-
usculis inferne carinatis integerrimis marginatis evanidinerviis, seta brevi gracili apice scabriuscola, capsula
inclinata elliptica basi attenuata leptoederna, peristomii dentibus ciliisque longissimis angustissimis papill-
latis. (Tab. CLXXVII. Fig. 5.)

HAB. Near springs, on Mount Wellington (very scanty specimen), growing on dead twigs, with
Hypnum aciculare. (Oldfield, 67.)

About half the size of D. splachnoides, Hook. and Tayl.—Stem 2 lin. Leaves smaller, paler, and somewhat
narrower; the areola rather smaller. Seta scarcely 2 lin. long, very slender. Peristome half as long as the capsule,
or more, widely spreading and recurved when wet; teeth reddish-brown, distantly trabeculate. Calyptra fringed
at the base.—Allied to D. angustifolia, Dz. and Molk., but that, as described, has a different peristome and larger
capsule.—Plate CLXXVII. Fig. 5; 1, branch and fruit; 2, leaf; 3, capsule; 4, calyptra:—all magnified.

NAT. ORD. VI. HEPATICÆ.

(Auctore Gul. Mitten, A.L.S.)

As the Tasmanian Hepaticæ, of which 126 are here enumerated, present a few species which appear to
be peculiar to the Island, the remainder being found in New Zealand and Fuegia. One-third of the speci-
ies included in the Flora of New Zealand have not yet been found in Tasmania; of these some, as
Plagiochila Stephensoniana, P. Arbuscula, P. gigantea, and Madotchea Stangeri, are so large that they
would scarcely have been overlooked if they were so generally distributed in Tasmania as they appear to
be in the islands of New Zealand. The larger species of Lejeunia seem also to be absent, and Riccia has
no representative. It can hardly be supposed that these are entirely wanting in Tasmania, but their ab-
scence from the collections yet received shows that if present they are rare. As in the Flora of New Zea-
land, there occur here also some species described by Dr. Taylor, of which nothing further is now known;
his descriptions and remarks have therefore been inserted in their respective places in the arrangement,
which is the same as that adopted in the ‘Flora of New Zealand.'

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Gen. I. JUNGERMANNIA, Linn.

1. **Jungermannia perigonialis** (Hook. fil. et Tayl. Fl. Antarct. p. 33. pl. 62. f. 7). (Tab. CLXXVIII. Fig. 1.)

   **Hab.** Rocks near Cumming’s Head, Western Mountains, Archer.


   The figure before given of this small species represents only the male plant with perigonial leaves. It seems to differ from all the other small bidentata *Jungermannia* found in the Antarctic regions in its dark stems, which, as well as the brown leaves, are rather glossy. The *Jungermannia minuta* mentioned in Fl. Antarct. p. 40, is identical with *J. ochrophylla* of the same work.—*Plate CLXXVIII*. Fig. 1; 1, portion of the stem, with leaves and perianth; 2, leaf, removed from the stem; 3, involucral leaves and stipule:—*all magnified*.


   **Hab.** Tasmania, Spence, Gunn.


   *J. elongella*, Taylor, which is probably the same as the East Indian *J. orbicularis*, appears to have no character whereby it can be distinguished from this species.—*Plate CLXXVIII*. Fig. 2; 1, portion of the stem, with leaves:—*magnified*.

4. **Jungermannia colorata** (L. et Ldbg.).

   **Hab.** On a stunted *Fagus*, at an elevation of 2000 feet. St. Patrick’s River, Gunn. On rocks: Goat Hills, New Norfolk; Grass-tree Hill, and Hospital Bay, South Huon, Oldfield; gathered also by Mr. Archer.

5. **Jungermannia marginata** (Mitten); caule erecto ramoso rigido, ramulis sepe flagelliformi-attenuatis, foliis patentibus antice secundis ovalibus integerrimis apice obtusis rariusve retusis margine incrassato et stratis duabus cellularum composito, amphigastriis ovatis bifidis. (Tab. CLXXVIII. Fig. 3.)

   **Hab.** Arthur’s Lakes, Gunn. Brown’s River Gully, Oldfield.


   A rigid species, with some resemblance to elongated states of *J. scalaris*, but larger and with more oval leaves. Its evidently margined leaves readily distinguish it from its allies.—*Plate CLXXVIII*. Fig. 3; 1, portion of the stem, with leaves and stipule; 2, transverse section of the margin of leaf:—*both magnified*.

Hepaticae, by W. Mitten.]  

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HAB. On a charred tree: Asbestos Hills, near Yorktown, Gunn. On rotten timber: Grass-tree Hill; and on charred wood, in damp places, J. D. H. Common on the hills, New Norfolk, etc., Oldfield, Archer.

These specimens, in colour and habit, as well as in the circumstance of their growing upon charred wood, agree very nearly with that form of J. dentata which was described by Dr. Taylor as J. exiliflora. When compared however with that species, they are readily distinguished by the leaves having a certain braided appearance; the margins of the leaves are everywhere recurved; at the base, on the outer side, they are sometimes spinulose-papillose, but the small teeth of the edges, from their downward direction, often present the same appearance when the papillae are absent. These different states are all found in European specimens. The J. squarrosula, Taylor, from Swan River, is synonymous with J. dentata. J. tubulata, Crypt. Antarct. t. 157. f. 6, differs in no way from ordinary states of J. bicuspisata. J. physoeaula, Crypt. Antarct. t. 156. f. 1, seems to be very nearly allied to J. bicuspisata, but is more rigid; it has however no resemblance to J. concinnata. J. longiseypha, Taylor, from Swan River, is not different from J. setacea; also J. asperifolia, Taylor, from Madeira, is a slender form of J. dentata.


HAB. Tasmania, Oldfield.

Gen. II. PLAGIOCHILA, Nees et Mont.


HAB. Tasmania, Gunn, Archer. Dense tufts, on rocks: Goat Hills; and on rocks, in streams, Kermandie Rivulet, South Huon, Oldfield.

The stems of these specimens are 3 inches or more in height; the leaves erecto-patent and rather loosely disposed; in the lower parts of the stems they are quite entire, but as they approach towards the apex they become more and more denticulate.


HAB. Tasmania, Hb. Montagne, et Nees ab Eisenbeck.


HAB. Acheron River, Gunn.

The Tasmanian specimens of this species are larger than any of those collected at Cape Horn, and have all their leaves entire; in every other respect they correspond so nearly that they may be supposed to be an entire-leaved variety, similar to those observable in several allied species, as P. falcata and P. retrospectans. The inflexion of the dorsal margins of the leaves readily distinguishes P. Magellanica from its allies; the leaves themselves vary in being patulous or appressed, but their form is the same in all the plants described as above, and referred to this species.

Var. β; foliis integerrimis.


The description of Dr. Taylor’s P. opisthotonora seems to correspond so well with the present species, that it may be easily supposed that it is but one of those instances in which Dr. Taylor imposed a name of his own on an already described species; but as no specimens so marked by him are in British herbaria, it is impossible to be certain if this reference is correct. The form distinguished as var. β differs in having its leaves everywhere entire; in every other respect they agree with those of the denticulate state. The areolation of the leaves is remarkably minute for the size of the plant.

6. Plagiochila Lyallii (Mitten, in Fl. N. Zeal. p. 132. pl. 96. f. 4).

Hab. St. Patrick’s and Acheron Rivers, Gunn.

These specimens are a little larger than those from New Zealand, but have the same habit, and the leaves a little more directed towards the ventral side. The figure of the perianth in the plate above quoted represents it much too short; in another New Zealand specimen since received, the mature perianth coincides in shape with that of P. incurvilocola, represented in the same plate, fig. 2.


Hab. St. Patrick’s River, 16th November, 1844, Gunn. South Huon, Oldfield, Archers.

The specimens marked P. aculeata by Dr. Taylor in Herb. Hooker, are precisely the common state of P. fasciculata, but amongst the specimens distributed under the name of P. aculeata, some have been found to belong to P. Stephensoniana, a species not yet received from Tasmania. P. uicialis, to which Dr. Taylor compared his P. aculeata, is a species belonging to the same group as P. fasciculata and P. spinulosa. In Crypt. Antarct. t. 156. f. 7, the leaves are represented with teeth on the dorsal margin, which does not appear to be commonly the case, however it might have been in the specimen from which the figure was drawn; the teeth too on the ventral side are represented too numerous.


Hab. Tasmania, Labillardiere.


Hab. Tasmania, J. D. H., Gunn, Oldfield.


Resembles P. deltoidea in appearance, but its leaves are less deltoid, and more of an ovate outline, and the teeth are more spinous; the perianth too is of a different form, and there is no dorsal wing.—Plate CLXXVIII.
Fig. 4: 1, a male, and 2, a female plant, of the natural size; 3, a portion of the stem, with leaf; 4, a perianth, removed from the stem; 5, a portion of the male spike, with perigonal leaves:—all magnified.

10. **Plagiochila Stuartiana** (Gottsch., Icon. Hepat. ined.); examphigastriata, ramis adscendentibus innovando-ramosis, foliiis subheteromallis obovato-cordatis apice rotundo-obtusis margine dorsali subrecto integerrimo subreflexo vel apicem versus reflexo-involuto descendentibus sub apice et ventrali margine arcuato-dentatis, fructu... spica mascula 7–9 paribus foliorum perigonalium subbidentulorum cetero-quin integerrimorum conflata.—Gottsch., in *Planta Muelleriana*.

**Hab.** Tasmania, Stuart.

In systemate in vicinitate *P. ambiguæ*, Ldbg. et Hampe in Linnæa, t. 34. p. 640, ponenda.—Gottsch.

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**Gen. III. LEIOSCYPHUS, Mitten.**


**Hab.** Amongst *Mastigobryum aceretum*: St. Patrick’s River, Gunn.

*Chiloscyphus amphibiliosus*, Nees ab E., gathered in Brazil by Dr. Von Martius, is a smaller species, and has leaves of a thinner texture than any of the specimens here referred to the *Plagiochila chiloscophoidea* of Lindenberg, a plant which possesses all the characters attributed to *Leioscyphus*, having the habit of *Lophocolea* or *Chiloscyphus*, and the perianth of *Plagiochila*. Besides the three species which Dr. Taylor made of this plant, it composed part of his *Lophocolea pallide-eirens*, probably all that part regarded by him as “(status minor) omnino fusiati,” for the specimens are all of a brown colour, not observable in the *Lophocolea* itself. The bulk of the specimens of *Lophocolea multitpenna* undoubtedly belong to the present species; but creeping over it in very small quantity is a perfectly distinct species of *Lophocolea*, which seems to have furnished part of the characters designating *L. multitpenna*, particularly the triquetrous perianth; but the form of the leaves, “obovatis” and “ovato-oblonga,” relates alone to a rather smaller than usual state of *Leioscyphus chiloscophoideus*, and specimens exactly similar were gathered at Cape Horn. To this genus belongs *L. aquatus*, *Flor. Antarct.* p. 433. t. 158. f. 3; *L. strongylophyllus*, l. c. t. 62. f. 9, *L. reclinans*, l. c. t. 159. f. 1, of which the perfect perianth is nearly three times longer than broad, compressed, the mouth truncate and smooth; about half an imperfect perianth is represented in the figure 4. In *L. turgescens*, l. c. t. 64. f. 2, the perianth is compressed, the mouth wide, and the lips smooth; but it presents slight indications of being formed of three parts, namely the two uppermost leaves and amphigastrium, for there are often two notches in the mouth, just where the line of union must be supposed to be.

**Gen. IV. LOPHOCOLEA, Nees.**


**Hab.** In tufts of grass: Hampshire Hills, Gunn, 1838, *Hb. Nees ab Esenbeck*. Also on logs under water, in St. Patrick’s River, 26th November, 1844, Gunn.

This species is retained as distinct from the preceding, from the absence of decided intermediate specimens, but...
there are not wanting some which seem to indicate that, like some of the forms of *L. Nowa-Zelandiae*, the form of the stipule may be considerably modified, as well as the habit of the plants, by the situation in which they may have grown.


All the Tasmanian specimens of this plant are very much smaller than those from Hermite Island, but in other respects offer nothing to distinguish them. The species is an undoubted *Lophocolea*, and is closely allied to *L. palustris* (Jungermannia palustris, *Hook. fil.* et *Tayl. Flor. Antarct.* p. 431. t. 157. f. 8), and to *L. otophylla* (Jungermannia otophylla, *Hook. fil.* et *Tayl. Flor. Antarct.* p. 433. t. 158. f. 4), which has a trigonous, ovate-oblong perianth, the lips entire and undulate. Amongst the Antarctic species which have been erroneously referred to *Chiloscyphus* are *Lophocolea fuscosirens* (Jungermannia, *Flor. Antarct.* t. 440. f. 7), where the figure justly represents it as a *Lophocolea*, and *L. australis* (Jungermannia, *Flor. Antarct.* p. 156. t. 65. f. 3), but the perianth is falsely described and figured as bialate and bilabiate, its true form being prismatic, and of course trilabiate.

4. **Lophocolea Tasmanica** (Mitten); caule procumbente ramoso, foliis divaricatis explanatis subovatis apicu sinu parvo subbifloto bidentatis ceterum integerrimis per paria cum amphigastrio parvo quadridentato coalitis involucralibus subellipticis recurvacione marginum integerrimarum vel rarius in margine dorsali undentriculato, convexis apice bidentatis cum amphigastrio ovale breviter bidentato et utrinque undenticulo connatis, perianthio prismatico angulis alatis, alis labiisque dentatiss. (*Tab. CLXXVIII. Fig. 5.*)

**Hab.** On rotten wood, *Archer*.

*Viridis. Callis uncialis, prostratus, vage rumosus. Folia explanata, cellulis teneris pellucidis limitibus angustis.*

Nearly allied to *L. connata*, *Sw.*, and *L. Beecheyana*, Taylor. From the first it differs in the form of the leaf and emargination, the sinus being narrower, and the cells have thinner walls; from *L. Beecheyana*, as well as from *L. Martiana*, *Nees*, it recedes in the entire ventral margins of its involucral leaves.—*Plate CLXXVIII. Fig. 5*; 1, a portion of the stem, with leaves and stipule; 2, a perianth, removed from the involucral leaves; 3, involucral leaves and stipule:—*all magnified*.


**Hab.** Near Hobarton, *J. D. H.*


7. **Lophocolea amplexentens** (Mitten); caule cespitoso decumbente vage subpinnatim ramoso exili, foliis imbricatis subquadricatis profunde emarginatis, lacinis acuminatis acutis amplexententibus, amphigastris ovatis bidentis, segmentis extus unidentatis. (*Tab. CLXXVIII. Fig. 7.*)

**Hab.** Amongst rocks near the top of Mount Wellington, *Oldfield*.

In size and habit very nearly resembling the European Hypecrea scutatus, Spruce (J. scutata, Hook.), but its leaves and stipules are of a different form, and were it not for the form of the stipule being exactly that which prevails in almost all the species of Lophocolea, it would rank nearer to some Jungermanniae. Scraps of a species very similar, or perhaps even identical, have been picked from amongst Lichens from Cape Horn, the Falklands, and Campbell’s Island.—Plate CLXXVIII. Fig. 7; 1, a portion of the stem, with leaves and stipule:—magnified.

8. Lophocolea decurva (Mitten); caule procumbente subsimplici, foliis ovatis sinus parvo obtuso breviter bidentatis marginis dorsali rectiusculi basi longe decurrente ventrali arcuato, amphigastrii late ovatis concavis marginibus inflaxis ad tertiam partem, dentibus subulatis recurvis bidentatis. (Tab. CLXXVIII. Fig. 6.)

Hab. Amongst Gottschea Lehmanniana, Nees, and Symphogyna flabellata, N. et M. St. Patrick’s River, Gunn.

Amoena viridis. Caulis pollicaris, gracilis. Folia imbricata, apice decurva. Amphigastria magna, concava. A small plant, readily distinguishable by its concave stipules, which have their two slender teeth bent back. In general appearance it has more resemblance to some small forms of Plagiocolea Mauritiana, Nees, than to any Lophocolea.—Plate CLXXVIII. Fig. 6; 1, a portion of the stem, with leaves; 2, the stipule, as seen on the ventral side of the stem; 3, transverse section of the stipule, showing its incurved margins.


Hab. Tasmania, Herb. Greville. A few slender stems have been picked from amongst other Hepaticae from the Acheron River, gathered by Mr. Gunn.


Hab. Tasmania, Herb. Greville. A few slender stems have been picked from amongst other Hepaticae from the Acheron River, gathered by Mr. Gunn.


The geographical range of this little species appears to be very extensive. It is to be found throughout South America, including Panama, as well as in Java and in India.

Gen. V. CHILOSCYPHUS, Corda.

1. Chiloscyphus conjugatus (Mitten); caule repente elongato parce dichotome ramoso, foliis imbricatis oblongo-rotundatis perfoliatis marginis dorsali remotiuseule spinulosodentato basi in marginem folii oppositi transverse abunitae margine ventrali integerrimo et basin versus sinus rotundus cum amphigastro suborbiculato basi utrinque sinuato et ibidem dentibus paucis spinosis armato superne minute sparsaque dentato coalito. (Tab. CLXXIX. Fig. 2.)

Hab. In a rivulet near the Acheron River, with Gottschea ciliata, G. Lehmanniana, and G. pinnatifolia, October 2nd, 1845, Gunn.


Without exception the largest species of the genus. In external appearance and colour it resembles C. Billardieri, but the form of its leaves, and particularly that of the stipules, which resemble nothing so much in outline as the human occiput as seen from behind, render it very distinct from all allied species. The united dorsal margins
cross the stem transversely without the least tendency to decurrence. The apices of the leaves being a little incurved, and the leaves themselves subcommittent, give the plants a canaliculate appearance.—Plate CLXXIX. Fig. 2; 1, a portion of the stem, with leaves and stipule:—magnified.

   
   HAB. Tasmania, Labillardière, Menzies.

3. Chiloscyphus Gunnianus (Mitten); caule repente vague ramoso, foliis imbricatis perfoliatis subdeltoides apice bispinoso-dentato margine dorsali spinoso-dentato in folium oppositum late transune margine ventrali bidentato basin versus valde arcuato in amphigastrium transverse oblongum apice breviter bidentatum lateribus extus circiter quadridentatis decurrente. (Tab. CLXXVIII. Fig. 8.)

   HAB. Tasmania, Gunn.


   A remarkable species, possessing considerable resemblance to C. Billardieri in the general outline and dentation of its leaves, but its areolation is altogether different.—Plate CLXXVIII. Fig. 8; 1, a portion of the stem, with leaves and stipule:—magnified.

   

   
   HAB. Mount Wellington, Mossman, 780, in part.

   
   HAB. Valleys near Hobarton, J. D. H. North-west Bay Gully, Oldfield.

   

The perianths of this species are small, campanulate, and with the laciniae of the unequally dentate mouth incurved. The involucral leaves are minute and denticulate.

   

9. Chiloscyphus tridentatus (Mitten); caule procumbente elongato subsimplici, foliis patentibus brevi-oblongis subquadratisis distiche explanatis apice truncatis breviter tridentatibus in subus obtusis margine recurvus superficiem convexam formantibus statu sicco vel humido immutatibus, amphigastriis parvis quadridentatis basi uno latere cum folio coalitis, perianthio juvenili in ramo brevissimo laterale campanulato?—C. combinatus, Mitten, in Fl. N. Zeal. p. 141; G. L. et N. ex parte Syn. Hep. p. 182. (Tab. CLXXIX. Fig. 1.)


A small species, often not much longer than C. echinellus, with rarely branched stems, and leaves of a firm texture, not altered in form or direction by drying. The original specimens of C. combinatus, kindly lent by Nees von Esenbeck, are a rather larger species, with soft and flaccid leaves composed of more lax cells.—Plate CLXXIX. Fig. 1; 1, a portion of the stem, with leaves and stipule:—magnified.


Hab. Creeping amongst Mosses, Archer.

Gen. VI. **PSILOCCLADA, Mitten.**

1. **Pisiloclada clandestina** (Mitten, in Fl. N. Zeal. p. 143. pl. 99. f. 4).

Hab. Tasmania, Gunn.

Gen. VII. **GYMNANTHE, Tayl.**


Hab. Ovens Creek, Archer.


It appears that, although Dr. Taylor first distinguished this from G. saccata, he had afterwards misgivings that it was but a state of the same species, for notwithstanding the great difference in appearance between the specimens of G. tenella in Herb. Greville, and the larger states of G. saccata, differences for the most part owing to the subbidentate leaves and empty cells in the original specimens, all those received from New Zealand and Tasmania, although having the leaves of the same form, have the cells more or less replete with colouring matter, and agree in colour and substance with those of G. saccata, there being in reality no difference between the two in the size of the cells. It is greatly to be desired that G. saccata, G. tenella, and G. Urvilleana should be carefully observed in their places of growth, for it appears by no means improbable that they are but different states of the same species.—Plate CLXXIX. Fig. 3; 1, a portion of stem and leaves:—magnified.


Hab. Tasmania, Gunn, J. D. H., Archer.

4. **Gymnanthe cinerascens** (Lehm. et Ldbg.; Mitten).—Jungermannia cinerascens, Lehm. et Ldbg. in Pug. pl. 4, p. 46; G. L. et N. Syn. Hep. p. 78. (Tab. CLXXIX. Fig. 4.)

Hab. St. Patrick’s River, Gunn.

Although the perfect torus of this species is yet wanting, there are sufficient indications present in the specimens to warrant its being placed in this genus. The stipules, overlooked in the description of the plants in the 'Synopsis Hepaticarum,' are nevertheless present as well in the specimen kindly contributed by Dr. Lehmann as in

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those gathered by Mr. Gunn, but they are not obvious on all the stems, and are thus easily overlooked. The involucral leaves scarcely differ in form from the cauline, but are concave, and enclose four or five pistils, seated on the dorsal side of the abrupt and slightly thickened apex of the stem itself; within the involure there has been observed a small stipule-like leaflet, but not apparently representing the stipule, which, although present, has no part in the formation of the torus in the plants of this and allied genera.—Plate CLXXIX. Fig. 4; 1, a portion of the stem, with leaves and stipule; 2, a stipule, removed from the stem; 3, apex of the stem, with leaves; 4, the same, with front leaves removed to show the dorsal position of the pistils:—all magnified.


Hab. Bogs: Brown’s River; and wet ground; Kermandie Rivulet, Oldfield. Elliot Rivulet, Archer.


The fertile plants of this most curious species were gathered in New Zealand by Mr. Kerr, and thus is set at rest the before very doubtful place of the present and of G. erinacea (Jungermannia), Hook. fil. et Tayl. Fl. Antarct. pl. 161. f. 4. Indeed the whole appearance of the barren plants of both species is so different from that of G. saccata, that without fertile specimens their affinity with Gymnanthe could hardly have been expected. The torus appears to agree in all particulars with that of G. saccata, and on the under side, that is to say, on the side next to the stem, the amphigastria are continued, the lower one having the same violet colour as the torus itself.—Plate CLXXIX. Fig. 5; 1, apex of the stem, with leaves on the front side removed, showing the torus with the stipules on its inner side.

6. Gymnanthe concinna (Mitten); caule repente ramoso, foliis imbricatis oblongo-ovatis concavis apice rotundatis sursum convivibus vel parum explanatis, involucralibus majoribus conformibus vel apice retusis, toro . . . (Tab. CLXXIX. Fig. 6.)

Hab. Tasmania, Gunn, creeping over Jungermannia Tasmanica, Tayl.

Pallide viridis. Caulis 3-8-linearis, hic illic radiculosis, apice fructifero descendentе. Folia apicem versus sensim majora, involucralia convoluta. Torus juvenilis (apex caulis incrassatus) archeogniis 5-6 preditus.

A very small species, of a very neat habit, and with somewhat the look of the stems of some states of the European Jungermannia nana, Nees. The apex of the stem is slightly thickened, and curved downwards, and the involucral leaves being directed upwards at right angles, give the stems of this and some allied species an abrupt appearance. The arocal is similar to that of G. Urvilleana. A few stems of apparently the same species have been picked from a specimen of Marchantia globosa, Bischoff, from the Cape of Good Hope. G. concinna is closely allied to G. intervens, from the East Indies, and G. Bastillosii, Mont., from Peru, but is easily distinguished by the characters above given.—Plate CLXXIX. Fig. 6; 1, a portion of the stem, with leaf; 2, apex of the stem, with leaves; 3, the same, with the leaves removed from the front side to show the pistils:—all magnified.


Gen. VIII. LEPIDOZIA, G. L. et N.


Hab. Acheron River, Gunn.
2. Lepidozia procera (Mitten); caule erecto simpliciter pinnato, ramis breviusculis attenuatis decurvis, foliis minutis erecto-patentibus remotis ovato-quadratis quadriditis, laciniiis rectis acutis, amphigastriis minoribus subquadridatis quadriditis. (Tab. CLXXX. Fig. 1.)

HAB. Tasmania, Gunn. Mount Wellington, among Plagiochila retrospectans and L. Ulothrix, Oldfield.


Similar in appearance to some states of L. microphylla, but differing in the narrower outline of its stems (owing to the shortness of the branches), and the leaves are more deeply quadrid with more acute laciniae, which are not collected together at their apices, but stand out from each other.—PLATE CLXXX. Fig. 1; 1, a portion of the stem, with leaves; 2, a leaf, removed from the stem:—all magnified.


HAB. St. Patrick's River, Gunn.


HAB. Brown's River, Oldfield.


HAB. Tasmania, Spence. On damp ground: Kermandie Rivulet, South Huon, Oldfield.


Readily distinguished from all allied species by its glaucous-white colour.


HAB. Back River Gully, with fruit, Oldfield. Cheshunt, Archer.


HAB. Tasmania, Dumont d'Urville, Herb. Montagne et Nees.


Hab. Bare ground, in bogs: Brown’s River, *Oldfield*.


Hab. A few slender stems creeping amongst *Chiloscyphus conjugatus*: Acheron River, *Gunn*.

**Gen. IX. MASTIGOBRYUM, G. L. et N.**

1. *Mastigobryum Colensoanum* (Mitten, in Fl. N. Zeal. p. 147. pl. 100. f. 3).
Hab. Tasmania, *Oldfield*.


*M. echinatum*, Gottsche; idem, Lindenberg, et Nees, Syn. Hep. p. 218. *Jungermannia dirhyncha*, Tayl., seems to have been recorded as from Tasmania by mistake, for the specimen in Herb. Greville is from the East Indies.

**Gen. X. ISOTACHIS, Mitten.**

Hab. Tasmania, *Lawrence*.

Plate CLXXIX. Fig. 7; 1, portion of the stem, with leaves and stipule; 2, leaf, and 3, stipule, removed from the stem: — all magnified.

2. *Isotachis Gunniana* (Mitten); caule erecto prolifero-ramoso, foliis cordatis conduplicatis apice
marginatis marginibus uno binisve dentibus armatis, amphigastriis paulo majoribus conformibus, foliis involucralibus exterioribus latioribus interioribus minutiis, perianthio cylindrico rugoso apice contracto diaphano. (Tab. CLXXIX. Fig. 8)

**HAB.** Arthur's Lakes, Gunn, Archer.


Very nearly allied to *I. madida* in size, colour, and habit, but with wider and less deeply notched leaves, which are also more distant and divaricate. The perianth, like that of *I. gyelii* and *I. madida*, is remarkably thick and fleshy; in the last-named species it is composed of five strata of cells, the roughness on its exterior surface appears to be caused by the partial breaking up of the external wall of cells, and resembles that of the calyptrae of *Schizocentria*.—PLATE CLXXIX. Fig. 8; 1, a portion of the stem, with leaves and stipule; 2, a leaf, and 3, a stipule, removed from the stem; 4, the perianth, removed from the involucral leaves; 5, the involucral leaves and stipule, showing the smaller internal leaves:—all magnified.


**HAB.** On rocks: Rivulet near Cumming's Head, Western Mountains, Archer.

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**Gen. XI. SCAPANIA, Lodd.**


**HAB.** Rivulet near Cumming's Head, Western Mountains, Archer. Grass-tree Hill, Oldfield.

These specimens appear to agree in every respect with British examples; and although Dr. Gottsche has recently, from the Australian specimens gathered by Dr. F. Mueller, described it as a distinct species, yet the sum of the characters he has given amount only to this,—that the stems are a little longer, and the perianth a little shorter, than in European specimens of *Jungermannia obtusifolia*, with which he admits that it otherwise agrees: the Tasmanian specimens, evidently the same species as those from Australia, have not that appearance presented by Dr. Mueller's, from his having grown in a compact tuft. A careful examination of the insertion of the leaves of this species, as well as of those of *Jungermannia albicans*, has confirmed the fact, already suspected from the substance of the leaves themselves, that they belong to that section of the leafy *Hepatica* whose leaves are inserted with the dorsal angle nearest towards the apex of the stems,—incurvous,—in this particular they are at once removed from *Jungermannia*, and agree with *Scapania*, excepting that the perianth is not appressed, but contracted at the mouth, contrary to the characters ascribed to *Scapania*; nevertheless precisely the same kind of perianth is sometimes produced by *S. undulata*, but whatever variations may take place in the form of the perianth, *Scapania*, with the additions here proposed, forms a most natural genus, whose place must be near to *Gottschea*.


**HAB.** Tasmania, Gunn.

There appears to be no difference, excepting the paler colour, to distinguish *S. vertebrales* from the present, and the perianth is, as in other species of the genus, flattened, and at the apex truncate.

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**Gen. XII. GOTTSCHEA, Nees ab E.**


**HAB.** In a rivulet near the Acheron River, with *Chiloscyphus conjugatus*, *Gunn*. 

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*Hepatica, by W. Mitten.*] FLORA OF TASMANIA. 233
The leaves of the Tasmanian specimens of this species are scarcely at all sinuato-pinnatifid, but in other respects agree with those from New Zealand.

2. **Gottschea ciliata** (Mitten; Fl. N. Zeal. p. 151. pl. 101. f. 4).
   HAB. In the same locality, and with the preceding species, Gunn.

   HAB. Dense forest near Franklin River. Near the Acheron River, and in a rivulet near the same, with the preceding species, Gunn. Back River Gully and elsewhere, common, Oldfield. Cheshunt, Archer.

**Gen. XIII. POLYOTUS, Gottsche.**

1. **Polyotus claviger** (Hook.; Gottsche; Fl. N. Zeal. p. 152).
   HAB. Var. 
   PLATE CLXXX. Fig. 2; a portion, with leaves and stipule, magnified.

2. **Polyotus brachycladus** (Tayl.; Gottsche; G. L. et N. Syn. Hep. p. 247). (Tab. CLXXX. Fig. 2.)
   HAB. Tasmania, Neil, 1824, Spence (Herb. Greville).


**Gen. XIV. SENDTNERA, Endlicher.**

   HAB. A few stems picked out of other Hepaticae, gathered in Tasmania by Mr. Gunn. In bogs: summit of Mount Wellington, Oldfield.

   These specimens, like those from New Zealand, correspond nearly with British states of the species, which differ greatly in size from those found in tropical countries, and of which two, apparently mere forms, have been described by Dr. Taylor as distinct species, namely, *S. runcinata*, Tayl., which has its leaves more secund, and their margins more incurved, but otherwise presents no differences, and *S. pensilis*, Tayl. which seems to owe all its peculiarities to having grown in water. Both these states were gathered on the Andes, near Quito, by Professor Jameson.

   HAB. Summit of Mount Wellington, Oldfield.

   HAB. Tasmania, Gunn.

**Gen. XV. TRICHOCOLEA, Dumort.**

1. **Trichocolea tomentella** (Ehrh.; Nees).
   Var. 
   HAB. Forest near Macquarrie Harbour, Gunn. Port Arthur, Oldfield.
Gen. XVI. RADULA, Nees ab E.


"Creeping, scattered, pale olive-brown. Stems scarcely half an inch long; branches very slender, their leaves minute. Leaves cup-shaped, with an obtuse angle at the point most distant from the stem. The lobule has a tenuis base, whilst its top lies flat on the inner part of the leaf, and has a single angle pointing outwards. The perigonii occur in the course of the shoots, and are remarkably long and large in proportion to the size of the stems. The present is the minutest of the Radulae yet observed, and is readily distinguished by its peculiar perigonii."—Dr. Taylor.

Not now present in British herbaria. It is just possible that it is the male plant of R. Novæ-Hollandiæ.


Hab. Near Cumming's Head, Western Mountains, Archer.

Gen. XVII. LEJEUNIA, Gottsche et Ldbg.

1. Lejeunia tumida (Mitten; Fl. N. Zeal. p. 157. pl. 103. f. 3).

Hab. Tasmania, Gunn.


3. Lejeunia Gunniana (Mitten); caule repente vage ramoso, foliis imbricatis oblongo-ovatis obtusis lobulo parvo saccato apice involuto minute bidentato, amphigastriis majusculis orbiculatis sinu acuto bidentatis, foliis involucralibus fere conformibus lobulo lanceolato acuto amphigastrio oblongo-obovato, perianthio oblongo parum retuso compresso acutes pentagono, angulis superne cellulis tumentibus minute crenulatis. (Tab. CLXXX. Fig. 3.)

Hab. Tasmania, Gunn. Brown’s River, Oldfield.


A small species, chiefly remarkable for its lax areolation, and for the minutely crenulate upper edges of the carina of its perianths. In size it resembles L. rufescens, but is much more flaccid, and all the specimens are of a
dirty-brownish colour.—Plate CLXXX. Fig. 3; 1, a portion of the stem, with leaves and stipule; 2, perianth, with involucral leaves and stipule, as seen from the ventral side; 3, transverse section of the upper part of the perianth.—all magnified.


**Hab.** Tasmania, creeping amongst *Radula baccinata*, Stuart.

Forma intermedia inter *L. tabularea* et *L. serpyllifolium*, priori tamen propinquior, sed statura minore, et amphighastris foliorum respectu minoribus diversa.—Gottsche, l.c.

This appears to be nearly allied to *L. tenuirostrata*, and may even be identical with it.


**Hab.** Cheshunt, on trees, *Archer*.

These specimens agree in all respects with European examples of the species, and possess the same property of staining the paper on which they are preserved of a dull-leaden colour.

6. **Lejeunia lyratifolia** (Hook. fil. et Tayl.); caule minuto tenui subdisperso procumbente vage ramoso, foliis laxis patentibus subquadraatis angulo antico exteriore producto, lobulis oblongis involutis, amphighastris (duplicatis) bipartitis, segmentis lanceolatis divaricatis, perianthio axillari ex angusta basi obovato quadricarinato.—*Lond. Journ. Bot.* 1846, p. 393; G. L. et N. Syn. Hep. p. 756. (Tab. CLXXX. Fig. 4.)

**Hab.** Tasmania, creeping over a specimen of *Parmelia diatrypa*, Ach., *J. D. H.*


A minute species, whose place is amongst those with a stipule at the base of every leaf, and generally with a few enlarged cells, giving their leaves a more or less regularly dotted appearance: these are not obvious in the present.—Plate CLXXX. Fig. 4; 1, a portion of the stem, with leaves and stipules; 2, a perianth, with involucrum, as seen on the ventral side; 3, transverse section of the perianth.—all magnified.

**Gen. XVIII. FRULLANIA, Raddi.**


**Hab.** Tasmania, *J. D. H.*

2. **Frullania proboscisophora** (Taylor); caule vage pinnatim ramoso, foliis rotundo-ovatis obtusis integerrimis auriculis lunato-galeatis acuminati acumine decurvo, amphighastris orbiculatis bidentatis dentibus acuuti utrinque bi-tridentatis, foliis involucralibus ovatis acutis dentatis auriculo acuminate marginibus recurvis dentatis basi laciniatis, amphighastro bipartito, lacinii lanceolati dentitis, perianthio involucrum parum excedente obovato obtuso apiculato dorso convexo ventre unicarinato, angulis carinaque crispatulis.—*Tayl. Journ. Bot.* 1846, p. 402; G. L. et N. Syn. Hep. p. 770. (Tab. CLXXX. Fig. 5.)

**Hab.** On the bark of trees: Circular Head, *J. D. H.* Cheshunt, *Archer*.

Very nearly allied to *F. Hampeana*, but a larger species, remarkable in the few specimens yet seen for the discoloration and scarios appearance of its leaves. Its habit appears to resemble that of *F. dilatata*. The perianth is everywhere smooth except the angles, which are minutely undulate or subcribrate.—*Plate CLXXX. Fig. 5; 1, plant, of the natural size; 2, a portion of the stem, with leaves and stipule; 3, involucral leaves, stipule, and perianth, as seen on the ventral side; 4, transverse section of perianth:—all magnified.


_Hab._ Tasmania, amongst other *Hepatica, J. D. II.*

Caespite parvi, albo-virides. _Caules_ fere semipollicares, irregulariter ramosi. _Folia_ arce inimbricata, patentia, tenuissima, plana, elliptica, auriculae galeaeformes cornu subreflexo munita. _Amphigasia caulem excedentia._ _Involucrum_ in ramulo parvo perianthium fere obtegens; foliis involucralibus basi coadunatis, dentatis, erectis, lobulo lanceolato. _Anguli_ perianthii spinis vario modo curvatis, interdum ad instar alii confluentibus, muniti.—Taylor, l. c.

This description agrees, excepting the angles of the perianth, very nearly with the species here considered to be _F. proboscidiophora._


“Scarcely one quarter of an inch long, pale-green, sometimes brownish-purple. _Stipules_ large, their emargination shallow and rounded. _Auricles_ large compared with the leaves. The _calyx_, rising little out of the perichaetium, is widest near the mouth, below which it is rather suddenly contracted. The lateral _perichaetial leaves_ have, besides a segment corresponding to the auricle of the leaf, an inner one which is lanceolate and dentate.—Allied to _F. trineris_, L. et L., but this is of a dark-brown colour, has a more exerted three-nerved calyx, the auricles are less acuminate, and the stipules more entire.”—Taylor, l. c.


_Hab._ On very wet and rotten wood: Goat Hills, New Norfolk, Oldfield.


_Hab._ Tasmania, Gunn. Penquite, and moist rocky banks, Risdown, _J. D. II._ Dense mats on the sides of rocks: Johnny’s Creek. _Roques_ by the seaside: South Port, Kermandie Rivulet, and Mount Wellington, Oldfield. Jackey’s Plain Creek, Archer; gathered also by Stuart.


_Hab._ At the roots of trees: Brown’s River Gully and Johnny’s Creek, Oldfield. Cheshunt, Archer.


_Hab._ Tasmania, Admiral d’Urville, in Herb. Montaigne.


_Hab._ On the bark of _Fagus_: St. Patrick’s River, Gunn. On trees: Ovens Creek, Archer.

10. *Frullania megalocarpa* (Hook. fil. et Tayl.); caule sparso procumbente laxe bipinnato, ramis

HAB. Tasmania, on Mosses, Herb. Greville.


From the foregoing it appears that this species must be very nearly allied to F. congesta, and the only discrepancy is in the direction of the auricles, which Dr. Taylor says are parallel to the stem.

Gen. XIX. FOSSOMBRONIA, Raddi.


HAB. Damp ground: hillside, Woodburn, near Richmond; and wet crevices of rocks: gully by Brown’s River, Oldfield; gathered also by Mr. Archer.


HAB. Cheshunt, Archer.

Gen. XX. ZOOPSIS, Hook. fil. et Tayl.


HAB. The Bedchamber, New Norfolk, Oldfield; frequent, intermixed with Mosses and Hepaticae, Archer.

Gen. XXI. PODOMITRIUM, Mitten.


Gen. XXII. STEETZIA, Lehm.


HAB. Yorktown Rivulet and St. Patrick’s River, Gunn.

The fructification of this very distinct species has not yet been seen, but the fronds agree with those of Steetzia or Symphogyna.

Gen. XXIII. SYMPHOGYNA, Mont. et Nees.


The _S. obovata_, *Hook. fil.* et *Tayl._, corresponds with what is here understood as the fertile state of _S. rhizobola_, and, as might be expected, the attenuations at the apices of the divisions of the fronds are absent. The calyptra, although described by Dr. Taylor as ventral, is truly dorsal, as in all others of the genus. _S. pulchra_, *Tayl._, described with the margins of its fronds entire, has them certainly dentate; although the teeth are short and remote, it scarcely differs in appearance from the preceding. The specimens gathered by Dr. J. D. Hooker are finely in fruit, and the fertile stems are mixed with others corresponding in structure, but differing in habit, being prostrate, and rooting at the apices, like the plants figured in 'Musci Exoti.' The fertile stems are short and ascending, the divisions scarcely exceeding the third of an inch in length, and rounded at their apices, thus having an appearance, if seen separately from the creeping fronds, of being altogether a distinct plant.


_Hab._ Tasmania, *Archer._


_Hab._ Tasmania, *Lyall._

_Frondes_ 2–3 lin. longae, calyptra multo breviores. *Squamae* involucrales circum basin calyptrae quadriquinque-dentatae, apice setacea, erectae. *Capsula* sepe uno latere rima dehiscentes elateresque atque semina e rima emittens, reversa in valvulas numeri indefiniti apice semper coherentes divisa. _Color_ totius plantae est rosen.—*Taylor, l. c._

Sufficiently different from any other Tasmanian species. From the description of the capsule it may be doubtful if it truly belongs to this genus.

Gen. XXIV. **METZGERIA**, *Raddi._


Gen. XXV. **SARCOMITRIUM**, *Corda._


_Hab._ St. Patrick’s River and Acheron River, *Gunn._ Clayey banks of the Kermandie Rivulet, northwest Bay Gully and elsewhere, on very wet banks, *Oldfield._


_Hab._ Springs, Mount Wellington, and on muddy banks, *Oldfield._

Hab. The Falls, Cheshunt, *Archer.*

Calyptera cylindrica, carnosa, setulosa.

This species seems always recognizable by the pale, slightly thickened row of marginal cells.


Hab. St. Patrick’s River, and in a rivulet at an altitude of 6000 feet, Western Mountains, *Gunn.* Ovens Creek, *Archer.*


**Gen. XXVI.** MARCHANTIA, *Linn.*

1. **Marchantia tabularis** (Nees ab E.).

Hab. Tasmania; very common in wet shady places, where there have been fires, but also frequent even on the tops of the hills, *Gunn, J. D. H.* Back River Gully, *Oldfield.* Hospital Bay, South Huon, *Oldfield*; elsewhere, *Archer.*

Marchantia polymorpha, *Linn.*, is stated by Dr. Gottsche, in ‘Planta Müllerianæ,’ to occur in Tasmania, but all the specimens yet seen appear to belong to *M. tabularis*, *Nees,* which differs more in appearance than in any decided character from the European species.

2. **Marchantia pileata** (Mitten, in Fl. N. Zeal. p. 169).—Additum descriptio plantæ masculæ:—receptaculo masculo brevipedunculato orbiculato obtuse quadri-quinquelobo.

Hab. On the ground, with *M. tabularis, J. D. H., Archer.*

Pedunculus bi-trilinaris, basi squamosus. Receptaculum latitudine bilineare, margine crenulatum.

The plant referred to this species corresponds so nearly in the size, colour, and areolation of its fronds, that there seems little reason to doubt its being the male of that already described in the ‘Flora of New Zealand.’

3. **Marchantia foliacea** (Mitten, in Fl. N. Zeal. p. 168).

Hab. Tasmania, *Archer.*
Gen. XXVII. REBOULIA, Nees ab E.

   
   **Hab.** Tasmania, J. D. H.

These specimens present no differences from the British states of the species, and, like them, have the fronds frequently constricted in an articulate manner.

Gen. XXVIII. FIMBRIARIA, Nees ab E.

   
   **Hab.** Tasmania, Gunn. Cheshunt, Archer. Brown's River, Oldfield.

   
   **Hab.** Brown's River, Oldfield.

3. **Fimbriaria tenera** (Mitten, in Fl. N. Zeal. p. 170).
   
   **Hab.** Tasmania, Archer.

Gen. XXIX. TARGIONIA, Micheli.

   
   **Hab.** Brown's River, Oldfield. Cheshunt, Archer.

Gen. XXX. ANTHOCEROS, Micheli.

   
   **Hab.** Near Campbelltown, Gunn. In very wet places, under dripping water: Back River Gully, Oldfield. West-end Rivulet, Archer.

NAT. ORD. VII. FUNGI.

*By the Rev. M. J. Berkeley.*

The great characteristic of Tasmanian *Fungi*, of which 275 species are here enumerated, is their identity with or close relation to European forms. A very few only partake of a subtropical nature, while no considerable number of species exhibit any striking peculiarity. *Polyporus sanguineus* is almost wholly replaced by *P. cinnabarinus*, and though there are a few of those forms which are universal in the tropics, some of the most common species, as *Polyporus xanthopus*, are altogether wanting. A few are common to Tasmania, with Chili, but very few of the peculiar species of New Zealand occur. The Agarics are numerous. I have several species which I could not insert, from possessing only imperfect specimens. The three genera which abound most in species are *Agaricus*, *Polyporus*, and *Peziza*. About 8 species only can be considered as peculiarly Australian. The predominance of European forms will be seen from the following analysis; and of the extra-European forms about 11 only can be considered as at all tropical.
FLORA OF TASMANIA.  [Fungi, by M. J. Berkeley.

British species ................................................. 113
European, which may be expected to occur in Great Britain .... 20
Tasmanian species of European type ................................ 95
Tasmanian species of extra-European type.
Subtropical ...................................... 11
Chilian ............................................. 6
Antarctic and Tasmanian ....................................... 22
Subtropical .................................................. 8

About one-fourteenth only may be considered as subtropical forms, while nine-elevenths are European, whereas in the New Zealand Fungi we have subtropical forms in the proportion of 1 to 3.

Gen. I. AGARICUS, L.

_Lamella_ membranacea, non deliquescentes, acie acute, trama subflocosa, cum hymenophoro infero concreta.

The Tasmanian species of this large genus are extremely numerous, and, as Fries has remarked of those of Australia, in many cases identical with European forms. Almost every tribe has its representative. The common Mushroom and the nearly allied _A. arecensis_ are abundant, but there are few, if any, other esculent varieties. (Name from _Agaria_, a region in Sarmatia.)

_Hab._ On the ground: Penquite, March, _Gunn_.

2. _Agaricus_ (Amanita) _grossus_ (Berk.); _albus_, pileo crasso carnosos plano-hemispherica verrucosus quandoque areolato, stipite bulboso fibrilloso, volva adnata, lamellis latis adnatis rotundatis.
_Hab._ On the ground, _J. D. H._

White. _Pileus_ 4 inches across, hemispherical, slightly flattened, thick, fleshy, covered with large warts, sometimes areolate; margin incurved. _Stem_ bulbous, 3 inches high, above an inch thick; _veil_ none; _volva_ adnate, sometimes obscure. _Gills_ ¾ inch broad, rounded behind, adnate.—A very large, coarse species, to which I can point out no near ally, except possibly _A. excelsus_. The stem however is short in proportion to the size. It approaches in some respects such _Leptota_ as _A. Vittadini_. It seems to be hemispherical in every stage of growth. The rounded gills at once distinguish it from _A. ananaceps_.

3. _Agaricus_ (Lepiota) _procerus_ (Scop.; Fr. Epicrisis, p. 12).
_Hab._ On the ground: Penquite, _Gunn_.

One specimen is exactly _A. procerus_, Krombholz, fig. 10, with its smooth stem; another resembles _A. gracilentus_, Kromb.; and a third is very near _A. mastoides_. All however formed apparently a single group.

4. _Agaricus_ (Lepiota) _cristatus_ (Fr. Ep. p. 15).
_Hab._ On the ground: Penquite, May, 1846, _Gunn_.

5. _Agaricus_ (Tricholoma) _nudus_ (Bull. t. 439).
_Hab._ On the ground: Penquite, May, 1846, _Gunn_.

6. _Agaricus_ (Clitocybe) _inversus_ (Scop.; Fr. Ep. p. 70).
_Hab._ On the ground: Penquite, May, 1846, _Gunn_.

7. _Agaricus_ (Clitocybe) _schizophyllus_ (Berk.); _cespitosus_, connatus, pileo convexo, stipite cartilagineo-fibroso, basi spongioso-tomentoso, lamellis decurrentibus demum margine fissis.
Hab. On charred wood, Archer.

Caespitose, conuate. **Pileus** 1 inch or more across, convex. **Stem** 2 inches high, 2 lines thick, stringy, with a thin cartilagino-fibrous coat, adhering by spongy down to the matrix. **Gills** decurrent, at length split at the margin after the fashion of *Schizoplyllum*. The colour of the whole, when dry, is tawny, approaching to rufous.—This very singular species may possibly some day constitute a new genus. I have however seen but a single group, consisting of three specimens. The gills are not split till the pileus is expanded. In the genus *Agaricus* it is nearest to *A. caffalatus* and its allies.

Hab. On the ground, Gunn, Archer.

Hab. On dead wood, sunk in the ground : Penquite, May, 1846, abundant, Gunn.

10. *Agaricus* (Collybia) **morulus** (Berk.); rufo-purpuric, pileo convexo carnoso stipiteque aequali albo-farcto horizontali asperulis, lamellis planis latis adnatis distantibus. (Tab. CLXXXI. Fig. 1)
Hab. On dead wood, Archer.

Dark mulberry-brown. **Pileus** 1 inch across, convex, fleshy. **Stem** horizontal, rough, like the pileus, with little downy points, stuffed. **Gills** plane, distant, adnate, of the same colour as the pileus.—A fine species, resembling *A. poronius, A. carmeus*, etc., but with distant, thicker gills. *A. carmeus* is confessedly near to *Collybia*, though placed in *Tricholoma*—Plate CLXXXI. Fig. 1; a a, plant, nat. size; b, vertical section; c, portion of pileus:—magnified.

Hab. On dead wood, Archer.

Hab. On dead wood, Archer.

13. *Agaricus* (Mycena) **atrocyaneus** (Batsch. fig. 87).
Hab. On dead wood, Archer.

14. *Agaricus* (Mycena) **interruptus** (Berk.); pileo crassiusculo plano depresso livido pelliculâ cartilagineâ tecto, stipite et basi orbiculari applanata striata oriundo, lamellis crenulatis albidis pilei carne gelatinosâ-carnosâ descendente interruptis. (Tab. CLXXXI. Fig. 2)
Hab. On bark, Archer.

**Pileus** 1½ line across, plane, depressed, livid in the centre, clothed with a cartilagineous pellicle; flesh subgelatinous, separated from the stem by a groove, and interrupting the pallid, crenate, subdecurrent gills. **Stem** ascending, ½ inch high, ½ a line thick, rising from a flattened orbicular disc, and at first sunk into it, and marking it with raised lines by means of the gills.—This singular species is allied to *Agaricus unicor*, but is separated by numerous characters. The dried specimens do not show the portion of the gill within the groove, which is very distinctly represented in Mr. Archer’s drawing.—Plate CLXXXI. Fig. 2; a, plant, nat. size; b, ditto, magnified; c, highly magnified section of the pileus, to show the interrupted gills.

Hab. On Fern, chips, etc., Archer.

Hab. On dead wood, Archer.

17. *Agaricus* (Omphalia) **carneo-rufulus** (Berk.); pileo plano subcarnoso striato lamellisque decurrentibus pallide rufo, stipite ascendentis flexuoso farcto. (Tab. CLXXXI. Fig. 3.)
Hab. On dead wood, Archer.

Whole plant of a pale red-brown. Pileus ½ inch across, plane, subcarnose, striate. Stem 1 inch high, scarce a line thick, downy at the base, fibrillose. Gills arched, moderately broad and distant, but more numerous than in *A. umbelliferus*, decurrent, pale reddish-brown.—Plate CLXXXI. Fig. 3; a, plant, nat. size; b, vertical section, magnified.


Hab. On the ground, Gunn, Archer.

Mr. Archer’s is a pallid form, with very decurrent gills. Gunn collected abundant specimens of a variety varying from primrose to orange, according to age. Other forms also seem to be abundant.

19. **Agaricus (Omphalia) flavo-croceus** (Berk.); pileo convexo umbilicato glabro stipiteque elongato inaequali solido flavis, lamellis latis postice decurrentibus croceis.

Hab. Under logs, Archer.

*Pileus* ½ inch across, convex, umbilicate, pale-yellow, glabrous; margin jagged. Stem 2 inches high, 1 line or more thick, unequal, stringy, dull saffron-yellow, downy at the base. Gills rather numerous, broad, abruptly decurrent, saffron-yellow; margin entire; interstices even.—The numerous gills separate this from the yellow variety of *A. umbelliferus*, while it has the colours but not the narrow gills of *A. chrysophyllus*.

20. **Agaricus (Omphalia) integrellus** (Pers. Ic. et Desc. t. 13. f. 1).

Hab. On dead wood, Archer.

21. **Agaricus (Pleurotus) tephrophanus** (Berk.); pileo excentrico infundibuliformi brunneo rivuloso pulverulentio, stipite hirto e basi strigosa oriundo, lamellis latis postice emarginatis.

Hab. On charred wood, Archer.

*Pileus* 1 inch across, brown, minutely wrinkled and pulvulento, infundibuliform, thin. Stem brown, hispid, ½ inch high, 1 line thick, springing from a strigose base. Gills few, broad, emarginate behind, transversely striate, pale.—This curious species approaches in many respects to *Paxillus atrotomentosus*, but the gills are of a different character.


So phosphorescent that Mr. Gunn was able to read by its light, and it remained luminous six days or more.—A specimen, supposed to belong to this species, but possibly *A. salignus*, was found growing on *Acacia dealbata*, from the cavity in which the caterpillar of a *Cossus* had been nursed, and entirely filling up the shell of the pupa with its mycelium, so as at first sight to appear parasitic upon the insect.

23. **Agaricus (Pleurotus) palmatus** (Bull. t. 216).

Var. sessilis.

Hab. On dead wood, Archer.

This appears to be a sessile form of the plant of Bulliard. There is but a single specimen.

24. **Agaricus (Pleurotus) diversipes** (Berk.); pileo umbilicato l. laterali pelliculo gelatinoso vestito, stipite subcartilagineo compresso cavo elongato brevi l. obsoleteo, lamellis distantibus decurrentibus, interstitiis levibus. (Tab. CLXXXI. Fig. 4.)

Hab. On dead wood, Archer.

*Pileus* 1–2 inches across, central or lateral, umbilicate or depressed behind, covered with a gelatinous pellicle. Stem very variable, elongated and slender, short or obsolete, subcartilaginous, downy at the base, flat, hollow. Gills distant, entire, decurrent, interstices even.—Allied to *A. Tasmanicus*, but distinguished by various characters.—Plate CLXXXI. Fig. 4; a, plant, nat. size; b, vertical section.

Hab. On dead wood, Archer.

Pileus 1 inch or more across, reniform, smooth, even, clothed with a thin gelatinous pellicle. Stemm short, pure white, downy, sometimes quite obsolete. Gills broad, distant, crisped when dry, decurrent where the stem is unusually elongated.—This species does not appear to be resupinate in any stage of growth; still it is allied to *A. algidus*, which is constantly sessile.


Hab. On dead bark, Archer.

Ochry-white. Pileus 2 inches across, fixed by a little white down, purse-shaped, densely tomentose behind. smooth in front; margin incurved. Stem short, nearly smooth. Gills crowded, moderate, broad, slightly decurrent, marked with transverse streaks. Spores subglobose, 1/10 inch long, pale tan-coloured.—I know of no species with which this singular Agaric can be compared. The form and adherent pileus, accompanied by a short stem, etc., are very peculiar.


Hab. On bark and dead wood, Archer.


Hab. On decayed wood, Archer.

A variety with a cinereous pileus.

29. *Agaricus* (Pluteus) *cervinus* (Schæff. t. 10).

Hab. On decayed wood, May, 1846, Gunn.

A form with a pallid, fibrillose stem.

30. *Agaricus* (Entoloma) *panniculus* (Berk.); pileo tenui campanulato obtuso flocculoso stipiteque deorsum incrassato fibrilloso basi albo-tomentoso atro-violaceis, lamellis adnatis secedentibus. (Tab. CLXXXI. Fig. 5.)

Hab. Amongst Fern, March, 1856, Archer.

Pileus broadly campanulate, 1½ inch across, obtuse, but not distinctly umboante, thin except in the centre, dark-violet, flocculent. Stemm of the same colour as the pileus, 2½ inches high, 1½ line thick, fibrillose, thickened at the base, and clothed with cottony down. Gills moderately broad, scarcely ventricose, broadly adnate, but seceding. Spores oval, with several prominences, 1/10 inch long. Smell unpleasant.—This belongs to the Leptonoid group of Entoloma, resembling such species as *A. Lappula*, but without the slightest trace of an umbilicus.—Plate CLXXXI. Fig. 5; a, plant, nat. size; b, section of pileus and stem; c, spores:—highly magnified.


Hab. Amongst leaves, on the ground, Archer.

There is a single specimen also in the collection of a Rhodosporous Agaric, quite indeterminable, with similar spores, but adnexed gills.

32. *Agaricus* (Pholiota) *mutabilis* (Schæff. t. 9).

Hab. On dead wood, Archer.


Hab. On the ground, Gunn.
34. **Agaricus (Galera) tener** (Scheff. t. 70).
   Hab. On the ground, Gunn.

   Hab. On bark, Gunn.

36. **Agaricus (Crepidotus) interceptus** (Berk.); reniformis, ochraceo-albus, pileo e tribus stratis medio albo inter duo obscuriora intercepto, stipite brevissimo laterali. (Tab. CLXXXI. Fig. 6.)
   Hab. On dead bark, Archer.

   *Pileus* 1 inch across, ochraceous, white, reniform, conchate, consisting of three strata, of which the intermediate one is white. *Stem* very short. *Gills* numerous, moderately broad, pale-ochraceous. *Spores* pale-ochraceous, subglobose, \( \frac{1}{2} \) inch long.—Allied to *A. mollis*, but the upper stratum is not gelatinous.—**Plate CLXXXI. Fig. 6; a b, plant, nat. size; b b, vertical section of ditto.**

37. **Agaricus (Crepidotus) Auricula** (Berk.); pileo sessili carnoso postice adnato conchaeformi, lamellis angustis pallidis confronis.
   Hab. On dead wood, Archer.

   *Pileus* 1 inch across, cream-coloured, conchiform, sessile, adnate behind. *Flesh* thick, brittle when dry; margin incurved. *Gills* narrow, pale. *Spores* lentiform, \( \frac{1}{2} \) inch long.—This species is remarkable for the thickness of its flesh, which is brittle when dry.

   Hab. On bark: Penquite, May, Gunn.

39. **Agaricus (Crepidotus) cassiaceolor** (Berk.); pileo resupinato postice affixo farinaceo lamellisque latusculis cinnamomeis, stipite brevissimo candido tomentoso.
   Hab. On dead bark, Archer. A larger form occurs on charred wood, approaching in size to *A. hepatochrous*, Berk., and there is also a smaller form on decorticated wood.

   *Pileus* \( \frac{1}{2} \)-\( \frac{3}{4} \) inch across, reniform, cinnamon-brown, farinaceous, at length fixed behind to the matrix, and resupinate. *Stem* very short and slender, white, tomentose. *Gills* moderately broad, cinnamon. *Spores* subcymbiform, hallowed out on one side, as is the case in most Agarics.—This species is closely allied to *A. hepatochrous*, which is a larger species, with a stout stem.

40. **Agaricus (Crepidotus) leptomorphus** (Berk.); sessilis, vertice byssoidie-affixus, pileo albido tomentoso, lamellis latusculis umbrinis.
   Hab. On dead wood, Archer.

   Sessile, fixed at the vertex by a few delicate white threads, \( \frac{1}{4} \) inch across, whitish, tomentose. *Gills* ventricose, umber, with a pale edge. *Spores* broadly elliptic, almost orbicular when seen from behind, \( \frac{1}{10} \) inch broad.—This is very nearly allied to *A. cassiaceolor*, but differs in colour, and is absolutely stemless.

   Hab. In pastures, Gunn, J. D. H.

42. **Agaricus (Psalliota) arvensis** (Schaeff.; Fr. Ep. p. 213).
   Hab. In pastures, Gunn.

43. **Agaricus (Psalliota) semiglobatus** (Batsch. f. 110).
   Hab. On dung, Gunn.

44. **Agaricus (Hypholoma) fascicularis** (Hud.; Fr. Ep. p. 222).
   Hab. On dead wood, J. D. H., Gunn, Archer.

Hab. On dead wood, Archer.

A small form, ½ inch across.


Hab. On dead wood, Archer.


Hab. Amongst Moss, Archer.

Gen. II. COPRINUS, P.

*Hymenophorum a stipite discretum. Lamellae membranacea, primum stipato-cohereentes, dein diffuentes.*

Distinguished from *Agaricus* by their deliquescent gills, and from *Bolbitius* principally by their habit, and black, not coloured spores. The species appear to be rare in Tasmania, though there is a trace, in the collections, of one or two besides the common *C. stercoreus*. (Name from κόριος, dung.)


Hab. On dung, Archer.

Gen. III. CORTINARIUS, Fr.

*Hymenophorum cum stipite contiguum. Lamellae membranacea, trama floccosa, pileo coherentes, persistentes, decolorantes. Velum araneosum.*

Distinguished from *Agaricus* by their peculiar habit and arachnoid veil. Sporidia cinnamon-red.—The European species are extremely numerous; one only appears to occur in Tasmania. (Name from cortina, a veil.)

1. *Cortinarius* (Myxacium) *Archeri* (Berk.); pileo convexo carnoso rivuloso brunneo-violaceo, stipite valido æquali viscoso violaceo, lamellis pallido-argillaceis latiusculis adnatis transversim rugosis.

Hab. On the ground; Cheshunt, April, 1856, Archer. (Tab. CLXXXI. Fig. 7.)

Pileus convex, fleshy, minutely rivulose, viscid, smooth, of a brownish violet. Flesh pallid, tinted near the gills with violet. Stem stout, equal, obtuse, 1 inch thick, viscid, violet, hollow above. Veil viscid. Gills moderately broad, adnate, subdecurrent, pale clay-coloured, slightly tinted with violet. Spores obliquely ovate, rather elongated, 7&frac35;10 inch long, and half as broad; sometimes however they are much longer.—This species is evidently closely allied to *C. elatus*, but the stout equal stem, thicker flesh, etc., distinguish it. The drawing exhibits merely the young unexpanded plant, and the single specimen is evidently that which was designed. In consequence of the upper part of the stem being hollow, the stem in the dried plant appears bulbous.—Plate CLXXXI. Fig. 7; a a, plant, nat. size; b, vertical section; c, spores upon sporophora, magnified; d, spores, more highly magnified.

No certain specimen of the genus *Hygrophorus* appears in the collections, but there is a doubtful species, resembling *H. cossus*, and a drawing of a minute species with a solid stem, apparently allied to the small form of *H. miniatus*.

Gen. IV. LACTARIUS, Fr.

*Trama vesiculosae. Lamellae lactescentes.*

A genus containing many species, distinguished from others, except *Russula*, by the vesiculose trama, and from that by the milky gills. The spores are often, but not always, globose and echinulate. The Tasmanian species appear to be rare. I have seen only one besides that described, but unfortunately indeterminable. (Name from lac, milk.)
1. **Lactarius stenophyllus** (Berk.); pileo infundibuliforme carnoso lutescenti-albidó zonato, margin involuto, stipite farcto flexuoso, pileo concolore, lamellis angustissimis subincarnatis. (Tab. CLXXXI. Fig. 8.)

Hab. On the ground: Cheshunt, March, 1856, Archer.

Pileus 4 inches across, infundibuliform, dirty-white, tinged with yellow. Flesh moderately thick, dirty-white; margin involute. Stem 1¼ inch high, ¼ inch thick, flexuous, rather uneven, smooth. Gills very narrow and crowded, pointed at the base, but scarcely decurrent, dirty-flesh-coloured. Spores ovate, smooth.—Unfortunately no specimens have been preserved of this species, which is clearly undescribed. The pellicle of the pileus is thick. It is allied apparently to *L. insulsus*. The gills are like those of *L. piperitus*.—Plate CLXXXI. Fig. 8;

Gen. V. **RUSSULA**, Fr.

*Trama vesiculosa. Lamella exsuceae.*

A large genus, distinguished from *Lactarius* by the gills being destitute of milk. One species only has been found in Tasmania, of which however I have seen no specimens. (Name from *russulus*, reddish; in consequence of red being a frequent colour in the genus.)


Hab. Amongst leaves, dead bark, etc., Archer.

Gen. VI. **CANTHARELLUS**, Adans.

*Hymenophorum inferum in tramam floccosam descendens, immutatum. Lamella crassae, obtuse.*

A large genus, distinguished from *Agaricus* by the vein-like obtuse gills, which are not essentially reticulate. The species are either fleshy or membranaceous. One species only has been found in Tasmania. (Name from *cantharus*, a jar.)

1. **Cantharellus strigipes** (Berk.); pileo hepatico convexo, stipite concolore sursum attenuato e strigis fulvis oriendo, plicis angustis radiantibus.

Hab. Amongst charcoal, fern, etc., Archer.

Pileus ¼ inch across, plane or convex and subumbonate, brownish-grey. Stem 1 inch high, smooth, of the same colour, attenuated upwards, springing from radiating, tawny strigé; folds narrow, radiating, grey.—The strigose base at once distinguishes this species when well developed. It has the habit of *C. umbonatus*.

Gen. VII. **MARASMIUS**, Fr.

*Hymenophorum a stipite cartilagineo l. corneo heterogeneum. Lamella nunc late, nunc plicaeformes, acie acuta, valleculis contiguis.—Fungi membranacei l. carnoso-lenti revivescentes.*

Distinguished from *Agaricus* by the tough, coriaceous substance of the pileus, so that the species shrivel up but do not easily decay. Tasmania is not at all rich in species. (Name from *papawo*, to wither.)


Hab. On various dead substances, Gunn.

Hab. On dead wood, growing on a *Thelephora* or *Mycelium*, resembling *T. sebacca*, *J. D. H.*

Gregarious. *Pileus* 1–2 lines or more across, subresupinate, dirty-white, hemispherical, slightly grooved, tomentose, often greyish or brownish when old, at length resupinate. *Stem* about 1 line high, tomentose, curved back. *Gills* few, adnate, thick, ochraceous; interstices even.—This species, like *M. epilicus*, Berk., seems generally to grow on a substance like *Thelephora sebacca*, but whether of the nature of a *Mycelium* or not I am unable to say. In some conditions the pileus becomes entirely attached, and then resembles *M. adhaerens*, Berk. and Curt., a Venezuelan species.

3. *Marasmius subsupinus* (Berk.); pusillus, pileo convexo rugosiusculo furfuraceo postice adhaerente, stipite brevi farinaceo, lamellis paucis rigidis planis.

Hab. On dead wood, *Archer*.

About ¼ of an inch across, ochraceous, with a rufous tinge, convex, rigid, furfuraceous, attached behind; border sulcate or crenate. *Stem* short, farinaceous. *Gills* few, rather thick, firm; edge entire, obtuse, plane or only very slightly ventricose.—The gills are so thick and rigid that this pretty species might almost be placed in *Lentinus*. It varies in colour from nearly white to rufous.


Hab. On fruit and twigs of some *Eucalyptus*, *Archer*.

*Pileus* ¼–½ inch high, conical, brownish, silky, obtuse and truncate, or ending in an apiculate operculiform umbo; margin often reflected. *Stem* setiform, variable in length, dark, shining, sometimes branched and creeping. *Gills* few, cream-coloured, ventricose, attenuated above; interstices wrinkled.—A very distinct and beautiful species.

5. *Marasmius meloniformis* (Berk.); minutus, pileo hemisphérico spadiceo umbilicato profunde sulcato farinaceo, stipite seteformi nitido, lamellis albidis.

Hab. On leaves of *Eucalypti*, and on twigs, *Archer*.

Minute. *Pileus* ¼–1 line across, hemispherical, umbilicate, with about ten deep furrows and as many rounded ribs. *Stem* variable in length, sometimes creeping and branched, dark, shining. *Gills* few, white.—A pretty little species, allied to *M. hamatocephalus*, etc.

Gen. VIII. LENTINUS, Fr.

Coriaceus l. carnoso-lentus. Lamella cum hymenophoro concreta, discrete (nec pliciformes), tenues, absque trama distincta, acie acuta dentata vel inciso-lacerata.

A fine genus, abounding in tropical climates, but not confined to them, and differing from *Agaricus* in the tougher, more persistent substance. The Tasmanian species approach nearer to tropical types than most other Tasmanian *Fungi*. (Name from *lentus*, tough.)


Hab. On dead branches, *Gunn*, etc.

2. *Lentinus hepatotr ichus* (Berk.); pileo ungulato hepatico antice glabrescente postice strigoso, lamellis latis pallidis margine crenato-dentatis. (Tab. CLXXXI. Fig. 9.)


*Pileus* ungulate, sessile, ¼–1 inch broad, liver-coloured, at length smooth in front, behind covered with strigose tufts of hairs. *Gills* broad, distant, far paler than the pileus, and yellowish, with the edge strongly crenato-dentate. *Spores* dirty-white, elliptic.—Plate CLXXXI. Fig. 9; a, upper side, nat. size; b, under side, ditto; c, spores on sporophores.

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3. *Lentinus pulvinulus* (Berk.) resupinatus vel vertice affixus, pulvinatus, pileo pallido glabro
margine sulcato, lamellis latis ochroleucis integris. (Tab. CLXXXI. Fig. 10.)

**Hab.** On dead wood, *Archer*.

About ½–1 inch across or resupinate, laterally attached, remarkably convex, smooth, ochraceous; margin sulcate. *Gills* very broad, yellowish, farinaceous; edge entire.—There are but three individuals of this very interesting species, and those not very perfect, but they show that it is quite distinct from anything that has hitherto been published in this beautiful group.—**Plate CLXXXI.** Fig. 10; *a*, plant, *nat. size*; *b*, vertical section.

There are two indifferent specimens in the Tasmanian collections of an obscure, smooth *Lentinus*, with an even stem, which is possibly undescribed, but I have not sufficient materials to draw up a good character.

**Gen. IX.** PANUS, Fr.

*Carnoso-coriaceus, tenax, arescens. Lamelae perfectae, tenaces, inaequalis, acie acuta integerrima, trama distincta fibrosa in hymenium radiante.*

Distinguished from *Lentinus* by its fibrous trama, and the entire edge of the gills. (Name from *panus*, a web; in allusion to the nature of the trama.)

1. *Panus saccharinus* (Berk.); pileo reniformi horizontali subcarnoso, stipite brevi furfuraceo vel
obsoletó, lamellis marginé glanduloso-appendiculatis.

**Hab.** On dead wood, *Archer*.

From ½–1 inch across, reniform, somewhat fleshy, wrinkled when dry, either entirely sessile or springing from a short furfuraceous stem. *Gills* moderately broad; edge glandular, as if dusted with sugar. The tint varies from ochraceous to lateritious.—This species is closely allied to *Panus stypticus*, but appears to be truly distinct. The gills are broader, and the pileus, though not smooth, is by no means broken up into furfuraceous scales.

**Gen. X.** XEROTUS, Fr.

*Hymenophorum* cum stipite contiguum, descendens in tramam cum pileo coriaceo-membranaceo tenui
homogeneum. *Lamelae* integre, obtuse, coriaceae.

A most beautiful genus, resembling *Cantharellus*, but differing in substance, and in the broad gills of the more typical species. (Name from *épos*, dry.)

1. *Xerotus Archeri* (Berk.); pileo reniformi minutissime ruguloso sulcato rufo, stipite brevissimo,
margine deflexo, lamellis umbrino-brunneis inaequalibus simplicibus latiusculis distantibus pancis interstitiis
lævibus. (Tab. CLXXXII. Fig. 1.)

**Hab.** On dead sticks, etc., *Archer*.

*Pileus* ½ inch broad, red-brown, in parts paler, very minutely wrinkled, sulcate, smooth, at first furfuraceous; margin waved. *Stem* very short, lateral, pulverulent. *Gills* few, simple, moderately broad, waved, with shorter ones intermixed, brownish; interstices even.—Closely allied to *X. discolor*, which however differs in the absence of a stem, the more simple gills, etc. I have the same species from Chili.—**Plate CLXXXII.** Fig. 1; *a*, plant of *nat. size*.

2. *Xerotus papyraceus* (Berk.); papyraceous, pileo pallido striato l. lævi tenui, margine demum
expanso, lamellis simplicibus fuscis l. pallidis. (Tab. CLXXXII. Fig. 2.)

**Hab.** On dead wood, *J. D. H., Archer*.

Subimbricated, thin, pallid, at first convex, ½ inch broad, striate; margin expanded. *Stem* very short or obsolete. *Gills* brown, simple, more numerous than in the last species.—This is very distinct, but its characters are
Fungi, by M. J. Berkeley.]

not easily defined. It is thinner, with scarcely any tint of red, and the gills are nearly twice as numerous. Dr. Hooker’s specimens have the pileus even, and the gills pallid.—Plate CLXXXII. Fig. 2; a, plant of nat. size.

Gen. XI. SCHIZOPHYLLUM, Fr.

Aridus, excarnis. Lamellae coriaceae, ramoso-flabelliformes, acie longitudinaliter fissa, lamellulis discretis extrorsum revolutis.

The split gills distinguish this genus from every species of the Agaricinus group except A. schizophyllum, from which the habit, substance, and whole character at once separate it. It appears to be rare in Tasmania, as might be supposed from the very European type of almost all its species. (Name from σχίζω, to clean, and φώλlion, a leaf.)


Hab. On dead wood, J. D. H.

It does not occur in the other collections. No species of Lenzites have yet been discovered, and the genus is also absent from New Zealand, except under the tropical form of L. repanda.

Gen. XII. BOLETUS, L.

Hymenophorum ab hymenio prorsus discretum, nec in tramam descendens; tabuli ab hymenophoro secedentes.

This genus, which contains many species, is in the series Polyporei what Agaricus is in Agaricinæ, exhibiting at the same time the same loose connection between the hymenium and pileus as Paxillus. Exotic species are but little known, but those which have been noticed often exceed in beauty European forms. Two only have been distinguished in Tasmania, but there is evidence of other forms. (Name from Boletus, a mushroom; itself formed from βόλτα, a dish.)


Hab. On the roots of shrubs, Gunn.

2. Boletus megalosporus (Berk.); pileo plano subalutaceo, stipite deorsum increassato areolato monticuloso sursum reticulato, poris incarnatis, sporis maximis un-is septatis. (TAB. CLXXXII. Fig. 3.)

Hab. On the ground, principally under trees: Cheshunt, Archer.

Pileus 4 inches across, flat but waved, tan-coloured, tinged with umber. Stem 2 inches high, bulbous, pale tan-coloured, reticulated above, below divided into pulvinate areole. Tubes rose-coloured. Spores oblong, un-trisep- tate, 2\frac{1}{4} inch long, 2\frac{1}{8} inch broad.—Unfortunately no specimens have been preserved; the exact affinities cannot therefore be indicated, though the species is probably near Boletus alutarius. The large spores and very peculiar stem, with other characters, will at once point out the species.—Plate CLXXXII. Fig. 3; a, plant, nat. size; b, spore, magnified.

Gen. XIII. POLYPORUS, Fr.

Hymenophorum inter poros in tramam descendens, sed cum eisdem in stratum proprimum seu discolor mutatum. Pori cum pilci substantia contigui, a se invicem haud separabiles, primitus obsoleti seu minutissimi.

An enormous genus, containing many truly tropical species, of which scarcely one enters into the Tasmanian Flora. As in the 'Flora of New Zealand,' I retain the divisions proposed by Fries in his 'Epiceris,' without however venturing any opinion contrary to his later views. (Name from πολυς, many, and πόρος, a pore.)
   Hab. On the ground, *Gunn, Archer, J. D. H.*

I have no perfect specimens of white, fleshy, or coriaceous *Mesopodes*. There is however evidence of the occurrence of one or perhaps two species in Tasmania.

   (Tab. CLXXXII. Fig. 4.)
   Hab. On dead wood, *Lawrence, Gunn, Archer, etc.*

   **Plate CLXXXII.** Fig. 4, plant of nat. size.


4. **Polyporus (Pleuropus) intonsus** (Berk.); pileo flabelliformi tenui velutino brunneo, stipite excentrico brevi, hymenio albo, poris minutis punctiformibus decurrentibus.

   *Pileus* flabelliform, 1 inch long and broad, depressed behind, thin, brown, with a rufous tinge, minutely velvety, somewhat virgate. *Stem* 2 lines high, 1½ thick, attached by an orbicular disc. *Hymenium* white. *Pores* decurrent, minute, punctiform, 1½ inch across.—A small species, allied to *P. varius*.

5. **Polyporus (Pleuropus) lucidus** (Fr. Ep. p. 442).
   Hab. On dead wood, *Lawrence, Gunn.*

   Hab. On dead wood, *Gunn.*

   Apparently a rare species in Tasmania, although *P. cinnabarina* is extremely abundant.

7. **Polyporus (Merisma) frondosus** (Fr. Ep. p. 446).
   Hab. On dead trees, *Gunn.*

8. **Polyporus (Merisma) sulphureus** (Fr. Ep. p. 450).
   Hab. On dead wood, *Gunn.*

   Hab. On dead wood, *Gunn.*

10. **Polyporus (Anodermei) tephronotus** (Berk.); pileo molli tomentoso niveo postice brunneo, hymenio ex albo subcinerascente, poris minimis subrotundis.  
    (Tab. CLXXXII. Fig. 5.)

   *Pileus* 2 inches or more across, 1¾ inch long, sometimes pulvinate, sometimes thin, tomentose, almost spongy, pure-white, changing behind to brown. *Hymenium* white, but gradually assuming a pale-cinereous tint. *Pores* minute, 1½ inch across, scarcely visible to the naked eye, punctiform.—This, though obviously belonging to the same section as *P. epileucus*, is allied to *P. angustus* and *rhinocerous*. The older part sometimes becomes wrinkled, as in the latter species. There is a resupinate form, which at first sight seems distinct.—**Plate CLXXXII.** Fig. 5; plant of nat. size.

11. **Polyporus (Anodermei) campylus** (Berk.); pileo palmato lobato albo glabrescente, hymenio concavo, poris parvis irregularibus, margine obtusiusculo.  
    (Tab. CLXXXII. Fig. 6.)

   *Pileus* slightly imbricated, 1½—2 inches long, flabelliform, deeply lobed, and sometimes anastomosing, strongly curved when dry, white, slightly grooved, nearly smooth. *Hymenium* concave, white. *Pores* irregular, 1/8 inch across; edge rather obtuse.—This belongs to the same section as *P. borealis*, and is at once distinguished by its strongly lobed margin, which is deeply incurved when dry.—**Plate CLXXXII.** Fig. 6; plant of nat. size.
12. *Polyporus (Anodermei) angustus* (Berk.); pileus angusto antice renascente pallido subtomentoso postice exoelo scabriusculo fusco decurrenti-adenato, hymenio albo, poris minimis angulato-punctiformibus. (Tab. CLXXXII. Fig. 7.)

_Hab._ On dead wood, _Archer._

_Pileus_ \(\frac{1}{2}-\frac{3}{4}\) inch long, \(2\frac{1}{2}\) inches wide, decurrenti-affixed, behind exoelo, brown, slightly scabrous, in front pale, slightly tomentose. _Hymenium_ white. _Pores_ very minute, \(\frac{1}{2}\) inch across, not visible to the naked eye, angularis-punctiformis. _Substance_ white, moderately firm.—This species seems strictly biennial. The more recent parts gradually acquire a resinous appearance, and at length become brown and almost laccaite.—Plate CLXXXII. Fig. 7, _nat. size._

13. *Polyporus (Anodermei) rhinocephalus* (Berk.); pileo dimidiato conchato tenui albido primum tomentoso demum scabro-venoso aculeato, poris ex albo cinereis minutis. (Tab. CLXXXII. Fig. 8.)

_Hab._ On dead wood, _Archer._

_Pileus_ 1 inch broad, \(\frac{3}{4}\) inch wide, dimidiate, conchate, thin, rigid when dry, at first white tomentose, nearly even, at length scabro-venous or aculeate, becoming resinous, and at length brown. _Hymenium_ concave, at first pale like the pileus, then cinereous. _Pores_ minute, angular, \(\frac{1}{40}\) inch across.—This species appears to be allied to _P. adustus_, but is more rigid when dry, and has a very different aspect. It is also closely allied to _P. angustus._—Plate CLXXXII. Fig. 8, _nat. size._


_Hab._ On twigs, etc.: Back River Gully, New Norfolk, _Gunn, J. D. H._

_Pileus_ flabelliform, 3-4 inches across, \(2\frac{1}{2}\) inches long, thin, slightly wrinkled, sometimes obscurely zoned, tomentose, dirty-white, becoming brownish; edge very thin. _Hymenium_ white. _Pores_ irregular, \(\frac{1}{40}\) inch across._Dissepiments_ toothed.—Allied to _P. adustus._


_Hab._ On dead wood, _Gunn, Archer, etc._


_Hab._ On dead wood, _Gunn, Archer, etc._

Allied to _P. betulinus._


_Hab._ On trunks of trees, _Gunn._


_Hab._ On dead wood, _Gunn, Archer, etc._

_Common on Fagus Cunninghamii._


On dead wood, _Gunn, etc._

A very large form occurs on _Eucalyptus._


_Hab._ On bark. Communicated by the late _Mr. W. Gourlie._

About 1 inch across, \(\frac{3}{4}\) long, dimidiate, convex, umber, tinged with yellow, with two or three zones, clothed, especially behind, with coarse pubescence. _Substance_ moderately soft, pale-umber. _Pores_ \(\frac{1}{60}\) inch across, irregular, unequal; _dissepiment_ rather thick.—Allied to _P. fulvescens_, _Fr._, and _P. excavatus_, _Berk._

*Hab.* On dead wood, *Gunn, etc.*

22. *Polyporus* (Placodermei) *Tasmanicus* (Berk.); *pileo angusto sulcato pallide fulvo tomentoso, hymenio contextuque concoloribus, poris minutis punctiformibus.*

*Hab.* On dead wood, *Archer.*

*Pileus* apparently of several years’ growth, very narrow, grooved, pale-tawny when young, slightly tomentose. *Hymenium and substance* of the same colour. *Pores* minute, punctiform, substratose, \( \frac{1}{32} \) inch across.—This species resembles *P. conclamat* and *sulcinus*, but the substance is of a far paler hue, and the appearance different.


*Hab.* On dead wood, *Gunn, Archer, J. D. H., etc.*


*Hab.* On dead wood, *Gunn.*

I believe my *P. isidioides* is merely a state of this.


*Hab.* On dead wood, *Gunn, Archer, etc.*


*Hab.* On dead wood, *Gunn, Archer, etc.*


*Hab.* On dead wood, *Gunn, Archer, J. D. H.*


*Hab.* On dead wood, *Archer.*

*Pileus* \( \frac{1}{4} \) inch broad, \( \frac{1}{2} \) inch long, thin, slightly zoned, dimidiato-flabellate, covered with a thin, shining, rufous varnish; edge uneven, thin. *Hymenium* pale. *Pores* minute, scarcely visible to the naked eye, irregular, \( \frac{1}{32} \) inch across; dissepiments thin.

29. *Polyporus* (Inodermei) *Friesii* (Kl. Linn. viii. t. 11).

*Hab.* On dead wood, *J. D. H.*

This species occurs also in the warmer parts of the United States.

30. *Polyporus* (Resupinatus) *apricus* (Berk.); *resupinatus, effusus, laxe adhaerens, xylostromaticus, cervino-pallidus, poris medii sparsis, dissepimentis tenuibus.*

*Hab.* On dead timber, *J. D. H.*

Effused, of a pallid fawn-colour, tinged here and there with yellow, membranous, adhering loosely, in parts slightly reflexed and tomentose. *Pores* occupying detached patches, \( \frac{1}{6} \) inch across, pale fawn-coloured, angular; dissepiments thin, their edge acute.

31. *Polyporus* (Resupinatus) *merulinus* (Berk.); *resupinatus, effusus, aurantiacus, subiculo tenui membranaceo tomentoso, poris medii dissepimentis membranaceis.*

*Hab.* On dead wood, *Archer.*

Orange-coloured, resupinate, effused, without any definite margin, or only the thin, somewhat membranaceous, tomentose subiculum. *Pores* elongated from their position, darker than the subiculum, small, \( \frac{1}{6} \) inch across; dissepiments thin, their edge acute.
piments thin, membranaceous.—This species has a Merulioid aspect, but is a true Polyporus, allied to P. aeneius. Its dark-orange pores must render it a pretty species when fresh.

32. **Polyporus (Resupinatus) Archeri** (Berk.); resupinatus, effusus, armeniacus, coriaceo-membranaceus, margine tomentoso, poris minutis irregularibus, acie acuta.

**Hab.** On dead wood, Archer.

Effused, resupinate, coriaceo-membranaceous, apricot-coloured; margin tomentose, flat or slightly raised. **Pores** minute, $\frac{1}{10}$ inch across, irregular; edge acute.—The coriaceo-membranaceous texture and bright apricot tint easily distinguish this pretty species. Occasionally parts of the plant are bleached. The pores are much smaller than in P. apricus, which however differs in other respects.


**Hab.** On dead wood, Gunn.

34. **Polyporus (Resupinatus) latus** (Berk. in Ann. Nat. Hist. iii. 325).

**Hab.** On dead wood, Gunn, J. D. H.

35. **Polyporus (Resupinatus) daedaleoides** (Berk. in Ann. Nat. Hist. iii. 325).

**Hab.** On dead wood, Gunn.

36. **Polyporus hyalinus** (Berk.); resupinatus, albus, vitreus, tenuis, ambitu tomentoso, poris minimis centro elongatis.

**Hab.** On dead decorticated wood, Archer.

Resupinate, thin; border tomentose, but tolerably even, not spreading out into byssoid threads. **Hymenium** much cracked when dry. **Pores** hyaline, very minute, elongated in the centre, $\frac{1}{3}$ inch across.—Allied to P. vitreus, but very thin and delicate.

37. **Polyporus (Resupinatus) vaporarius** (Fr. Ep. p. 487).

**Hab.** On dead wood, Archer.

**Gen. XIV. HEXAGONIA, Fr.**

**Hymenophorum** descendens in trumam cum pilei substantia omnino concolorem et similem. **Pori** alveolares primitus dilatati.

Distinguished from *Polyporus* by its regular, large pores, shaped like the cells of a honeycomb. The species are mostly tropical. (Name from 69, six, and γωγων, an angle.)


**Hab.** On trunks of Eucalyptus, Gunn, Archer, etc.

**Gen. XV. FAVOLUS, Fr.**

Carnoso-lentus. **Hymenium** reticulatum, cellulosum, alveolatum. **Alveoli** radiantes e lamellis dense anastomosantibus formati, elongati, parietibus duplicatis.

The species approach some of the fleshy *Polypori*, but they differ in the cells being dilated from the first, as in *Hexagonia*. (Name from favus, a honeycomb.)

1. **Favolus pusillus** (Fr. in Linn. v. p. 511).

**Hab.** On dead wood, Gunn.
Gen. XVI. MERULUS, Hall.

_Hymenium_ ceraceo-molle, plicis obtusis reticulatum.

The reticulate folds distinguish this genus from its allies. The species belong principally to temperate regions. _M. corium_ is very widely distributed, and assumes various forms. (Name originally given to the Morel, from _merum_, pure (safe to eat), and transferred to Fungi with a reticulate hymenium by Haller.)

1. **Merulius corium** (Fr. El. p. 58).
   **Hab.** On dead wood, Archer.

   **Hab.** On dead wood, Archer.

Some states are scarcely distinguishable from _Phlebia_.

Gen. XVII. POROTHELIUM, Fr.

_Hymenium_ papillatum, papille demum aperte cum hymenophoro contiguo.

The resupinate species are immediately connected with _Polyporus_ by the corky _P. rugosum_, from South America. From _Tistulina_ the genus is distinguished by habit rather than by any definite characters. (Name from _πόρος_, a pore, and _θημη_, a pop.)

1. **Porothelium subtile** (Fr. Ep. p. 504).
   **Hab.** On dead wood, Archer.

Gen. XVIII. HYDNUM, L.

_Hymenium_ aculeatum; aculei liberi, deorsum spectantes, nisi in resupinatis.

A large genus, containing the greater part of the Fungi which bear true prickles in contradistinction to broken pore-walls on the hymenium. _H. repandum_, a Tasmanian species, is one of the best esculent Fungi. (Name from _στορο_, a fungus.)

1. **Hydnum laevigatum** (Swartz; Fr. Syst. i. p. 399).
   **Hab.** On the ground, Archer.

2. **Hydnum repandum** (L. Suec. 1258).
   **Hab.** On the ground, J. D. H.

3. **Hydnum cervinum** (Berk.); resupinatum, effusum, immarginatum, vinoso-pallidum, primitus subtiliter tomentosum, aculeis setiformibus.
   **Hab.** On dead wood, Archer.

   Very thin, effused, resupinate, at first minutely tomentose, arachnoid, then partially shining, as if washed with a delicate coat of gum, of a pallid-fawn tint. _Prickles_ slender, short, setiform.

4. **Hydnum filicicola** (Berk.); resupinatum, effusum, immarginatum, album, tenue, setulis basi poroso-connexis applanatis acutis.
   **Hab.** On dead Fern-stems, Archer.

   Resupinate, thin, effused, immarginate, white, forming a thin membrane neither distinctly farinose nor tomentose. _Teeth_ connected at the base so as to form imperfect pores, flat, acuminate, often triangular.—An obscure species, which bears a distant resemblance to _Polyporus vaporarius_, and approaches in its characters the genus _Irplex_.
5. **Hydnum udum** (Fr. Ep. p. 517).
   **Hab.** On dead wood, Archer.

Gen. XIX. **IRPEX, Fr.**

*Hymenium* inferum, primitus dentatum; *aculei* variis, seriatim l. reticulatum dispositi basique plicis lamellosis (in sessilibus) porosissae (in resupinatis) concatenati.

Distinguished from *Hydnum* by the connected teeth. From *Polypori* they differ in not being essentially porous. (Name from *irpex,* a harrow.)

1. **Irpex Archeri** (Berk.); albus, resupinatus, margine tomentoso arachnoideo, dentibus reticulato-connexis brevibus palmatis. (Tab. CLXXXIII. Fig. 1.)
   **Hab.** On dead wood, Archer.

Effused, resupinate, white; margin thin, tomentose, arachnoid, barren. *Teeth* connected at the base, short, palmate.—This curious species is allied to *Radulum palmatum,* Berk., and with that and one or two more will probably form a genus distinguished from *Irpex* by its palmate teeth. In *R. palmatum* (Ann. Nat. Hist. ix. p. 445) the teeth are one or two lines long; in this, which has essentially the same structure, they do not exceed half a line. The genus, if it be thought worthy of being distinguished, may be called *Cladodontia.—Plate* CLXXXIII. Fig. 1; *a,* plant, nat. size; *b,* hymenium, magnified.

Gen. XX. **GRANDINIA, Fr.**

*Hymenium* amphigenum, ceraceum, primitus granulosum, granulis subsphericiis obtusis excavatisque.

Distinguished from allied genera by the granular nature of the aculei. The species approach sometimes very close to *Kneiffia.* (Name from *grando,* hail; in allusion to the granular hymenium.)

   **Hab.** On decorticated wood, Archer.

2. **Grandinia australis** (Berk.); resupinata, effusa, immarginata, pallida, rimosae, intus niveae, hymenio granulato, granulis uni-bipapillatis.
   **Hab.** On dead wood, Archer.

Entirely effused and resupinate, without any evident margin, pale, white within, cracked. *Hymenium* rough with unequal granules, each of which has one or more distinct papillae.—This appears to be quite distinct from any of the European species, and to approach near to *Kneiffia,* from which it differs only in the papillae not being prolonged into bristles.

Gen. XXI. **ODONTIA, Fr.**

*Hymenium* inferum, fibroso-contextum, protrudens verrucas apice cristato-multifidas inter se discretas.

A genus consisting of a few species only, separated from *Hydnum* by its wart-like, crested aculei. (Name from *odos,* a tooth.)

1. **Odontia secernibilis** (Berk.); resupinata, membranacea, secernibilis, alba, aculeis brevissimis compressis subdivis.
   **Hab.** On dead wood, J. D. H., Archer.

Resupinate, separating entirely from the matrix, white, membranaceous, rather irregular. *Teeth* very minute, short, tomentose, compressed, slightly divided or toothed.—This has the habit of *H. ochraceum,* but the teeth of *Odontia.*

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Gen. XXII. CRATERELLUS, Fr.

Carnosi. Hymenium distinctum, immutabile, demum subrugosum.

The species of this genus are analogous to Cantharellus, but belong to a different series. The only Tasmanian species looks like a stipitate Merulina corium. (Name from *sparrp, a goblet.)

1. **Craterellus Pusio** (Berk.); aurantiacus, pileo laterali convexo, stipite lævi sursum incrassato, hymenio rugoso venoso.

Hab. Amongst Moss, Archer.

Orange. *Pileus* 2–3 lines across, convex, lateral. *Stem* about 2 lines high, incrassated above. *Hymenium* concave, darker than the pileus, rugoso-venose.—A small but very pretty species.

Gen. XXIII. THELEPHORA, Fr.

Ecarnoso rigescentes, subcoriacei; hymenio cum pileo anodermeo concreto, ramoso-costato papillosove.

In the more typical species the hymenium is various, papillary, or venose, but in some it is nearly even. The absence of any cuticle is an important character affecting the form, which is usually less definite than in Stereum. (Name *θρη, a pap, and ἀπό, to bear.)

1. **Thelephora riccioidea** (Berk.); resupinata, arcte affixa, radiato-ramosa, pallida.

Hab. On the bare soil: New Norfolk, Gunn.

Three inches or more across, closely fixed to the soil, radiating, branched, dirty-white; divisions dilated above, convex or concave.—This rather coarse species differs from every other with which I am acquainted. At first sight it somewhat resembles *Thelephora sebacea*, but it is essentially branched.

2. **Thelephora Sowerbeii** (Berk.)—Helvella pannosa, Sow. t. 155.

Hab. On the ground, Gunn, Archer, etc.

3. **Thelephora Archeri** (Berk.); dichotoma, stipibus deorsum connatis, ramis compressis sursum dilatatis ochraceis, apicibus acutis brunneis. (Tab. CLXXXIII. Fig. 2.)

Hab. On the ground, Archer.

About 1½ inch high, dichotomous. *Stems* springing from a white, downy mycelium, combined below into a solid cylindrical mass, 2 lines thick, branched two or three times, forked, ochraceous; tips acute, brown.—Plate CLXXXIII. Fig. 2; plant, nat. size; b, portion, magnified.


Hab. Running over Jungermanniae, etc., J. D. H.

From the minuteness of the plants round which it grows, the specimens have a different appearance from those of Europe, but it seems to be the same species.

5. **Thelephora viridis** (Berk.); resupinata, effusa, immarginata, tomentoso-mollis, viridis, hymenio granulato.

Hab. On dead wood, Archer.

Effused, about an inch broad, dull-green, of a soft tomentose substance. *Hymenium* covered with minute granules, not visible to the naked eye. In colour it resembles *Hydnum viride*.

Gen. XXIV. STEREUM, Fr.

Hymenium coriaceum, sat crassum, cum strato intermedio pilei dermatini concretum, læve, semper immutatum et contiguum, persistens.
The Tasmanian species are for the most-part European. *S. lobatum* is a tropical and subtropical form. (Name from *scapos*, stiff.)

1. **Stereum lobatum** (Kze. in Weig. Exs.).
   HAB. Tasmania, Gunn, Archer, Lawrence, J. D. H.

   HAB. On dead wood, Archer.

   HAB. On dead wood, J. D. H., Gunn, Archer.

4. **Stereum concolor** (Berk.); albidum, pileo dimidiato postice decurrente molli tomentoso per exsiccationem contracto involuto, hymenio laevi concolore.
   HAB. On twigs, dead branches, etc., Archer.
   Dirty-white, sometimes tinged with ochre. *Pileus* dimidiate or effuso-reflexed, decurrent behind, soft, tomentose, contracted and involute when dry. *Hymenium* smooth, even, of the same colour as the pileus.—Distinguished from every form of *S. hirsutum* by its less coriaceous substance, in consequence of which it is contracted when dry.

5. **Stereum spadiceum** (Fr. Ep. p. 549).
   HAB. On dead wood, Archer.

   HAB. On dead wood, J. D. H., Gunn, Archer.

   HAB. On dead wood, Archer.

8. **Stereum Archeri** (Berk.); resupinatum, effusum, immarginatum, secrernibile, vinoso-fuscum, setulosum, intus umbrinum.
   HAB. On dead wood, Archer.
   Effused, resupinate, rigid when dry, moderately thick, of a deep mulberry-brown, setulose, very sparingly cracked, umber within, separating from the matrix.—Allied to *Stereum rubiginosum*.

   HAB. On bark, Archer.

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**Gen. XXV. CORTICIUM, Fr.**

*Hymenium* amphigenum, vegetum et fertile tumens, carnosio-molle, udum, undulatum papillosumve, siccitate collabens, levigatum, saepissime rimoso-incisum.

Distinguished from *Thelephora* and *Stereum* by the softer, more tender hymenium. (Name from cortex, bark; in consequence of the habitat of many of the species.)

1. **Corticium ochroleucum** (Fr. Ep. p. 557).
   HAB. On dead wood, Archer.

2. **Corticium Mougeotii** (Fr. Ep. p. 558).
   HAB. Tasmania, Archer.
   This beautiful species occurs in the Himalaya, as well as in Europe and Tasmania.

   HAB. On dead wood, Archer.
   Hab. On dead wood, Archer.

   Hab. On dead wood, Archer.

   Hab. On dead bark, Archer.

7. *Corticium Archeri* (Berk.); resupinatum, rufo-pallidum, intus album, erassiusculum, rimosum, immarginatum.
   Hab. On charred wood, Archer.

   Effused, resupinate, immarginate, of a dirty pale-rufous, cracked, white within.—Allied to *C. carneum*.

   Hab. On dead wood, Archer.

   Specimens occur in the collection which I at first referred to *Auricularia minuta*, Berk., but I am now inclined to refer them as a var. to *S. hirsutum*.

Gen. XXVI. **GUEPINIA**, Fr.

Gelatinosa, subtremellina, intumescent, sicca contrahitur, subcartilaginea. *Hymenium* definite inferum vel primitus superum, immutatum, persistens.

Between *Thelephora* and *Tremella*. Some of the species are beautiful Fungi. (Name from Guepin, a French botanist.)

   Hab. On dead wood, *J. D. H., Gunn, etc.*

Gen. XXVII. **CYPHELLA**, Fr.

Submembranacea, postice adnata, subporrecta, pendula, raro erecta. *Hymenium* ut plurimum inferum, non discretum, demum insequabile.

This genus includes those cup-shaped Fungi which are destitute of true asci. The species are mostly small and obscure. (Name from κυφός, leaning forward.)

   Hab. On mossy twigs, *Archer*.

   Hab. On dead bark, *Archer*.

Gen. XXVIII. **CLAVARIA**, L.

Carnosa, ramosa l. simplex, teres absque stipite distincto; hymenio contiguo, sicco.

A vast genus, represented in Tasmania by several European forms, of which one or two are esculent. I have seen two other species besides those here enumerated, but cannot determine them from dried specimens. (Name from clava, a club.)

   Hab. On the ground, *Archer*.

Hab. On the ground, and on Fern-stems, Archer.

A fuliginous variety, which is sometimes divided, sometimes simply clavate, and then approaching the dark state of *Clavaria rugosa*.

3. **Clavaria lutea** (Vittadini, Fung. Mang. t. 29. f. 3).

Hab. On the ground, Archer.


Hab. On the ground, Archer.

There are two forms in the collection, a larger and a smaller.

5. **Clavaria Archeri** (Berk.); fasciculata, brevis, aurantiaca, flabellato-clavata, rugosiuscula. (Tab. CLXXXIII. Fig. 3.)

Hab. On the ground, Archer.

About 1 inch high, tufted, orange, flabellato-clavate from a thin stem, slightly wrinkled.—A very pretty species, approaching in appearance some of the pale *Thelephora*. There is a taller variety of a deeper tint, and less tufted growth.—Plate CLXXXIII. Fig. 3, plants, nat. size.

6. **Clavaria rhizomorpha** (Berk.); erumpens, confluent, castaneo-rubra, subsimplex. (Tab. CLXXXIII. Fig. 4.)

Hab. On dead bark, Archer.

Springing from cracks in the bark, confluent at the base, of a rich chestnut-red, simple or very slightly branched, irregular, obtuse.—A very singular species, with the habit of *Calocera*.—Plate CLXXXIII. Fig. 4, plants, nat. size.


Hab. On twigs, Archer.

The Tasmanian form is very slender, and creeps frequently for several inches along decayed twigs. It is, I believe, the same with *Calocera flium* Lév., a Chilian Fungus, confounded by Léveillé with *Oriuca Gayana* M., which, however similar in appearance when incomplete, is distinguished when perfect by its abrupt, terminal, globular head.

Gen. XXIX. **CALOCERA**, Fr.

Omnia *Clavariae* excepto contextu firmo gelatinoso.

Distinguished from *Clavaria* by the gelatinous substance, in consequence of which, when dry, the plant appears horny. (Name from καλος, beautiful, and κέρας, a horn.)


Hab. On dead wood, J. D. H., Archer.

The Tasmanian specimens belong to the simple form.

Gen. XXX. **TREMELLA**, Dill.

Gelatinosa, tremula, immarginata, enucleata, contextu floccoso, epapillosa, undique fructificans. *Spora* e sporophoris discretis oriundae, simplices.

Separated from *Daecrymyces* by its simple, not septate spores, and from some others of the section by its more gelatinous substance and determinate hymenium. (Name from *tremulus*, trembling; in allusion to the soft substance.)
   Hab. On dead wood, *Gunn.*

   Hab. On dead wood, *Gunn, Archer.*


   Hab. On dead wood, *Gunn, Archer.*

Both spermatiferous and sporiferous.


6. *Tremella olenas* (Berk.); irregularis, gelatinosa, pallida, olenas, sporis oblongis. (Tab. CLXXXIII. Fig. 5.)

Irregular, dirty-white, inclining to brown, effused, slightly lobed. *Spores oblongs, $\frac{3}{80}$ inch in length, accompanied by very minute subglobose spermatia.* Smell faint, unpleasant.—When dry, forming a shapeless mass, like the young state of some *Gasteromycete.* I have seen no globose or lobed sporophores in this species.—*Plate CLXXXIII. Fig. 5; a, structure; b, spores; c, spermatia—all magnified.*


Gen. XXXI. EXIDIA, Fr.

Gelatinosa, tremula, submarginata, contexta floccoso, subtus sterilis; *hymenio papillato.*

Distinguished at once from *Tremella* by the inferior surface being sterile, and the upper papillate. (Name from *exsudato,* to ooze out.)


Gen. XXXII. HIRNEOLA, Fr.

Tremula, sed non gelatina distenta, subtus hispidula; *hymenio laevi,* distincto.

Separated from *Exidia* on account of its firmer substance and even hymenium. In most of the species the barren surface is hispid. *H. auricula* is found in almost every part of the world. (Name from *hirnea,* a vessel.)

1. *Hirneola Auricula-Judae* (Berk.). (Exidia, Fr.)
   Hab. On dead wood, *Gunn.*

2. *Hirneola vitellina* (Mont. Syll. p. 182); pallida, orbicularis, undulata, pusilla, stipite brevi compresso, sporis endochromate multiannulato.—*Berk. in Fl. Antarct. p. 240. t. 164. f. 3.* *Exidia vitellina,* Lév. (Tab. CLXXXIII. Fig. 6.)

Pale honey-coloured (orange or deep-yellow), $\frac{1}{4}$ inch across, orbicular, umbilicate, undulate, even beneath. Stem short, compressed, darker than the pileus. *Spores $\frac{3}{80}-\frac{1}{30}$ inch long, hyaline, curved, obtuse above, rather pointed at the base. Endochrom e hyaline, divided into several annular masses, which are sometimes again divided;
threads flexuous, often suddenly curled over at the origin of the branches.—This description is taken from the Tasmanian specimens, but the Fuegian and Chilian plants appear to be the same thing, differing only in their brighter colour.—Plate CLXXXIII. Fig. 6, structure of plant; b b, spores, more or less magnified.

Gen. XXXIII. DACRYMYCES, Nee.

Omnia Tremellæ exceptis sporis septatis conidiis magnis spermatiisique e sporis oriundis.

The hymenium is more or less indeterminate, as in Tremella, but the spores are septate, and the spermatia grow on the spores. There are also large conidia, formed from the articulations of the terminal branchlets. (Name from δακρυς, a tear, and μύς, a fungus.)

1. Dacrymyces deliquescens (Duby).
   Hab. On dead wood, Archer.

   The cells in the curved spores vary from four to six.

2. Dacrymyces miltinis (Berk.); pusilla, cinnabarina, gyroso-lobata. (Tab. CLXXXIII. Fig. 7.)
   Hab. On hard, dry wood, Archer.

   Of a bright, red-orange, short, wavy, lobed. Spores oblongo-reniform, at length 6-septate, 1/3—1/4 inch long. Sporophores swollen.—The brighter colour, larger and more swollen sporophores, and 6-septate spores, distinguish this species from D. deliquescens.—Plate CLXXXIII. Fig. 7; a, plants, nat. size; b, sporophores; c, spore:—both magnified.

3. Dacrymyces sclerotioideos (Berk.); albus, orbicularis, centro depressus, pezizaformis. (Tab. CLXXXIII. Fig. 8.)
   Hab. On dead bark, J. D. H.

   About 1 line broad, white, orbicular, depressed in the centre, almost cartilaginous. Nucleus firm; ultimate apices of some of the branches clavate and septate.—This and the following species agree in the septate tips of some of the branches, corresponding with the deciduous tips in the asporous form of D. deliquescens. In neither have I at present found true spores.—Plate CLXXXIII. Fig. 8; a, plants, nat. size; b, c, structure, magnified; d, ditto in D. serialis.

4. Dacrymyces seriatus (Berk.); erumpens, seriatus, albidus, sublutescens, irregularis, substratoa.
   Hab. On dead bark, Archer.

   Forming rows of confluent, small, dirty-white, subcartilaginous patches, which exhibit within three or four concentric lines of growth. Tips of some of the threads clavate and septate.

Gen. XXXIV. OCTAVIANIA, Vitt.

Integumentum molliusculum, haud ægre solubile; trama e fibris byssaceis intexta. Spora sphaerice, demum echinate.

A genus of Truffles, allied to Hydnangium, but differing in its more easily separable integument, fibrous not cellular trama, and globose spores. (Name from Octavianus, an Italian mycophile.)

1. Octaviania Archeri (Berk.); obovata, pusilla, basi sterili satis magna, fibrillis nullis, trama compacta, sporis globosis echinate.
   Hab. On sandy ground, Archer.

   Obovate, 1 inch high. Peridium very thin, passing into a thick sterile base, from which proceeds a little
down, binding the sand together without any decided filaments. *Trama* compact. *Spores* globose, 4 1/10 inch across, strongly echinulate.—This agrees with *Hydnanium* in the *trama* separating in the centre, in consequence of its compact structure, and with *Octaviania* in its sterile base. There is only a single specimen, much eaten by insects.

Gen. XXXV. LYSURUS, Fr.

*Receptaculum* sursum divisum in lacinas sequales integras l. emarginatas, apicibus liberis.

This genus is distinguished from *Clathrus* by the free spines of the laciniæ, and from *Asseolœ* by their not being deeply bifid. (Name from ἀλως, to loosen, and ὀπα, a tail; from the free divisions.)

1. **Lysurus Archeri** (Berk.). (Tab. CLXXXIV.)

Hab. On the ground, *Archer*.

Plate CLXXXIV. Fig. 1, young plant, and volva of old; 2, expanded plant; 3, laciniæ:—all nat. size; 4, transverse section of lacinia; 5, tips of ditto; 6, surface of ditto; 7 and 8, threads of structure; 9, spores:—all magnified.

Gen. XXXVI. ILEODICTYON, Tul.


Distinguished from *Clathrus* by the hollow branches of the receptacle. (Name from ἀλκος, an intestine, and ὀκτυς, a net.)


Hab. On the ground (May), *Gunn, Archer, etc.* (Eaten when young.)

Gen. XXXVII. GEASTER, Mich.

*Peridium* duplex; exteriis discretum, persistens, radiis stellatis expansis deiniscens.

Distinguished from other Puff-balls by their radiate external peridium. (Name from ὑπ, the earth, and αὐτης, a star.)

1. **Geaster tenuipes** (Berk. in Hook. Lond. Journ. Bot. vi. p. 576). (Tab. CLXXXIII. Fig. 9.)

Hab. On the ground, *Gunn*.

Plate CLXXXIII. Fig. 9, plant, nat. size; a, orifice, magnified.

2. **Geaster Archeri** (Berk.); saccatus, peridii exterioris flaccidi laciniis acuminate, interiore sessili, ore plicato. (Tab. CLXXXIII. Fig. 9 bis.)

Hab. On the ground, *Archer*.

*Outer peridium* split halfway down into about seven acuminate laciniæ, so as to form a deep sac, in which the inner perfectly sessile peridium is sunk; orifice plicate, but less so than in *G. striatus*, not rising from a distinct orbicular disc.—This differs from the small form of *G. striatus* in the perfectly sessile inner peridium, the less regularly plicate orifice, and the saccate outer peridium. It is a small species, scarcely exceeding an inch in diameter when dry. It differs from *G. saccatus* in the nature of the orifice.—Plate CLXXXIII. Fig. 9 bis, plant, nat. size.

3. **Geaster saccatus** (Fr. Syst. Myc. iii. p. 16).

Hab. On the ground, *Gunn, Archer, etc.*
4. **Geaster fimbriatus** (Fr. Syst. Myc. iii. p. 16).
   **Hab.** On the ground, *J. D. H.*

5. **Geaster australis** (Berk.); peridio exteriori rigidio in lacinias plures ovatas semipartito, peridio interiori omnino sessili, ore subindeterminato, ciliato-dentato.
   **Hab.** On the ground, *Archer.* (Tab. CLXXXIII. Fig. 10.)

   *Outer peridium rigid, cleft halfway down into about six ovate laciniae; inner peridium perfectly sessile; orifice distinctly ciliate, split into several teeth. Spores dark, even, about \( \frac{3}{16} \) inch across.—Resembling *G. limbatus,* but the peridium is perfectly sessile. From *G. rufescens* it is distinguished by its distinctly ciliate orifice, and from *G. fimbriatus* by its rigid outer peridium. When expanded it is about 2 inches across.—Plate CLXXXIII. Fig. 10, plant, nat. size.*

Gen. XXXVIII. **BOVISTA**, Dill.

**Peridium** papyraceum, persistens, cortice discreto demum secedente. **Spores** pedicellate.

The distinct outer peridium and pedicellate spores distinguish this from common Puff-balls. One species only occurs in Tasmania, which is nearly allied to a European species, with similarly coloured spores. (Name Latinized from the German, bofit, a puff-ball.)

   **Hab.** On the ground, *Gunn.*

Gen. XXXIX. **LYCOPERDON**, Tourn.

**Peridium** membranaceum, flaccescens aut supern evanescens, cortice adnato subsessile, in squamas l. verrucas varias abeunte. **Capillitium** molle, basi sterili peridioque adnatum.

The species of this genus are for the most part widely diffused and very variable. The spores are pedicellate in one or two species. (Name from λύκος, a wolf, and ἑρέμω, in allusion to the ancient notion as to their origin.)

1. **Lycoperdon pyriforme** (Schæff. t. 189).
   **Hab.** On the ground, *Archer.*

2. **Lycoperdon gemmatum** (Fr. Ep. p. 36).
   **Hab.** On the ground, *Gunn, Archer, etc.*

3. **Lycoperdon Gunnii** (Berk.); sessilis, subglobosa, minutissime stellato-verrucosa, columella brevi, sporis longe pedunculatis.
   **Hab.** In pastures, New Norfolk, June, *Gunn.*

   1–2 inches across, subglobose, olive. **Inner coat** shining, clothed with very minute stellate warts. **Columella** short. **Spores** globose, smooth, bright-olive, \( \frac{3}{4} \) inch long, supported on a peduncle three times their own diameter.

4. **Lycoperdon glabrescens** (Berk.); breviter pedunculatum, subhemisphericum, umbrinum, ciliato verrucosum, glabrescent, capillitio sporisque pedunculatis umbrinis, pedunculo intus subviolaceo, ore conico.
   **Hab.** On sandy ground, Oct. 1845, *Gunn.*

Subhemispherical, 1½ inch across, umber, plicate below, clothed with minute starry warts above, gradually becoming smooth. **Stem** short, sending out two or three fibrous roots, cellular within and tinged with violet. **Columella** indistinct. **Capillitium** and globose pedunculate spores, which are \( \frac{3}{4} \) inch across, umber; mouth conical. **Peduncles** twice as long as the spores.
5. *Lycoperdon austral* (Berk.); sessile, radicans, globoso-depressum, minute aculeato-verrucosum, glabrescens, strato steril parvo l. obsoleti, sporis capillitioque umbrinis, ore demum conico aperto.

_Hab._ On the ground, _J. D. H._, _Gunn._

This was sent under the same number with _L. glabrescens_, which it much resembles, but the barren stratum is small or obsolete, and if present differently coloured. The spores are not pedunculate, and are rather smaller.

**Gen. XL. SCLODERMA, _P._**

*Peridium* firmum, irregulariter l. stellatim dehiscens. _Flocci_ peridio undique adnati, vacuolis immixtis minutis in quibus glomeruli sporarum apicibus floccorum oriundarum absque peridiolo nidulantur.

Resembling Truffles, especially when growing in sand, but u.

_genus_ from κκρασ, hard, and _σκαλμ_, skin._

1. _Scleroderma Geaster_ (Fr. Syst. Myc. p. 46).

_Hab._ On the ground, _Archer._

**Gen. XLI. MITREMYCES, _Nees._**

*Peridium* externum, corneum, ore determinato dentibus squamaeformibus coloratis clauso, velum ruptum cartilagineum; interius saccoforme, discretum, minutum, ex ore suspensum.

A very curious genus of plants, occurring in the United States, the Himalayas, etc., but not in Europe. (_Name from μερα, a bonnet, and μυκσ, a fungus_; in allusion to the calyptriform deciduous veil._


_Hab._ On the ground, _Gunn, Archer, etc._

**Gen. XLII. MESOPHELLIA, _Berk._**

*Peridium* crassum, coriaceum, substratosum, capillitium fasciculato-anastomosans ad columellam centralum suberosam radians. _Flocci_ flexuosi. _Spores_ breviter fusiformes, utrinque obtusiusculae.—_Genus Cyclodermati, Klotzsch, affine._ Species unica hypogaea.

(_Name from μερας, middle, and φαλλος, cork._

1. _Mesophellia arenaria_ (Berk. in Linn. Tr. xxii. p. 131. t. 25 C).

_Hab._ In the sandy soil, _Archer._

From ½–1 inch across, elliptic, somewhat depressed, subterraneous, clothed externally with white flocci, which attach themselves to little grains of sand. After the external down has been removed, in old specimens dark branched veins are seen to run over the peridium, without however giving off free bundles of threads, as in _Hystero-myces_. _Peridium_ single, coriaceous, apparently consisting of several closely compacted strata, like wasp pasteboard. _Flocci_ pinkish-grey, radiating in little fascicles from the peridium to the large central corycky columella. _Spores_ fusiform, short, slightly obtuse at either end, of an inch long, of the same colour as the flocci.

This genus approaches close to _Cycloderma_, Klotzsch, but there is no inner peridium; the columella is not attached, and the spores are fusiform instead of globose. It is a most interesting addition to _Fungi_, and, like _Cycloderma_, connects _Trichogastres_ with _Myxogastres_. The early condition of the plant is however quite unknown. The colour of the spores reminds one of _Lycogala_, and the veins of the peridium of _Hystero-myces._

**Gen. XLIII. ÆTHALIUM, _Li._**

*Peridium* indeterminatum, membranoso-cellulare, fragile, fatiscens, extus strato floccoso evanescente corticatum, intus e floccis in strata membranacea coalitis cellulosum.
The only species is universally distributed, and is the pest of hothouses, from its abundant dusty spores. (Name from μυδ, soil.)

1. *Ethalium septicum* (Fr. Syst. iii. p. 93).

Hab. Amongst fallen leaves, *Gunn.*

Gen. XLIV. DIDERMA, Pers.

*Peridium* duplex, exterius crustaceum, discretum, glabrum, fragile, dehiscent; interius tenerrimum, membranaceum, evanescens. *Flocci* vagi, versus basin adnati, aut sepium columellae affixi interque sporas compactas repentes, raro latentes.

The only Tasmanian species in the collection is one of the commonest European forms. Probably others will reward future researches. (Name from δις, double, and δέρμα, a skin.)


Gen. XLV. DIDYMIUM, Schrad.

*Peridium* membranaceum, tenue, irregulariter dehiscent aut fatiscent, tectum cortice (peridio externo non discreto) adnato in squamulas furfuraceas aut villum farinosum mix fatiscente. *Flocci* vagi, peridio adnati, inter sporas repentes.

Here again we have one of the commonest European forms. (Name from δύος, double.)


Hab. On sticks, moss, etc., *Archer.*

The stem is longer than in the state described by Fries, and the peridium umbilicate. *Columella* white; *flocci* dark.

Gen. XLVI. PHYSARUM, Pers.


The perfect, simple, delicate peridium, combined with the absence of a columella, at once characterize this genus. The Tasmanian representatives are altogether European. (Name from φοράω, to puff up.)


Hab. On Sterea, etc., *Archer.*

*Peridium* white. *Stem* tawny.


Hab. On moss, etc., *Archer.*

The peridium is globose, and the stems pale, but of the same nature as those of *P. hyalinum,* though agreeing in colour with those of *P. utriculare.* The two species are probably mere forms of one. I have, in fact, undoubted *P. hyalinum,* from Fries, marked *P. utriculare.* Both belong to the genus *Badhamia,* should it be found that it is really distinct from *Physarum,* or, in other words, if *Physarum* has ever solitary spores.

Gen. XLVII. CRATERIUM, Trentepohl.

*Peridium* simplex, operculatum. *Capillitium* e floccis subloculosum.
A very curious genus, confined to temperate regions, remarkable for its operculum and peculiar habit. (Name from sparusp, a goblet.)

   **Hab.** On grass, Archer.

Gen. XLVIII. STEMONITIS, Gled.

Peridium simplex, tenuissimum, membranaceum, fugax. Capillitium determinatum, stipiti intranti adnatum. Flocci reticulati.

The genus Stemonitis is a columellate Physarim. Its species are mostly widely diffused, and some flourish both in hot and temperate regions. One Tasmanian form is remarkable for its rough spores. (Name from σπορον, a thread or stem.)

1. Stemonitis fusca (Roth, Germ. i. p. 448).
   **Hab.** On dead wood, Gunn.

2. Stemonitis oblonga (Fr. Syst. Myc. iii. p. 159).
   **Hab.** On decayed wood, Archer.

3. Stemonitis echinulata (Berk.) peridio globoso columbino-chalybeo, stipite valido aterrimento sursum attenuato semipenetrante, capillitio pallido globoso, sporis magnis eleganter echinulatis.
   **Hab.** On moss, Archer.

Peridium globose, very thin, showing dove-like prismatic hues, thicker and persistent below. Stem longer than the peridium, very dark, stout, attenuated upwards, passing halfway into the cavity of the peridium. Capillitium compact, growing from the columella. Spores \( \frac{1}{10} \) inch across, beautifully echinulate.—Allied to S. arcyrhoides, but remarkable for its stout stem and large spores.

Gen. XLIX. TRICHLA, Hall.


The spiral threads distinguish this from all Myxogastres. The species are for the most part widely diffused, but, besides common forms, Tasmania has two very distinct species. (Name from 6πει, a hair.)

   **Hab.** On dead wood, Archer.

2. Trichia metallica (Berk.); peridio lentiformi fulvo metallicis coloribus ornato subtus umbilicato, stipite brevi cylindrico carneo, flocci rectis radiantis sporisque incarnato-fulvis.
   **Hab.** On dead wood, Archer.

   Peridium lentiform, tawny, adorned with various metallic tints, frequently disposed in little specks like granulations, flattened or umbilicate beneath. Stem short, cylindrical, flesh-coloured. Flocci slender, radiating. Spores \( \frac{1}{8} \) inch across, reddish-ochre, like the flocci, inclining to tawny.—The most beautiful of all the Trichia, though small, and singularly distinct. Its nearest ally is Trichia fallax.

3. Trichia chrysosperma (DC. Fl. Fr. ii. 250).
   **Hab.** On dead wood: Sassafras Valley, Archer, J. D. II.

The stem is sometimes far more distinct than usual.

   **Hab.** On dead wood and moss, Archer.
5. *Trichia verrucosa* (Berk.); subcaespitosa, peridio turbinato sordide ochraceo, stipite debili filiformi decumbente sporis magnis verrucosis.

**Hab.** On charred wood, *Archer*.

Somewhat crowded or scattered. Peridia dull-ochre, turbinate, seated on a filiform, weak, decumbent stem. Spores globose, verrucose, \(\frac{1}{10}\) inch across, yellow, as well as the capillitium.—This species, which at first sight resembles *Trichia varia*, is at once distinguished by its large verrucose spores.

Gen. L. PERICHÆNA, Fr.

*Peridium simplex*, sepe circumscissum. Flocci rari, sporis immixti.

This genus resembles *Trichia*, but is at once distinguished by the absence of vascular hairs. (Name from περι, around, and χαίνει, to gape.)


**Hab.** On dead wood, *Archer*.

Paler than usual, and with no trace of capillitium.

Gen. LI. LICEA, Schrad.


Distinguished by the utter absence of flocci from all *Mycogastres*, except one or two of the more obscure *Perichaena*. The only Tasmanian species is a strictly European form. (Origin of name unknown.)


**Hab.** On dead wood: *Penquite, Gunn*.

Gen. LII. CYATHUS, Pers.


Of this curious genus there is but one Tasmanian species, identical with one of the two New Zealand forms, and resembling the European *C. vernicosus*. (Name from *cyathus*, a cup.)


**Hab.** On cowdung, etc., *Gunn, Archer*.

Gen. LIII. SPHÆROBOLUS, Tode.

*Peridium duplex*, interius demum elastice inversum et sporangium solitariun globosum ejiciens. Spora sporophoro adnatae.

Distinguished from *Cyathus* and its allied genera by the solitary sporangium which is shot out of the peridium, by the inversion of the inner coat, like a shell out of a mortar. The structure of the sporangia is essentially the same. (Name from σφαιρα, a ball, and βαλλω, to cast.)

1. *Sphærobolus stellatus* (Tode, Meck. i. p. 43).

**Hab.** On decayed wood, *Archer*.

Gen. LIV. SPHÆRONEMA, Fr.

*Perithecium liberatum vel omnino liberum. Spora demum exsudantes apicique perithecii adhaerentes.*
This, like other genera of sporiferous Spharia, is composed of more or less doubtful species, inasmuch as they may be spermatiferous forms of higher genera. Till more however is known on the subject, it is needful to retain them in their appointed place; and even after due eliminations have been made, it is very possible that there may still be really autonomous productions amongst them. (Name from σφαίρα, a globe, and νεύμα, gelatine.)


Hab. On exposed wood, Archer.

The specimens on analysis exhibit the structure of a Sclerotium, as in fact do many true Sphariaceae in a young state. It is curious that this is the only production of the group which has been collected in Tasmania.

Gen. LV. **ÆCIDIUM, Gmel.**

*Spora* concatenata, in soros congeste, peridio membranaceo demum lacerato-aperto cincte.

The delicate peridium and the bright spores which it encloses make these little parasites extremely pretty objects. The species are however comparatively rare in the southern hemisphere. Two of the three Tasmanian species appear to be perfectly distinct from those of Europe. (Name from ακύστος, a wheel, and εἴδω, to resemble.)

1. *Æcidium solenizeforme* (Berk.); maculis orbicularibus fuscis, peridiis cylindricis elongatis candidis apice lacinato-radiatis, sporis subangularibus aurantiacis.

Hab. On pods of *Goodia latifolia*, Archer.

Forming round brown spots. *Peridia* crowded, central, white, nearly a line long, irregularly divided above. *Spores* mostly angular, often 5-6angled, about $\frac{2}{3}$ inch across; border of cells of the peridium striate.—Resembling *Æcidium Berberidis*.

2. *Æcidium cystoseiroides* (Berk.); pustulatum, folia deformans, peridio immerso, sporis aurantiacis subangulatis.


Forming little pustules on the upper side of the leaves, which it swells out so as to look like the fruit of a *Cystoseira*. *Peridia* immersed within the pustules, bursting at the apex. *Spores* rather angular, orange, very minutely echinulate, at first forming necklaces.


Hab. On a small species of *Ranunculus*: St. Patrick’s River, Nov. 1844, Gunn.

Gen. LVI. **USTILAGO, Lk.**


Most of the species have loose soot-like spores, but in a few they are closely compacted. (Name from usus, burnt.)

1. *Ustilago solida* (Berk.); compacta, globosa, attra, sporis subglobosis laevibus. (Tab. CLXXXIII. Fig. 11.)


Forming little, globose, pill-shaped, compact bodies, scarcely a line across, jet-black. *Spores* aggregate, subglobose, $\frac{2}{3}$ inch in diameter, mostly smooth, but rarely exhibiting two or three flat vesicular prominences, mixed with shreds of tissue and threads.—This species connects *Ustilago* and *Sporisorium*.—Plate CLXXXIII. Fig. 11, plant, nat. size; a, group of spores, magnified; b, separate spores, highly magnified.
Fungi, by M. J. Berkeley]

Gen. LVII. PILACRE, Fr.

*Peridium* capitatum, supra membranaceum, tenerrimum, fatiscons. *Spora* subglobose, in strato superno peripherico coacervata.

Small Fungi, with the habit of *Onygena*, but allied to the Moulds. (Name from πᾶς, a hat, and απός, the top of anything.)


Hab. On dead wood, Archer.

The specimens are imperfect and undivided, but they appear to belong to the same species with those from New Zealand.

Gen. LVIII. ISARIA, Hill.


*Isaria* are essentially compound *Sporotricha*, and, like them, are for the most part mere conditions of higher Fungi. Some however are autonomous. (Name from ὑς, equal; from the equal height of the individual plants of the original species.)

1. *Isaria radians* (Berk.); cervino-grisea, orbicularis, ramosa, undique floccis verticillatis vel subdichotomis vestita, sporis ellipticis minimis.

Hab. On bark, Archer.

Forming patches ½–1 inch broad. *Receptacle* branched, radiating, composed of threads, the free portions of which are verticillate or subdichotomous, each branchlet being terminated by an elliptic spore ½ inch long.—This species resembles *Isaria umbrina*, Pers., but the decidedly branched receptacle and radiating patches easily distinguish it. It is not accompanied by any *Spharia*, but whether autonomous or not I am unable to say.

Gen. LIX. TRICHODERMA, Pers.

*Peridium* indeterminatum, e floccis ramosis septatis contextum, demum in medio evanescens. *Spora* minute, sicce, in disco conglobata.

The species are probably not autonomous, and resemble collapsed patches of Mould. (Name from θρές, a hair, and σφόν, a skin.)


Hab. On dead bark, Archer.

Gen. LX. VERDICILLIUM, Nees.

Flocci ramosi, ramis verticillatis apice monospermis. *Spora* simplices.

Little Moulds, known by their distinctly whorled branches. Of exotic species very little is known. (Name from *verticillus*, a whorl.)

1. *Verticillium niveum* (Berk.); candidum, ramosum, ramulis basi incrassatis breviuscelis, sporis oblongis.

Hab. On dead Agaries, Archer.

Snow-white, delicate, branched. Whorls consisting of about three branchlets, which are acute above, and thickened below. *Sporae* oblongae, ½ inch long.—Diffrs from *V. agaricinum* in its shorter branches, more delicate habit, and far smaller spores.
Gen. LXI. POLYACTIS, Lk.

Floccis decolorantes, subfuscis, rami versus apicem cymosi l. paniculati. Spora simplices.

Brownish Moulds, at first white, irregularly branched, with the ramuli mostly near the apex, and forming little cymes or panicles, but not verticillate. (Name from πολύς, many, and ακτίς, a ray.)


Hab. On dead twigs, Archer.

The few perfect individuals that I have seen are but slightly divided above, but the plant seems a mere form of the common P. vulgaris. The spores are slightly obovate, and about \( \frac{3}{25} \) inch long.

Gen. LXII. RHINOTRICHUM, Corda.

Floccis sursum incrassati, spiculiferi, spiculis sporiferis. Spora subglobosa.

Distinguished from Botrytis by the swollen tips of the threads, which are studded with the spores. (Name from ἄρχη, a file.)

1. Rhinotrichum microsporum (Berk.); filis agglutinatis, clavulas subcylindricas efformantibus, apicibus cylindrico-clavatis, sporis globosis minutis.

Hab. On soil, Archer.

White. Mycelium at first creeping, then agglutinated into little fascicles, so as to form short Isariaeform clubs, but frequently barren; ultimate flocci cylindrico-clavate, obtuse, studded with very minute spicules, each of which bears a globose spore \( \frac{3}{25} \) inch in diameter.—This has the habit of an Isaria, and is moreover distinguished by its minute spores.

Gen. LXIII. MORCHELLA, Dill.

Receptaculum clavatum l. pileatum. Hymenium costis elevatis lacunosum. Asci fixi.

Morels occur in many parts of the world, and the common species is collected in the northern Himalayas, for food, as it is in Europe. I have seen but a single immature Tasmanian specimen. (Name Latinized from the German, Morchel.)

1. Morchella esculenta, \( \delta \) conica (Fr. Syst. Myc. ii. p. 7).

Hab. On the ground, Archer.

Gen. LXIV. HELVELLA, L.


Distinguished at once from Morels by their lobed, even receptacle. Some of the species are esculent, as is probably the Tasmanian form. (Name applied to some Fungus or esculent vegetable by Cicero.)


Hab. In the valley on the north side of Cuming’s Head, about halfway up, Nov. 1855, Archer.

This is rather larger than the European form, but differs in no other respect. The pileus is dark-brown, lobed, deflexed, and adnate; the stem pale rufous, and smooth.

Gen. LXV. LEOTIA, Hill.

Receptaculum pileatum, orbiculare, margine revolutum, supra margineque fructiferum. Hymenium laxe. Asci fixi.
The smooth, orbicular, revolute head, with its tumid margin, characterizes this genus. The typical species has an extremely wide range. (Name probably from ἀεως, smooth.)

   HAB. On the ground, Archer.

Gen. LXVI. MITRULA, Fr.

Carnoso-mollis, capitatus. Receptaculum clavatum, inflatum, a stipite discretum. Asci fixi.—Fungi late colorati.

Distinguished principally from Geoglossum by their brighter colours and different habit. (Name, a diminution of Mitra.)

1. Mitrula vinosa (Berk.); vinoso-purpurea, gracilis, lineari-clavata, sporidiis lineari-oblongis minutis curvis.
   HAB. On dead wood, Archer.

   About 2 inches high, of a vinous-purple. Stem filiform, smooth, swelling above into a cylindrical head. Sporidia linear-oblong, curved, \(\frac{1}{4}\) inch long.—Closely allied to Mitrula Berterii, M., which is of a deep-brown tint, and has the sporidia scarcely curved.

Gen. LXVII. GEOGLOSSUM, Pers.


The more typical species are very distinct from Mitrula; others are almost confluent with that genus. The only Tasmanian species belongs to a European type, and is very widely diffused. (Name from γῆ, the earth, and γλωσσα, a tongue.)

   HAB. On the ground, amongst Moss, and on Fern-stems, Archer.

Gen. LXVIII. PEZIZA, Dill.

Receptaculum carnosum vel subcarnosum, marginatum, cupulaeforme, primo clausum, subtus sterile. Asci fixi.

This large genus is amply represented in Tasmania, and under a great variety of forms, which belong, however, to European types. (Name from Peziza, a term used by Pliny for stemless Fungi.)

   HAB. On the ground, Gunn.

2. Peziza cochleata (Huds.; Fr. Syst. vol. ii. p. 50).
   HAB. On the ground, J. D. II.

   Very irregular, so as to look sometimes like a Psilopezia.

3. Peziza recurva (Berk.); cupula subsessili undulata convexa recurva badia, sporidiis globosis granulatis. (Tab. CLXXXIII. Fig. 12.)
   HAB. On the ground, Archer.

   Cup nearly sessile, dark-bay, \(\frac{1}{4}\) inch across, inclined to be turbinate, undulated and arched above, with the borders recurved. Asci linear, obtuse. Sporidia globose, granulated, \(\frac{1}{4}\) of an inch in diameter.—When moistened,
this *Peziza* is coriaceous, and looks like an *Endocarpon.*—Plate CLXXXIII. Fig. 12, plant, nat. size; a, asci, and b, sporidia, magnified.

   HAB. On the ground, Gunn.

5. **Peziza Archeri** (Berk.); sessilis, cinnabarina, primum concava, demum expansa, undulata, margine libero.
   HAB. On dead leaves of some succulent plant, Archer.

   Bright-crimson. *Cup* ¼ inch across, sessile, at first depressed, then expanded, undulated and umbilicate, paler below, slightly tomentose. *Ascii* cylindrical. *Sporidia* globose, ¼ inch across, with a large nucleus.—This is just like that of *P. endocarpoidea*, B. The species is almost intermediate between the sections *Humaria* and *Mollisia.* The sporidia vary greatly in size in the same ascus.

6. **Peziza carbonigena** (Berk.); aurantiaca, gregaria, stipata, cupulis umbilicatis sessilibus flexuosis extus subtilliter granulosus.
   HAB. On fragments of charcoal, Archer.

   Crowded, about a line broad, not confluent, orange, umbilicate, subturbinate, slightly granulated externally. *Ascii* linear, paraphyses clavate. *Sporidia* elliptic, ¼ inch long.—This is not confluent like *P. omphalodes.* It has somewhat the habit of *P. glumarum*, Desm., but is far smaller.

7. **Peziza coccinea** (Jacq. Aust. t. 169).
   HAB. On twigs, Archer.

8. **Peziza Eucalypti** (Berk.); pallide olivacea, cupula plana, margine pilis rigidis atro-purpureis ciliato, stipite cylindrico. (Tab. CLXXXIII. Fig. 13.)
   HAB. On leaves of *Eucalyptus*, Archer.

   Extremely minute, pale-olive. *Cup* turbinate, fringed with long, purple-brown hairs, supported by a cylindrical, distinct stem, which, like the cup, has a few scattered white floci. *Ascii* cylindrical. *Sporidia* oblong, subcymbiform, ¼ of an inch long.—A very curious and distinct species, which in some respects may be compared with *P. misella*, Desm., though very different.—Plate CLXXXIII. Fig. 13, single plant, magnified; a, ascus, and b, sporidia, magnified.

   HAB. On dung, Archer.

    HAB. On dead wood, Archer.

    HAB. On dead wood, Archer.

12. **Peziza lachnoderma** (Berk.); cupula subhemisphærica breviter stipitata extus nivea tomentosa intus miniata, sporidiis filiformibus curvatis.
    HAB. On dead bark, Archer.

   *Cup* 2 lines across, subhemispherical, supported by a very short stem, white and beautifully downy externally, within pale-scarlet. *Ascii* long, clavate above. *Sporidia* linear, sub fusiform, curved, ¼ of an inch long.—This seems at first sight a large form of *P. calycina*, but the sporidia in that species are oblongo-elliptic, and only about half as long. I believe the sporidia in *P. bicolor*, to which the young plants bear much resemblance, are much shorter, but I have not seen them perfect.

    HAB. On dead wood, Archer.
   **Hab.** On dead bark, *Archer*.

   A form which approaches very near to *Solenia*. Where the cups are eaten off by insects, the appearance is exactly that of a *Polyporus*.

15. **Peziza epitephra** (Berk.) ; minuta, alba, hemispherica vel subglobosa, insigniter cava, floccis crispis fuscis intertextis oriunda.
   **Hab.** On the under side of fallen leaves, *Archer*.

   White, minute, hemispherical or subglobose, hollow, scattered on a uniform brown stratum consisting of even, curled, brown threads.

16. **Peziza araneosa** (Berk.) ; cupulis primum subglobosis denuo ex hemispherico expansis sessilibus extus aranecosis, floccis subitus super matricem repentibus oriundis, hymenio luteo-saurantiaco, sporidiis curvulis multinucleatis.
   **Hab.** On dead wood, *Archer*.

   Minute, at first globose, then hemispherical, with the border inflected, then expanded, white and byssoid externally, attached to the matrix by radiating byssoid flocci. *Hymenium* pale-orange. *Asci* clavate. *Sporidia* linear, curved, containing six or more nuclei, \(\frac{1}{50}\) inch long.

   **Hab.** On dead wood, *Archer*.

18. **Peziza byssigena** (Berk.) ; ochracea, cupula concava, stipite elongato cylindrico subtiliter pruinose e floccis intertextis radiantibus oriundo.
   **Hab.** On a dead stick, *Archer*.

   Cup \(\frac{1}{2}\) a line broad, hyaline, ochraceous, regular, concave, subtremelloid, supported by a stout cylindrical stem about 1 line high, minutely pruinose and springing from matted, radiating, pallid flocci. *Asci* clavate. *Sporidia* subelliptic or oblong, \(\frac{1}{50}\) inch long.—Allied to *P. lutescens*, *Hedwig*.

19. **Peziza ceratina** (Berk.) ; turbinata, stipitata, glabra, pallide fulvo-cornae, hymenio plano marginato.
   **Hab.** On leaves of *Eucalyptus*, *Archer*.

   Minute, not half a line high, of a clear, tawny horn-colour, turbinate, stipitate, smooth. *Hymenium* flat, with a narrow border. *Asci* rather large. *Sporidia* oblongo-clavate, pointed, \(2\times\frac{1}{50}\) inch long.—This species is allied to *P. clavellata*, Desm., and *P. cyathoides*, but more especially to *Helotium titubans*, Mont., a Chilian species, from all which it is quite distinct. The hymenium is perfectly flat when moistened.

20. **Peziza omnivirens** (Berk.) ; æruginoso, cupula breviter stipitata subturbinata, hymenio plano, sporidiis amplis.
   **Hab.** On dead wood : Leith Creek, August, *Archer*.

   Cup subturbinata, 2 lines across, dark verdigris-green. *Hymenium* plane. *Asci* lineari-clavate. *Sporidia* uniseriál, oblong, obtuse; at either end, subcymbiform, \(\frac{1}{50}\) inch long.—This bears the same relation to *P. versiformis* that *P. ærugineo*, B., does to *P. æruginoso*. It is more regular, and the sporidia much larger. In *P. versiformis* the sporidia are \(\frac{1}{30}\) of an inch long, and much narrower in proportion.

21. **Peziza grata** (Berk.) ; cupula plana hyalina marginata breviter stipitata subaurantiaca, stipite pallidiori cylindrico quandoque compresso.
   **Hab.** On dead, exposed wood, *Archer*.

   Cup \(\frac{1}{2}\) line across, concave, hyaline, of a dull-orange. *Stem* paler, compressed. *Sporidia* fusiform, \(\frac{1}{50}\) of an
inch long. *Endochrome* often retracted to either extremity.—Allied to *P. Colensoi*, Berk., but brighter in colour and with smaller spores. The cup is more concave in dried specimens. The stem is sometimes compressed from growing between the fibres of the wood.

22. **Peziza citrina** (Batsch. f. 218).
**Hab.** On dead wood, Archer.

Sporidia \( \frac{1}{4} \) inch long.

**Hab.** On dead wood, Archer.

24. **Peziza patensiformis** (Berk.); ochracea, cupula sessili sublobata concava subultima tomentosa, asci linearibus, sporidiis oblongis utrinque attenuatis subcymbiformibus.
**Hab.** On wood overrun with Moss, Archer.

About 2 lines across, sessile, somewhat lobed, ochreous, concave, beneath rather rugged, obscurely tomentose. *Asci* linear, elongated. *Sporidia* uniseriate, oblong, subcymbiform, attenuated at either extremity, sometimes subclavate, \( \frac{1}{4} \) inch long.—Somewhat resembling *P. araneosa*, Bull, but allied to *P. citrina*.

25. **Peziza cinerea** (Batsch. f. 137).
**Hab.** On dead wood, J. D. H., Archer.

Gen. LXIX. **PATELLARIA**, Fr.

Receptaculum marginatum, patelliforme, semper apertum. *Hymenium* laxe, persistens, sed ex apicibus ascorum aere adustis pulverulentum.

The plants belonging to this genus are morphologically Lichens, without crust. Owing to their persistent nature, the tips of the asci, as in *Lecidea*, etc., become carbonized. (Name from *patella*, a saucer.)

1. **Patellaria Tasmanica** (Berk.); sessilis, cupulis e concavo planis, hymenio e rufo nigro, sporidiis oblongis curvulis.
**Hab.** On dead wood, Archer.

Minute, at first subglobose, concave, then flat, with or without a border, externally black. *Disc* tinged with green and rufous, at length black. *Asci* clavate. *Sporidia* \( \frac{1}{4} \) inch long, curved, narrow, oblong. *Endochrome* retracted to either extremity.—The disc, when moist, swells, and is of a pale-watery dingy-rufous.

Gen. LXX. **ASCOBOLUS**, Pers.

Omnia *Peziza* exceptis asci dissilientibus.

A very curious genus, confined principally to the dung of various animals, though sometimes growing on wood. The sporidia are often beautiful objects under the microscope, from their amethyst tint. (Name from *auros*, a vessel, and *κάλλος*, to cast.)

1. **Ascobolus Archeri** (Berk.); cupula undulata sessili vinoso-fusca, sporidiis amethysteis eleganter granulatis.
**Hab.** On charcoal, Archer.

*Cups* 1½ lines across, orbicular, sessile, undulated, vinous-brown. *Asci* clavate. *Sporidia* at first elliptic, even, colourless, binucleate, \( \frac{1}{4} \) inch long, then more elongated, \( \frac{1}{4} \) inch long, amethyst-coloured, elegantly granulated.—Except the two forms of spores were seen in the same individual cup with intermediate states, it might easily be supposed that there were two species.
Gen. LXXI. BULGARIA, Fr.

Receptaculum elasticum, tremelloideum, turbinatum. Hymenium laeve, persistens.

Resembling E eidia, but distinguished at once by the presence of asci. The species are few in number, and two at least are widely diffused. (Name from bulga, a sac.)


Hab. On dead branches, Archer.

Gen. LXXII. CYTTRARIA, Berk.

Receptaculum commune, gelatinosocartilagineum; cupulis in globum connatis, demum apertis; ascis amplis.

This curious genus is parasitic on living trees of the different species of evergreen beech, and one forms a principal part of the food of the Fuegians. The Tasmanian species is doubtless equal in its nutritive qualities to the Fuegian. (Name from kurrapos, a honeycomb.)


Hab. On living branches of Fagus Cunninghamii, Gunn, Archer.

Gen. LXXIII. STICTIS, Pers.

Receptaculum obsoletum. Hymenium laeve, determinatum, matrici immersum, et ab ea marginatum primoque velatum.

Lichenose Peziza, consisting almost entirely of hymenium. (Name from stiktos, dotted.)


Hab. On dead wood, with Marasmius epimyces, and, like it, accompanying some Thelephora, J. D. H.

Gen. LXXIV. MYLLITA, Fr.

Peridium induratum, internam massam compactam siccam subcorneam heterogeneam venosam corticans.

It is probable that the original species of Fries is merely one of those singular tubers which grow on the roots of Leguminous plants. Recent specimens of the Australian plant, which is used as an article of food, exhibit something like asci, as represented in Corda's figure. There can be little doubt that the plant is autonomous. (Name from Myllita, a heathen deity.)


Hab. Subterraneous, Gunn.

Gen. LXXV. CORDYCEPS, Fr.

Stroma elevatum, carnosum, sepius stipitatum, laetius coloratum. Perithecia peripherica, tenera. Sporidia longissima, endochromata plurima, plerumque dissilientia.

Most of the species of this curious genus grow on insects, and one or two on Ergot. The insect species are usually inhabitants of warm climates. The Tasmanian parasite is closely allied to the well-known insect plant of New Zealand, but very distinct. (Name from κόρδυς, a club.)

Hab. On the pupa of some *Hepialus*, Gunn.

The New Zealand species grows on the larva (not the pupa) of an insect of the same genus. Ergot occurs on Grasses in Tasmania, but it is uncertain to what species of *Cordyceps* it owes its origin.

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**Gen. LXXVI. HYPOCREA, Fr.**


*Hypocrea* is to *Cordyceps* what *Hypoxylon* is to *Xylaria*, containing those species whose stroma is horizontal, and not essentially vertical. Their bright colour at once distinguishes them, or, where that fails, the fleshy substance. (Name from *vto, beneath, and speus, flesh.*)


Hab. On dead wood, *Gunn*.

2. **Hypocrea rufa** (Fr. Summ. p. 383).

Hab. On dead wood, *Archer*.

3. **Hypocrea citrina** (Fr. Summ. p. 386).

Hab. On dead wood, *J. D. H.*, *Archer*.

4. **Hypocrea tomentosa** (Fr. MSS.).

Hab. On the hymenium of *Polypori*, *Archer*.

Forming a white, delicate, tomentose stratum, without any very distinct stroma.

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**Gen. LXXVII. NECTRIA, Fr.**

*Perithecia* libera vel mycelio l. stromati insidentia, tenera, lœte colorata, verticalia. *Sporidia* ut plurimum octona, translucida.

Differing from the two foregoing genera in the free perithecia. (Name from *nyx, a swimmer;* in allusion to the fluxile contents of the perithecia.)

1. **Nectria agaricicola** (Berk.); cinnabarina, peritheciis ovatis acutis lœvibus, ascis cirrhiformibus longissimis, sporidiis filiformibus. (Tab. CLXXXIII. Fig. 14.)


Gregarious on the stems, gills, etc., of Agarics. *Perithecia* ovate, acute, scarlet; walls vesiculo-fibrous. *Asci* extremely long. *Sporidia* very slender, filiform.—A splendid and highly curious species.—Plate CLXXXIII. Fig. 14; *a*, group of perithecia; *b*, ascis; *c*, part of ascus and sporidia:—magnified.

2. **Nectaria tephothele** (Berk.); peritheciis sparsis coccineis ovatis, ostiolo papillosiforme obscuræ, sporidiis subfusiformibus quadri-nucleatis.

Hab. Parasitic on some species of *Hypoxylon*, *Archer*.

Bright-scarlet, studding the surface of the brown *Hypoxylon*. *Perithecia* scarlet, ovate; ostiolum papillosiforme, cinereous. *Asci* thicker in the middle. *Sporidia* biserrate, $\frac{3}{4}$ inch long, at length containing four endochromes—Resembling *N. episphaerica*, but differing in several particulars.

3. **Nectria coccinea** (Fr. Summ. p. 388).

Hab. On fallen branches, *Archer*.
Fungi, by M. J. Berkeley.

The sporidia vary slightly in the two forms referred to this species. In the one they are subcymbiform, as in the European form, and \( \frac{1}{2} \) inch in length; in the other oblong, with the endochrome retracted to either end, and \( \frac{3}{4} \) inch long. I can see no external difference.

4. Nectria fusarioides (Berk.); pallide coccinea, perithecii ovatis papillatis pruinosis in stromate semi-immersi, sporidiis oblongis curvulis.

Hab. On dead bark, Archer.

Pale-scarlet. Stroma bursting out in linear patches. Perithecia half-immersed, ovate, papillate, pruinose. Sporidia \( \frac{1}{2} - \frac{2}{3} \) inch long, oblong, slightly curved.

5. Nectria Tasmanica (Berk.); cespitosa, rubra, stromate pallido, perithecii ovatis, ostiolo papillaeformi sepe et disco orbiculari oriundo, sporidiis cymbaeformibus bi-quadrinucleatis.

Hab. On dead bark, Archer.

Scattered on a subhemispherical pale stroma, blood-red, but not bright. Perithecia rather large, ovate, either ending gradually in a papillaeform orifice, or slightly truncate, with a central ostiolum. Asci linear. Sporidia uniseriata, subcymbiform, with from two to four nuclei or endochromes, \( \frac{1}{4} \) inch long.--In external appearance resembling Montagne's \( N. \) discophora, but with very different sporidia.

Gen. LXXVIII. XYLARIA, Fr.

Stroma clavatum, subsuberosum, demum ut plurimum friabile, nigrum. Stipes sepe distinctus.

Perithecia peripherica. Sporidia octona.

A large genus, containing many tropical forms, and some which are universally distributed, known by their dark colour and clavate or branched stroma. (Name from \( \xi \)olov, wood.)

1. Xylaria Hypoxylon (Fr. Summ. p. 381).

Hab. On dead wood, Archer.

2. Xylaria corniformis (Fr. Summ. p. 381).

Hab. On dead wood, Gunn, Archer, etc., apparently very common.

Gen. LXXXIX. PORONIA, Fr.

Stroma sessile l. pedunculatum, nigrum, sursum orbiculare, concavum, albo-velatum. Perithecia verticalia.

Distinguished by the cup-shaped body, in which the vertical perithecia are immersed. (Name from \( \pi \)os, a pore.)

1. Poronia punctata (Fr. Summ. p. 382).

Hab. On dung, Archer.

The form figured by Sowerby.

Gen. LXXX. HYPOXYLON, Bull.


Distinguished from Xylaria by the horizontal stroma. In a few species the perithecia are vertical, and the stroma almost obsolete. (Name from \( \eta \)o, and \( \xi \)olov, wood.)

Hab. On dead branches, Gunn, Archer.

Hab. On dead wood, Archer.

Hab. On dead bark, Archer.

Hab. On dead wood and bark, Archer.

All the specimens belong to the effused form called by Fries β granulosum.

5. Hypoxylon Archeri (Berk.); aterrimum, peritheciis subglobosis truncatis rugosiusculis umbilicatis, ostiolo papillaformi, sporidiis brevibus.
Hab. On dead wood, Archer.

Densely crowded and confluent, black, rather minute, opaque or shining. Perithecia nearly globular, minutely rugose, truncate, furnished above with a little shallow umbilicus, in the centre of which is the papillaform ostiolum. Sporidia short, cymbiform, 1/2 inch long.—Allied to H. marginatum.

6. Hypoxylon nummularium (Bull. t. 468. f. 4).
Hab. On fallen branches, Archer.

Gen. LXXXI. DIATRYPE, Fr.

Stroma innatum, nigrum; peritheciis verticalibus.

Distinguished from Hypoxylon by its innate, not freestroma. (Name from διά, through, and πέρον, to perforate.)

1. Diatrype lata (Fries, Summ. p. 385).
Hab. On decoricated wood, Archer.

Hab. On decoricated wood, Gunn.

Gen. LXXXII. SPHÆRIA, Hall.


A very large genus, consisting of those species which have no stroma, and whose perithecia have a short ostiolum. They are found in all parts of the world, but more especially in temperate regions. (Name from σφαῖρα, a sphere.)

Hab. On dead wood, Archer.

Hab. On twigs, Archer.

3. Sphaeria (Cespitosa) Archeri (Berk.); conferta, peritheciis rugosis tandem collabendo pateraformibus, sporidiis elongatis curvis quadrinucleatis.
Fungi, by M. J. Berkeley.

FLORA OF TASMANIA.

Hab. On dead wood, Archer.

Densely crowded. Perithecia astomous, rugulose, at length by collapsing saucer-shaped. Ascii clavate. Sporidia biseriate, elongated, curved, quadrinucleate, \( \frac{1}{8} \text{ inch} \) long.—This species at first sight looks very like \textit{S. phaeostroma}, but there are no hairs, and the sporidia are different.

4. \textit{Sphaeria byssisteda} (Tode, Meck. f. 69).

Hab. On dead wood, Archer.

It has rather longer spores (\( \frac{1}{8} \text{ inch} \)) than British specimens, and thus approaches \textit{S. Desmazeriæ}, Berk. et Br.

Gen. LXXXIII. CERATOSTOMA, Fr.

\textit{Stroma} nullum l. myceliiforme. \textit{Perithecia} membranacea, nuda, verticalia. \textit{Ostium} insigniter elongatum, apice penicillatum.

This genus comprises those simple \textit{Sphaeria} which have extremely long ostiola ciliated at the tips, and of a soft membranaceous substance. The sporidia moreover are expelled from the ostiola, and often remain attached. (Name from \textit{Kepas}, \textit{a horn}, and \textit{stoma}, \textit{a month}.)


Hab. On dead wood, Archer.

It has the same white, flagelliform orifice when perfect as \textit{S. verecincæ}, Desm., but it has no subiculum, and the sporidia do not exceed \( \frac{1}{8} \text{ inch} \) in length, though they are frequently shorter.

Gen. LXXXIV. GLONIUM, Mühl.

\textit{Perithecium} liberum, compositum et ramis radiatim excurrentibus teretiusculis prostratis, rima longitudinali dehiscens. \textit{Subiculum} byssinum.

This curious genus is distinguished from \textit{Hysterium} by its free, very compound perithecia. It is a very unexpected inhabitant of Tasmania, being hitherto confined to the United States and the north of Europe. (Name from \textit{klamvo}, in allusion to the linear orifice of the perithecia.)


Hab. On dead wood, Archer.

Gen. LXXXV. HYSTERIUM, Fr.

\textit{Perithecium} simplex l. subramosum, ellipticum vel elongatum, innatum l. emergens, rima longitudinali dehiscens.

Approaching very near to the Opegraphoid Lichens, but distinguished by the total absence of crust. Essentially plants of temperate regions. (Name from \textit{trepes}, in allusion to the mode of dehiscence.)

1. \textit{Hysterium tardum} (Berk.); perithecii elliptici obtusi tarde apertis, ascis brevibus, sporidiis unisepreadis.

Hab. On the under side of the leaves of \textit{Cyathodes atraminea}, J. D. H.

On the under side of the leaves. \textit{Perithecia} flat, elliptic, very obtuse, opening principally in the centre. Ascii short, thick. Sporidia subclavate, uniseptate, \( \frac{1}{8} \text{ inch} \) long, with a hyaline border. This species is almost intermediate between \textit{Hysterium} and \textit{Phacidium}. A few specimens only show any trace of an aperture.
Gen. LXXXVI. MUCOR, Mich.

Flocci tubulosi, fertiles erecti, terminati sporangio membranaceo dehiscente (raro diffluente) includente sporidia discreta.

The species of this genus are developed upon all sorts of decaying substances. The vesicular heads, which do not collapse, as in Ascophora, distinguish the genus. Little is known of exotic forms. (Name from the Latin mucor; a generic name for Mould.)

1. Mucor cervinoleucus (Berk.); flocci simplices, deorsum candidi, sursum ochracei, sporis sub-cymbiformibus.

Hab. On the dung of some small animal, Archer.

Remarkable for its ochroleucus aspect. The spores are elliptic, with one side nearly straight, and are about $\frac{1}{10}$ inch long. Sporangia tawny, globose.

Gen. LXXXVII. ENDOGONE, Lk.

Flocci fertiles, sporangiis terminati, in massam subglobosam compacti. Sporidia ignota.

The fructification of these curious truffle-like Moulds is not satisfactorily known. The vesicles are just like those of Mucor, but have not been observed to contain sporidia. (Name from endov, within, and γενναι, to be produced.)

1. Endogone australis (Berk.): hemisphaerica, alba, sporangiis magnis centralibus aggregatis.

Hab. On the ground, Archer.

Hemispherical, about 2 lines across, white. Sporangia confined to the centre, $\frac{2}{3}$ of an inch or more across, greenish, collected in little groups.—The pale colour, more branched threads, and central sporangia, distinguish this interesting species, of which there is only a single specimen in the collection.—Plate CLXXXIII. Fig. 15, a, plant, nat. size; b, section of ditto; c, external threads; d, sporangia:—magnified.

NAT. ORD. VIII. ALGÆ.

By W. H. Harvey, M.D., F.R.S.

SERIES I. MELANOSPERMÆ.

TRIBE I. FUCACEÆ.

Gen. I. SARGASSUM, Ag.


Hab. Georgetown, R. Gunn.

Distrib. Western and southern shores of Australia.

Hab. Georgetown, R. Gunn.
Distrib. Southern shores of Australia.

Gen. II. SEIROCOCCUS, Grev.


Hab. Georgetown, Gunn, W. H. H., etc.
Distrib. South coast of Australia: not found west of Cape Northumberland?

Gen. III. SCYTOHALIA, Grev.

(Grev. Syn. p. 34; Endl. 3rd Suppl. p. 33; J. Ag. Sp. Alg. i. p. 257.)


We have not seen any Tasmanian specimens, and suspect a mistake in the habitat. This plant is very abundant in Western Australia, but is not found, to our knowledge, to the east of Cape Northumberland.

Gen. IV. PHYLLOSPORA, Ag.


1. Phyllospora comosa (Ag. l. c. t. 23. f. 11; J. Ag. Sp. Alg. i. p. 253).—Fucus comosus,
Hab. Common on the seacoast.

Gen. V. SCABERIA, Grev.

Mus. xi. p. 175. t. 5. f. 23, 24; Endl. 3rd Suppl. p. 30.)

Zeal. xi. p. 143.
Hab. Georgetown, etc., R. Gunn.
Distrib. Western and southern shores of Australia. New Zealand.

By an oversight, this plant is omitted in Hook. *Fl. N. Zeal.*

Gen. VI. CYSTOPHORA, J. Ag.

p. 147; Hook. fil. et Harv. in Lond. Journ. vi. p. 414.)

Hab. Georgetown, etc., R. Gunn.
Distrib. Western and southern coasts of New Holland. New Zealand.


HAB. Georgetown, etc.
Distrib. Western and southern coasts of New Holland. New Zealand.


HAB. Rocks on the coast, common.
Distrib. Western and southern shores of New Holland. New Zealand.

4. Cystophora xiphocarpa (Harv.); caule plano decomposite pinnato, pinnis distantibus a latere plano caulis egredientis apice pinnatis, pinnulis basi nudis alterne aculeatis apice pinnatis, pinnulis ultimis gladiiformibus v. lanceolatis planis basi et apice acutis demum in receptacula applanata abeuntibus, vesiculis . . .—Harv. Alg. Austr. Exsicc. n. 9. (Tab. CLXXXV.)


Stem 1-2 feet long, in smaller specimens compressed, in larger quite flat, flexuous, rather distantly pinnately branched, the lower branches decompound, the upper gradually simpler. Branches issuing from the flat side of the stem, retroflexed at their insertion, distichous, alternate, bipinnate or pinnate. Pinnae (and pinnules of the larger branches) distant, naked in the lower half, zigzag, and armed with the spine-like bases of old ramuli; pinnulate in the upper half. Ultimate pinnules or leaf-like ramuli quite flat, lanceolate or sword-shaped, 1-2 inches long, 2-3 lines wide, coriaceous, acute. Receptacles flattened; no ripe ones seen. Vesicles unknown.

All our specimens grew in shallow water, and therefore probably represent a dwarf form of the species, which appears to be strikingly unlike any other described. The ultimate pinnules and receptacles are as broad as those of Cystophora platylobium, and usually longer; and our present plant differs essentially from that species in having refracted branches issuing from the flat side of the stem.—Plate CLXXXV. Fig. 1, the root and base of stem; 2, portion of the upper region of the stem and branches: both figures the natural size.


HAB. Georgetown. Port Arthur, etc.


HAB. Georgetown, R. Gunn. Derwent, Oldfield.
Distrib. South shores of New Holland.


HAB. Georgetown, R. Gunn.
Distrib. South coasts of New Holland.


HAB. Georgetown, Gunn, W. H. H., etc.
Distrib. South shores of New Holland.
t. 176.

Hab. Georgetown, *R. Gunn*, etc.
Distrib. South shores of New Holland.

t. 166.

Hab. Van Diemen’s Land, *R. Brown*.
We have not seen this plant.

Gen. VII. **CYSTOPHYLLUM, J. Ag.**
(J. Ag. Sp. Alg. i. p. 228.—Cystoseira et Sargass sp., Auct.)

t. 112.

Hab. Georgetown.

Gen. VIII. **XIPHOPHORA, Mont.**


Hab. Port Arthur, abundant, *Dr. Jeannerett, Lyall, W. H. H., etc.*

Fucus chondrophyllus, *R. Br. in Turn. Hist. t. 222*.

Hab. Georgetown, *Gunn, W. H. H.*

Gen. IX. **HORMOSIRA, Endl.**


Hab. All round the coast.
Distrib. South and eastern coasts of New Holland. New Zealand.

Having had ample experience of the variations of this species, which we have observed in situ, in many places from King George’s Sound to Western Port, at Sydney, and in New Zealand, as well as on the shores of Tasmania, we feel confident that the three forms here brought together, to which may be added *H. gracilis*.
and H. obconica of Kützing, cannot be kept specifically distinct. The characters attributed to them by authors depend partly on age, but chiefly on differences in depth of water, and exposure. H. Sieberi commonly grows in tidal rock-pools, and H. Banksii and Labillardieri on stones about low water-mark, the latter occurring in deeper water than the former.

Gen. X. CARPOGLOSSUM, Kütz.


Distrib. South coast of New Holland. Port Phillip and Western Port, W. H. H.

Gen. XI. MYRIODESMA, Dne.


1. Myriodesma integrifolium (Harv.); caule basi terete sursum plus minus alato, costa evanescente, phyllodis distichis decomposite pinnatifidis, lacinii enervibus linearibus obtusis margine integerrimis v. apicem versus minute denticulatis, scaphidiis numerosissimis sparsis.—Harv. Alg. Exsicc. n. 43. (Tab. CLXXXVI.)

Hab. Georgetown, W. H. H.
Distrib. Geelong and Western Port, Victoria.

Frond 1–2 feet long. Stem cylindrical, cartilagineo-coriaceous, branched near the base, its principal divisions becoming more and more compressed upwards, then winged, then passing into a lamina traversed by a slender midrib which gradually disappears toward the summit. These main divisions are distichously branched, and their branches repeatedly pinnatifid, with rounded axils, and are destitute of midrib except toward the base of the principal rachides. The laciniae are 1–2 lines broad, linear, membranaceous, quite entire at the margin, or remotely denticate, especially toward the apices. Scaphidia very numerous, densely scattered over the whole frond. Colour olivaceous or foxy.—PLATE CLXXXVI. Fig. 1, the frond, natural size; 2, apex of a fertile lacinia; 3, section through the same and through spore-cavities; 4, a spore;—the latter figures magnified.

Gen. XII. SARCOPHYCUS, Kütz.


Hab. Western and northern coasts.
Distrib. South coasts of New Holland.

Gen. XIII. SPLACHNIDIUM, Grev.


Hab. Tidal rocks, near low water-mark. Georgetown, Gunn, W. H. H., etc.
Gen. XIV. NOTHEIA, Bail. et Harv.

(Bail. et Harv. in Wilkes’s Amer. Expl. Ex.; Harv. in Hook. Fl. N. Zeal. ii. p. 215.)

1. **Notheia anomala** (Bail. et Harv. i.c.; Harv. in Hook. Fl. N. Zeal. ii. p. 216. t. 109 A).

**Hab.** Parasitic on *Hormosira Banksii*, very common.

**Distrib.** South and east coasts of New Holland. New Zealand.

**Tribe II. SPOROCNACEÆ.**

Gen. XV. SPOROCHNUS, Ag.


**Hab.** Georgetown, *R. Gunn, W. H. H.*, etc.

**Distrib.** Coasts of New Holland.

To this place we refer a species common at Georgetown, but which varies much in the relative lengths of the pedicel and receptacle. In the *normal* state, described by Agardh, the pedicel is four times shorter than the receptacle, and so we find it in some specimens. In others, and even on different branches of the same frond, we find pedicels half as long, as long as, or longer than their receptacle. Either, therefore, we must refer all to one head, or establish four or five new names on the specimens before us. This latter could be easily done had we but a few examples to decide from: but after examining some hundreds collected at King George’s Sound and Georgetown, we are forced to unite all under one head. When this plant grows in shallow water, it is frequently bushy, the branches much divided; but when, as at Georgetown, it inhabits the deeper parts of the Tamar, in a rapid tidalway, the primary branches are nearly simple, and lengthened to two feet or more. Some of our specimens answer to the description given of *Sp. Gartneri*, a species of which we have seen no specimen.


**Hab.** Georgetown, *Gunn, fide J. Agardh.*

This species, which is very imperfectly known to us, is founded by Professor J. Agardh on a specimen which we formerly inadvertently sent him for *S. radiciformis*, but nothing similar to which have we been able to find either in Mr. Gunn’s extensive collection or in our own. Professor Agardh has obligingly returned a fragment to Dr. Harvey. This agrees with the diagnosis given, and certainly differs from any of the innumerable specimens of *S. comosus* which have come before us. The species must remain, therefore, for future elucidation.


**Hab.** Georgetown, *Gunn, W. H. H.*, etc.

**Distrib.** South and west coasts of New Holland.

4. **Sporochnus apodus** (Harv.); fronde setacea longissima decomposita ramosa, ramis filiformibus simpliciusculis receptaculis cylindraceis apice subacutis sessilibus horizontaliter patentibus.

**Hab.** Georgetown, *W. H. H.*

Of this remarkable plant we have, as yet, seen but a solitary specimen, but this is so strongly characterized that we must, for the present, hold it to be a species. It consists of part of a stem, 8–10 inches long, closely set
with branches 10–12–14 inches in length; stem and branches not thicker than hog's-bristle. Throughout the entire length of the branches innumerable receptacles stand out, like spines, at right-angles with the branch. They are perfectly sessile, about 1–2 lines in length, cylindrical, but tapering slightly to the subacute apex, so as sometimes to be nearly subulate. In the varieties of S. comosus the tapering is in the opposite direction—to the base.

Gen. XVI. BELLOTIA, Harv.


_Frons_ filiformis, solida, umbellatim ramosa, apicibus ramorum fasciculato-comosis. _Receptaculum_ in quoque ramo unicum, cylindraceum, medium partem rami circumvestiens, e paranematibus simplicibus verticalibus dense stipatis constitutum. _Spores_ ad paranemata lateraliter dispositae, oblongae, transversim striatae.

1. _Bellotia_ Eriophorum (Harv. _An. Nat. Hist._ (1855), _xxv._ p. 332).  (Tab. CLXXXVII.)

_Hab._ Georgetown, rare, _Henty, Gunn._ Derwent (a fragment), _Oldfield._

_Distrib._ Port Phillip and Western Port, _Victoria, W. H. H._

Root clothed with velvety fibres. _Stems_ many from the same base, 1–2 feet long, twice as thick as hog's-bristle, terete, rigid, somewhat horny, twice or thrice umbellately compound. _Umbels_ of ten to twenty or thirty rays or more, from 3–4 or 5 inches apart; the bases of all the rays tomentose, the rest bare and quite smooth. _Apices_ of all the branches crowned with a very dense spherical tuft of brown filaments, from ¼–½ of an inch in diameter. _Receptacle_ cylindrical, developed round each branch in its middle or upper portion, and formed of very densely-packed, simple filaments (paranemata), vertically issuing from all sides of the branch, and whorled round it. This receptacle begins to be formed on the upper half of all the young branches above the middle, and extends, at first, nearly to the commencement of the apical tuft; but as the growth continues, the barren portion of the branch above the receptacle considerably elongates, and the receptacle, in a full-grown branch, is removed to nearly the middle region, where it forms a sausage-shaped swelling nearly two inches in length and thrice the diameter of the barren part of the branches. The _paranemata_ are quite simple, articulated, cylindrical, their cells three or four times as long as broad, filled with pale-olive endochrome. _Spores_ linear-oblong, sessile on both sides of the paranemata, alternate or secund. _Substance_ of the stem and branches rigid; of the apical tufts soft, and when young somewhat gelatinous. A cross-cutting of the stem shows a firmly-cellular substance composed of minute polygonal cells, set in lines radiating from a central point.

The fertile portion of the branches varies considerably in length in different specimens. In some the receptacle is developed only in a minute degree, in others it extends nearly the full length of the branch. The generic name is bestowed in honour of Lieut. Bellot, of the French Navy, who was lost in one of the Searching Expeditions for Sir J. Franklin. It differs remarkably in ramification and habit from others of this order.—_Plate_ CLXXXVII. Fig. 1, the plant, the _natural size_; 2, cross section through a receptacle; 3, spore-threads from the same:—both figures magnified.

Gen. XVII. CARPOMITRA, _Kütz._


_Hab._ Port Arthur, _W. H. H._


Hab. Sent by Mr. Gunn.

Distrib. South coast of New Holland.


Hab. Tasmania, *Baume in Mus. Par.* (Unknown to us.)

**Gen. XVIII. NEREIA, Zanard.**


Hab. Georgetown, R. Gunn, W. H. H.

Distrib. Port Phillip, Victoria.

Frond 1–2 feet long, excessively branched and bushy. Stem undivided, 1/4 line in diameter below, attenuated to the thickness of a bristle above, cartilaginous, solid, with a densely cellular axis, set throughout with lateral branches, which issue irregularly, and are directed towards all sides. Each branch is a repetition of the stem on a smaller scale, and is again and again decomposed. All the tips are acute, and crowned when young with a tuft of cavernoid fibres. The smaller branches taper to the base, and are more or less furnished with minute setaceous ramuli, each crowned with filaments. The wartlike receptacles are densely scattered over the whole frond, and when young bears a tuft of filaments, as in *Sporochilus*.—Plate CLXXXVIII. Fig. 1, a frond, nat. size; 2, frustule of a branch, with two setaceous ramuli; 3, longitudinal semisection of a branch; 4, a wartlike receptacle; 5, spore-threads and spores from the same;—the latter figures variously magnified.

**Tribe III. LAMINARIACEÆ.**

**Gen. XIX. MACROCYSTIS, Ag.**


Hab. All round the coast.

Distrib. South coast of New Holland, New Zealand, west coast of North and South America, and specially in the great Southern Ocean.

**Gen. XX. ECKLONIA, Hornem.**


HAB. Sea-shores.

Distrib. Shores of New Holland, New Zealand, Chili, Cape of Good Hope, and Canary Islands.

The less or greater length of rachis, and the absence or presence of spines on the surface of the frond, characters which distinguish the *E. radiata* and *E. exasperata* of Agardh from each other, are certainly variable, and we think we have satisfactorily traced one form into the other. Nor is *E. Richardiana* a more satisfactory species.

Gen. XXI. CHORDA, Stackh.


HAB. Georgetown, Gunn, etc. Southport, C. Stuart.

Distrib. Native of the Atlantic and Pacific, in the northern and southern temperate zones, and of the Antarctic Sea.

Gen. XXII. ADENOCYSTIS, Hook. fil. et Harv.


HAB. Tide-pools at Port Arthur, W. H. H.

Distrib. Antarctic shores, New Zealand.

**Tribe IV. DICTYOTACEÆ.**

Gen. XXIII. HALYSERIS, Targion.


HAB. Georgetown, etc., common.

Distrib. Abundant along the western and southern coasts of Australia.

Gen. XXIV. ZONARIA, J. Ag.


HAB. Georgetown, R. Gunn, etc.

Gen. XXV. DICTYOTA, Lamour.


Algae, by W. H. Harvey.

FLORA OF TASMANIA.

Hab. Flinders’ Island, Milligan.
Distrib. West and south coasts of Australia.

Hab. Georgetown, etc.
Distrib. Coasts of Australia.

Hab. Georgetown, etc.
Distrib. Cosmopolitan.

Hab. Georgetown.
Distrib. Cape of Good Hope.

Gen. XXVI. STILOPHORA, *J. Ag.*


1. *Stilophora rhizodes* (J. Ag. Sp. Alg. i. p. 85; Harv. Phyc. Brit. t. 70).—Fucus rhizodes, 

Turn. Hist. t. 235.
Hab. Georgetown, in tidal pools, and on the mudflats.
Distrib. Atlantic coasts of Europe and North America.

Hab. Georgetown, in deep water.
Distrib. Shores of Europe, King George's Sound.

Gen. XXVII. ASPEROCCUS, Lamour.


Hab. Georgetown, etc., common.
Distrib. Atlantic Ocean, Mediterranean, coasts of New Holland, Cape of Good Hope, and Falkland Islands.


Tribe V. CHORDARIACEAE.

Gen. XXVIII. LIEBMANNA, *J. Ag.*


Var. β; fronde simpliciuscula intestiniformi.—Harv. Alg. Exsic. n. 89.

Hab. Georgetown, R. Gunn, W. H. H.

Distrib. South coasts of New Holland.

Frond 6 inches to a foot or more in height, from 2-4 lines in diameter, or sometimes upwards of half an inch across the swollen branches, very irregular in ramifications, sometimes nearly simple, sometimes much branched. In the simpler varieties the branches are often much swollen. The substance is firmly carnoso-gelatinous and tough, and the colour a dark-brown, becoming blackish when dry. The axial filaments are very dense, those of the periphery remarkably slender, elongated, several times dichotomous, and perfectly cylindrical, their joints three or four times as long as broad. The spores are obovate, with a wide perisperm, and are borne near the bases of the peripheral filaments.—We are not sure whether this species be correctly referable to Liebmannia, where we place it on account of the dense axis.

Gen. XXIX. MESOGLOIA, Ag.


Hab. Georgetown, R. Gunn.

Distrib. Atlantic shores of Europe, Gulf of Mexico, south coast of New Holland, and at the Friendly Islands. (Vavau, W. H. H.)

Gen. XXX. CLADOSIPHON, Kütz.


1. Cladosiphon Chordaria (Harv.); caule indiviso percurrente, ramis lateralibus longissimis quo-quoversis simplicibus v. subdichotomis, ramulis paucis, axillis obtusis, filis periphericis simplicibus brevis-simis clavatis unicellularibus, sporis ellipticis.—Harv. Alg. Exsic. n. 95, 96; Phyc. Austr. t. 60.


Hab. Georgetown.

Distrib. South coast of Australia.

Frond a foot or more in height, and as much in the expansion of the branches. Stem mostly simple, densely clothed throughout with long lateral branches which issue in all directions. Branches filiform, varying in diameter from the thickness of a hog's-bristle to a line; in the former case of equal diameter throughout, in the latter tapering at each end, simple and bare of ramuli, or once or twice forked, or, in var. β, furnished with numerous short patent ramuli. In young specimens the central cavity is narrow, in more advanced it gradually widens, the frond becoming somewhat inflated. The walls of the tube are composed of several rows of longitudinal filaments, densely aggregated into a firmly cellular flesh; the periphery is formed of minute, radiating, simple filaments, each formed of a single clavate cell, issuing from the cells of the outer row of those composing the tube-wall. Elliptical spores nestle among the filaments of the periphery.—The Georgetown specimens are of much greater diameter than those from Port Phillip, on which the species was founded. This seems to arise from an increase in diameter of the central tube. I cannot detect any difference in microscopic character, and therefore have brought them together, and also reduce to the same my C. Dictyosiphon, which, from its difference in habit, I had previously distributed as distinct.

2. Cladosiphon nigricans (Harv.); fronde filiformi longissima subsimplici v. parum ramosa, ramis lateralibus paucis verminiformibus elongatis nudis v. ramulos paucissimos ferentibus, tubo frondis demum amplo, filis periphericis fasciculato-ramosis longiusculis articulatis, articulis diametro sesquim drives terminali globoso.—Harv. Alg. Exsic. n. 94.
HAB. Georgetown, R. Gunn, W. H. H. (Often on Zostera.)
Distrib. Western Port, Victoria, W. H. H.

FronJ 1–2 feet long, simple, with a few lateral simple branches, each several inches or upwards of a foot in length, and either quite naked or furnished with a few distant lesser branches irregularly distributed. The walls of the frond are composed of three or four rows of longitudinal, closely agglutinated filaments. At first the cavity is small, but finally it widens. The peripheric filaments are subfasciculate, irregularly forked or laterally branched; their articulations are cylindrical, and longer than their diameter; the terminal cell is globose, and of larger diameter than the rest, so that each fibre is capitate.—After having been dried, the tube in some cases remains permanently collapsed, but in others it freely opens, a difference perhaps depending on maturity.

Gen. XXXI. LEATHESIA, S. F. Gray.


HAB. Rocks: at the mouth of the Tamar, etc.
Distrib. Atlantic shores of Europe and America, Cape of Good Hope, south coast of New Holland.

Gen. XXXII. MYRIONEMA, Grev.


HAB. On Ulva: at Georgetown; parasitic.
Distrib. Atlantic shores of Europe, etc.

Gen. XXXIII. CLADOSTEPHUS, Ag.


HAB. Tasmania, C. Stuart.
Distrib. A native of Europe, North and South America, and of the south coasts of Australia, etc.

Tribe VI. ECTOCARPACEÆ.

Gen. XXXIV. SPHACELARIA, Lyngb.


HAB. Coast rocks, common: Georgetown, Port Arthur.
Distrib. Coasts of New Holland and New Zealand, Cape of Good Hope.
Gen. XXXV. ECTOCARPUS, Lyngb.


   **Hab.** Georgetown, etc.
   **Distrib.** Northern and southern temperate zones.


   **Hab.** On *Chorda lomentaria*, at Georgetown, *Penny*.

   Our specimens agree pretty nearly with specimens from the British seas, but are not fully matured. They are however in fruit.

3. **Ectocarpus sordidus** (Harv.); fronde decumbente debili alias algas investiente vage et parce ramosa, ramis paucis flexuosis subsimplicibus nudisque hic illic ramulum horizontalem brevem ferentibus.

   **Hab.** Georgetown, covering small *Alga*, Gunn.

   This resembles the British *E. crinitus*, to which it might without much violence be referred. It forms sprawling strata, investing the smaller *Alga*, when growing in muddy places.

**Series II. RHODOSPERMEÆ.**

**Tribe I. RHODOMELACEÆ.**

Gen. XXXVI. CLAUDEA, Lamour.


   **Hab.** In the Tamar, above Georgetown, especially at Point Rapid.
   **Distrib.** Western Australia.

Gen. XXXVII. MARTENSIA, Her.


1. **Martensia**, sp.

   **Hab.** In the Tamar, at Georgetown, Gunn, Fereday.

   We regret that at present it is out of our power to determine this plant. Fragments of the fringe of a gigantic *Martensia*, much larger and more robust than any we have elsewhere seen, have been sent to us by Mr. Gunn, and similar fragments have been found by Mr. Fereday. No state of *M. elegans* that we have examined resembles these fragments, and they are still less like any of the other described species, except perhaps *M. australis*, Harv., from Swan River. The fringe, when perfect, must have been more than 6 inches in breadth; the individual meshes are nearly ½ inch long; the walls of the meshes more than a line in breadth; and the exterior margin of the network fimbriato-laciniate. Until the membranous portion of the frond, and especially the base of the membrane, shall have been seen, it will be impossible satisfactorily to determine the species.
Gen. XXXVIII. POLYPHACUM, Ag.


HAB. Circular Head, Mrs. Smith.
DISTRIB. South coast of Australia, W. H. H., F. Mueller, etc.

Gen. XXXIX. ?THAMNOCOLONIUM, Kütz.


HAB. At the mouth of the Tamar, in deep water.
DISTRIB. Coast of New Holland.

Gen. XL. LENORMANDIA, Sond.


HAB. Common in the Tamar, at Georgetown.

Gen. XLI. JEANNERETTIA, Hook. fil. et Harv.

(Harv. Ner. Austr. p. 20.)

HAB. Port Arthur, Jeannerett. In the Tamar, R. Gunn, W. H. H., etc.
DISTRIB. West and South Australia.

This plant scarcely differs generically from the following, with which it sufficiently agrees in habit. By Kützing it has been erroneously referred to Botryoglossum, from which it is widely separated by its fructification. The ceramidia, with which we were unacquainted when the genus was first described, resemble those of Pollexfenia pedicellata.

Gen. XLII. POLLEXFENIA, Harv.


HAB. Abundant at Georgetown, etc.
DISTRIB. West and south shores of Australia.

The colour of the figure in Ner. Austr. is much too bright. It should be of a sober brownish-red, or purplish.

Gen. XLIII. DICTYMENIA, Grev.


1. Dictymenia Harveyana (Sond. in Linn. xxv. p. 697).—D. tridens, Harv. Ner. Austr. p. 28. t. 7 (not of Grev.).
Gen. XLIV. ACANTHOPHORA, Lf.


HAB. Georgetown, between tide-marks, on the flats, R. Gunn, W. H. H., etc.

Fronde twice as thick as hog's-bristle, 6-8 inches long, much branched, the branches three to four times compounded in an alternate manner, spreading to all sides. Main branches 3-4 inches long, nearly bare below, in the upper part set with one or two series of short, simple, or little-divided branchlets. All the younger branches and ramuli are closely beset with patent spinele, half a line in length, spirally inserted, very patent and sharply inciso-dentate or pinnatifid. Colour a dark brown. Substance cartilaginous, rather soft, adhering to paper.

2. ACANTHOPHORA ARBOREA (Harv.) ; fronde dendroidae incrassatae decompile ramosissima, ramis primariis elongatis versus apicem attenuatis lateraliiter ramosissimis, ramis secundariis brevibus dichotomo-multifidis, ramulis brevissimis spinulosis, spinulis subulatis fasciculatis undique insertis imbricatis, ceroxidii subterminalibus pedunculatis ovatis.—A. Tasmanica, Harv. Alg. Austr. Exsiccat. n. 140 (not of Sond.)

HAB. Rocks : at low water-mark, in the Tamar, above Georgetown, W. H. H.

Frondes 12-18 inches long, as thick as crowquill below, attenuated upwards, branched from a short way above the base, bushy and tree-like. Principal branches few, subsimple, resembling the main stem, and equal in thickness, erecto-patent, more or less clothed with lesser branches. The secondary branches are 1-2 inches long, slender as hog's-bristle, and much divided in an irregularly dichotomo-alternate manner, the ultimate ramuli being not more than two or three lines long. All the lesser divisions and ramuli are closely set with imbricated subulate spines directed to all sides. Capsules ovate, on longish stalks, near or at the end of the branches. Colour dark brownish-purple when fresh, black when dry.

Gen. XLV. RHODOMELA, Ag.


Distrib. Port Phillip, Victoria, Mueller, W. H. H.

Densely tufted. Fronds issuing from matted roots, 2-4 inches high, simple or once or twice forked, and occasionally furnished with one or two lateral simple branches. Branches sometimes nearly naked, but in well-grown specimens furnished through the whole length with spinelike ramuli, 1-2 lines long, which are at first subsimple, but afterwards, by development from their inner side, become fasciculato-multifid. Colour very dark brown, black when dry. Substance rather rigid, not strongly adhering to paper in drying. Cystocarps (on the Port Phillip spe-
cimens) roundish-ovate, with wide mouths, sessile on the ramuli, or near the tips of their lesser divisions. *Tetraspores* (on Tasmanian specimens) in an irregular double row in the ultimate ramuli.

**Gen. XLVI. CHONDRIA, *Ag.*


**Hab.** Common at Georgetown. Derwent, *Oldfield.*

The Tasmanian specimens are frequently of very large size, 3–4 feet long, and excessively branched. Such specimens grow in the deeper and more rapid parts of the Tamar channel.


**Hab.** Georgetown, rare, *R. Gunn, Rev. J. Fereday.*


**Hab.** Georgetown, *R. Gunn.*


**Hab.** Georgetown, etc.; common.

**Distrib.** West and south coasts of Australia.

**Fronds** a foot to 18 inches high, and as much in expansion, tufted, excessively branched in a di-trichotomous manner. **Main stem** solid, cylindrical and continuous in its lower part, becoming more or less constricted upwards at intervals of about an inch, then becoming regularly articulato-constricted, hollow, succulent, and filled with watery juice, dichotomous or fasciculately branched; lesser divisions frequently trichotomously, strongly constricted, beset at the constrictions with more or less abundant, whorled, articulated, simple or dichotomous ramuli. **Articulations** elliptical or oblong, readily separating. When thrown into fresh-water, the whole frond rapidly breaks up the branches and ramuli falling off in single joints, leaving a bare stem, with a few of its principal divisions. **Cystocarps** ovate, sessile on the sides of the ramuli. **Tetraspores** of large size, imbedded in the ultimate ramuli. **Colour** a full red, rapidly given out in fresh-water. **Substance**, when quite fresh, cartilaginous, but very juicy, and soon becoming flaccid. In drying, it most closely adheres to paper.

I suppose this to be the *Chylocladia articulata* of Australian botanists, as it appears to be found commonly along the whole southern coast, and often assumes the habit of the true *C. articulata* of Europe, though differing greatly from that plant in substance, structure, and fructification. At first I referred the present species to *Chylocladia*, but the discovery of cystocarps and tetraspores on Tasmanian specimens compels its removal into Chondria, where it associates naturally with *C. clavata* and *C. verticillata.*—**PLATE CLXXXIX.** Fig. 1, a frond, the natural size; 2, ramulus, with tetraspores; 3, a tetraspore; 4, ramulus, with conceptacle; 5, spores from the same: the latter figures magnified.

5. Chondria ?? bulbosa (Harv.); fronde coccinea a basi ramosa, ramis primariis basi incrassato-

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bulbosis bulbos oblongo solido sursum filiformibus alterne decompositis, secundariis ramulisque quaqua-versis sparris obtusis basi attenuatis.

Hab. East coast, Gunn. Derwent, Oldfield.

Fronde 3–4 inches high, branched from the base. Primary branches numerous, each of them swelling at base into an oblong, solid bulb, from ½–2 of an inch long and 1–2 lines in diameter. Beyond the bulb the branches are filiform, twice as thick as hog’s-bristle, and alternately decomposed, the lateral branches directed to all sides. Secondary branches virgate, simple, having a few scattered ramuli, which are obtuse at the apex and much attenuated to the insertion.

Dried specimens do not readily recover their form on being remoistened, and we are not quite certain as to the internal structure of the frond. There is some appearance of internal septa at short intervals, and this character, added to the form of the ramuli, has induced us to place this curious plant provisionally in Chondria. Until fruit shall have been found, its place in the system cannot be finally ascertained. The habit is that of a Rhabdonia.


Hab. Sullivan’s Cove, Dr. Lyall.

Gen. XLVII. RYTIPHLECA, Ag.


1. Rytiphleca simplifolia (Harv.) frondoli foliaceae costa repete prolifera et depum spurio ramossimae, foliis linearibus planis et subcanaliculatis costa tenui percursis opacis tenuissimae transversim striatis obtusis basi in petiole attenuatis, stichidiis linearibus involutis fasciculatis e costa cnatis.—Harv. Alg. Austr. Essic. n. 133.

Hab. Tasmania, rare, R. Gunn.

Distrib. South coast of Australia; rare, W. H. H.

Primary leaf from an inch to 3 or 4 inches long or more, from 1–2 lines wide, quite flat, and traversed by a slender midrib, from which numerous similar leaves, 1–3 inches long, are thrown out proliferously, without any definite order. These in like manner bear a third, and those a fourth series of similar leaves, until there results a bushy, much compound frond, composed of simple leaflets. All the leaflets are linear, obtuse, tapering to the base into an imperfect petiole, and are of a closely-cellular substance, rather opaque, and very finely striate transversely. The colour is a dull deep-red. Stichidia tufted, linear, issuing from the midribs.

In habit this plant resembles a very narrow form of Lenormandia spectabilis, but is of much closer cellular substance, and the reticulations are not diagonal, as in all the species of Lenormandia. Perhaps it would range better in Dictymenia than in Rytiphleca.


Hab. Southport, C. Stuart.

Distrib. Common on the western and southern coasts of Australia.

Gen. XLVIII. BOSTRYCHIA, Mont.


Hab. On stones, above half-tide. Port Arthur, W. H. H.
Distrib. New Zealand and Cape of Good Hope.

2. **Bostrychia distans**? (Harv. in Fl. N. Zeal. ii. p. 226).
   Hab. In the Derwent, at New Norfolk, **Gunn**. Rivers in New Zealand.

If this be not identical with the New Zealand species found in similar localities, it is at least nearly allied to it. Our specimens are not in good order.

   Hab. Tasmania, **C. Stuart**.
   Distrib. A native of Chiloe and of New Zealand. Closely allied to the *B. scorpioides* of Europe, but more slender.

Gen. XLIX. **POLYZONIA**, *Suhr*.


   Hab. Parasitical on various *Algae*.

Gen. L. **POLYSIPHONIA**, *Grev*.


Subgenus 1. **OLIGOSIPHONIA**, *J. Ag*.

   Hab. Georgetown, abundant.


   Hab. Georgetown, etc. Coast of New Holland.

   Hab. Piper's River, **Gunn**. Native of Europe and North America.

   Hab. Georgetown, **Gunn**, **W. Archer**. Native of Antarctic Sea and New Zealand.

The Tasmanian specimens are larger and somewhat coarser and duller in colour than those from the Antarctic Sea, but the differences do not seem to warrant their specific separation. The species represents *P. formosa* and *P. urceolata* in the Southern Ocean, and is probably as variable as those forms are well known to be.

   Hab. Georgetown, on *Zostera*; common. South coast of New Holland.

7. **Polysiphonia crassiuscula**; fuscescens, cartilagineo-succosa, siccate subrigida, rugosa, fronde ultrasetacea sursum maxime attenuata pluries dichotoma, axillis patentibus, ramis minoribus irregulariter dichotomis nudis v. ramulis paucis lateralisbus plus minus obisitis, axi tetrasiphonia, articulis superioribus diametro æqualibus v. sublongioribus corticatis, inferioribus diametro brevioribus plus minus dense corticatis.
Hab. East coast, R. Gunn.

Froths 4–6 inches high, not densely tufted, repeatedly dichotomous from the base, the lower axils very patent; cartilaginous, and thickly coated with secondary cells in the lower part, softer and more pellucid above, and at the ends of the branches flaccid, much attenuated and pellucid. Articulations short in all parts of the frond, only equalling their diameter toward the ends of the young branches, four-tubed. The lower articulations are more or less obliterated, being covered externally with several rows of accessory cells. Colour a dingy reddish-brown when dry. Substance rigid, the tips only adhering to paper.

Our specimens are few, and not in first-rate order.

8. Polysiphonia laxa; frond setacea elongata rigidiuscula rufescente angulatim flexuosa laxe ramosa, ramis primariis patentibus paucis elongatis varie divisis, secundariis brevibus divaricato-patentibus alternis v. sepe secundis subsinicipicibus v. lateraliar ramulosis, ramulis paucissimis setaceis, articulis tetrasiphoniis ecorticatis mediis diametro 3–4-plo superioribus duplo longioribus ultimis diametro aequalibus.

Hab. Tasmania, R. Gunn.

Froth upwards of a foot long, as thick as hog's-bristle, very laxly branched, the branches distant, zigzag-bent, throwing off branchlets at the angles; the principal branches several inches long, variously set with short lateral branches, which are often second, subsimple, slightly branched, or having a few setaceous ramuli. All the ramifications is remarkably patent. The substance is somewhat rigid, and the plant does not closely adhere to paper.

We have only seen a solitary specimen, which is very dissimilar in character to any Australian species known to us. It is attached to a fragment of Zostera.

9. Polysiphonia succulenta; fronda badia gelatinoso-cartilaginea ultrasetacea sensim attenuata apice flaccida dichotome ramosissima, ramis lateralibus irregulariter dichotomis v. multipartitis, ultimis in ramulos fasciculatos multifidos desinentibus, articulis ecorticatis tetrasiphoniis mediis diametro subtriplo longioribus superioribus brevioribus ultimis diametro aequalibus, tetrasporis in ramulis nidulantibus.

Hab. Georgetown, on Zostera, R. Gunn. (Oct. 1848.)

We have only seen a single specimen. It resembles a large and coarsely-grown P. mollis, but the frond is much more robust and succulent than in that species, and the habit more flabelliform, with dense fasciculato-multifid terminal ramuli. Froth 6 inches high, much branched from the base, the branches dichotomous. Colour when dry a rich dark-brown. Substance somewhat similar to that of Griffithsia secundiflora.


Hab. Floating in the sea, at Eagle Hawk Neck, W. H. H.

This curious little species occurred in such immense quantity as to colour the sea for a considerable distance round the shore, each wave, as it rolled in, appearing as if thickened with raspberry jam. The mass, when examined, proved to be composed of innumerable minute, spherical tufts, each about two lines in diameter, composed of filaments intricately woven together, very irregularly branched, the branching remarkably divaricate. At an earlier stage, probably the plant was attached, but when found it appeared in full life, and not a mere waif of the sea; and I was informed by a gentleman resident at the Neck that he had repeatedly noticed the waves, in that part of the bay, to be similarly filled with this little plant.

Subgenus 2. POLYSIPHONIA.

Hab. On the larger Algae, very common.

Distrib. West and south and east coasts of New Holland.

Hab. Georgetown, etc., common.

Distrib. South coast of New Holland.

Hab. Georgetown, etc., common.

Distrib. South coast of New Holland.

Hab. Georgetown, etc.

Distrib. West and south coasts of New Holland.

Hab. At Georgetown, rare, R. Gunn.

Hab. Tasmania, Rev. Mr. Boening. Port Arthur, W. H. H.


Hab. Common, especially at Georgetown.

Distrib. All along the west and south coasts of New Holland. New Zealand. Auckland Islands, etc.

Hab. Tasmania, C. Stuart.

Distrib. Coast of Victoria, at Port Fairy, W. H. H.

Tufts 2–3 inches high, very dense, many fronds growing from the same base. Stems about as thick as hog’s-bristle, articulated to the base, and very densely beset with lateral, patent branches directed to all sides, so as to give a shrub-like aspect to the plant. The principal branches are again beset with a second, and occasionally a third set, directed to all sides, and closely alternating in insertion. All the branches are densely set with short, spine-like, divaricate or reflexed ramuli, about a line in length. The articulations have seven radiating tubes, and are short throughout the plant; those of the branches scarcely once and half as long as broad, and those of the ramuli much shorter than their breadth. The colour is a dark brown when dry, a pale brown when recent. The substance is soft, and soon decomposes in fresh-water. Frequently the whole plant is densely clothed with byssoid hairs.—The Tasmanian specimens entirely correspond with those from Victoria. Mr. Stuart does not give their exact habitat. Those from Port Fairy grew in a narrow tide-channel, or small creek, and not in the open sea.

Gen. LI. DASYA, Ag.


HAB. Georgetown, rare.

I have doubts whether this be more than an apocope variety of *D. Gunniana*.


HAB. Georgetown, on the wooden piles of the pier, etc., and on *Algae*.


HAB. Abundantly at Georgetown.

**Dasya Tasmanica** (Sond.) ; "caule crasso elongato cartilagineo nudo alterne ramoso, ramis subelongatibus iterum ramosis inarticulatis, ramulis divaricatis densissime ramellis roseis monosiphoniis vestitis, ramellis patentibus dichotomis, articulis diametro duplo triplode longioribus, terminali obtusissimo, ceramidiis ovato-subglobosis brevissime pedicellatis."—Sond. in Linn. xxv. p. 702.


Froond 6–12 inches long, robust, decompound. Branches lateral, elongate, patent, set with one or two series of shorter branchlets and ramuli. The main stem and branches are denuded; the shorter branchlets and ramuli densely covered with dichotomo-multifid ramuli. The habit is very similar to that of *D. elongata*, but the ramelli are obtuse, not acutely pointed as in that species.—Our specimens are dull reddish-brown, and closely adhere to paper. We have not seen an authentic specimen of Sonder’s plant.


HAB. In the Tamar, at Point Rapid, W. H. H.

Distrib. Port Phillip Heads.

Froond sometimes 6 feet long, the branches 3 or 4 feet. Stem 1–2 lines in diameter at base, cartilaginous, attenuated upwards. Branches lateral, spirally inserted, many times compound alternately, all the divisions virgate, tapering to the apex. The general circumscrition of the larger branches is lanceolate, of the smaller, ovate-acminate. The ultimate ramuli are setaceous, about ½ inch long, and are alone clothed with ramelli, which are of a bright, purplish, rose-red colour, well preserved in drying. The plant may be immersed in fresh-water without injury for a considerable time, a character by which it is readily known from those varieties of *D. villosa* which resemble it in habit. The ramelli, though exceedingly soft and flaccid, may be readily removed from paper, and open again in water with facility.


HAB. Georgetown, etc., common.

Distrib. West and south coasts of Australia, especially in Port Phillip.

An extremely variable plant in size and ramification, as well as in colour, being sometimes dark purplish-red, sometimes bright rosy-purple. It is the softest and most gelatinous of the Australian species, almost instantly decaying in fresh-water, and in this and other respects nearly resembles the northern *D. elegans*. 
8. **Dasya Feredayae** (Harv.); caule elato glabro opaco cartilagineo decomposita ramosissimo, ramis lateralibus virgatis gracilibus quaquaversis iterum et iterum alterne divisis, minoribus nunc virgatis simplicibus nunc ramosis attenuatis ramelliferis, ramellis roseis monosiphoniis undique insertis patentibus vel squarrosis ad apices densioribus dichotomo-multifidis axillis patentibus apice attenuatis, articulis ramellorum diametro 4–6-plo longioribus cylindraceis, ceramidiis . . . ?—*Harv. Alg. Exsic. n. 220.  

*Var. β*; ramis ramulisque squarrosis.—*Harv. Alg. Exsic. n. 221.*  

**Hab.** In the Tamar, at and above Georgetown, *Mrs. Fereday, etc.*

**Frons** 1–2 feet long or more, half a line to a line in diameter at base, set throughout with lateral branches spreading in all directions, the lower long, the upper gradually shorter. *Branches* virgate, three or four times alternately decomposite, each set of branches more slender, generally straight and erecto-patent, sometimes squarrose and curved. All the larger branches are glabrous, the lesser ones but sparingly covered with ramelli, the penultimate ones alone thickly ramelliferous; but different specimens differ greatly in the density and copiousness of the ramelli. Every part of the fronds is inarticulate, coated with small cells. The *ramelli* are patent, sometimes squarrose, many times dichotomous, attenuated to the points, and their articulations are 3–6 times as long as broad. The *colour* is rosy-red, well preserved in drying. The *substance* is firm, and the plant may be immersed for some time in freshwater without injury.—I have not seen any fructification.

I first saw some fine specimens of this plant in the collection of Mrs. Fereday, of Georgetown, to whom the species is dedicated, and afterwards I collected it in considerable abundance in the Tamar. It has also been sent in Mr. Gunn's later collections.


**Hab.** Georgetown, rare, *R. Gunn.* **Table Cape, Miss Mackenzie.*  

**Distrib.** First found at Western Port, Victoria, *W. H. H.*

**Frons** 12–18 inches high, and nearly as much in expansion, with a principal undivided or once-forked stem, closely set throughout with patent lateral branches, the lowest of which are longest. These branches are dichotious, or nearly so, and are twice or thrice plumoso-pinnate, the pinnae and pinnule all patent. The *pinnae* are of unequal lengths, long and short intermixed; the smaller ones are either simple or once pinnate, the larger two or three times decompound. The *main branches* at first are densely ramellose, but become bare with age; all the lesser branches generally retain their villosity. The pinnae and pinnule are densely clothed with curled, intricate, squarrose ramelli, many times dichotomous, not much tapering, but acute at the points, their articulations short. *Ceramidia* generally terminate the shortset of the ramuli, and are hidden in a dense nest of ramelli, which cover over even the walls of the ceramidium. *Stichidia* minute. *Colour* a rosy red, sometimes turning brown in drying. *Substance* soft, but not gelatinous.—The specific name is in honour of *Mrs. M' Haffie*, of Philip Island, Western Port. The specimens from Table Cape are much injured, and in part denuded of ramelli, and may possibly belong to a different but closely allied species.

10. **Dasya Mauelleri** (Sond.); caule elato (pedali et ultra) crasso villis stipato subdichotomo, segmentis ramiferis, ramis secundaris longissimis (1–2-pedaliis) caule multo tenuioribus glabris corticatis simplicibus inferne sepe denuudatis superne pulcherrime plumoso-pinnatis, pinnis alternis crebris horizontalibus plus minus eccentricis polysiphoniis iterum pinnulatis, pinnulis oligosiphoniis brevissimis ramelliferis, ramellis dichotomis attenuatis obtusiis, articulis diametro 3–4-plo longioribus, ceramidiis magnis pedicellatis

HAB. Georgetown.

DISTR. West and south coasts of Australia.

11. Dasya Archeri (Harv.); caule pusillo a basi in ramos numerosos diviso, ramis setaceis elongatis simplicibus pellucide articulatis polysiphoniiis crebre pinnatis circumscriptione ovato-lanceolatis, pinnis distichis alternis ramello pectiniformi reflexo-squarroso suffultis simplicibus ramelliferis, ramellis sepius alterne geminis divaricato-patentibus pectinato-multifidis (a latere interiore ramosis) mucronatis, articulis ramellorum diametro sesquilongioribus.

HAB. Georgetown, rare, Archer, R. Gunn.

Three to four inches high, divided from the base into numerous branches. Branches as thick as hog’s-bristle, pellucidly articulate, often naked near the base, closely pinnated and feather-like beyond the middle. Some of the larger branches divide, and each division is then pinnate. Pinna ½–1 inch long, distichous, patent, about a line apart, each subtended by a ramellus, which is plicate on its inner face. Ramelli mostly in pairs alternately, robust, patent or strongly reflexed, plicate, the teeth of the comb horizontal, little tapering, but suddenly mucronate at the apex. Colour rosy-red.—This looks almost like a small specimen of D. Muelleri, but differs in the nature of the ramelli, the greater transparency of the branches, the subtending ramellus to the pinnae, etc. We have only seen three specimens.


HAB. Georgetown, rare, Gunn, W. H. H.


HAB. In the Tamar, above Georgetown, common.

DISTR. Found at Western Port, Victoria.

One of the strongest-growing and most bushy of the genus. The figure in Ner. Austr. only represents part of a small branch.


DISTR. South coast of Australia.

After an examination of a very extensive suite of specimens, I am unable to fix a clear limit between D. ceramioides and D. hormoclados, here united together.


HAB. A single specimen at Georgetown, R. Gunn.

DISTR. Cape of Good Hope, Port Phillip.

The specimen agrees with those from Port Phillip, but is of a larger size than those from the Cape of Good Hope, on which the species was founded.

16. Dasya crouanioides (Sond.); “frondes continuas tenuissimae monosiphonia, ramis alternis patentibus, ramulis sensim minoribus, omnibus cum fronde primaria fasciculis ramellorum brevissimorum verticillatim sejunctorum vestitis, verticillis superioribus confluensibus, ramellis articulatis callithamnioideis divaricato-ramosissimis, articulis diametro subduplo longioribus.”—Sond. in Linn. xxv. p. 703.

HAB. Tasmania, Stuart.
We know nothing of this plant, which is said closely to resemble Crouania attenuata. Can it be a Crouania, and not a Dasya? Perhaps Crouania insignis, Harv.?

TRIBE II. LAURENCIACEÆ.

Gen. LII. ASPARAGOPSIS, Mont.


Hab. Common everywhere.

Distrib. Abundant along the west, south, and east shores of Australia.

Gen. LIII. DELISEA, Lamour.


Hab. Georgetown, common.

Distrib. South coast of New Holland.


Hab. Georgetown, very rare, Rev. I. Fereday.

Distrib. Found at Western Port, Victoria, W. H. H.

Frond 2 feet long or more, very soft and flaccid, twice as thick as hog’s-bristle, excessively branched in an alternate manner, the main branches long and virgate, the rest successively shorter. All parts are more or less flexuous, or gracefully bending. The cilia are longer, more filiform, more distant, and less regularly placed than in D. elegans, and in the lesser division a cillum is frequently lengthened to twice or thrice the ordinary length, and then pectinated on its inner face. The whole plant has more the aspect of a Hypnea than of a Delisea, but the fructification is exactly that of D. elegans.

Gen. LIV. PTILONIA, J. Ag.

(J. Ag. Sp. Alg. ii. p. 773.)

1. Ptilonia australasica (Harv.); fronde in parte inferiori costa crassa donata sursum costula
Flora of Tasmania. [Algae, by W. H. Harvey.

tenissima percursa vel omnino ecostata lineari plana decomposita pinnata, pinnis pinnulisque alternis
patentibus axillis rotundatis, ultimis oblongis obtusis simplicibus v. pauce deuntatis, ceramidibus lateralis,

Distrib. South coast of Australia.

Frons a foot or more in length, and as much in expansion, about a line or a line and a half in breadth in all
parts, furnished for some inches above the base with a thick cartilaginous midrib, which is gradually dissipated
upwards, the upper half of the frond being ribless, and quite flat, but traversed by a very slender, internal, medial
vein, which is not always visible, though strongly marked in the broader and more luxuriant specimens. The ramifi-
cation is distichous, and about thrice pinnate; the primary branches or pinnæ elongate, few and distant; the
secondary 1–2 inches long, about half an inch asunder, and regularly alternating; the tertiary short, with one or
two tooth-like incisions. All the branches and their divisions are remarkably patent, with rounded angles. The
apices are blunt, and frequently as if truncate. The ceramidia are as large as mustard-seeds, globose, on stalks as
long as, or longer than themselves, and are very irregularly distributed over the frond, being sometimes terminal,
sometimes on the sides of the smaller ramuli, sometimes in the axils, and sometimes actually fasciculate on different
parts. Their walls are very thick, and they contain a large tuft of clavato-pyriiform spores. The colour of the
frond is of a deep clear red, similar to that of many Plocamia.—Mr. Stuart’s specimens from Southport are broader
than that represented in our figure, and the frond is everywhere traversed by a slender medial vein, which we do not
find obvious in the Georgetown plant. It is possible we may confound two species; but as their vein is less
strongly marked in some individuals than in others from the same locality, we think perhaps it may exist in all, but
from some fault in the drying may have been obliterated.—Plate CXC. A. Fig. 1, Ptilonia australasica, nat. size;
2, a fragment, with a pedicellate ceramidium; 3, tuft of spores from the same; 4, some spores separated:—the latter
figures more or less highly magnified.

Gen. LV. CLADHYMENIA, Harv.


1. Cladhymenia conferta.—Dictymenia conferta, Harv. Ner. Austr. p. 29. t. 8. Delesseria con-
Var. β. foliifera; ramis foliis lanceolatis tenui-membranaceis ex margine apicibusque emittentibus.
Distrib. South coasts of New Holland.

During my recent visit to Australia, I ascertained the tetrasporic fruit of this plant, and am thereby compelled
to remove it from Dictymenia to the present genus. The tetraspores form marginal sori, continued for some
distance along the edge of the frond. Var. β is a remarkable variety, resembling at first sight some states of Delesseria
hypoglossum. It is connected with the common form by specimens of intermediate character.

Gen. LVI. LAURENIA, Lamour.


Forsteri, Turn. Hist. t. 77.
Hab. On Zostera, etc., common.
Distrib. All along the coasts of New Holland.

**Hab.** Tasmania, according to Montague.

**Distrib.** West coast of New Holland.

We are not acquainted with this plant.


**Hab.** Georgetown.

**Distrib.** Atlantic shores of Europe and America. Tropical seas.


**Hab.** Plentiful at Georgetown.


**Hab.** Georgetown, Gunn. Derwent, Ewing, Oldfield. Southport, Stuart.


**Hab.** Georgetown and Port Arthur.

**Distrib.** All along the coasts of New Holland.

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**Gen. LVII. CHAMPIA, Ag.**

(Harv. Ner. Bor. Amer. ii. p. 75.—*Champia et Lomentaria sp., Auct.*)


**Hab.** Georgetown, Gunn, W. H. H., etc. Derwent, Oldfield.


**Hab.** Common at Georgetown and elsewhere.

**Distrib.** Shores of New Holland and New Zealand.

3. **Champia obsoleta** (Harv.); fronde pyramidali paniculatim ramosa, caule subsimilici intestiniformi obsoletissime constricta v. subcontinua, ramis lateraliibus quaqvaersis oppositis vel verticillatis crebre ramosis, ramulis decompositis, articulis ramulorum vix conspicuis diametro sesquilogeterioribus, ceramidiis ovatis sessilibus.—*Harv. Alg. Exsic. n.* 252.

**Hab.** Georgetown. Southport, C. Stuart.

**Distrib.** Port Fairy, Victoria, W. H. H.

Perhaps only a variety of *C. affinis*, but the habit is somewhat different, and the articulations difficult to be seen in any part of the frond, owing to the thickness of the outer walls. The plant grows on tidal rocks, in shallow water than *L. affinis*, and is generally, from exposure to sunlight, of a dull livid-green, tipped with purple.


**Hab.** Georgetown.

**Distrib.** Northern Atlantic and Mediterranean. Coasts of New Holland and New Zealand.
Tribe 3. WRANGELIACEÆ.

Gen. LVIII. WRANGELIA, Ag.


   Hab. Tidal rocks, in rock-pools, very abundant.
   Distrib. Port Phillip and Western Port, etc., W. H. H.

   Hab. Common at and above Georgetown.

The summer and winter states of this beautiful species are so dissimilar that, when first we received specimens from Mr. Gunn, we described them under two different genera, founding our W. nobilis on the summer form, and our Griffithsia radiciformis on the winter one, and in this error we have been followed by Agardh and Kützing. Extended observations on the living plant, and the possession of multitudes of specimens in every intermediate stage, have now demonstrated to us the identity of the supposed two species, and the discovery of both kinds of fruit confirms the position in Wrangelia of the united forms. In the young or summer state all the younger parts of the frond are clothed with very delicate rosy-red ramelli, two lines in length, which give a feathery character to the branches. The tomentum on the branches at this season is also close-pressed and silky. At a later stage the rosy ramelli become much less abundant, and at length are confined to the tips of the smaller ramuli, while the tomentum of the branches becomes more shaggy and uneven. Finally, the rosy ramuli altogether fall off, and the plant puts on the form described as Griffithsia (Halurus) radiciformis, being then in texture, substance, and general aspect extremely unlike the delicately pencilled and feathered young plant. It is at this stage of growth that the fruit of both kinds is produced. The cystocarps, exactly similar in structure to those of other Wrangelia, are borne on longish pedicels issuing from the older branches. The tetraspores are densely aggregated in grape-like clusters, surrounded by involucral ramuli, and are borne on little pedicels rising from the branches.

   Hab. Port Arthur, Jeannerett.

We are not in a position to throw any more light on this species.

   Hab. Georgetown, R. Gunn, W. H. H.
   Distrib. Port Phillip, W. H. H.

5. Wrangelia protensa (Harv.) ; fronde gelatinosa elata articulata ecorticata inferne plus minus stuposa decomposite ramosissima, ramis virgatis longe protensis alterne v. opposite ramosis, ramis minoribus ramulisque simplicibus attenuatis ad genicula opposita v. verticillatim ramellosis, ramellis erecto-appressis strictis vix attenuatis obtusis basi pinnulatis, rachide longe ecurrente, tetrasporis ad latera pinnularum sessilibus globosis, articulis ramorum longissimis, ramellorum diametro 4–6-plo longioribus.—Harv.


Hab. Georgetown, R. Gunn.
Distrib. Port Phillip, W. H. H.
Algae, by W. H. Harvey.] FLORA OF TASMANIA. 309

Fronds 6–12 inches long, excessively and densely branched, the principal branches long and virgate, several times compound, the ultimate branches an inch or two in length, simple, attenuated. All the branches and their divisions are very erect. The older parts of the frond, though pellucidly articulate and excurrent, become shaggy with stipulate filaments, which issue from the disseipments, and are deflected downwards like rootlets. Every articulation of the branches and ramuli bears a pair of opposite ramelli, which are very erect or appressed, simple or branched from the base, often pinnulated in the lower part, but always with a long excurrent point. Tetraspores are scattered on the pinnae of the ramelli. Cystocarps unknown. Substance gelatinous and soft. Colour a rosé-red.

6. Wrangelia mucronata (Harv.); dense cespitosa, frondibus roseis rigidiusculis capillaris dichotome ramosissimis ecorticatis articulatis ad genicula verticillatim ramellosis, ramellis subternis furcatis v. trifurcatis cellula terminali minuta subulata acute mucronatis, tetraspores in cymis subapicalibus dispositis, articulis ramorum longissimis, ramellorum diametro 6–8-plo longioribus. (Tab. CXCI. B.)

Hab. Tasmania, R. Gunn. (Very rare?)

Fronds 6–8 inches long, densely tufted, capillary, of nearly the same diameter throughout, pellucidly articulate, excessively branched in a more or less regularly dichotomous manner. Every dissemination bears a whorl of mostly three ramelli, about a line in length, and two or three lines distant. These are generally forked, or often trifid, each arm of the fork being composed of one long cell, tipped by a minute, thorn-like terminal cell. The tetraspores are borne in little cymes, formed out of the ramelli, near the ends of the branches. The colour is a deep rosé-red. The substance is membranous, and the plant only imperfectly adheres to paper in drying.—This appears to be a very distinct species, allied to W. myriophylloides, but abundantly different.—Plate CXCI. B. Fig. 1, a tuft, nat. size; 2, frustule of a branch, with whorled ramelli; 3, a ramellus; 4, a fertile ramellus, with tetraspores; 5, tetraspore:—the latter figures magnified.


Hab. Georgetown, R. Gunn, W. H. H.
Distrib. Port Phillip, W. H. H.

Frond 12–18 inches long, much branched and bushy. In external habit it strongly resembles Spyridia filamentosa, for a variety of which plant we once held it. The cystocarpic fruit, now first ascertained, is however that of a Wrangelia; with no other recorded species of which genus has the present species much affinity.—Plate CXCI. A. Fig. 1, a frond, the natural size; 2, frustule of a branch, with tetrasporiferous ramelli; 3, a ramellus with tetraspores; 4, frustule of a branch with a cystocarp; 5, spores and paranema from the same; 6, a paranema:—the latter figures magnified.

Tribe IV. CORALLINEÆ.

Gen. LIX. AMPHIROA, L.


Hab. Sea-shores, common.
Distrib. Australia.

VOL. II.

Hab. Common on *Amphibolis antarctica*.

Distrib. Australia.


Hab. Five-mile Bluff, near Georgetown, *R. Gunn*.

Distrib. South and east coasts of Australia.


Hab. Five-mile Bluff, *Gunn*.

Distrib. Native of New Zealand and New South Wales.

Gen. LX. **CORALLINA, Linn.**


Hab. At Five-mile Bluff, and at Brown’s River, *R. Gunn*.

Distrib. Native of the Northern and Southern Oceans.

Gen. LXI. **JANIA, Lamour.**


Hab. Rocky sea-shores.

Distrib. Native of New Holland and New Zealand.


Distrib. Australia generally.

Gen. LXII. **MASTOPHORA, Dene.**


Hab. Tasmania, *C. Stuart*.

Distrib. Coast of Victoria, at Port Fairy, *W. H. H.*

Froonds 2–3 inches high, flabelliform and fastigiate, deeply cut into innumerable narrow-linear laciniae, about a line or a line and a half in width, flat and somewhat midribbed in the lower portion of the frond, convex above and channelled on the lower surface in the upper portion. Principal segments 4 or 5, flabellato-digitate, multifid, their divisions irregularly di-, tri-, or polyochotomous. *Apices* not much expanded, blunt, with a flat margin. Colour
of both surfaces a deep dull-red. *Concepciales* hemispherical, several closely clustered together near the tops of the branches.

This appears to be a distinctly-marked species.

Gen. LXIII. MELOBESIA, Lamour.


Aresch. in J. Ag. Sp. Alg. ii. p. 519.)

Several *forms* (we can hardly call them *species*) referable to this group occur on the rocky coasts, but they have not yet been carefully collected. The minute kinds, *M. membranacea*, *M. furinosa*, *M. verrucata*, *M. putulata*, and *M. Patena*, are parasitical on several *Algæ*, on Zostera, etc.

TRIBE V. SPHÆROCOCCOIDEÆ.

Gen. LXIV. DELESSERIA, Lamour.


HAB. In the Tamar, especially at Point Rapid.

DISTR. Falkland Islands and Kerguelen's Land.

2. Delesseria Tasmanica (F. Muell.); fronde costata foliis a costa prorumpentibus i foliolis lineari-oblongis basi et apice obtusis venis pellucidis a costa pinnatim abeuntibus notatis, cystocarpiis sorisque tetrasporarum in sporophyllis propriis a costa exeuntibus evolutis. (Tab. CXC. B.)

HAB. In the Tamar, at and above Georgetown. Also at Port Arthur.

*Primary fronds* 1–2 inches long, half an inch wide, very obtuse at each end, membranous, entire, traversed by a strong, cylindrical midrib, the membrane marked with pellucid striae running obliquely from the midrib to the margin. By continuous hypophyllous branching, the compound frond at length becomes 6–8 or 12 inches long, and as much in expansion, and is excessively branched and bushy, consisting of oblong, obtuse leaves similar to that of the primary frond. The leaves are frequently opposite. *Colour* a full carmine-lake. *Substance* membranaceous, resisting the action of fresh-water. Both cystocarps and tetraspores are borne in minute accessory frondlets that spring from the midribs of the larger leaves.

A handsome and well-marked species. It most resembles luxuriant specimens of *D. ruscifolia*, but differs essentially from that species by the very different evolution of the fructification. The frond is also of a much firmer substance, and adheres less strongly to paper.—Plate CXC. B. Fig. 1, a frond, the *natural size*; 2, spore-leaf, with tetraspores; 3, a tetraspore; 4, spore-leaf with conceptacle; 5, section of conceptacle;—the latter figures magnified.


HAB. Sullivan's Cove, Dr. Lyall.

DISTR. Antarctic Coasts and New Zealand.


HAB. Abundant on tidal rocks near the mouth of the Tamar.

Hab. Georgetown.
Distrib. South coasts of New Holland.

Hab. Abundant in the Tamar, etc.
Distrib. South coasts of New Holland.

A most variable species, putting on a thousand different forms in different localities. Sometimes the frond is broadly-ovate, little divided, and merely crenate-lobed round the margin; sometimes the margin is excessively crisped, and deeply cut into innumerable crowded lobes. Sometimes the frond is narrow-linear, pinnatifid or bipinnatifid. The margin is sometimes quite entire, sometimes sharply serrate. Size, substance, and colour, are equally variable.

Gen. LXV. NITOPHYLLUM, Grev.


Hab. Very abundant at and above Georgetown.
Distrib. Coast of Victoria, rather rare.

2. Nitophyllum stipitatum; stipite anguste cuneato elongato costato in frondem roseam subpalmatifidam abeunte, costis in basi segmentorum mox evanescentibus, segmentis latocuneatis profunde incisis v. semipartitis medio incrassatis, margine simplici, soris orbicularibus per totam frondem sparsis.
Hab. East coast, R. Gunn, Esq.

Stipes nearly an inch high, strongly ribbed, narrow, cuneate, widening into the base of a subpalmate frond, 2–4 inches in expansion. Segments of the frond costate at base, broadly cuneate, irregularly cleft. Sori scattered over the whole surface.

Hab. Georgetown, common.
Distrib. Heads of Port Phillip.

The figure in Ner. Austr. is very incorrectly coloured. The frond, when fresh, is of a full, but rather dull-colour. If dried without previous steeping in fresh-water, it becomes very dark and brown.

Hab. Georgetown.
Distrib. Coast of Victoria.

Hab. Georgetown. Brown’s River, etc.
Distrib. Coast of Victoria.


DISTRIB. Antarctic shores and New Zealand.

Gen. LXVI. GRACILARIA, Grev.


HAB. Georgetown. A depauperated variety in the rivulet of brackish water.

DISTRIB. Cosmopolitan.

Gen. LXVII. MELANTHALIA, Mont.


HAB. Northern coast, and islands in Bass’s Straits. *β. Port Arthur, Dr. Jeannerett*. Southport, *C. Stuart*.

DISTRIB. South coast of Australia.

Gen. LXVIII. DICRANEMA, Sond.


HAB. Flinders’ Island, *Dr. Milligan*.


Until the fruit of this plant shall have been found, the genus must remain doubtful. The habit is that of a *Dicranema*, but the structure of the frond does not exactly accord with that of the other species.

Gen. LXIX. PHACELOCARPUS, Endl. et Dies.


HAB. Sea-shores, common.

DISTRIB. West, south, and east coasts of Australia. New Zealand.

FLORA OF TASMANIA. [Algae, by W. H. Harvey.

HAB. Southport, C. Stuart.
DISTRIB. Coast of Victoria.

More slender than *P. Labillardieri*, with flatter, less distinctly-ribbed branches, and readily known, when in fruit, by the position of the *nemathecia*, which are sessile near the tips of the marginal pectinate teeth or lacinulae. The Tasmanian specimens are not so broad as those from Victoria, and are more deeply inciso-pectinate, but they perfectly agree in the more important characters of the fructification.

**Tribe VI. SQUAMARIEÆ.**

Gen. LXX. PEYSSONNELIA, Dene.


HAB. On stones: at Georgetown.
DISTRIB. Mediterranean. Pacific Ocean.

I have ventured to refer the Van Diemen's Land specimens to *P. rubra*, a species of the Mediterranean, from which perhaps a more accurate examination of authentic specimens would separate them. The general habit of our Tasmanian species is that of *P. rubra*, but the size is greater, and the substance less thin and delicate. I also found this plant at Rottnest Island, W. Australia, and in Port Jackson, and have received it from the coast of Victoria, from Dr. Curdie. It is very distinct from *P. amtralis*, Sond., and *P. Nova-Hollandiee*, Kütz.


HAB. Tasmania, C. Stuart.
DISTRIB. Native of the coast of Victoria, F. Mueller, W. H. H.

*Fronds* 4 inches long and 5 inches wide, thick and coriaceous, flabelliform, either undivided or cut into two or three shallow lobes, emitting from the under-surface, toward the base, several scattered, stout roots, and densely clothed over the greater part of the inferior surface with a pale-brown or fulvous tomentum. A broad, glabrous margin extends round the frond beneath the spines of the lobes. The upper surface is smooth, and marked with concentric zones; the margin thin, and frequently revolute. The *colour* is a deep blood-red, darker toward the base. The substance of the frond is singularly thick and leathery.

**Tribe VII. GELIDIACEÆ.**

Gen. LXXI. GELIDUM, Lamour.


HAB. On tidal rocks.
DISTRIB. Cosmopolitan.

We have not seen any specimens of the ordinary form, but the varieties *cuspitosus* and *crinalis* are common on stones between tide-marks, at Port Arthur, and probably in other suitable localities.

Hab. Georgetown, **Gunn**.
Distrib. South coast of Australia.


Hab. At Circular Head, **Mrs. Smith**. Georgetown, **W. H. H**.
Distrib. South coast of Australia.

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Gen. LXXII. **NIZYMENIA**, **Sond**.

1. **N. australis** (Sond. l. c.).

Hab. Southport, **C. Stuart**.
Distrib. Wilson’s Promontory, **Dr. Mueller**. Port Phillip Heads, **W. H. H**.

Root a large, expanded, fleshy disc. Stems many from the same base, 4–6 inches high, about 1½ line in breadth, compressed and thickened below, flattening upwards, much branched in an irregularly pinnate, twice or thrice decompound order. Pinnae and pinulae patent, opposite or scattered, linear, obtuse, much constricted at their insertion as if stalked; the smaller ones resembling leaflets. Apices either rounded and very obtuse, or minutely notched. Margin quite entire and flat. Colour a fine clear red, becoming brighter in fresh-water. Substance rigid when dry, tough, coriaceo-cornaceous. Structure very dense; the medullary structure composed of closely-interlaced filaments occupying three-fourths of the breadth; the intermediate cells rather small.—In distributing my Australian Algae, several specimens of this plant were inadvertently sent out under **n. 385**, as **“Areschougia conferta”**. The plant originally so named by me is different, and a true **Areschougia**. The present plant bears a striking external resemblance to it, but is broader, more regularly pinnate, and destitute of costa, and the internal structure quite different. I have not seen the fruit, which is described by Sonder in the memoir above quoted.

Gen. LXXIII. **HYPNEA**, **Lamour**.


Hab. Georgetown, **R. Gunn, W. H. H., etc**.
Distrib. Coasts of Australia, Japan, China, and the Pacific Islands.


Hab. Georgetown and Port Arthur.
Distrib. West and south coasts of Australia.

3. **Hypnea planicaulis** (Harv.); fronde latolineari plana subdistichic ramosissima decompotite pinnata, ramis majoribus planaltis seticulosis crebere bi-tri-pinnatis, pininis pinulaisque gracilibus patentibus subulatis acutis nunc apice incrassatis cirrhoso-hamatis, cystocarpis globosis inflatis ad latera pinularum sessilibus.—**Harv. Alg. Exsic. n. 342**.

Hab. Georgetown.
Distrib. South coast of New Holland.

Fronds densely tufted, 8–12 inches high, and as much in expansion, excessively decompound in a pretty regularly distichous pinnate order. Main stem quite flat, one to two lines in breadth, having several lateral similar
branches, which like it are densely bristled with short, spine-like ramuli. The main branches are three or four times pinnate; the pinnæ 1-3 inches long, compressed, $\frac{1}{4}-\frac{1}{3}$ line in diameter, tapering to the apex, and closely set with subulate pinnae, which are often again pinnaulate. As in all the genus, some of the pinnae are lengthened out into cirrhous branches, thickened and hooked at the end. The colour is a full-red, becoming bright-scarlet on steeping in fresh-water. The substance is soft, and the plant adheres firmly to paper in drying. The cystocarps are globose, of large size, and scattered on the pinnae.

This appears to us to be a strongly-marked species, readily distinguished by its flattened stem. It is more abundant at Western Port and on the coast of Victoria than in Tasmania.

Gen. LXXIV. SOLIERIA, J. Ag.


HAB. Georgetown.
DISTRIB. Western Australia.

Much larger in all its parts and more branching than S. chordalis, with less tapering branches, and a firmer and more fleshy substance. The Georgetown specimens are still larger than those from Western Australia.

TRIBE VIII. CHÆTANGIÆ.

Gen. LXXV. CHÆTANGIUM, Kütz.


1. Chaetangium? (Nothogenia?) flabellatum (Harv.); fronde cartilagino-cornea lucida rubra angustissime linearis compressa regulariter dichotoma fastigiata, segmentis patentibus flabellatis expansis pluribus furcatis, apicibus obtusis.


Root scutate. Fronds densely tufted, 2-3 inches high, fastigiate, many times dichotomous, the lower forkings distant, the upper closely approximated; the ultimate segments sometimes short, sometimes lengthened out and filiform, always obtuse. The frond is strongly compressed, almost flattened, but very narrow, not more than $\frac{1}{4}$ line in breadth. The colour is rather a bright purplish-red, and the surface somewhat shining. The substance is very similar to that of Gelidium corneum or cartilagineum. No fruit seen, and the genus therefore doubtful.—The internal structure of the frond is very similar to that of Chaetangium variolosum, which also agrees with our plant in ramification; but our plant is much narrower, of a brighter colour, and more horny substance.

2. Chaetangium? Lingula (Harv.); fronde pusilla simplici vel semel furcata plana lanceolata cartilagineo-cornea siccitate rigida basi et apice attenuata obtusa, strato interiore florum laxiore, peripherico densissimo, cystocarpiis numerosis per frondem spuris.

HAB. On rocks: Brown's River, Gunn.

Fronds tufted, an inch or two high, about two lines broad, flat, lanceolate, either quite simple or once forked, very rigid when dry, tapering to each end, the apex blunt. The interior stratum of the frond is much more lax than in other species of the genus, and the exterior stratum more dense. The structure of the cystocarp is that of Chaetangium.—Our specimens are covered with fruit, and therefore, we suppose, full-grown.
Gen. LXXVI. ACROTYLUS, J. Ag.

(J. Ag. Sp. Alg. vol. ii. p. 192.)


Hab. Tasmania, C. Stuart.

This plant has got the cystocarpic fruit of a Chetangium, to which genus the present is closely allied in habit, but has a somewhat different cellular arrangement. The two genera might be united without much violence.

TRIBE IX. HELMINTHOCLADIEÆ.

Gen. LXXVII. SCINAIA, Bivon.


Distrib. Native of temperate and subtropical seas, north and south.

Gen. LXXVIII. LIAGORA, Lamour.


Hab. Georgetown, common.

Distrib. Mediterranean Sea. Also in the tropical oceans, east and west.

Gen. LXXIX. GALAXAURA, Lamour.


Hab. Tasmania, Herb. Greville.

Distrib. Tropical and subtropical seas.

TRIBE X. RHODYMENIACEÆ.

Gen. LXXX. PLOCAMIIUM, Lamour.


Hab. Sea-shores. B. In the Tamar, above Georgetown.

Distrib. The common form is cosmopolitan.

Our var. B, called by Tasmanian collectors “the lace-pattern,” is a very remarkable and beautiful form of the species, not found anywhere else that we are aware of than at Georgetown. It forms large globose tufts, the fronds lying one on another like the leaves of a book. The branching is pretty regularly dichotomous and fastigiate, the
branches elegantly flexuous throughout, and closely fringed with very slender, pectinate ramuli. No fruit has been seen. The aspect of this variety is very peculiar, but we can detect no character sufficient to distinguish it from P. coccineum, the ordinary form of which species is common on the coast.

   **Hab.** Sea-shores, common.
   **Distrib.** Australia and New Zealand.

   **Hab.** Mouth of the Tamar.
   **Distrib.** Australia and New Zealand.

   **Hab.** Georgetown and Port Arthur.
   **Distrib.** Australia.

Gen. LXXXI. HYMENOCCLADIA, J. Ag. (J. Ag. Sp. Alg. ii. p. 772.)

   **Hab.** Kent Island, R. Brown. Flinders' Island, Milligan.
   **Distrib.** South shores of Australia.


   **Hab.** Abundant at Georgetown.
   **Distrib.** New Holland and New Zealand.

   **Hab.** Georgetown, abundant.
   **Distrib.** New Holland and New Zealand.

A very variable species, to which we now reduce our R. fimbriata, founded on a very broad, delicately fringed form, extremely different in aspect from the ordinary form, as figured in the Flora of New Zealand. Having had the opportunity of collecting this plant abundantly in its various localities, we have succeeded in uniting together many forms, which, if seen in isolated specimens, would pass for so many species. Sometimes the frond is not more than a line wide, and very much divided; sometimes it is nearly an inch in breadth, and but little branched. Some of the wider forms approach R. Gunnii, but are to be distinguished by the more ragged habit, and the ciliiferous or foliiferous margin, and acute points of all the lesser segments, etc.

3. Rhodophyllis multipartita (Harv.); fronde membranacea lineari decomposite dichotoma vix


Distrib. Port Fairy, Victoria.

Frond 12 inches or more in length, and as much in the expansion of the branches, membranaceous, 1–2 lines in breadth in most of the branches and lesser divisions, excessively divided in a partly pinnate, partly dichotomymanner. The order of branching is primarily dichotomy, but by frequent suppression of one of the furcations the branches appear pinnated, with dichotomy-multifid lesser branches. All the axils are remarkably rounded. The frond in most places preserves a uniform breadth, but in some specimens it is twice as broad as in others. The margin is always free from lobes or cilia, and quite entire and flat. The apices are not remarkably acute. The colour is a very full, deep dark-red. Cystocarpi are borne plentifully on the margin of the smaller lacinias, and tetraspores scattered through the substance of the ultimate divisions. The habit is not unlike that of some narrow specimens of Gracilaria multpartita.

Gen. LXXXIII. STENOGRAMME, Harv.


Hab. Georgetown, not common.

Distrib. New Zealand, S. California, south of England and Ireland, Keys of Florida, and California.

Gen. LXXXIV. RHODYMENIA, Grev.


Hab. Georgetown, R. Gunn.

Distrib. New Zealand, and west coast of South America.


3. Rhodymenia polymorpha (Harv.); stipite brevi mox in basi frondis explanato, fronde dilute rubra latissima oblongo-ovata polymorpha nunc subsimplici margine foliifera, nunc in lacinias plures lanceolatas fissa, lacinii nunc simplicibus nunc margine foliiferis v. varie inciso-partitis, cystocarpi numerosissimis per totam frondem dispersis.—Harv. Alg. Exsic. n. 383.

Hab. Georgetown.

Distrib. New Holland.

Frond 1 or 2 feet long, its divisions 2–4 inches wide, membranaceous, very variable in form and division. Sometimes the frond is broadly ovate, and either simple or but once cleft; sometimes it is divided into numerous lanceolate segments, or the principal segments throw off marginal lobes. The margin is frequently crenate, and the membrane in age pierced with irregular holes. The colour varies from a dull purplish-red to a pale brownish-red. Conceptscales are very numerous, prominent, and scattered on the whole surface.—It is nearly allied to R. sanguinea of New Zealand, and to R. pertusa of Western North America. The habit of some specimens is that of an Fridaea.

4. Rhodymenia cuneata (Harv.); stipite brevi mox in basi frondis desinente, fronde lato-cuneata
subpalmatifida dilute rubra membranacea, margine simplici, cystocarpiis numerosissimis per totam frondem sparsis.

**Hab.** East coast, *R. Gunn.*

Fronds tufted, on a short filiform stipes, broadly cuneate, 4–6 inches long and 3–4 wide, vertically cleft in a subpalmate manner, the margin flat and without lobes. *Substance* membranaceous, thin. *Colour* a fugacious red, changing to greenish. *Cystocarps* very numerous.—We have seen but few specimens, hardly sufficient to establish the species, and yet we do not know to what other species to refer them. They do not accord with any state of *R. polymorpha*, and yet they approach that species, especially in the fructified specimens. In external habit there is a near resemblance to some forms of *R. palmata*, but the structure and colour are different.

**Tribe XI. CRYPTONEMIACEÆ.**

**Gen. LXXXV. DASYPHLŒA, Mont.**


**Hab.** Georgetown, rare, *Mrs. Smith.*

**Distrib.** South coast of Australia, *Curdie, W. H. H.*

**Gen. LXXXVI. GULSONIA, Harv.**

(Harv. in Ann. Nat. Hist. xv. p. 334.)

Fronds gelatinosos-membranacea, teres, nodoso-annulata, decompound ramosa, ex tubo centrali ampo articulato monosiphonio filis anastomosantibus longitudinalibus laxe circumdati, et filis horizontalibus excurrentibus dichotomis fastigiatis mucro hyalino firmiori inclusis constituta. *Fructus* . . .

1. **Gulsonia annulata** (Harv. I. c. p. 334). (Tab. CXIII. A.)

**Hab.** Georgetown, rare, *W. H. H.*

**Distrib.** Western Port, Victoria.

Fronds densely tufted, 6–8 inches long, decompoundly much branched; the branches and their divisions and ramuli irregularly scattered, all tapering to the base and apex, and all annularly constriicted at short intervals; the nodes swollen and deeply coloured; the internodes pale, like very narrow transverse rings. A cross section shows a very large central tube, surrounded by a narrow stratum of longitudinal filaments, from which radiate toward the circumference dichotomous, callithamnoid, fastigate filaments, whose branches are separated by pellucid jelly of firm consistence, a layer of which also forms a pellucid envelope of the branch. A longitudinal section shows that the central tube is septate, the septa at intervals of 7 or 8 diameters apart, and that the longitudinal filaments anastomose into a laxly netted, filamentous sheath, enclosing the central tube. The filaments of the periphery are thrown off irregularly from the outer face of the sheath. *Colour* a fine pinky-red, given out in fresh-water. *Substance* very soft.—Until the fruit shall be discovered, the position of this genus must be doubtful. At present I am disposed to think it allied to *Calenella*. It may also be compared with *Gloiopectis*, *Eudocladia*, and *Gattey*.—*Plate CXIII. A.* Fig. 1, a frond, nat. size; 2, transverse semisection; 3, peripheric filaments; 4, longitudinal section.—the latter figures magnified.

**Gen. LXXXVII. ARESCOUGIA, Harv.**

(Harv. in Trans. R. I. Acad. xxii. p. 554.)

Fronds linearis, compressa, immerse costata, distiche ramosissima, e filio centrali articulato et stratis
tribus cellularum constituta; stratum medullare e filis articulatis longitudinalibus anastomosantibus laxe intertextisis, intermedium cellulis rotundis majusculis pluriseriatis, corticale cellulis minimis verticalibus formatum. Cystocarpia fronde immersa, inter fila strati intermedii suspensa, reticulo florun velata, carpostomio demum aperta, fila sporifera a placenta centrali emissa continentia; spora subrotundae, seriate.


HAB. Georgetown, abundant. Southport, C. Stuart.

DISTR. West and south coasts of Australia.

This plant has the habit of a Rhabdonia, but is more firm in texture, and essentially differs in structure by having a central articulated filament or axis, of larger diameter than that of the longitudinal filaments composing the medullary stratum.

2. Areschougia Stuartii (Harv.); fronde plano-compressa dense ramosa decomposito-pinnata, pinnis basi et apice angustatis, pinnulis fere lanceolatis utringle acutis erecto-patentibus cystocarpia immersa gerentibus.

HAB. Southport, C. Stuart.

Frond distichously much branched in a subpinnate manner, and repeatedly compound, 3–6 inches long, and as much in the expansion of the branches; the branches and pinnae close together, erecto-patent, narrow-linear, nearly flat, with an evident immersed costa tapering to the base and apex, the lesser ones with an acute point, and nearly lanceolate in form. The lower part of the stem and larger branches is thickened. Colour a bright-red, becoming scarlet in fresh-water. Cystocarps minute, immersed in the substance of the lanceolate leaves, one or two in each lamina. The medullary stratum of the frond is very lax.—Nearly related to A. australis, but narrower, more densely branched, with a much laxer internal structure, the filaments composing the medullary stratum being few, and standing far apart from each other. It has more the habit of A. conferta, but its structure is even more different. From all forms of A. Laurencia it may be known by its flatness.

Gen. LXXXVIII. RHABDONIA, Harv.


HAB. Georgetown, Gunn.

DISTR. Port Phillip.


HAB. Georgetown, Gunn.

DISTR. South coast of New Holland.

I fear I have led my friend Sonder into error by distributing to him a wrongly marked specimen of one or other of these nearly allied, but, as I still think, distinct species. C. coccinea is of a much softer substance, and becomes of a brilliant crimson colour when steeped in fresh-water. C. nigrescens is rigid, very imperfectly adheres to paper, and is always of a dull, dark, brownish-red colour, even after exposure to fresh-water. I have collected both species abundantly, and can always distinguish them when growing. C. coccinea has a more evident stem, and its branching is somewhat pyramidal: C. nigrescens is bushy, branched from the base.
Gen. LXXXIX. ERYTHROCLONIUM, Sond.
(Sond. in Linnaea, xxv. p. 691.)

1. Erythroclonium Muelleri (Sond. l. c. p. 692).—Rhabdonia? verticillata, Harv. in Herb. T.C.D.
Hab. Georgetown, W. H. H.
Distrih. South coast of New Holland.

The Georgetown specimens are very much larger than those from New Holland, but do not appear specifically different.

Gen. XC. GLOIOSACCION, Harv. (nov. gen.)

Fronds sacciormis, succo gelatino repleta, membranacea, ex stratis fere tribus conflata; stratum medullare cellulis maximis gelatosis cito ruptis, intermedium cellulis rotundato-angulatis coloratis, corticale cellulis minimis in fila verticalia ordinatis. Fruct.: 1, favellidia globosa in strato intermedio immera, nucleolis pluribus denuo confluentibus composita; 2, tetrasporce . . . ?


Var. a. membranaceum; fronde sanguinea, membranacea.—Harv. Alg. Exsic. n. 419.
Var. β. coriacea; fronde livido-purpurea, coriacea.—Harv. l. c. n. 420.
Hab. Var. a. Georgetown, W. H. H.
Distrih. Both vars. at Fremantle, West Australia. Var. a. Port Phillip.

I formerly mistook this plant for Halosaccion, a genus founded on Fucus saccatus, Turn., to which externally it bears the closest resemblance. The substance, structure, and contents are however very different. I now suppose it may be the plant alluded to by Turner, in his remarks under F. saccatus, as having been brought from Australia by Mr. Brown, and characterized by being filled with pellucid jelly.

Gen. XCI. GYMNOGONGRUS, Mart.
(Mart. Bras. p. 27. J. Ag. Sp. Alg. ii. p. 313.—Tyloocarpus, Oncotylus, etc., Kütz.)

1. Gymnogongrus fastigiatius (Harv.); fronde pusilla filiformi vel parum compressa dichotome ramosissima fastigiata flabelliformi, ramis ramulisque densis apice attenuatus subacutus, axillis obtusis, cystocarpiis infra apices ramulorum nodoso-incrassatis immersis circumcircra prominentibus.
Hab. Granite rocks at half-tide: Forester’s River, Gunn.

Fronds forming dense pulvinate tufts, from 1-1 ½ inch high, about as thick as hog’s-bristle, filiform or subcompressed, rising with a simple stipes for half an inch, then forked, and afterwards many times dichotomous, the upper divisions being close together. All the branches are suberect, but the axils are rounded, though narrow. The ultimate ramuli taper slightly to the point, and are all of one height. Cystocarps either solitary or two or three in succession, immersed in the terminal ramuli.—In habit and size this species resembles G. densuus and G. pygmaeus.

Hab. Southport, C. Stuart.
Distrih. New Zealand. Pacific coasts of South America.

The specimens are not very satisfactory. They are more slender than the ordinary form, and less compressed, but scarcely specifically different.
Gen. XCII. MYCHODEA, Harv.


Hab. Georgetown.
Distrib. South coast of New Holland.


Hab. Georgetown.
Distrib. South coast of New Holland.


Hab. Above Georgetown, in the Tamar, Gunn, W. H. H.

I formerly confounded this species with M. membranacea, and have perhaps distributed it sometimes under that name. Except when in fruit, it is not always easy to distinguish between them without close examination. The position of the cystocarps affords however a satisfactory character, as in M. membranacea they are sessile along the sides of the larger and smaller branches. It is a more slender and diffusely branched plant, with less of a primary stem than M. membranacea.


Hab. East coast, Gunn.

Frond 10-18 inches high, about a line in breadth, strongly compressed and two-edged, distichously branched, the main stem either twice or thrice forked, or nearly simple, and set with numerous long, strap-shaped, simple or slightly divided branches, which are patent or suberect, constricted at their insertion, and slightly narrowed to the point. The branches and their minor divisions are closely fringed with short compressed ramuli, 2-4 lines long, occasionally intermixed with others of greater length. Cystocarps are imbedded in the tips of the ramuli. Colour, when dry, very dark. Substance rigid, very imperfectly adhering to paper. — In habit this plant more resembles Prionitis, but the structure of both frond and cystocarp is that of Mychodea. — Plate CXCII. A. Fig. 1, a frond, nat. size; 2, ramulus, with cystocarp; 3, section of cystocarp; 4, section of frond: — the latter figures magnified.


Hab. Georgetown and Port Arthur.
Distrib. South coast of New Holland.

This forms large, loosely interwoven, globose tufts, on stones and Algae, near low-water mark, at the mouth of the Tamar. The tufts spring from matted, branching root-froonds. The erect fronds are 6-8 inches long, angularly compressed, about a line in diameter, rather succulent when recent, shrinking in drying, and becoming furrowed;
they taper to the base and apex, and are pretty regularly dichotomous, with more or less intermixture of lateral branches. The axils are all rounded, the apices attenuated and acute. Sometimes there are few or no lateral ramuli; in other specimens they are numerous, and frequently strongly hooked backwards, or converted into clasping tendrils. The cystocarps are sessile on the branches, and mostly tipped with a strong subulate horn. The colour is a dark brown-red. The substance is firm, and the plant imperfectly adheres to paper in drying.

Gen. XCIII. POLYÇELIA, J. Ag.

(J. Ag. Sp. Alg. ii. p. 305.)

1. Polyçelia fastigiata (Harv.); fronde gelatinoso-membranacea tenui subflabelliformi dichotome fissa v. multipartita, lacinis cuneatis apice attenuatis fastigiatis, cystocarpiis per totam frondem sparsis.—Callophyllis fastigiata, Harv. Alg. Exsic. n. 407. (Tab. CXII. B.)

Hab. At the mouth of the Tamar, W. H. H.

Fronds 6–8 inches long, and as much in the expansion of the laciniae, foliaceous, deeply divided in a dichotomous manner, sometimes rather irregularly multifid, the segments cuneate, from half an inch to an inch in breadth, the terminal lacinia gradually narrower, the apices subacute and fastigiate. Colour a rather pale rose-red, occasionally deeper. Substance very soft, somewhat gelatinous on the surface. The plant closely adheres to paper. The cystocarps, which are densely scattered over the frond, resemble those of a Callophyllis in structure.—The structure of the frond agrees with Agardh's description of that of his Polyçelia laciniiata, a plant from Western Australia, unknown to me, but which perhaps may be specifically as well as generically identical with what is now described. Not having seen a specimen of the West Australian plant, I think it best, for the present, to give a name to the Tasmanian. I recently distributed it as a Callophyllis, having placed it, without examination, in that genus from its strong external resemblance to C. discigera.—Plate CXII. B. Fig. 1, a frond, nat. size; 2, section through frond and imbedded cystocarp; 3, a tetraspore;—the latter figures magnified.

Gen. XCIV. CALLOPHYLLIS, Kütz.


Hab. Georgetown.

Distr. South coast of New Holland.


Hab. Georgetown, abundant.


Gen. XCV. KALLYMENIA, J. Ag.


1. Kallymenia cribrosa (Harv.); stipite brevi in frondem maximam simplicem v. bipartitam rotundato-reniformem ampliato, lamina basi cordata gelatinoso-membranacea foraminibus circularibus crebris pertusa, cystocarpiis sparsis.—Harv. in Trans. R. I. Acad. xxii. p. 555; Phyc. Austr. t. 73.

Hab. East coast, very rare, Gunn. Georgetown, Fereday.
Distrib. Western Australia. Port Phillip Heads.

A beautiful species, elegantly perforated like an Agarum. I first found it in Western Australia, and afterwards collected it in greater plenty at Port Phillip Heads. It appears to be of very rare occurrence in Tasmania. (Local name, “The Holy Coat.”)

2. Kallymenia Tasmanica (Harv. MSS.).
Hab. Georgetown, W. H. H.

Fragments of a Kallymenia of large size, resembling K. Harveyana, are not uncommon at Georgetown, but I have as yet seen no specimen sufficiently perfect to enable me to characterize the species. One of my specimens is 18 inches broad, about 12 inches long, broadly foliaceous, lobed and lacerate at the margin; another, of somewhat smaller size, is deeply laciniate, and divided into numerous narrow lobes and segments. There seems to be no very definite outline. There is a short stipes, soon widening into the cuneate base of the frond. The colour is a deep crimson. The substance is soft, and the plant adheres firmly to paper.

Gen. XCVI. GIGARTINA, Lamour.

—Fucus lividus, Turn. Hist. t. 254.
Hab. Sandy Cove, Dr. Lyall and Dr. Hooker.

Hab. Georgetown, W. H. H.
Distrib. Port Phillip Heads.

A very fine species, sometimes 18 inches long, three or four times pinnate.

Hab. Georgetown.
Distrib. South coast of Australia.

Hab. Sandy Bay, Dr. Lyall.

I have no specimen of this plant, which was described some years ago from a specimen in Herb. Hooker, which I have not recently seen. It may possibly be referable to G. flabellata.

Hab. Brown’s River, Gunn.
Distrib. New Zealand.

Hab. On stones, near low-water mark, opposite Georgetown, W. H. H.

Fronds 3–4 inches high, scarcely a line in diameter, strongly compressed, two-edged, excessively branched in a repeatedly, but very irregularly, pinnate manner; all the branches and their divisions distichous, and very patent or divaricate. In young specimens the ramuli are strictly subulate, but in older examples they are frequently fili-
form. The substance is firmly cartilaginous, and the plant very imperfectly adheres to paper. Colour a livid brownish-purple.—The imperfect specimens referred to *G. acicularis* in Hook. Lond. Journ. vi. p. 407, probably belong to this species, which is most nearly related to *G. Teedii*.

7. *Gigartina? lanceolata* (Harv.); fronde e stipite brevi vix canaliculato oriente plana carnosa lanceolata v. obovata simplici v. in frondes plures consimiles partita, margine nuda v. sepium plus minus pinnato-ciliata, ciliis subulatis horizontalibus.

HAB. Georgetown, Gunn.

The specimens are not mature, and without fruit. It is possible, therefore, either that our plant may be an *Iridaea*, or some form of the protem *G. radula*. The fronds are about 6 inches long, an inch or inch and half in width, tapering much to the base, and either obtuse or acute at the apex. The margin in many is copiously furnished with horizontal fringing processes 2 or 3 lines long, and about $\frac{1}{3}$ line in breadth: other specimens are quite bare. We have seen one or two instances of cilia rising from the disc, showing affinity with *G. radula*. The structure of the frond is that of *Gigartina*.

Gen. XCVII. IRIDÆA, Bory.


HAB. Sandy Cove, Dr. Lyall.


Imperfect scraps, possibly referable to this species.

2. *Iridaea foliifera* (Harv.); fronde fusco-rubra membranacea ovata v. ovato-lanceolata basi cuneata et in stipitem attenuata a marginie folifera, foliolis lanceolatis subpetiolatis, soris tetrasporarum punctiformibus per totam frondem sparsis.

HAB. Georgetown, Gunn.

I am exceedingly unwilling to propose a new species in this troublesome genus, particularly on imperfect specimens, yet I can hardly overlook the present plant altogether, and I know not any species of *Iridaea* with which it can be associated. In habit it so much resembles some specimens of *Rhodymenia polymorpha* that, without testing it microscopically, it might easily be passed over for that species. The colour is a rather full red, somewhat brownish or purplish; the surface, when dry, slightly lustrous. The outline of the frond, as in all the genus, is very variable, its most striking peculiarity being the marginal leafy lobes. Sori very numerous, immersed in the substance.—We possess fragmentary specimens of other Tasmanian *Iridaea*, too imperfect for description.

3. *Iridaea polycarpa* (Harv.); fronde intense rubra longissima lanceolata v. ovato-lanceolata simplici integerrima, margine incrassato, basi cuneata et in stipitem filiformem tenuem vix canaliculatum attenuata, cystocarpiis numerosississimis per totam frondem sparsis.

HAB. Tasmania, C. Stuart.

Perhaps this may be the cystocarpic state of the preceding, but our numerous specimens are all quite simple, without lateral foliations. The colour is a deep blood-red. The substance is thin, much thinner than in *I. lamina-radiates*, to which the frond approaches in form. The cystocarps are of large size, and very densely scattered over the surface; they are nearly spherical, and prominent on both surfaces of the frond. The frond is from 1–3 feet in length, and from $1\frac{1}{4}$–6 inches in width.

Gen. XCVIII. EPYMEMIA, Kütz.


1. *Epymenia membranacea* (Harv.); fronde stipitata flabellatim expansa repetite dichotoma
membranacea, segmentis inferne semicostatis cuneatis, superioribus linearibus apice obtusis v. subacutis, cystocarpiis in sporophyllis subbinis.—Harv. Phyc. Austr. t. 89.


A smaller and much thinner and more membranous plant than E. obtuna, which in all other respects it nearly resembles. The apices are perhaps less obtuse. There are commonly two cystocarps on each fertile leaflet in the only fruiting specimen seen.

Gen. XCIX. CHRYSYMENIA, J. Ag.


Hab. Stones at low-water mark, above Georgetown.

Distrib. West and south coasts of Australia.

I am at a loss to discover why Professor Agardh should have placed this plant in Rhabdonia, supposing that we are speaking of the same species. To me it seems nearly allied, not merely in habit but in structure, to Ch. uvaria.


Distrib. Coasts of Europe from Norway to Spain. Falkland Islands.

Gen. CI. HALYMENIA, Ag.


1. Halymenia? saccata (Harv.); fronde rosea tereti (?) saccata succo repleta pinnatim v. bipinnatam composita, pinnis pinnulisque suboppositis simplicibus saccatis basi constrictis apice obtusis, tetrasporis sparsis, cystocarpiis in ramis immersis infra stratum periphericum suspensis.

Hab. At Georgetown, Archer.

Frond a foot long, and as much in the expansion of the branches, bipinnate, some of the pinnules furnished with a third series of pinnules. The main branches are nearly half an inch or sometimes more in diameter, the pinnule 2–3 lines; both are simple, saccate, much constricted at their insertion, and tapering upwards to a blunt point. Cystocarps suspended in a network under the exterior layer, which is composed of moniliform filaments, formed of minute coloured cells. Colour rosy-red. Substance delicately membranaceous. It most closely adheres to paper in drying, and appears to have been filled, when fresh, with abundance of loose gelatine.

This bears so close a resemblance to Chrysymenia Euteromorpha, Harv. Ner. Bor. Amer. ii. p. 187, and also to the 'Bindera splachnoides' of Western Australia, that, without microscopic examination of the structure of the frond, or by the fruit, these three plants cannot well be distinguished!

Gen. CII. NEMASTOMA, J. Ag.


1. Nemastoma Feredayae (Harv.); stipite tereti ramosa (v. simplici), ramis in basi cuneata frondis cito deliquescentibus, fronde flabelliformi compresso-plana rosea reptite dichotoma, segmentis sensim
angustatis, terminalibus attenuatis filiformibus acutis, margine nunc simplici nunc processibus proliferis subpinnatis onusto.—Harv. Alg. Exsic. n. 430.

Var. B. proliferis; segmentis majoribus e margine frondes pinnatas emittentibus. (Tab. CXCV. A.)

Hab. Georgetown, Mrs. Fereday, W. H. H., etc.

Stipes an inch or more long, terete, subsolid, twice or thrice forked; each branch passing into the cuneate base of a flattened or compressed, much divided, dichotomous, flabelliform frond. The lower segments are about \( \frac{1}{4} \) inch wide, the upper about a line, and the terminal ones not a quarter of a line in breadth. Sometimes the branching is perfectly regular and dichotomous. In other specimens the lower, and sometimes the upper segments, throw out from their margin very numerous secondary fronds, which are more or less regularly dichotomous. Thus the general frond becomes densely and intricately branched. The colour is a deep rosy-red. The substance soft and lubricous, and the plant closely adheres to paper in drying. It belongs to the section of the genus called Gymnophlebia, and may range next to \textit{N. dichotoma}.—Plate CXCV. A. Fig. 1, a frond, the nat. size; 2, section, magnified.


Hab. Georgetown, on the mudflats, Gunn, W. H. H.

Fronds 6–8 inches long, excessively dense and bushy. The main frond is upwards of a line in diameter, and sparingly branched in a dichotomous or irregular manner; its divisions very patent, and somewhat flexuous. This frond throws out, throughout its whole length, and directed to every side, a vast number of slender, many times dichotomous, filiform, divericated branches, so that the general frond becomes excessively bushy. The lesser branches are greatly more slender than their primaries, and their terminal laciniae are not thicker than hog’s bristle. Every axil is very wide, and every ramulus squarroso-patent. The colour is a dull reddish-brown. The substance soft and gelatinous. The filaments of the periphery are nearly free, and their cells cylindrical.—I am by no means assured of the genus to which this plant properly belongs; and perhaps it would be better placed in Nemaeon, or in the neighbourhood of that genus.

Gen. CIII. \textit{Horea}, Harv.

(Harv. in Trans. R. I. Acad. vol. xxii.)

Fronds carnosos-membranacea, plano-compressa v. subteres, e stratis tribus cellularum composita; \textit{stratum medullare} e cellulis maximis inanibus demum sepe ruptis; \textit{intermedium} cellulis pluriseriatis minoribus coloratis; \textit{cortical} filis moniliformibus verticalibus dichotomis mucro cohibitis formatum. \textit{Favella} intra pericarpium proprium apice spinis coronatum poro pertusum ad placentam basalem affixa, filis arachnoideis laxae circumdatae, sporas conglobatas angularaes foventes. \textit{Tetraspora} sparse, cruciatim divide.

1. \textit{Horea speciosa} (Harv.); fronde lato-lineari planolata decomposita pinnata, ramis elongatis ambitu lanceolati sub-bipinnatis, pinnis pinnulisque oppositis patentibus, pinnulis linearibus obtusis nunc apice cirrhoso-hamatis, cystocarpis sepius marginalibus (paucis) apice spinoso-coronatis.—Harv. Alg. Exsic. n. 439.—(Tab. CXCIV. A.)

Hab. Mouth of the Tamar, rare, W. H. H.

Distrib. Also found at Western Port, Victoria, W. H. H.

Frond 12–16 inches long, and as much in the expansion of the branches; three or four times pinnate, every division being dichotomous. The \textit{principal} branches are nearly half an inch in width, and so strongly compressed as
to be called flat; the lesser branches are about a quarter of an inch wide, and the ramuli about a line. The ramification is pretty regularly pinnate, the pinæe and pinnaules being close together and nearly opposite, all patent, but gently curving upwards. The colour is a pale red. The substance soft and gelatinous, soon decomposing in fresh-water. The cystocarps are few, scattered along the edges of the branches and ramuli.—Plate CXCIV. A. Fig. 1, a branch, the nat. size; 2, section of the frond; 3, a cystocarp:—the latter figures magnified.

2. Horea polycarpa (Harv.); fronde planulata basi cuneata decomposita dichotoma et vage lacinia, lacinias lineare-linaria repetitae recurvatis sensim attenuatis plus minus papillosis apice subacuti, cystocarpiusstellato-echinatis numerosissimis per totam frondem densissime sparsis.—Harv. Alg. Austr. Exsic. n. 438.—(Tab. CXCIV. B.)

HAB. East coast, Gunn.
Distrib. Shores of Victoria, W. H. H.

Frond sessile, foliaceous, 6–8 inches long, cuneate at base, divided in an irregularly dichotomous manner into innumerable segments, which are from a quarter of an inch to nearly an inch broad, linear-cuneate, repeatedly forked or irregularly laciniate, all the minor divisions suberect, the axes narrow, and rather acute. In specimens that bear tetraspores, every part of the frond is generally densely papillate, with linear processes half a line to a line or more in length. In those that bear cystocarps, these generally take the place of the papille, the whole disc and margin being thickly studded with them. The cystocarps are crowned by four or five longish spines. The tetraspores are abundantly scattered through all parts of the cortical layer in such specimens as produce them. The colour is a pale rosy-red, soon fading into greenish. The substance very soft and lubricious, soon decomposing in fresh-water. In drying, the plant adheres firmly to paper.—Plate CXCIV. B. Fig. 1, a plant with cystocarps; 2, a plant with tetraspores, both of the nat. size; 3, fragment with four cystocarps; 4, section of a cystocarp; 5, tetraspores:—the latter figures magnified.

Tribe XII. SPYRIDIACÆ.

Gen. CIV. SPYRIDIA, Harv.


HAB. Georgetown, common.
Distrib. Native of the warmer temperate parts of the Atlantic and Pacific Oceans, and in tropical seas, reaching its most northern limit on the south coast of England.

The plant noticed in Hook. Lond. Journ. vol. iii. p. 449, as var. ß verticillata, and on which Kützing has founded his S. Tasmanica, belongs to Wrangelia, and will be found described above, under the name W. setigera. Spyridia? pellucida, Lond. Journ. l. c., is Callithamnion mucronatum, J. Ag.

Tribe XIII. CERAMIACÆ.

Gen. CV. CENTROCERAS, Kütz.


We have not seen Van Diemen's Land specimens, but as this plant is very common on the opposite shores of
Bass’s Straits, and along the whole coasts of Australia, it probably occurs on the rocky shores of Tasmania. Native of tropical and subtropical seas.

Gen. CVI. CERAMIIUM, Roth.


Hab. On the larger and smaller Algae, common.

Distrib. Cosmopolitan.


Hab. Georgetown, Gunn.

Distrib. Cosmopolitan.


Hab. Georgetown, Gunn.

The Tasmanian specimens formerly referred to C. nodosum and C. Deslongchampsi, seem rather to belong to the present species, which is nearly related to the former.


Hab. Georgetown, on Zostera, etc., W. H. H.


Hab. Georgetown, common.

Distrib. Western Australia.

Gen. CVII. HALOPELLIGMA, Mont.


Var. β. flabelliformis; fronde tenuiori latiori parum lobata flabelliformi.

Hab. Mouth of the Tamar, not uncommon. Flinders’ Island, Dr. Milligan. Var. β. In the Tamar, above Georgetown, on rocky shores at low-water.

Distrib. West and south coasts of Australia.

Our var. β, which is common on shores, under Mr. Lawrence’s place, a short distance above Georgetown, differs from the usual state of the species in being much thinner and more translucent, the lobes fewer and much broader, and in the colour, which is more purple. The microscopic characters of the two plants are, however, identical, and various intermediate states occur towards the mouth of the River Tamar.

Gen. CVIII. CROUANIA, J. Ag.


Hab. At Table Cape, Miss Mackenzie.
Distrib. Native of Mediterranean, and coasts of France and England. Western Australia, at King George’s Sound.

The specimens are rather coarser and less gelatinous than those from the south coast of England, but closely resemble some that we have received from the Mediterranean.

2. Crouania insignis (Harv.); fronde robusta elata (pedali et ultra) cartilaginea decomposita ramosissima, ramis alternis repetite alterne divisis creberrimis nodulis, ramulis cylindraceis vestitis attenuatis.—Harv. Alg. Exsic. Austr. n. 488.—(Tab. CXCIII. B.)


Distrib. South coast of New Holland.

Frond 12 or 14 inches long, more than half a line in diameter, tapering toward the apex, excessively branched. Branches alternate, 8–10 inches long, erecto-patent, two or three times similarly compounded, the ultimate ramuli less than an inch in length. All the older parts of the frond are closely nodulose, the whorls of peripheral filaments being partially separated, though not so much so as to uncover the axial filament. The smaller branches and ramuli are uniformly clothed with filaments, and therefore cylindrical. The peripheral filaments are not gelatinous, thick, very much branched, the branching dichotomous and divaricate; their spines are blunt. Tetraspores triangularly divided, solitary on the ramuli. Favellae hidden among the ramelle of abortive branchlets, formed out of a whole or a half ramellus, reniform, containing very numerous spores. Colour a deep brownish-red. Substance soft, but firm. It closely adheres to paper in drying.—Plate CXCIII. B. Fig. 1, a branch, the natural size; 2, apex of a ramulus; 3, ramellus with a favella; 4, spores; 5, ramellus with tetraspores; 6, a tetraspore:—the latter figures magnified.

Gen. CIX. PTILOTA, Ag.


Hab. Georgetown, very common.

Distrib. South coast of Australia.


Distrib. South coast of New Holland, D. Curdie, W. H. H.


Hab. Southport, C. Stuart.

Distrib. Coast of Victoria, at Port Fairy.

A beautiful species, of a brilliant deep-red colour, which becomes a flaming scarlet in fresh-water. The general habit resembles that of Phacelocarpus Labillardieri.

Gen. CX. THAMNOCARPUS, Harv.


Hab. Port Arthur (?), Gunn (more probably at Circular Head). Southport, C. Stuart.

Distrib. Also found, but without fruit, in Western Australia, W. H. H.

We have no new facts to state respecting this curious and little-known plant, except that on Mr. Stuart’s specimen we find antheridia, similar to those of a Callithamnion, occupying the place of tetraspores.
FLORA OF TASMANIA. [Algae, by W. H. Harvey.

Gen. CXI. GRIFFITHSIA, Ag.


Hab. In the Tamar, common.

Distrib. Native of northern hemisphere.


Hab. Brown’s River, Gunn. Georgetown (a variety?), W. H. H.

Distrib. Falkland Islands, Cape Horn, and New Zealand.

3. Griffithsia monilis (Harv.); fronde basi radicante cæspitosa dichotoma fastigiata crassissima, segmentis erecto-patentibus, articulis diametro sesquilongioribus globoso-inflatis siccitate collapsis et ovalibus ad genicula maxime constrictis, fertilibus conformibus, involucris tetrasporarum circa genicula verticillatis.—Harv. in Trans. R. I. Acad. xxii. p. 559. (Tab. CXCV. B.)

Hab. Parasitical on Algae, at Georgetown, Gunn.

Distrib. West and south coasts of New Holland.

A beautiful little species, whose branches resemble strings of ruby-coloured beads. The colour is very quickly discharged.—Plate CXCV. B. Fig. 1, fronds, nat. size; 2, tip of a branch, bearing favele; 3, a tip, bearing sorus of tetraspores; 4, tetraspores from the same:—the latter figures magnified.


Hab. Georgetown, common.

Distrib. Native of northern hemisphere.

All the specimens we have seen are barren; the species therefore cannot be ascertained with certainty.

5. Griffithsia? gracilis (Harv.); frondibus capillaris sursum attenuatis arachnoideis dichotomis fastigiatis, ramulis minoribus seu secundis, axillis patentibus, articulis cylindraceis diametro multiplo-longioribus, apicibus obtusis.

Hab. Georgetown, W. H. H.

Fronds 2–3 inches high, very slender, and much attenuated to the apex, pretty regularly dichotomous and fastigate, forming flabelliform tufts. Articulations very long, cylindrical. Colour a bright rosy-red, instantly given out in fresh-water. Substance soft.—Very few specimens have yet been seen, and these without fructification. The species therefore wants further confirmation.

Gen. CXII. BALLIA, Harv.


Hab. Various parts of the coast.

Distrib. All through the Southern Ocean.

2. Ballia Robertiana (Harv.); ramis minoribus rachidibusque pinnularum cylindraceis (nec ad genicula constrictis) distiche plumulatis, plumulis incurvis oblongis oppositis inter se alterne inæqualibus,

Hab. Southport, C. Stuart.
Distr. Coast of Victoria, at Port Fairy.


Hab. Mouth of the Tamar, and at Port Arthur.
Distr. Antarctic Ocean.

Gen. CXIII. CORYNESPORA, J. Ag.

(J. Ag. Sp. Alg. ii. p. 69.)

1. Corynespora arachnoidea (Harv.); fronde tenuissima arachnoidea (2–3-unciali) e basi dichotome decomposita ramis lateralisibus pluribus furcatis obsita, axillis acutis, ramulis ad genicula subcontractis, apicibus cylindraceis attenuatis obtusis, articulis longissimis, tetrasporis ovalibus grumosis pedicellatis.

Hab. Georgetown, W. H. H.

Two to three inches high, densely tufted. Filaments excessively slender, nearly of one diameter throughout, except in the ultimate divisions, many times dichotomous, the lateral dichotomies not always regular, and then as if set with alternate dichotomous branches. The articulations in all parts of the plant are of great length. The colour is rose-red. Tetraspores (or spores) pedicellate, oval, containing a granular mass, not divided into sporules. —It is difficult to examine this plant after having been once dried, as it will not bear remoistening with fresh-water, and adheres so strongly to paper that it is impossible to separate it without breaking.

Gen. CXIV. CALLITHAMNION, Lyngb.


Hab. In the Tamar, above Georgetown, abundant.


Distr. Europe.

In the Tasmanian specimens the ramuli are more squarrose than usual, and in the older parts of the frond finally become, through excessive branching, densely fasciculate.


Hab. Georgetown, very rare, Gunn, W. H. H.
Distr. Europe.

The Tasmanian specimens differ from the European chiefly in the ramifications of the opposite plumules, the ramuli being very generally alternate, not opposite, and sometimes forked, and the rachis being angularly bent, and not straight. The apices are quite blunt. Possibly it would be better to consider the present form as a distinct but representative species. It must however be allowed that its European representative varies greatly in the composition of its plumules.—I formerly, by mistake, communicated to Professor Agardh a poor specimen of the follow-

**Hab.** At and above Georgetown, common.

**Distr.** Western Port, Victoria.

*Root* a mass of matted fibres, often an inch in diameter. *Stems* many from the same base, a foot or more in length, twice as thick as hog’s-bristle, and appearing still thicker from the stupose filaments which densely cover them for more than half their length. These principal stems are sparingly divided, but emit throughout their length a profusion of closely-placed setaceous branches, 4–6 inches long, and once, twice, or thrice alternately compounded, the ultimate divisions being from half an inch to an inch in length. All the axils are acute, and the branches and ramuli erecto-patent. The branches and ramuli are pellucidly articulate, and each node bears a pair of minute, subulate, mucronate pinnules, 1–2 lines long, and generally simple, sometimes very erect and close-pressed, sometimes more patent. *Colour* a deep rose-red. *Substance* somewhat cartilaginous, rather rigid.—By right the specific name "pellucidum," published in 1844, ought to be retained; but I waive priority in favour of the more appropriate one conferred in 1851 by Professor Agardh, who had however a miserably imperfect specimen to describe from. The species varies much in size, and somewhat in other respects, but is strongly marked by its mucronate, subulate pinules.


**Hab.** On *Xiphophora*, at Port Arthur, *W. H. H.*

**Distr.** Europe.


**Hab.** Tasmania, *Gunn.*

**Distr.** Antarctic Ocean.

The specimens are not in good order.


**Hab.** Abundant in the Tamar.


**Hab.** Georgetown, rare, *Gunn, W. H. H.*

9. **Callithamnion violaceum** (Harv.); caespitosa, purpurea, frondibus capillaribus basi in fuciculis intertextis sursum longe filis radicantibus stuposis pellucide articulatis decomposito-pinnatis, ramis quoquiversum egredientibus basi pinnatis apice bipinnatis, planulis simpliciter pinnatis, pinnulis patentibus filiformibus elongatis, articulis ramorum diametro sextuplo ramulorum triplo longioribus, tetrasporis ad pinulas sessilibus subsolitariis globosis.—*Harv. Alg. Exsic. n. 517.*

**Hab.** On the woodwork of the jetty at Georgetown, *W. H. H.*
A small species, 2–3 inches high, not unlike the northern C. roseum, but differing in several respects. The principal branches are bundled together into ropes, and then closely interwoven by root-like fibres, which issue from the nodes, and proceed downwards along the stem, forming an accessory stumpy stratum. The branches are alternately pinnate below, and bipinnate above, all the pinnules remarkably patent and elongate. Tetraspores are thinly scattered on the inner faces of the pinnules.


HAB. Georgetown.

DISTR. South coast of Australia.

Frond 12–18 inches long, the main stem generally undivided, 1 or 2 lines in diameter, set throughout its whole length with closely placed lateral branches directed to all sides. Branches, like the stem, thickly corticated and shaggy with supoose filaments, ¼–1 line in diameter, 6–8 inches long, repeatedly compounded with alternate lateral branches and branchlets. The ultimate divisions, which are from half an inch to an inch in length, are alone visibly articulate, and are thickly clothed with short, pinnulate, incurved, articulate ramelli, on which the tetraspores are borne. Colour a fine carmine, which is quickly given out in fresh-water, staining the paper on which the plant may be dried. Substance very tender, rapidly decaying.—The habit of this species is peculiar, and perhaps, with C. plumigerum and C. superbus, it might form a separate genus, characterized by the peculiarly inarticulate and hirsute stem. But there are many intermediate links with species of more ordinary characters. The diameter attained by the stem is greater than in any other known species.


HAB. On Zostera, etc. Port Arthur, W. H. H.

DISTR. West and south coasts of Australia.

12. Callithamnion dispar (Harv.); fronde pellucide articulata capillari plus minus pinnatim ramosa disticha, ramis primaris parceis inequalibus virgatis bipinnatis, pinnis oppositis patentibus inequalibus una abbreviata altera elongata pinnulata, pinnulis oppositis aequalibus horizontaliis crassis multifidis micronatis, articulis ramorum diametro duplo pinnarum sesquileongioribus, pinnularum diametro aequalibus, tetrasporis ad latera pinnularum sessilibus.—Harv. Alg. Essic. n. 509.

HAB. East coast; parasitic on Mychodesa disticha, Gunn.

DISTR. Port Fairy, Victoria, W. H. H.

Frons solitary or few together, 1–2 inches high, with a simple stem set with lateral branches, a few of which are long and virgate, the rest reduced to a line or two in length. All the branches and their divisions and ramuli are opposite. The lesser divisions are regularly pinnate, the pinnule long and short alternately at either side of the

* Since this was written, I have ascertained that my C. tingens is the same as Sonder's Spongoclonium conspicuum, which name will be adopted if the plant be removed from Callithamnion. Another synonym is my Lasiothalia hirsuta, in Trans. R. I. Acad. xxii. p. 558, founded on a very imperfect and battered scrap of what I afterwards called Callithamnion tingens when more perfect specimens were collected.
branch. The ramuli are very robust, sparingly or copiously divided, the tips of their divisions mucronate. Sub-
stance rather rigid. Colour a deep red.


**Hab.** Georgetown, not uncommon.

**Distr.** South coast of Australia.

*Fronds* in large bundled tufts, often upwards of a foot in length, setaceous, not much attenuated upwards, the principal stems towards the base twisted round each other into ropes, which strengthen the tuft. The whole branching is on a dichotomous type, but by suppression, it is very irregular, a compound of the alternate, second, and dichotomous. The penultimate divisions throw off from their sides short, multifid, or regularly dichotomous ramuli, which bear fructification of both kinds, on different individuals. The *favellae* are usually solitary; the *tetrasporæ* several together, tufted or somewhat whorled round the nodes of the ramuli. Colour a dark brownish-purple, sometimes rather brighter. Substance somewhat gelatinous, but firm, like that of *Griffithsia setacea*.


**Hab.** Georgetown, rare, Gunn.

**Distr.** Port Phillip, D. Mueller, W. H. H.

*Tufts* dense, 4–5 inches long, fastigiate, bright-crimson, in habit resembling those of *Griffithsia setacea*. The branching is pretty regularly dichotomous, the forks rather distant, and the branches and their divisions consequently naked, except at the extremity, where the branch (of fertile specimens) ends in a minute, corymbose, multifid ramulus that bears the tetrasporæ.—The species is nearly related to the preceding, but I think distinct.

15. **Callithamnion fastigiatum** (Harv.) f. frondibus pellucide articulata (1–2-unciali) sursum attenuata decomposita dichotome fastigiatæ, ramis repetite furetis erecto-patentibus, ramulis ultimis ad genicula minute spinulosis v. gemmiferis, articulis omnibus diametro sub-4-plo longioribus, favellis subbinis nudis ad axillas ramorum, tetrasporis cruciatim divisionis ad genicula ramulorum sessilibus sepe oppositis nunc solitariis nunc 2–3-fasciculatis.

**Hab.** Georgetown, Gunn.

*Frond* very slender, 1–2 inches high, flabelliform and nearly regularly dichotomous and fastigiate, rose-red. The nodes of the upper or ultimate ramuli are generally furnished with minute, bud-like or somewhat spinous processes, which perhaps afterwards develope into tetrasporæ. The tetrasporæ are oval, and cruciately divided.—In habit this somewhat resembles *Ceramium fastigiatum*, but in softness of substance, ramification, etc., it has more the character of a very slender *Griffithsia*.

16. **Callithamnion botryocarpum** (Harv.) f. nanum, penicillato-cespitosum, fronde minuta (1–2 lineas alta) e basi ramossimâ, ramis alternis v. secundis patentibus flexuosis nunc subsquarrosis, articulis diametro 4-plo longioribus, tetrasporis magnis triangulæ divisionis in glomerula ad axillas ramorum densissime
aggregatis, antheridiis botryoideis e quoque fere articulo ramorum sepe evolutis.—Harv. in Trans. R. I. Acad. xxii. p. 563.

Hab. Parasitic on Alga. Piper’s River, Gunn.
Distrib. King George’s Sound, on Chorda tomentaria, W. H. H.
Allied to the British C. Daviei, C. virgatidum, etc.

17. Callithamnion? paradoxum (Harv.); fronde spongiosa quaquaversal ramosa in totum e filis radicantibus densissime intertextis conflata ambitu pyramidali, ramulis (quasi villum ramorum) brevibus pinnatis, pinnis alternis paucis longissimis flexuosis obtusis, articulis pinnularum diametro subtriplo longioribus, tetraspores ad latera pinnularum sessilibus solitariis.

Hab. Brown’s River, Gunn.

Spongy frond 6-8 inches long, with a pyramidal outline, alternately branched, the branches simple or again laterally compounded, spreading to all sides. There does not appear to be any central filament or axis (possibly it may have perished), but the branches are composed of slender rooting filaments, densely woven together into a spongy rope (much as in Ectocarpus tomentosus), and these throw off a periphery of subhorizontal, pinnate ramuli, 1-2 lines long, which give the surface of the compound frond a shaggy or woolly appearance. These ramuli are once pinnated, the pinnæ few, curved, and alternating on the short rachis. Tetraspores are borne on the sides of the pinnæ, as in others of the genus.—As yet I have seen but few specimens of this anomalous plant, and these not in good order; but I have no hesitation in admitting it, whether to this genus or not, as a distinctly marked species.

Series III. CHLOROSPERMEÆ.

Tribe I. SIPHONEÆ.

Gen. CXV. CAULERPA, Lamour.


Hab. Georgetown, not uncommon.
Distrib. Australia and New Zealand.


Hab. Tasmania, Gunn. (A single specimen.)
Distrib. Found all along the coast of Australia, from Swan River to Western Port, Victoria.

The ramenta, described by Sonder as “quadriserious,” are not constantly so. In the more luxuriant specimens they are generally distichous. I have not seen specimens of Greville’s C. superba from Bass’s Straits, but the figure given is not unlike some of the laxer states of C. obscura.


Hab. Common at Georgetown.
Distrib. Australia.


Hab. Port Arthur.
Distrib. New Holland and New Zealand.
5. **Caulerpa Harveyi** (Muell.): surculo et parte inferiori caulis nudo nitente, caule vage ramous, ramis pacuis elongatis simplicibus denissimse foliosis, ramentis (folii) sepius quinquefariis raro quadrifarriis longissimis filiformibus patentibus apice obtuse mucronulatis.—*Harv. Phyc. Austr.* t. 95.

Var. *β. crispata*; minor; ramentis crispatis squarrosis v. inflexis.

**HAB.** Fragments sent by Mr. Gunn.

**Distrib.** Native of the south coast of New Holland.

**Surculus** branching, 1 or 2 lines in diameter, with a smooth and shining yellow epidermis. **Stem** 1–2 feet high, bare of leaves for some two to four inches above the base; from thence to the apex closely set with five or rarely four vertical or slightly spiral ranks of patent, filiform leaves or ramenta. Sometimes the stem is quite simple, but commonly it bears a few lateral, leafy branches, in all respects similar to the leafy portion of the stem. **Branches** long and virgate, patent, irregularly inserted. **Leaves** (or ramenta) nearly an inch long, as thick as hog’s bristle, subacute and somewhat mucronately, of a deep-green colour, becoming olivaceous when dry; the apices, where the younger leaves are densely crowded together, frequently orange.—Dried specimens give no clear idea of the living plant, as it is impossible to preserve in drying the regular **ranks** in which the leaves are set, and in which they stand parallel to each other. Our var. *β* is a dwarf form, growing in tide-pools. It is always of a pale-green colour, and its **ramenta** more or less curled, or rolled in upon the axis.


**HAB.** On crevices of tidal rocks: Five-mile Bluff, etc., *Gunn.*

**Distrib.** Native of tropical and subtropical seas.

Sometimes the ramenta are perfectly distichous, in which state I formerly mistook it for a new species, which I called *C. geminata*. I have since traced the two forms into one. Some others of the genus vary in a similar way, distichous and tetraestichous ramenta being sometimes found on the same root.


**HAB.** Georgetown, etc., *Gunn, W. H. H.*

**Distrib.** West and south coasts of New Holland.


**HAB.** Dredged in the Tamar, Mr. Charles Henty.

**Distrib.** West and south-west coasts of New Holland.

I saw specimens of this species, which is found all along the south coast of New Holland, with Mr. Henty, who had dredged them below Georgetown. It has not been sent by Mr. Gunn, and appears to be rare.


**HAB.** Southport, C. Stuart.

**Distrib.** Western and southern coast of New Holland; Isle of Toud.

Mr. Stuart’s specimen is smaller than the usual Australian form, such as we are acquainted with, from Western Australia and from Victoria, but it is fully as large as the specimen figured by Montagne. Turner’s Fucus cactoides is intended for the larger variety of this species, but it incorrectly represents the club-shaped rami as being quadrifarious. They are always strictly distichous in our numerous specimens from several localities.
Gen. CXVI. CODIUM, Stack.

HAB. Georgetown and seacoast generally, common.
DISTRIB. Found throughout the northern, tropical, and southern oceans.

Gen. CXVII. DICTYOSPHÆRIA, Dene.

1. Dictyosphæria sericea (Harv.); fronde umbilicata medifixa varie lacera (nunquam vesicata) sericea, vesiculis minimis globoso-polyhedris.—Harv. in Trans. R. I. Acad. xxii. p. 565. (Tab. CXCVI. A.)
I venture to introduce this plant as probably occurring on the outer coasts of Tasmania. It is found abundantly on rocks near low-water mark, in crevices, on the west and south coasts of New Holland, at least as far as Western Port, Victoria.—Plate CXCVI. A. Fig. 1, plant, nat. size; 2, portion of frond, magnified.

Tribe II. BATRACHOSPERMEÆ.

Gen. CXVIII. BATRACHOSPERMUM, Roth.

HAB. Pools in a rivulet, near Launceston, Gunn (n. 1826).
DISTRIB. Native of fresh-water streams in Europe.

HAB. Mountain stream, near Cheshunt, W. H. H.
DISTRIB. Native of Europe and America.

HAB. In the Cataract River, Launceston, W. H. H.
DISTRIB. Native of Europe and America.

Tribe III. CONFERVEÆ.

Gen. CXIX. CLADOPHORA, Kütz.

HAB. Georgetown, in deep water, Rev. I. Fereday, Gunn, W. H. H., etc.
Stipes 1–2 inches long, cylindrical, consisting of a single cell. Above this stipes the filament is prolonged to 12 or 20 inches, preserving the diameter of hog's-bristle, and becoming excessively branched in a manner partly trichotomous, partly dichotomous, and partly irregular. The branches are much bent, and often tangled together, and repeatedly forked; their penultimate segments are long and filiform, flexuous, and furnished at the angles with a tuft of short, densely crowded ramuli. In some specimens the branches are bare of ramuli. The substance is rigid and crisp, not collapsing when removed from the water. The colour is a full grass-green.


Hab. Georgetown.

Distrib. Port Phillip, Baines, W. H. H., etc.

Stipes as in the last species, to which this is allied in several respects, but is a much more slender, softer, and brighter-coloured plant, attenuated at its extremities to an extreme fineness. Both belong to the section of the European C. pellucida, and have nearly similar ramification. The present species grows 6–12 inches long, and closely adheres to paper in drying. It is very glossy in a dried state.


Hab. Georgetown, Gunn.

Distrib. Europe and New Zealand.


Hab. Georgetown, W. H. H.

Allied to C. gracilis, but much more slender, softer, and more silky.

5. Cladophora ferruginea (Harv.); caspites (ferrugineo) brevi unciali globoso v. stellatim patente fastigiato spongioso, filis intertextis radicantibus parum ramosis, ramis ramulisque erectis strictis, articulis diametre 3–4-plo longioribus.

Hab. On Hormosira Banksii, at Safety Cove, Port Arthur, W. H. H.

This has the habit of C. uncialis, to which it is nearly allied. All our specimens are stained, apparently with ferruginous matter, so that till placed under a lens they may be taken to belong to an Ectocarpus.

6. Cladophora Stuartii (Harv.); filis capillaris tenuibus rigidiusculis siccitate eleganter variegatis e basi ramosis, ramis longissimis filiformibus indivisis simplicibus vel ramos secundarios similes emittentibus, ramulis brevibus patentibus sarsiis alternis secundis, articulis ad gencicula contractis ramorum diametre tripli ramulorum subduplicio longioribus.

Hab. Tasmania, C. Stuart.

Tufts 4–6 inches long, pale-green. Filaments divided near the base into many long, simple or subsimple, thread-like branches, which are more or less beset with short patent ramuli of five or six joints. Sometimes the branches are quite simple; sometimes the larger branches bear a second series of similar ones. When dried, the plant imperfectly adheres to paper, and is elegantly variegated with green and white when viewed with a pocket-
lens. This appearance is caused by the dispersion of the endochrome towards the dissepiments in the process of drying. The articulations are very uniform in all parts of the filament, those of the principal branches being thrice as long as broad, of the ramuli shorter. The endochrome does not recover its form on moistening after having been dried.

Gen. CXVI. CONFERVA, Ag.


Hab. On Algae and rock-pools.

Distrib. Common on the shores of Australia and New Zealand.

Plate CXCVI. C. Fig. 1, plant, nat. size; 2, terminal articulations, magnified.


Hab. Southport, C. Stuart.


Hab. Georgetown, etc., common.

We have received specimens of several fresh-water Confervas from Mr. Gunn; unfortunately not in a state fit for examination and description.

Gen. CXVII. TYNDARIDEA, Bory.


Hab. In the South Esk River, Gunn.

We have also a specimen of another species of this genus, and more than one of Zygnema (Spirogyra), which we cannot determine from dried specimens.

TRIBE IV. ULVACEÆ.

Gen. CXVIII. PORPHYRA, Ag.


Hab. Rocky seacoasts. Generally diffused.

Gen. CXIX. ENTEROMORPHA, Link.

(Link in Hor. Phys. p. 5. Harv. Phyc. Brit.—Solemia, Ag. Syst. xxxii.)


Hab. Seashores and tidal rivers, everywhere. Also on woodwork and ships' bottoms. Generally diffused.


Hab. In similar places to the preceding; often in ditches of brackish water. Generally diffused.
Gen. CXX. ULVA, Ag.


Hab. In the Tamar, Derwent, etc.; and probably all along the coast. Generally diffused.

Gen. CXXI. Edogonium, Link.


1. Edogonium monile (Berk. et Harv.); filis basifixis brevibus tenuissimis strictiusculis, articulis cylindraceis hyalinis diametro 6–8-plo longioribus, sporidiis seriatis globosis terminalibus v. in medio fili moniliformiter intumescentibus demum sanguineis.—(Tab. CXCVI. B.)

Hab. In fresh-water, parasitical on water-plants, Gunn.

Filaments ½ inch to 1 inch long, about ½ inch in diameter, covering the leaves and stems of water-plants with a thick, villous, pale-green coating. The articulations are cylindrical, either colourless or tinted with a pale green, and containing a few medial granules, dispersed in drying. The sporidia are globose, 4–5 times the diameter of the filament, and formed in moniliform strings of 4–8 each, either at the end or in the middle of the filament: the generating cell is conoidal, full of yellow-green endochrome; the sporidia are at first green, afterwards of a deep blood-red, resembling strings of rubies.—A very beautiful species, perhaps referable to Kützing’s genus Allogonium.—Plate CXCVI. B. Fig. 1, the plant, nat. size; 2, some filaments, highly magnified.

Gen. CXXII. Tetraspora, Link.


1. Tetraspora intricata (Berk. et Harv.); fronde decomposito-laciniata, laciniis angustissimis ramosis, ultimis capillaribus intricatis, gonidiis quaternis, maculis ramularum subuniseriatis.

Hab. In St. Patrick’s River, 1830, Gunn.

The single specimen seen having been dried on paper, and very imperfectly displayed, it is impossible to do more than guess at its proper form. It seems to be cut up indefinitely into thread-like segments, the lesser ones containing often but a single row of quaternate gonidia. Mr. Berkeley remarks that it is related to the other Tetraspora much as Monomorium is to the Nostoces. It approaches also to Trypotherallus. We regret that the state of the specimen forbids its being satisfactorily described or figured. The gonidia are ½ inch in diameter.

Tribe V. Oscillatoriae.

Gen. CXXIII. Rivularia, Roth.


Hab. Mouth of the Tamar, Gunn, W. H. H., etc. Found also at Port Phillip, W. H. H., and native of the coasts of Europe.

The Georgetown specimens are of large size, as usual in plants of that locality, but have all the usual characters of the species.

Gen. CXXIV. Bangia, Lyngb.


1. Bangia pulchella (Harv.); filis brevibus basifixis simplicibus erectis cylindraceis violaceo-roseis
articulatis, articulis diametro brevioribus multistriatis, striis longitudinalibus angustis (demum in sporidia mutatis?).

Hab. Parasite on Zostera. Georgetown, Gunn.

Forming a bright, rosy-purple fringe, 2–3 lines long, on the leaves of Zostera. Externally it resembles B. ciliaris, but the microscopic character is different.

Gen. CXXV. LYNGBYA, Ag.


Hab. Georgetown, W. H. H. Native of Europe, in the sea and brackish water.

Gen. CXXVI. CALOTHRIX, Ag.


1. Calothrix infestans (Harv.); parasitica, eruginosa, filis primo decumbentibus alias Algas investientibus, dein ascendenti-cretis brevibus flexuosis obtusis simplicibus v. appositione ramulosis, striis endochromatis creberrimis.

Hab. Parasite on Cladostephus ferrugineus, at Port Arthur, W. H. H.

Gen. CXXVII. OSCILLATORIA, Vouch.

1. Oscillatoria sp.

Hab. In brackish water: at Georgetown, Gunn.

Probably referable to O. spiralis, Carm., or some allied species, but we confess ourselves unable to recognize the specific characters attributed to the multitudinous book-species of this genus already published, and are unwilling to add new names to the list. The specimens are not in very good order. No doubt many other "species" exist in Van Diemen's Land.

TRIBE VI. NOSTOCHINÆ.

Gen. CXXVIII. PROTOCoccus, Ag. Syst. p. 17.


Hab. On a damp wall near Launceston, Gunn.

This agrees very well with Agardh's figure above quoted.

NAT. ORD. IX. LICHENES.*


SUBORDER I. GYMNOCARPI.

TRIBE I. PARMELIACEÆ.

Gen. I. USNEA, Ach. et Auctt.


Hab. Abundant everywhere, and infinitely variable.

* The following Lichens are for the most part found in New Zealand as well as in Tasmania. Reference is accordingly made to the New Zealand Flora for the synonymy under the species here enumerated, when the plant occurs there also. In that work various remarks on the species, especially on the geographical distribution, will be found, which will not be repeated in this enumeration. The crustaceous Lichens are described by Mr. Mitten.—C. B.
All the European forms occur in Tasmania, as well as a modification marked *Usnea scabrida*, Tayl., in Jas. Drumm. Swan Riv. Crypt., by Dr. Taylor. It is only a very fibrillated form of *U. flordoa*, Arch., not much different from *U. striogosa*. Mr. Lawrence has collected barren, sorediated forms, with a black base and blackish extremities, without fibrille, which are not very unlike *U. melaxantha*, at an altitude of 3,500 feet, on the highest parts of the western range of mountains.


Hab. Various parts of the island, Gunn, Hooker, Lawrence; but all the specimens are barren.

Mr. Gunn’s specimens are above two feet long.


Barren and sorediated, and very sparingly collected.

Gen. II. EVERNIA, Ach.


Hab. Cheshunt, Archer, fertile.

An aged, unsatisfactory specimen, black beneath, but above more resembling *E. prunastri*, Ach.; upper surface much corrugated. Possibly something different from *E. furfuracea* or *E. prunastri*. I have not seen a description of *Evernia mundata*, Nyl., from New Holland.

Gen. III. RAMALINA, Ach.


Hab. Esk, Launceston, completely investing shrubs of *Hymanthera angustifolia*, Gunn.

The specimens agree substantially with *R. fastigiata*, Ach., but still more with the form called *R. geniculata* by Dr. Taylor.

β. *ovalis*, Bab.; thallo ovali plano tenuiore, apotheciis minutis, confertis.—*R. ovalis*, Tayl. ! MSS.

Hab. Tasmania, Gunn.

Apothecia minute, scattered over the surface of the somewhat membranaceous, oval frond, which is 1–2 inches long. One of the many modifications of the form called *R. fraxineus*, Arch.—Laurer’s var. *membranaceus*, Bab. l. c., has the fronds narrower and longer, and the apothecia marginal; but it is perhaps hardly worth while to dwell on minute differences in this most variable genus.


Hab. Macquarrie Plains, on decayed wood, Oldfield. Recherche Bay, dead twigs, Lake St. Clair, St. Patrick’s River, Gunn. Cheshunt, on live bark and dead twigs, Archer.

I have already, in the ‘Flora of New Zealand,’ expressed an opinion that this is not distinct from the foregoing.

Gen. IV. PELTIGERA, Hoffm., Fries.


Hab. Cheshunt, Archer. Collected also in Tasmania by Lawrence, Gunn, Stuart, and Hooker.

Various specimens differ amongst each other in the consistency of the thallus; some of Mr. Archer’s specimens are coriaceous, others quite membranaceous.


Hab. Cheshunt, Archer.
Lichenes, by Babington & Mitten.] FLORA OF TASMANIA. 345

Well-marked fertile specimens. Seemingly rare in the southern hemisphere, but occurring in the Himalaya Mountains, as well as in Europe and North America.

3. **Peltigera canina**, var. *pusilla*.
   HAB. Southport, Stuart.

Gen. V. NEPHROMA, Ach.


Nylander’s enumeration omits all notice of *N. austral*e.

   HAB. Rotten wood: Johnny’s Creek, Oldfield. Cheshunt, on dead wood, Archer. Mount Wellington, Hooker and Gunn.

The specimens (of a deep-brown colour) agree with one from Staten Land marked *Nephroma cellulosum* in Menzies’ handwriting. *N. plumbum*, Mont. Fl. Fern. n. 7, seems to be the same plant, but somewhat paler, which has been found also by Gunn. Found in Chili, according to Nylander (who keeps *N. plumbum* and *N. cellulosum* distinct), as well as in Juan Fernandez.—PLATE CXCIX. A. Fig. 1, apothecium; 2, under surface of ditto; 3, portion of ditto, cut longitudinally; 4, sporidia; 5, gonidia: *all magnified*.

Gen. VI. STICTA.

A. CHRYSSOSTICTA, Bab. l.c.

   HAB. Cheshunt, on wood, Archer. St. Patrick’s River, on granite, Gunn. Mount Wellington (fertile), Hooker.

A pulverulent, villous form, but which does not deserve to be considered as a variety.

2. **Sticta crocata** (Ach. Meth. Lich. p. 277; Bab. l.c.).
   HAB. Among Mosses, on wood, etc. Everywhere, all collectors.

Fertile specimens are bright, and often much pitted, and, being destitute of the yellow soredia which are usually present on the barren fronds, wear a somewhat different appearance to the European state of the plant.

3. **Sticta Colensoi** (Bab. l.c. t. 123).
   HAB. Very abundant in forests, on *Fagus*, Gunn, Hooker.

Less divided than the New Zealand form.

   HAB. Southport, Stuart.

B. LEUCOSTICTA, Bab. l.c.

5. **Sticta latifrons** (A. Rich. Fl. N. Zeal. p. 27. t. 8. f. 2; Bab. l.c.).
   HAB. On rocks: near the caves, Back River, Oldfield. Running over sticks among Mosses, Hooker.

Some specimens are less distinctly flabelliform than the ordinary state of the plants; others, collected by Mr. Oldfield, resemble the common type, but are much smaller.

6. **Sticta filicina** (Ach. Meth. Lich. p. 276; Bab. l.c.).
FLORA OF TASMANIA. [Lichenes, by Babington & Mitten.

Hab. Johnny's Creek, Back River Gully, etc., Oldfield. Cheshunt, on wood, Archer.

Specimens not fully grown, but evidently belonging to this species.

7. Sticta Richardi (Mont. Fl. Fern. n. 79; Bab. l.c.).
Hab. Among Mosses, Gunn.

Very near the following.

8. Sticta foveolata (Delise, Stict. p. 101. t. 8. f. 36; Bab. l.c.).—(Tab. CXC VIII.)
Hab. On trees in dense forests, Gunn. Springs, Mount Wellington, on branches of trees, alt. 2300 feet, Oldfield, Hooker.

Some specimens belong to my a Flootowiana, others to my Billardieri.—Plate CXC VIII. Fig. 1, portion of frond and apothecia; 2, back of ditto; 3, portion of apothecium; 4, sporidia— all magnified.

9. Sticta Freycinetii (Delise; Bab. I.e.).
Hab. On wood, among Mosses, etc.; also running over live Ferns, Archer. Everywhere, all collectors. The specimens mostly belong to my var. ß Delisea. Mr. Gunn finds beautiful specimens in forests of Fagus, at an elevation of 2000 feet.

10. Sticta granulata (Bab. l.c.).—(Tab. CXCVII.)
Hab. Cheshunt, fertile, Archer. Collected also by Hooker and Gunn, but their specimens are barren.

This plant occurs also in Java, according to my learned friends Drs. Montagne and Van der Bosch.—Plate CXCVII. Fig. 1, specimen, with apothecia, nat. size; 2, the same magnified; 3, sporidia; 4, back of thallus, showing cyphellae, magnified.

11. Sticta fuliginosa (Ach. Meth. Lich. p. 280; Bab. l.c.).
Hab. Cheshunt, on wood, barren, Archer.

Apparently rare in the southern hemisphere.

12. Sticta cetrarioides (Bab.); thallo submembranaceo substellato dichotome ramoso canaliculato sublacunoso, ramis ascendentibus dichotomis inarginibus rotundatis erosis, supra glaucescente ochroleuco glaberrimo, subtus fusco subspongioso fibrillis atris longioribus, cyphellis excavatis albidis, apotheciis . . .—(Tab. CXCIX. B.)
Hab. On the ground; the collector's name not mentioned. Barren.

A very remarkable plant, perfectly different from every other Sticta, and like nothing with which I am acquainted, except Cetraria cucullata, Ach., to which in general appearance it is very similar. Some states of Sphaerophoron australis, Laur., are not unlike it at first sight, insomuch that Dr. Taylor hastily passed it over as a form of that species. The cyphellae are formed by the ruptures of the under surface, which leave roundish, white, excavated spots.—Plate CXCIX. B. Fig. 1, portion of thallus, magnified.

Gen. VII. RICASOLIA, De Not.

Hab. Tasmania, Gunn.

A single specimen, barren, in bad condition, but belonging apparently to this species, or at any rate allied to it; perhaps it may be R. crenulata.

Gen. VIII. PARMELIA.

§ 1. Imbricaria, Fries.


Hab. Among Moss, on Fagus-trunks, elev. 2000 feet; also on granite rocks, Launceston, Gunn. Collected also by Hooker, etc. Fertile.

Some of Mr. Gunn's specimens are very fine, but are certainly only a form of P. saxatilis, Ach., i.e. of P. sulcata, Tayl! Other specimens are more like the ordinary state of the plant, and are named P. sulcata by Dr. Taylor himself.


Hab. On trees, etc., fertile, Gunn, Archer.

Both the Acharian species occur, and that under various forms, some of which simulate the appearance of Ecernia prunastri.


Hab. On trunks of trees, Gunn (on Fagus). Cheshunt, Archer, etc. Fertile.


Hab. On trees: Cheshunt, Archer.

Rather different from the European form, but substantially agreeing (as it appears to me) with Tuckerm. Lich. Am. Exs. n. 70. Dr. Hooker appears to have found the same plant on Mount Wellington.

Parmelia placorodioides (Nyl! Enum. p. 104).

Hab. On rails, "very common," Oldfield. But very few specimens have been collected.

The specimens are named by Dr. Nylander. A perplexing species, almost intermediate between P. tiliacea and P. physodes. The habit is that of P. tiliacea, but the structure of the thallus more resembles that of P. physodes. We know not whether Dr. Nylander has described the species. P. placorodia, Ach., Tuckermann! Lich. Am. Exs. n. 71, is also extremely near to it.


Hab. Rocks: Richmond, Oldfield. Collected also by Hooker.


Hab. Rocks: also on dead timber; apparently common, Gunn, Hooker, Archer, Oldfield. See my remarks on this species in the 'Flora of New Zealand.'


A rare and little-known species, rightly placed by Nylander under the "stirps P. colpodis."


Hab. Trees, rotten wood, and stones, various collectors. Fertile.

Almost a cosmopolitan, as it would appear from Dr. Nylander's enumeration and our own herbarium, but not included in the 'Flora of New Zealand.' This is the P. rutidota, Tayl! Lich. Antarct. n. 72, which differs in no respect from the European form, except that the thallus is thicker than usual (resulting from exposure?) and nigropunctate.
(the points being abortive apothecia). Consequently Fries's remark, "Nec unquam nigro-punctata visa," must be cancelled.

Hab. Rocks, trees, also on stems of Salicornia, Gunn. Pittwater, Oldfield. Cheshunt, Archer.  
Specimens normal and fertile.

Hab. Greenstone rocks, close to the sea: Georgetown, Gunn.


Bab. l. c. p. 289.  
Hab. On wood, apparently common. Collected by Hooker, Gunn, and Archer, etc.  
A perplexing plant, and variously regarded by different botanists.

Hab. On Mosses, Hooker.  
A pretty species, placed next to P. pholidota, Mont., by Dr. Nylander, whose specific character we have not seen. It seems to us closely allied to P. Femijonensis, Fries, judging from the description.

15. **Parmelia triptophylla** (Fries; Bab. l. c. p. 290).  
Hab. On bark, fertile, Gunn. Cheshunt, Archer, barren.  
Agreeing with the form called L. microphyllus, E. Bot. t. 2138.

16. **Parmelia pholidota** (Mont. !; Bab. l. c. p. 290).  
Hab. On wood, Archer, etc.

17. **Parmelia nigrocincta** (Mont. !; Bab. l. c. p. 290).  
Hab. On wood, probably collected by Hooker.

§ 3. **Placodium**.

18. **Parmelia splachnirima** (Tayl. !); "thallo utriunque albido glabro sinuato-lobato, lobis rotundatis crenatis marginibus adscendentibus, gemmis marginalibus plano-granulatis statim in thallum exappendi-putibus, apothecis centralibus planiusculis, disco carnéó albo-pruinoso margine tenui undulato."—Tayl. Lich. Antarct. n. 73.—(Tab. CXCIX. C)  
Hab. On the ground. Collected by Gunn.  
Allied to P. lentigera, Ach., more nearly than to any other with which we are acquainted, but evidently distinct. The thallus is more deeply divided, less distinctly orbicular, of a slightly pink hue, having the margins of the same colour as the upper surface. Apothecia densely pruinose, not becoming convex in age, as in P. lentigera. This species might perhaps more appropriately be referred to Biatora, which comes extremely near to Placodium.—PLATE CXCIX. C.

Hab. Southport, on stone, Ch. Stuart.  
Very near to Parmelia elegans, Ach., from which we should hardly have distinguished it. It is described in Dr. Nylander's 'Lichens of Chili,' p. 193. The singular rugose appearance of the thallus and backs of the apothecia, by which it principally differs from P. elegans, may possibly be due to some accidental circumstance.

Specimens very minute, growing over some other barren, glaucous Lichens, not a quarter of an inch in diameter, more deeply coloured than _P. fulgens_ usually is, almost orange-coloured, thick, margins of the thallus paler; the centre almost ferruginous, and simulating the appearance of confluent immarginate apothecia. Very probably this is something different from _P. fulgens_, but being barren it cannot well be proposed as new. Several allied species are mentioned by Nylander (Enum. Gen. Lich.), to one of which it may possibly belong.

§ 4. Placodium, Fries.

Hab. Cheshunt, Archer, Fries.

§ 5. Patellaria, Fries.

Hab. Cheshunt, Archer.

Hab. Cheshunt, Archer.

§ 6. Urceolaria, Fries.

24. *Parmelia scruposa* (Fries; Fl. N. Zeal. ii. 293).
Hab. Cheshunt, Archer.

Hab. Granite rocks, St. Patrick’s River, Gunn.

Gen. IX. THELOTREMA, Ach.

Hab. Abundant on bark, etc., Gunn, etc.

Gen. X. GYALECTA, Ach.

Hab. On dead wood, Cheshunt, Archer.

Tribe II. LECIDINEÆ.

Gen. XI. STEREOCAULON, Ach.

Hab. Apparently common everywhere, on rocks, in Fagus forests, Gunn, and other collectors.

Hab. Among Moss and Lichens, on rocks, St. Patrick’s River, Gunn.

3. *Stereocaulon denudatum* (Flörke; Bab. l. c. p. 295).
Hab. On stones, Cheshunt, Archer.

Hab. Granite rocks, St. Patrick’s River, Gunn.

Vol. II.
Gen. XII. CLADONIA, Hoffm.

1. GRANULOSÆ, Fries.

1. *Cladonia retipora* (Flörke; Bab. l. c. p. 295).
   Hab. Apparently abundant, Asbestos Hills, Western Mountains, etc., all collectors.

   Hab. Abundant everywhere, and very variable in size and hue: very fine in wet places, all collectors.

   Hab. Probably abundant; collected by Cunningham, Gunn, etc. The following forms may be noticed:—Var. *alpestris*, Cascades, Port Arthur, Oldfield. Var. *sylvatica*, Asbestos Hills, Gunn.

2. SQUAMULOSÆ, Fries.
   A. Pervile, Fries.

   Hab. Growing among Mosses and Hepaticæ, Cheshunt, Kangaroo Bottom, etc., Gunn, Hooker, Oldfield, Lyall.

   Mr. Archer has gathered at Cheshunt a form of this species (as it seems) known as *C. delicata*, Auctt. Dr. Hooker’s specimens are very long, flexuous, and decurved, without apothecia. Dr. Taylor considers them to be a new species, which he calls *C. decurva* in Herb. Hook.

5. *Cladonia capitellata* (Bab. l. c. p. 296, t. cxxx.).
   Hab. St. Patrick’s.

   This is erroneously referred by Dr. Nylander, in his Enum. Gén. des Lich. p. 95, to *C. amaurocraea*, which it completely resembles indeed at first sight, but differs from it essentially in the perforated axils.

   Hab. Mount Wellington, Oldfield. Collected also by Lawrence and Gunn. (Various forms.)

   B. SCYPHOPHOREÆ, Ach.
   * Apothecia brown.

   Hab. On the ground, among Mosses, Gunn, Oldfield.

8. *Cladonia verticillata* (Flörke; Bab. l. c. p. 297).
   Hab. Woods of Mount Wellington, Hooker.

   Hab. Cheshunt, Archer.

10. *Cladonia fimбриata* (Fries; Bab. l. c. p. 297).

11. *Cladonia decorticata*? (Flörke; Bab. l. c. p. 298).
    Hab. Mount Wellington, Oldfield.
12. Cladonia cornucopioides (Fries; Bab. l. c. p. 298).
Hab. Asbestos Hills, Gunn. Mount Wellington, Oldfield. Collected also by Lawrence.


Dr. Nylander refers the imperfect specimens of Mr. Oldfield to var. seductrix, Del.

Hab. On the ground, Oldfield.

See my remarks on the geographical distribution, l. c. p. 198.

Hab. On rotten wood, Cheshunt, Archer.

16. Cladonia Florkeana (Fries; Bab. l. c. p. 298).
Hab. On rotten wood, Falls of the Meander, Western Mountains, Archer.

It is possible that this enumeration may not be quite perfect, as there are many specimens which I cannot name satisfactorily. The species of Cladonia which occur in Tasmania have been found also in New Zealand, C. deformis excepted; and only one species, C. gracilis (considered by many not to be specifically different from C. verticillata), occurs in New Zealand which has not been found in Tasmania.

Gen. XIII. Bæomyces, Pers.

1. Bæomyces heteromorphus (Nyl.); thallus tenuissimus cinereo-glaucescens vel albidus opacus effusus; apothecia pallide carneo-rufa sat parva (altit. circa 2 millim.) stipite crasso (exsiccatio vari compresso vel plicato) supra thallum fuscuscentes (0,5-0,9 millim. latum) a stipite persistenter marginatum, margine sepe flexuoso et parum prominulo; sporis 8-nae oblongae incolores simplices, longit. 0,009 millim., crassit. 0,004 millim., paraphyses gracies. Gelatina hymenea iodo non tinteta.—Nylander, MSS. (Tab. CC. B.)
Hab. Clay soil, Oldfield, Gunn. On siliceous clay, Cheshunt, Archer.

Plate CC. B. Fig. 1, podetium and portion of thallus; 2, section of apothecium; 3, ascus, spores, and paraphyses:— all magnified.

Hab. On siliceous clay, Cheshunt, Archer.

3. Bæomyces splachnirima (Mitten).—Parmelia, Tayl. Lich. Antarct. n. 73; et hujus operis, p. 348; "thallo utrinque albido glabro sinusato-lobato, lobis rotundatis crenatis marginibus adscendentibus, gemmis marginalibus plano-granulatis statim in thallum expandentibus, apotheciis centralibus planiusculis disco carneo albo-pruinoso margine tenui undulato." Tayl. l. c.—B. squamarioides, Nylander, MSS. (Tab. CXCIX. C.)
Hab. On the ground, amongst Hepaticæ, Gunn, Stuart.

A pretty species, with an almost white, thin, foliaceous thallus, which might well be mistaken for a Parmelia. It is thus characterized by Dr. Nylander:—"Thallus albo- vel albidus-glaucens subopacus squamosus, squamis constitutus mediocribus vel majusculis difformibus (latit. circa 5 millim.) lobatis vel lobato-incisis, sat planis vel nonnihil medio depressis, interdum subimbricatis, subitus concolor vel magis albescens, adixius (rhizinis tamen non evidentibus); apothecia lurida vel pallide lurida opaca mediocria (latit. 2–3 millim.) prominula sessilia biatorina
plana, margine crassiusculo deplanato-evanescente; spore 8-nae oblongae vel fusiformi-oblongae 1-septatae, longit. 0,014–17 millim., crassit. 0,0035–0,0045 millim., paraphyses graciles. Gelatina hymenia iodo dilute cerulescens. Facies est Squamarie cujusdam ex stirpe Squamarie crusae. Thallus plagulas latit. circa pollicaris afferens gonidia continet majuscula sphaerica chlorophyllo flavo insignia. Squame sat tenues." I have not, however, observed that the spores are 1-septate, or that there are more than five in each ascus. It is included under Parmelia, at p. 348 of this volume.—Plate CXCIX. C. Fig. 1, portion of thallus, with apothecia; 2, section of apothecium; 3, ascus, with spores and paraphyses:—all magnified.

Gen. XIV. BIATORA, Fries.

1. **Biatora marginiflexa** (Bab. Fl. N. Zeal. ii. p. 299).
   HAB. On trees, Circular Head, Gunn. Cheshunt, Archer.

2. **Biatora cinnabarina** (Fries, Fl. N. Zeal. ii. p. 300. t. cxxix. c.)
   HAB. On trees, Oldfield.

Gen. XV. LECIDEA, Ach.

   HAB. Granite rocks, St. Patrick’s River, Gunn.
   Plate CC. C. Fig. 1, portion of thallus, with apothecia; 2, section of apothecium:—both magnified.

2. **Lecidea petraea** (Flotow).
   HAB. With the former.

   HAB. With the former.
   Plate CC. D. Fig. 1, portion of thallus, with apothecia; 2, section of apothecium and thallus:—magnified.

   HAB. With the former.

   HAB. On dead fern-stems, Archer.

   HAB. Tasmania, Stuart.

**SUBORDER II. ANGIOCARPI.**

Gen. XVI. SPHÆROPORON, Pers.

1. **Sphaerophoron tenerum** (Laur. !; Bab. l. c. p. 304).
   HAB. Cheshunt, Archer. St. Patrick’s River (on Fagus), Gunn.

2. **Sphaerophoron australis** (Laur. !; Bab. l. c. p. 304).
   HAB. Cheshunt, Archer. In Fagus forests, on the trunks, Gunn.
   Some specimens belong to S. insigne, Laur. !, which appears to be clearly a form of this species.

   HAB. In Fagus forests, Gunn.
   Probably, as Dr. Nylander suggests, a form of the foregoing.

4. **Sphaerophoron coralloides** (Pers.; Bab. l. c. p. 304).
   HAB. Cheshunt, Archer.
Gen. XVII. ENDOCARPON, Ach.


Hab. On the ground, among Mosses, Gunn.

"Patches 1–2 inches wide, scarcely ½ inch high. The fronds, rising from a narrow base, are crowded, plicato-convolute or imbricated,umber-coloured, ... in the dry state very fragile. Sometimes large openings may be observed in the buds, apparently arising from the union of expanding buds." — Tayl. l. c. The plant being barren, its genus, as Dr. Nylander justly observes, is doubtful.

Suborder III. BYSSACEAE.

Tribe I. COLLEMACES.

Gen. XVIII. PYRENOPSIS, Nyl.


Hab. Granite rocks, St. Patrick's River, Gunn.

A full description may be seen in the work above cited.—Plate CC. E. Fig. 1, portion of fertile state; 2, section of apothecium — both magnified.

Gen. XIX. COLLEMA, Ach.


Hab. On bark, Cheshunt, Archer.

The specimen agrees with Mougeot's very well.

2. Collema nigrescens, var. leucocarpum (Bab. l. c. p. 308).

Hab. On bark, Circular Head, Gunn.


Hab. On bark, Cheshunt, Archer.

Mr. Archer has found at Cheshunt a species of Collema different from any of those described above, but has unluckily preserved only one specimen. It is unknown to us, and may be new. The dull-green thallus grows among Mosses, has membranous rounded lobes, in a young state resembling C. crispum, Schaer. ! Exs. n. 425 (C. cheileum, Ach., according to Nylander, Syn. Lich. p. 111), but afterwards expanding into a larger frond, which is much sinuated, and tomentose beneath with rather shaggy down, as in C. saturninum, Auctt. (to which, however, this cannot belong, not being a Leptogium), and then resembling a young frond of Sticta fuliginosa.—Apothecia plano-concave, dull-red, fringed with the minute crenated thallod at margin, then convex, emarginate.

Gen. XX. LEPTOGIUM, Fries.


Hab. On bark, Chestnut, Archer.

The specimens belong to the more brightly coloured form, called by authors Leptogium (or Collema) azureum.

Tribe II. CÆNOGONIÆ.

Gen. XXI. CÆNOGONIUM, Ehr.


Hab. On bark, in dense forests, Gunn. Cheshunt, Archer.
Genus incertae sedis.

Gen. XXII. ABROTHALLUS, De Notaris.

1. Abrothallus Smithii (Tulasne, Ann. des Sc. Nat. 1852, p. 112); apotheciis hemisphaericis nigris interdum virescenti-pruinosis, ascis sub-8-sporis, sporis pallide olivaceo-brunneis oblongis obtusis uni-septatis plerumque unum apicem versus incrassatis. (Tab. CC. F.)

Hab. On Parmelia perlata, Ach., Cheshunt, Archer.

This curious plant, with no thallus of its own, occurs in a parasitical manner on the thalli of several species of Parmelia, and on some other Lichens having a thallus of a similar substance. In the south of England it is not uncommonly met with on Parmelia perlata and on P. sulcata, Taylor, usually considered a tree-state of P. saxatilis, Ach. The apothecia are prominent, and resemble those of some small Leucidea, black on the surface, paler within; the spores in Mr. Archer’s specimens are about \( \frac{3}{8} \) of an inch in length, and \( \frac{3}{8} \) or more wide. The position of this genus is somewhat obscure; in its mode of growth and want of thallus it is allied to some small erumpent Fungi, and to this family it is referred by Nylander; on the other hand De Notaris, Tulasne, and Lindsay, place it amongst the Lichens, to which it has certainly equal claims. The species was originally figured in 'English Botany,' t. 1866, as Lichen parasiticus. A monograph of the genus by Dr. Lauder Lindsay, with very careful figures, was read before the British Association in August, 1856.—Plate CC. F. Fig. 1, vertical section of apothecium; 2, ascus, paraphysis, and ascus containing spores; 3, spores:—all magnified.
ADDITIONS, CORRECTIONS, &c.

VOLUME I.

(Page 3.) Clematis blanda and C. gentianoides are referred by Dr. Mueller to C. coriacea, DC., in which Mr. Archer agrees.

(Page 4.) Clematis linearifolia, Steud.
I have referred this doubtfully to C. microphylla, DC. Dr. Mueller confirms this, and the older name of De Candolle should therefore be adopted.

(Page 7.) Ranunculus scapigerus, Hook., is referred by Mueller to R. plebejus, Br., an Australian and New Zealand plant.

(Pages 8 and 9.) Ranunculus inundatus, Br., and R. glabrifolius, Br., are both referred by Mueller to the New Zealand R. rivularis, Banks et Sol. Archer considers that R. cuneatus, Hook., is a variety of nanus, Hook., and R. inconspicuus, Hook. fil., of R. glabrifolius, Hook.

(Page 10.) Ranunculus Pumilio, Br., is considered by Mueller and Archer to be a variety of R. sessiliflorus, Br., and no doubt rightly.

(Page 10.) Add—

Gen. IV. CALTHA, L.

Sepala 5, petaloida, colorata. Petala 0. Stamina numerosa, rarius definita. Ovaria 5–10, multiovulata.—Herbe; foliis radicalibus, scarioso-stipulatis; pedunculis 1-floris.

A genus of the north and south temperate and colder zones; more rare on the mountains of intervening latitudes. Several species are found in Fuegia, and one on the mountains of New Zealand, which so closely resembles the Tasmanian species that I doubt their proving distinct.—Caltha is readily distinguished as a genus by its 5–8-petaloid imbricating sepals, absence of petals or glands, and many-seeded carpels. (Name from κάλαβος, a cup, in allusion to the form of the flower of the European species.)


HAB. Western Mountains, Archer.

DISTR. Alps of Victoria, Mueller.

A small, tufted, fleshy or thick subcoriaceous herb. Rhizome, with thick fibres, descending. Leaves all springing from the crown of the rhizome, 2–3 inches long, spreading; petioles thick, with broad membranaceous sheathing stipules; lamina coriaceous, ½ inch long; inflexed lobes at the base sometimes wanting in Victoria specimens according to Mueller, sometimes with a lobule at their base externally. Scape very short, sessile among the leaves,
stout, channelled. *Flower* about ½ inch across. *Petalas* apparently yellow (white according to Mueller), revolute. *Stamens* 10 in the only two flowers examined. *Ovaries* erect. *Carpels* (ripe) flattened, with a very slightly recurved beak.—I doubt this proving distinct from *C. Nova-Zelandiae*, Hook. fil., from which it differs in the few (10) stamens of the only two perfect flowers I possess, more erect pistils, and longer more adnate inflexed lobes. The foliage, habit, and flower otherwise appear identical. Mueller places most reliance on the colour of the flower, white in this, yellow in the New Zealand plant; but this is a variable character in the northern *C. palustris*.

(Page 21.) *Barbarea australis*, Hook. fil.

Mueller considers this the same with the European *B. vulgaris*, L., and I am disposed to agree with him.

(Page 22.) *Hutchinsia procumbens*, Br.

The cotyledons are incumbent in this plant, as correctly represented in the *Icones Plantarum,* and as in European specimens.

(Page 24.) *Draba Pumilio* (Br. in DC. Syst. ii. p. 353); "scaapis nudis 1-floris, foliiis radicalibus ovatis integris petiolatis, siliculis ovatis."

Hab. Tasmania, *Brown*.

I know nothing of this plant, which is further thus described by De Candolle:—"A very small glabrous *herb. Root* perpendicular, simple, very slender. *Radical leaves* ovate or oval, entire, long-petioled, with the petiole 4 lin. long. *Scapes* many, radical, naked, one-flowered, 2–3 lines long. *Flowers* minute, white. *Calyx* spreading. *Petals* entire? *Silicula* ovate; stigma capitate, subpedicellate."


Hab. D'Entrecasteaux Channel (*fid. DC*). Abundant on the islands off the south-east coast, never on the main, nor even on Brunie Island, *Oldfield* (*fid. Mueller*).

I do not know this species, which is thus described by De Candolle:—"*Stem* herbaceous, annual?, robust, erect, branching, branches densely leafy. *Leaves* glabrous, sublaxi, oblong, obtuse, serrate at the apex with sharp deep teeth, 3 lines broad, the upper three-toothed at the apex. *Pedicels* subangled, 3 lines long, approximate, obliquely erect. *Siliques* 2 lines long, almost ½ a line broad, oval-rhomboïd, emarginate, valves keeled, stigma subexsert; *seeds* red, thickish.—Differs from *L. Piscidiwn* in the siliques being almost twice as large."

I have seen two specimens of what may after all be Desvaux's plant, one marked *L. foliosum* by Mueller, gathered at Southport, Tasmania; the other collected in Victoria by Harvey. These agree with the description given above, except in the siliques being smaller than in *L. Piscidiwn*, of which I expect my plant (probably Desvaux's) is a variety. It differs from *L. cuneifolium* in the acute leaves.

(Page 26.) *Viola hederacea*, Lab.

Mueller considers this to be very distinct from *V. Sieberi*, but after another careful examination with Mr. Archer of Sieber's original specimens and of those figured in the *Flora Exotica,* together with a very fine suite of forms (collected by Mr. Archer), we are unable to find any characters that would make of it even a permanent variety. I have not seen Mueller's specimens.

There is, however, a plant which I have regarded as a form of *V. hederacea*, with minute flowers and very short pedicels (very analogous to the fertile forms of some European species) which Mr. Archer thinks may prove distinct; it has a more tufted habit, is smaller in all its parts, has the very short peduncles about half the length of the leaves; the flowers only 2–5 lines in diameter, and generally violet; the petals recurved and but little longer than the sepals. This bears fertile anthers and also produces seed abundantly, identical with the seed of the commoner form of *V. hederacea*, which, however, also ripens its capsules and seeds. This is either a distinct species or
is a more fertile reduced state of *V. hederacea*, with which it agrees so closely in foliage that small specimens of *hederacea* can with difficulty be distinguished from it except by the above characters and its solitary, non-stoloniferous habit. The small, more fertile, and short-pedicelled flowers of the European species occur, I believe, on the same plant with the larger, less fertile, long-pedicelled flowers; and if the Tasmanian *Viola hederacea* presents analogous differences in its flowers to the European, it is the more remarkable case, for its small and large flowers are always on different plants.

Mr. Gunn, who sends the small form from granite soil, St. Patrick's River, elevation 2000 feet, believes that it is not a distinct species, though it grows singly and does not form the large masses that *V. hederacea* does in its usual form. Archer, who does consider it distinct, collected it at Cheshunt and on the Western Mountains. I have it also from Victoria, collected by Robertson.

3. *Viola Cunninghamii, β radicata* (Hook. fil. Flor. N. Zeal. i. p. 16); cespitosa, vix stolonifera, glaberrima; folii late ovatis obtusissimis crenatis basi subcordatis, petiolo apice dilatato, stipulis lanceolato-subulatis remote dentatis, bracteolis parvis, sepalis oblongo-lanceolatis, petalis subspathulatis lateralis obscure barbatis postico emarginatis, calcar brevi.

HAB. Western Mountains, by rivulets, on Cuming's Head, Archer.—(Fl. Dec.)

DISTR. Mountains of New Zealand.

This resembles a good deal the small plant I have just described under *V. hederacea*, especially in habit, but is more tufted, has the leaves longer in proportion to their breadth, less rounded or reniform, and has not the waved tooth-margins of *V. hederacea*, but distinct, broad crenatures; the long stout peduncle, broader sepals, and scarcely bearded petals further distinguish it well. —Whole plant glabrous, 2–4 inches high. *Rhizome* slender, perpendicular or creeping. *Stems* extremely short; stolones none. *Leaves* pale-green, ¼–1 inch long, ovate, with rounded apices and crenate margins, always longer than broad, sometimes cordate at the base, never deeply as in *V. Calegana*, nor with the broad shallow sinus of *V. hederacea*. *Flowers* pale, ¼–½ inch across. *Sepals* broader and shorter than in *V. hederacea*; the petals very similar to those of that plant, as are the capsules and seeds.

4. *Viola Calegana* (Don, Syst. Gard. i. p. 329); caulescens v. stolonifera, glaberrima; foliis profunde cordatis obtusis crenato-serratis, stipulis bracteolisque foliaceis oblongis obtusiusculis, sepalis falcato-lanceolatis acuminatis, petalis glabris postico apice bilobo lateralis glabris oblongo-spathulatis, calcar brevi late saccato.

HAB. Deloraine, Archer.


A very variable species, quite distinct from any of the former, and easily recognized by the larger stipules and bracteoles, deeply cordate leaf, and bilobed spurred petal. — *Rhizome* short, very fibrous. *Stems* or branches 1–10 inches long, tufted or lax and trailing. *Petioles* slender. *Leaves* ¼–1½ inch long, very variable in breadth; in the Illawarra specimen the cordate bases are so laterally produced that the leaf is broadly triangular and twice as broad as long. *Petioles* slender. *Flowers* ¼–½ inch diam. *Sepals* all produced at the base. *Lateral petals* minutely bearded. *Anthers* as in its Tasmanian congeners. *Stigma* truncate and minutely toothed. *Capsule* and seeds as in *V. hederacea*. — Don puts this in his section *Dichidia*, characterized by the bidental stigma and caulescent habit, but describes the species as caulescent, and the stigma as unknown. I do not on the dried specimens observe the spots he describes on the stem.

(Page 27.) *Hymenanthera angustifolia*, Br., is a native of Victoria. Mueller considers it to be specifically the same with *H. dentata*, Br., of New South Wales, and *H. Banksii*, Muell. MSS. *H. angustifolia* grows in Tasmania in the same locality with *Discaria* (Oldfield).

(Page 35.) *Tetratheca procumbens*, Gunn, MSS.
Dr. Mueller refers this to *T. calva*, Schuckhardt, Syn. Trem., and considers my *T. Gunnii* to be a variety of the same, in which Archer agrees.

(Page 42.) *Scleranthus fascicularis*, Hook. fil.
Mueller reduces this to a variety of *S. biflorus*.

(Page 51.) *Lasiopetalum micranthum*, Hook. fil. This I take to be the Rhynchospermum Tasmanicus, Muell. MSS., found at Swanport by Stuart. At line 4 from bottom, for acute read minute.

(Page 54.) *Eucryphia Milligi, Hook. fil.*, forms a tree 40 feet high, on Mount Lapeyrouse, retaining all its characters. (Mueller does not consider it a good species, and Archer is doubtful about it.)

(Page 57.) *Geranium potentilloides*, I/He'rit.
Mueller reduces this to a variety of *G. dissectum*, L., and both he and Oldfield consider its var. *G. parvifiora* to be a distinct species. Archer refers both to varieties of *G. dissectum*.

Geranium *brevicaule*, Hook.
Mueller considers this quite distinct from *G. potentilloides*, and says that it inhabits loftier situations.

Mueller and Archer confirm my suspicion of this being referable to *P. australis*, Willd.

(Page 59.) *Rapera, A. Juss.*, should be reduced to *Zygophyllum* (Mueller).

(Page 64.) 4. *Phebalium Daviesii* (Hook. fil.); frutex erectus, lepidotus; ramis virgatis, foliis angustissimis e basi ad apicem sensim dilatatis apice bifidis margine recurvis supra glabris medio profunde sulcatis subtus argenteo-lepidotis, floribus terminalibus umbellatis, pedicellis brevisculis floribusque argenteo et ferrugineo lepidotis.

HAB. East coast, near St. Helen's Bay, *R. N. Davies, Esq.* (Herb. Archer.)

A very distinct and pretty species, easily recognized by the slender, twiggy habit, very narrow leaves dilated upwards to the bilobed apex, silvery lepidote scales of their under surface, recurved margins, and terminal umbels of flowers. It is closely allied to *P. glandulosum*, Hook. (*P. sediforme*, Muell.), but wants the great tuberculate glands of the upper surface of the leaves. It is also near *P. elongifolium*, Juss., but the foliage is much smaller, narrower, and not tomentose below.—Branches very slender, terete, covered with ferruginous scales. Leaves scattered, 1 inch long, ½ line wide at the tip, glabrous and smooth above, white, with lepidote scales below, where are also occasionally a few scattered ferruginous scales. Flowers 6–8 in an umbel, all terminal. Pedicels stout, ½ inch long. Flower hemispherical, 3 lines diam. Calyx short, obscurely lobed. Petals oblong, subacute, white, with large ferruginous glands on the back towards the apex. Filaments slender, exserted. Anthers oblong, with a small apiculus. Ovary glabrous, 5-lobed. Style slender.


The flowers are occasionally pentamous, as represented in the Plate. Archer has given me beautiful specimens in flower and fruit, from Mount Gog. I suspect that Mueller’s *Eriostemon verrucatum* (Fragment. Phyt. iv.), of which I have seen a bad specimen only, is the same as this.

Eriostemon *verrucosum* has been found in Victoria by Mueller.

Eriostemon *virgatum*, A. C., is *E. Oldfieldii*, Mueller.

(Page 66.) Archer considers that *Boronia citriodora*, Gunn, and *B. Gunnii*, Hook. fil., may possibly prove varieties of *B. pilosa*, Lab.
ADDITIONS, CORRECTIONS, ETC.

(Page 68.) Mueller considers that his Boronia dentigera, Trans. Vict. Instit. 1855, p. 32, mentioned under B. variabilis, is a very distinct species, having rough seeds.

(Page 69.) Discaria australis occurs in one spot only on Brown's River, south of Hobarton, the most southerly habitat I am acquainted with (Oldfield).

(Page 76.) Pomaderis discolor, Vent., is regarded by Archer as a variety of P. elliptica, Lab.

(Page 79.) Stackhousia.

In the generic character, line 2, for longioribus read brevioribus; and in the English description of the genus, at p. 80, line 1, for longer read shorter.

When I drew up the characters of the species of this genus, I had not seen the elaborate monograph of Schuckhardt, published in the Linnaea, 1853, the results of which are so different from mine that I have again attempted to settle the limits of the species of this puzzling genus.


S. monogyna, according to Labillardière, should have one bract and two minute deciduous lateral ones, and his figure accords well with Lindley's t. 1916 in most respects. Lindley further describes the bracts as very short, shorter than the calyx, and membranaceous, but figures those of the lower flowers as longer than the calyx. The S. obtusa he distinguishes by having the bracts longer than the calyx, and the spike shorter, and cylindrical. None of these characters are constant in Gunn's specimens; and in my own, gathered near Hobarton, I find the bract varying from shorter than the calyx to half as long as the corolla. Schuckhardt gives no distinguishing characters, but describes the corolla of S. monogyna as flavescent (which Lindley figures white), and of S. obtusa as yellow (lutea). Archer considers them the same, and Gunn also observes that he found connecting specimens between S. obtusa and monogyna. The lateral bracts are evanescent in most of the Tasmanian specimens.

2. Stackhousia Gunnii, Hook. fil., is considered by Archer to be a variety of S. monogyna, and no doubt rightly so.


Schuckhardt remarks that no such species exists in the Herbarium Rudolphianum, where all Sieber's plants are without exception to be found. Sieber's plant is, however (probably erroneously), named S. maculata in the Hookerian Herbarium, Fl. Nov. Holl., n. 246, and it is no doubt S. spathulata, Sieb., of Rudolph. Herb. (Schuckhardt, p. 20), S. maritima, Muell. MSS., S. cuneata, A. Cunn., Tripterococcm spathulatus, Mueller. This appears to be a maritime species.


5. Stackhousia pulvinaris (Mueller, Fragm. Phyt.); parvula, intricatim ramosa; foliis lineari-oblongis spathulatisve obtusis, floribus solitariis ramulos terminantibus, stylo brevissimo profunde 3-4-fido.

Hab. Western Mountains, in moist places, Archer.

Distrib. Australian Alps, Mueller.

A very singular little species, scarcely 2 inches high, very different in habit and appearance from any of its congeners. Mueller observes that it forms a carpet on the summits of the Australian Alps, speckled with fragrant, starry flowers.—Stems much branched, slender, tufted and interwoven together. Leaves ½ inch long, glabrous, rather fleshy, linear-spathulate or oblong, bright-green. Flowers solitary, terminal, scarcely rising above the leaves, yellow. Stamens nearly equal in Archer's specimens, two shorter than the others in Mueller's. Anthers glabrous. Style very short, cleft almost to the base.

Stackhousia Gunnii, Schlecht. in Linnaea, xx. 642, founded on Lindley's figures of S. monogyna, appears to have no characters at all. Schuckhardt quotes it (altering the name to Gunniana), but does
not allude to Lindley’s figure, nor give any habitat or authority for the specimens from which his full description is drawn up. Mueller considers it a form of *S. monogyna*, together with *S. Huegelli*, Endl., and *S. obtusa*, Lindl.

Stackhousia *pubescens*, Rich., is erroneously described as Tasmanian by Schuckhardt, who assumes that Richard himself collected in the island.

Stackhousia *aspericocca*, Schuckh.

I have tropical specimens so called, of this, from Mueller (Dawson River), and from M’Gillivray (Port Curtis), in all which the lateral bracts are well developed. I have seen no Victoria specimens, but have some of the *S. monogyna* from that country with larger lateral bracts than usual; nor have I any Tasmanian specimens.

Stackhousia *Muelleri*, Schuckh. l. c. p. 16.

I do not recognize this species, which is said to have been gathered in Victoria by Mueller, and in Tasmania by Stuart. All its bracts are described as being very broad and membranous, and it may prove another form of *S. monogyna*, judging from the description only.

(Page 84.) **Leguminosae.**

Oldfield remarks that this Order disappears in the country west of Recherche Bay. *Acacia stricta* there advances some few miles inland, and thence for thirty-five miles westward Oldfield did not meet with another species, though he travelled over localities of all elevations and aspects. This is an analogous fact to that of the rarity of the Order in New Zealand, Fuegia, and other humid temperate regions. (See Flora Antarctica, ii. 361.)

(Page 85.) In the generic character of *Dillwynia*, for “*vexillum duplo longius quam latum*” read “*duplo latius quam longum*.”

(Page 86.) In the English generic character of *Pullenaea* the seeds should have been described as strophiolate (as in Tab. XIII. and in the Latin character).

(Page 88.) *Pultenaea pimeleoides*, Hook. fil., Mueller regards as the same with *P. dentata*, Lab.


(Page 90.) *Pultenaea cordata*, Grah. Mueller and Archer both refer this to *P. juniperina*, Lab.

(Page 91.) *Pultenaea diffusa*, Hook. fil. Mueller refers this to *Phyllota* (Fragment. Phyt. Austr.), in which Bentham does not concur. This is a native of Victoria.


HAB. Tasmania, A. Cunningham (s.d. Benth.).

DISTRIB. Victoria, Mueller, etc.

I have given Bentham’s description of this plant, which Mueller informs me is found in Tasmania. His Victoria specimens so closely resemble the small states of *P. Gunnii* β, that I do not see how they are to be distinguished from that plant. I find what appears to be the same thing in Bentham’s herbarium, marked *P. brachypoda*, Muell., from Australia Felix, and *P. cordifolia*, Hook., from Argyll, Lhotsky.

(Page 96.) Bossinea *cordigera*, Benth., is perhaps *B. horizontalis*, Muell., and if so, is a native of Victoria.
ADDITIONS, CORRECTIONS, ETC.

(Page 97.) Goodia. For "latifolia" read "lotifolia."

Mueller and Archer both unite G. pubescens, Sims, with lotifolia, and Mueller informs me that G.? polysperma, DC., is a Cape Argyrolobium. Oldfield remarks that G. lotifolia has bracteoles and stipules.

(Page 100.) The genus Swainsonia, Salisb., was named after Mr. Isaac Swainson, an amateur horticulturist at Twickenham, and not, as stated, after the late eminent zoologist.

(Page 102.) Insert—

Gen. XVII. bis. HARDENBERGIA, Benth.


A small genus of extratropical Australian climbing plants, closely allied to Kennedya and Leptocynamus; differing from the former in the calyx not being so bilabiate, the vexillum longer than the alae, and short style. (Name in honour of the Countess Hardenberg, of Vienna.)


Hab. Rocky hills, near Froghmore, Richmond, Oldfield.

Distrib. New South Wales and Victoria. (Cultivated in England.)

Root perennial, long, woody, thicker than the finger, used as Sarsaparilla in Victoria (Adamson). Stems slender, rigid, terete, climbing, ribbed above. Leaves scattered, hard, coriaceous, unifoliolate, ovate, rather obtuse, 2-3 inches long, variable in breadth, strongly reticulate on both surfaces, rather glaucous below. Stipules oblong-lanceolate, acuminate, 1½ lin. long. Racemes short, axillary, erect, shorter than the leaves, slightly hairy. Pedicels slender, with small, lanceolate, acuminate, deciduous bracts at the base. Flowers blue or white, about ⅓ inch long. Calyx glabrous, shortly toothed. Pod 1½ inch long, ½ inch broad, flat, nearly straight, subacute at both ends. Seeds about 6, oblong, black, with a large white strophiolus;—(described from Australian specimens.)

(Page 102.) Under the remarks upon Lept. Tasmanicus, for “Mueller” read “Meisner, in Plant. Preiss. i. p. 94, in note.”

(Page 114.) 2. Geum reniformium (Muell. in Trans. Phil. Soc. Vict. 1857); sericeo-pilosum; foliis omnibus radicalibus simplicibus reniformi-rotundatis obscure lobatis crenatis, scapis simplicibus v. bifidis 1-3-bracteatis, bracteis profunde lobatis, floribus amplis, calyce tomentoso, petalis albis, capitulis globosis, achenisis stylosque gracilibus apice uncinatis longe pilosis.

Hab. Mount Lapeyrouse, Stuart.

I have seen but one imperfect specimen of this fine plant, sent by Mueller. It resembles a good deal the American G. radiatum, Mich.—Leaves all radical, simple, rounded-reniform, crenate, almost villous on both surfaces, closely reticulate, about 1½ inch across. Scapes stout, 6-10 inches long, with several lobed bracts. Flowers variable in size, 3-½ inch across. Petals white. Achenia small, not compressed, attenuated into a slender, straightish style, which is hooked at the very apex only, villous with long straight hairs.
Epilobium.

Mueller considers that all the Australian species are referable to one; Archer that E. glabellum, Forst., is referable to E. tetragonum, L.

Haloragis pinnavtéfida, A. Gray;—referred by Sonder (Linnaea, xii. p. 231) to Brongniart’s H. heterophylla. Strathallan, near the Jordan, Oldfield.

Haloragis Gunnii, Hook. fil. This should bear the name of H. A is also H. elata, Sonder, in Linnaea, xii. 230. It is further also a native of Victoria, as is H. depressa, Walp. Archer considers that this, H. tetragyna, Lab., and H. depressa, Hook, fil., may possibly all prove to be varieties of one species.

Myriophyllum varifolium, Hook, fil., is referred by Sonder to M. verticillatum, L. (Linnaea, xii. 233.)

Add, as a doubtful member of the order,—

? Gen. V. CERATOPHYLLUM, L.


A genus of submerged water-plants, found in many temperate and tropical parts of the globe. Stems 6-10 inches long. Leaves whorled, slender or almost capillary, divided into more or less elongated laciniae, sometimes remotely toothed. Flowers very rarely produced (I have seen none in Tasmanian specimens), small, axillary, sessile, monoœcious. Perianth of several small leaves, enclosing in the male flower many sessile anthers, and in the female a solitary, one-celled, one-seeded ovary, with a simple style. Fruit a small coriaceous nut, with usually two spines diverging downwards from towards the base below the middle, and a persistent, terminal style. (Name from κρας, a horn, and φυλον, a leaf, in allusion to the foliage.)


Hab. Still water, Launceston, Laurence.

Distrib. South-eastern and tropical Australia, Asia, Africa, and America, generally.

Eucalyptus Risdoni, Hook. fil.

Dr. Mueller reduces this to E. cordata, an opinion I cannot coincide in.

Leptospermum lanigerum, Sm., and L. flavescens, Sm., are considered varieties of one by Archer; also L. myrtifolium, Sieb., and L. rupestris, Hook. fil.

Beckia thymifolia, Hook. fil., is regarded by Archer as a variety of B. diffusa, Sieb.

Tetragonia implerica, Hook. fil.

I have good fruit of this from Archer and Mueller.—The styles vary from 2-3. The flowers are hermaphrodite, and smell of hawthorn. The berries spherical and red.—F. Mueller.

Bauera microphylla, Sieb.

Mueller considers this to be quite a distinct species.

Hydrocotyle Tasmanica, Hook. fil., is, according to Archer, a variety of H. hirta, Br.

Hydrocotyle pterocarpa, Muell. Add to habitat—Southport, Oldfield.
ADDITIONS, CORRECTIONS, ETC.

(Page 159.) Microsciadium Saxifraga, Hook. fil.
I overlooked the fact that this generic name, having been preoccupied, has been replaced by Ochotzia, Walpers.

(Page 161.) Add—

Gen. X. bis. GINGIDIUM, Forst.
(Anisotome, Hook. fil. Fl. Ant. and N. Zeal.)


In the present state of the Umbelliferae as regards systematic arrangement, it is impossible to define most of the European and Asiatic genera, and until the limits of these are better settled, the few Australian members of the Order cannot be definitely classified. My generic name Anisotome was anticipated by Anuotoma, Fen (Limnea, xvii. 330), a genus of Asclepiadece. I have somewhat reluctantly followed Mueller in restoring Former's nam. >f Gingidium, a name of Dioscorides and Pliny, not only because it was originally applied to a totally different plant of the northern hemisphere, but because Forster's description and figure of the fruit of the New Zealand GvtfieUtm montanum {Anisotome Gingidium, Fl. N. Zeal. i. 89) is so totally unlike any plant of the Order, that it was only after inspecting Forster's specimens when preparing the New Zealand Flora, that I found his species of Gingidium belonged to my genus Anisotome. Mueller, who first described the following and another Australian alpine species from Victoria, reduces also the New Zealand genus Aciphylla, Forst., to Gingidium.—As a genus, this may be known from its Tasmanian congeners by its dioecious habit, broad, flat, sometimes unequal, carpels, with 4-5 acute ridges on each, 5-toothed calyx, inflexed stamens, large stylopodia, and suberect styles.


Hab. Summit of Mount Lapeyrouse, Oldfield.

A small species, growing in tufts often a foot across. Leaves with the blade about 1 inch long; sheaths obtuse, membranous; pinnales 2-3 lin. long, ³ lin. broad. Umbels compound: male of many rays; female of few. Fruit ¾ lin. long.

(Page 163.) Panax Gunnii, Hook. fil.
Berries black, resembling those of Ligustrum vulgare, Oldfield.

(Page 171.) COMPOSIT.E. See additional observations at the end of the Order, p. 228.

(Page 175.) Archer regards Eurybia irata, DC., and E. Gunniana, DC., as referable to E. fulvida, Cass.

(Page 181.) Eurybia ericoides, Nob. (non Steetz), E. Hookeri, Sond. (vide p. 229), was also found on Mount Wellington by Gunn.

(Page 183.) Erigeron popochroma, Lab., E. Tasmanicum, Hook. fil., and E. Gunnii, Muell., may possibly prove varieties of one species.
(Page 188.) Paquerina graminea, Cass.
Mueller refers this to Brachycome, and includes under it B. parvula, Hook. fil. (p. 185), adding that it is found at Moreton Bay, the Murray River, and Spencer's Gulf.—(Fragment. Phyt. p. 49.)

(Page 189.) Lagenophora latifolia, Hook. fil., and L. montana, Hook. fil., are regarded by Archer as varieties of one.

(Page 195.)—

Gen. XI. bis. TRINEURON, Hook. fil.

Capitulum heterogamum, discoidem. Involucrum campanulatum, squamis 2-seratis, linearibus, coriaceis, aequalibus. Receptaculum angustum, papillosum, nudum. Flosculi radii 9, pluriseriati, 3-10. Corolla tubulosa, elongata, 3-4-fida, stylo longe exserto bifido; disci 3, pauci, tubo superne subcampanulato 4-fido; staminibus 4; antheris ecandatis; stylo exserto, antheris incrassato brevissime bifido. Pappus 0.

Achenium fl. 9 lineari- v. obovato-oblongum, 3-4-gonium, angulis incrassatis, fl. 9 breve, stipitiforme.

Herba alpinae et Anarctice, cespitose, globerrime v. puberula, subcoriaceae; folii alternis, linearibus, spatulatis; capitulis breve pedunculatis; floribus inconspicuis.

This genus, which inhabits the Victoria Alps, the mountains of New Zealand, and Lord Auckland's Island, is very closely allied to Abrotanella of Fuegia, and Seleroleima of Tasmania.—Small, tufted herbs, often forming broad patches on the ground. Leaves crowded, alternate, linear or spatulate, entire. Capitula on terminal peduncles, or sessile amongst the uppermost leaves, oblong. Involucre of two series of linear, erect, coriaceous scales. Florets all tubular, outer female in several series, with a cylindrical, narrow, three- or four-toothed corolla; style thick, exserted, bifid, with rounded, glabrous apices to the lobes, and a tuberous base. Male florets fewer, subcampanulate above, quadrifid; stamens four, anthers hardly cohering, style rather incrassated at the top, obscurely two-lobed. Achenium with three or four thickened angles. Pappus none. (Name from τρις, three, and νεῦρον, a nerve; in allusion to the three transparent nerves of the involucral scales.)

1. Trineuron scapigerum (Muell. in Trans. Phil. Soc. Vict. 1857, p. 70); erectum, puberulum; folii lanceolatis lineari-spathulatis acutis, capitulis confractis.

Hab. Mount Lapeyrouse, Oldfield and Stuart (Mueller).

Stems 2-4 inches high. Leaves puberulous, linear, spatulate or lanceolate, acute, 3-1 inch long. Peduncle or flowering stem 2 inches high. Capitula about 3 inch long, subcorymbose; scales of the involucres with three transparent nerves; flowers all quadrifid.—Muell.

(Page 197.) Craspedia macrocephala, Hook., and C. alpina, Back., are confidently referred to C. Richia, Cass., by Archer.

(Page 217.) Gnaphalium alpigenum, Muell.

Mr. Archer agrees with me in thinking this an alpine form of G. collinum, Lab. He has found on the Western Mountains a very distinct-looking variety of it, growing prostrate, with the leaves uniformly clothed with silvery wool on both surfaces, and one or (rarely) two capitula. This is the G. involucratum, var. radicans, and var. macrocephalum, Muell., who discovered it on the Australian Alps at elevations of 5-6000 feet. His specimens, when old, become scapigerous, the solitary caputula being borne on an elongated, slender, erect stem. To Archer and myself it appears more referable to G. collinum or alpigenum than to involucratum.

G. collinum, var. macrocephalum; parvulum, foliiis confractis undique appresse argenteo-lanatis, capitulis solitariis sessilibus v. post anthesin pedunculatis.—G. involucratum, var. macrocephalum et radicans, Muell.

Hab. Western Mountains, Archer.

The involucral scales are more numerous and in more series in this than in G. alpigenum, but the plants are otherwise very similar, and all approach states of G. involucratum very closely.
ADDITIONS, CORRECTIONS, ETC.

(Page 224.) To Senecio add—

§ 4. Stems none. Leaves all radical.

10. Senecio primulefolius (Muell. Trans. Phil. Soc. Vict. 1855, p. 69); perennial; caule simplici basi sericeo-tomentoso, folii radicalibus confleris petiolatis ovato-cordatis obtusis repandis subtus v. utrinque aranosis, caulino amplexicauli dentato, pedicellis 2–3 lanuginosis 1-bracteatit, involucro late campanulato, foliolis lineari-lanceolatis apice barbatis, ligulis magnis, acheniis glabris pappo ter brevioribus.

Hab. Mount La Peyruse, Oldfield and Stuart (Mueller).

A scapeigerous species, covered loosely with cobwebby wool. Leaves petioled, oblong, rounded at the apex, cordate at the base, about 1 inch long, glabrous above. Scape, in the only specimen I have seen (from Mueller), 6 inches long, with one large, sessile, auriculate, toothed bracteal leaf, bearing two capsula, neither of them expanded.

11. Senecio papillosus (Muell. l.c.); perennial; caule simplici unifloro pubescente basi dense pilosus, folii radicalibus confleris ovato-spathulatis integerrimis in petiolum angustatis superne papillis asperis subpilosis, caulinis anguste lanceolatiis, pedunculo apice bracteatit, involucri hemisphaerici foliolis sub-20 lineari-lanceolatis apice spahcetatis et barbatis, ligulis magnis, acheniis glabris.

Hab. Mount Lapeyrouse, Oldfield and Stuart (Mueller).

A robust, scapeigerous species, of which I have two specimens from Mueller. Leaves crowded, small for the size of the plant, 3–4 of an inch long, spathulate, rather coriaceous, entire, with revolute margins covered with soft setae that spring from a rigid, tubercular base. Under-surface and scape with longer, scattered, white hairs, and abundantly clothed above with woolly, glandular hairs. Scape 8 inches high, stout, with a few small linear bracts. Capitulum solitary, 1 inch broad.

(Page 240.) Gaultheria antipoda, Forst., γ, is also found on Mount Lapeyrouse by Oldfield.

(Page 244.) Stenanthera pinifolia, Br.

Hab. Bruni Island, Oldfield.

(Page 245.) Cyathodes macrantha, Hook. fil., is considered to be a variety of C. straminea by Archer.

(Page 247.) Cyathodes abietina, Br.

At Southport, growing only 1–1½ feet high, Stuart (Mueller in lit.).

(Page 248.) Lissanthe daphnoides, Br.—Pillwater, Oldfield.

(Page 249.) Leucopogon affinis, Br.

Mueller informs me that this is a very distinct species, differing in its red, compressed, bilocular drupe. It extends northwards to Moreton Bay.

(Page 251.) Leucopogon ciliatus, A. C.

Mueller confirms my suggestion, by referring this to L. collinus, Br.

(Page 253.) Decaspora.

Mueller modifies the generic character thus:—"Calyx 2-pluri-bracteolatus. Corolla limbus glaber v. barbatu. Bacca 5–12-pyrena."

(Page 254.) Decaspora Gunnii, Hook. fil.—Mount Lapeyrouse, Oldfield.

(Page 255.) Pentachondra involucrata, Hook. fil.—Mount Lapeyrouse, Oldfield.
ADDITIONS, CORRECTIONS, ETC.

"Calyce corollæ tubo sequante."—Muell.

(Page 256.) Epacris Gunnii, Hook. fil.
Mueller refers this to E. microphylla, Br., a native of Australia from Moreton Bay to Victoria, but I cannot think these plants the same.

(Page 257.) Epacris cerasifera, Grah., and E. ruscifolia.
Mueller and Archer both refer these to E. impressa, Lab.

(Page 258.) Epacris lanuginosa, Lab., and E. mucronulata, Br., are both referred by Mueller to E. heteronema, Lab.

(Page 260.) Epacris serpyllifolia, Br., becomes a twiggy shrub, 3 feet high, on Mount Wellington, Oldfield.
Archer refers this, E. exserta, Br.; and E. virgata, Hook. fil., to E. myrtifolia, Lab.

(Page 262.) Prionotes cerinthoides, Br.
At Southport and on Mount Lapeyrouse this attains a great height, by rooting in the bark of trees, Stuart.—I am disposed to refer the genus to Ericæa proper.

(Page 263.) Archeria hirtella, Hook. fil.
Hab. Mount Lapeyrouse, Oldfield.
Archeria eriocarpa, Hook. fil.
Mueller considers this to be a variety of hirtella, I think, erroneously.
Archeria minor, Hook. fil.
Undoubtedly a variety of A. serpyllifolia, Hook. fil., which is found on Mount Lapeyrouse, Oldfield.

(Page 264.) Sprengelia. Mueller thus modifies the generic character:—"Petala basi connata, demum soluta."
Archer refers S. propinqua, A. C., and S. montana, Br., to forms of S. incarnata, Sm.
Sprengelia propinqua, A. Cunn. Mount Lapeyrouse and Western Mountains, Oldfield.—Caulis 8–10-pedalis, Mueller.
β. demissa (Muell. Fragment. Phyt. p. 39); parvula, prostrata; folii minoribus sensim acuminatis, floribus setis solitariis, Mueller.
Hab. Summit of Mount Lapeyrouse, Oldfield.

(Page 265.) Cystanthe. Mueller (Fragment. Phyt. p. 37) includes Pilitis as a section of this genus, and adds a third section and new species:—

§ Lobanthera. Antheræ longitudinaliter a medio ad apicem dehiscentes, hine bilobæ. Squamæ hypogynæ 0.

2. Cystanthe procera (Mueller, l. c.); folii demum recurvo-patentibus angusto-lanceolatis, adultis ovato-lanceolatis, omnibus sensim longe aristatis, corollæ cono fere triplo longiore quam lato, filamentis crassiusculis.
Hab. Plains of Southport, Oldfield.
A tree 20–30 feet high. Leaves nearly 1 inch long, with scabrous margins. Fruit unknown.

(Page 267.) Richen dracophylla, Br.
Mueller considers that this is not the plant figured by Guillemin. Add to habitats—various places in the southern parts of the island, Oldfield.
(Page 267.) Richea scoparia, Hook. fil.
Mueller considers this to be the R. dracophylla of Guill., l. c. (not of Brown), and adds that it attains 20 feet in height.

(Page 278.)—

Gen. XVIII. DRACOPHYLLUM.

Calyx 5-phyllus, bracteatus. Corolla tubuloso-infundibuliformis; loborum apicibus incurvis, imberbis. Stamina 5, hypogyna v. corolla inserta. Squama hypogynae 5. Ovarium 5-loculare; ovulis columnae centralis pendulae affixis. Capsula loculicidal 5-locularis.—Arbores, frutices, suffruticesse; ramis cicatricatis, annulatis; foliis linearibus gramineis, basi vaginatis; floribus solitariis, racemosis, paniculatis spicatis.

A very fine genus, abundant in New Zealand, rarer in Australia and Tasmania; one species is found in New Caledonia.—Trees or shrubs, sometimes very small. Branches with annulate scars from the sheathing bases of the deciduous leaves. Flowers racemose or spicate, rarely panicled, pedicelled. Pedicels bracteate. Calyx of five leaves. Corolla broadly tubular. Filaments free or attached to the corolla. Hypogynous scales five. Ovary five-celled, with pendulous placenta. Capsule dry, five-valved. (Name from δρακός, a dragon, and φύλλον, a leaf; from the analogy of the foliage with that of Dracena.)

1. Dracophyllum Milligani (Hook. Ic. Pl. t. 845); subcaule; foliis coriaceis rigidis subulatis superne concavis falcato-secundis apice incurvis tortisve spicam superantibus margine asperrulis, pedunculo pubescente, spicis brevibus in spicam anemiformem longe bracteatam confertis, staminibus hypogynis, squamis hypogynis brevibus.—Gunn, 2051.


Whole plant apparently forming a low, rigid, tufted shrub, a foot high, branching from the very base. Leaves densely crowded, a span to 10 inches long, very rigid, subsecund, gradually tapering from a broad sheathing base to an incurved or twisted tip, concave on the back, convex in front; margins rough. Peduncle bearing a crowded mass of flowers, towards its summit sometimes 1½ foot long, formed of short sessile spikes, subtended by long leafy bracts. Flowers small, white?—The inflorescence of this is similar in structure to that of Richea dracophylla, Br.


Hab. Mount Lapeyrouse, growing amongst masses of Pterygopappus, Oldfield (Mueller).

I am indebted for the means of describing this remarkable little plant to Mueller. It differs conspicuously from the D. Milligani in its adnate filaments, in this respect resembling the New Zealand species.—A minute plant, 1–2 inches high. Leaves about 2 lines long, with broad cordate bases and sharp trigonous apices. Flower solitary, sessile amongst the upper leaves, very small; corolla 2 lines long.


Hab. Saline pastures, Georgetown (Mueller).

Distrib. Victoria: Port Phillip to Port Fairy.

Distinguished from S. ovata, Br., to which in habit it is very similar, by the shorter, broader, blunter leaves, white flower, and especially by the broader sepals.
ADDITIONS, CORRECTIONS, ETC.

(Page 271.) Gentiana montana, Forst., and β G. Diemensis.

Mueller says that these are different species; G. montana is annual, rarely biennial, flowers first, and has smaller flowers; and that G. Diemensis, Griseb., is perennial, has larger flowers, produced later, and is always very alpine.

(Page 272.) 2. Villarsia exigua, (Limnanthemum, Muell. Fragn. Phyt. p. 40); glabra; foliis minutis ovatis indistincte venosis, pedunculis solitariis paucis, calycis 5-fidi dentibus lanceolato-deltoidis, corolla calycem paulo superante flava lobis integerrimis, stylo brevi, capsula basi calyce adnata.

HAB. Salt-marshes, at Southport, Oldfield (Mueller).

Mueller describes this as a small, stoloniferous, floating herb, with ovate or rounded leaves 2–6 lines long. Peduncles as long as the petioles or shorter. Calyx scarcely 2 lines long. Petals naked. Capsule ovate, adnate with the calyx below.—Allied to V. capitata, Nees, of Swan River, and V. minima of tropical Australia (Mueller).

Liparophyllum.

Mueller reduces this to a section of Limnanthemum, Gmel. (Villarsia, Vent.), and I have no doubt correctly, and it may hence bear the name of V. or L. Gunnii.


HAB. Western Mountains, Archer.

A small, densely tufted species, allied to M. montana, Hook. fil., and precisely like it in the structure of the calyx, which appears to consist of only the two inner, small, ovate-lanceolate segments, the two outer being altogether like the leaves, and connate into a tube at the base.—A minute, glabrous, tufted herb. Stems ½–1½ inch high, with imbricating, glossy, coriaceous, almost cartilaginous, linear-oblong, subacute leaves, which have pale edges and a very few cilia at the margin, near their connate bases, ½–1½ inch long. Flower sessile, solitary. Corolla short, four-cleft to the middle; lobes ovate, acute. Stamens inserted just within the throat. Capsule with broadly diverging lobes exactly as in M. montana.

(Page 278.) Cuscuta australis, Br.

Engelmann considers the Tasmanian plant to be distinct and very remarkable on account of its almost funnel-shaped stigma. It, however, agrees perfectly with Brown's character of C. australis, except in the scales reaching halfway up the filaments. The styles are very long; the stigmas large, obscurely bilobed, and the calyx-lobes narrower than in another Australian species called C. australis by Mueller (east coast, tropical Australia, D. Moore, and Goulburn River, Victoria, Muell), and which is referred by Engelmann to a var. (squamis vix utilis) of the South American C. obtusiflora, H.B.K. My New Zealand C. densiflora is considered by Engelmann to be scarcely distinct from the C. racemosa of S. America; it has broad sepals, very large fimbriated scales rising a little above the bases of the filaments, and capitate, obscurely four-lobed stigmas. The whole genus appears to me to be in confusion.

(Page 280.) Cynoglossum suaveolens, Br., referred to in the observations under C. austrole, Br., has been confounded by me with that plant from having been accidently mixed in Gunn's collections. Their diagnoses (well given by Brown) are as follows:

1. Cynoglossum austrole (Br. Prod. p. 495); racemis ebracteatis, folii omnibus lanceolatis.

HAB. Abundant in dry pastures throughout the Island, Gunn, etc. (v. v.)

DISTRIB. New South Wales and Victoria.

2. Cynoglossum suaveolens (Br. l.c.); racemis bracteatis, folii superioribus basi lato-rubis.

HAB. Abundant in dry soil, Gunn, etc. (v. v.)
ADDITIONS, CORRECTIONS, ETC.

DISTRI. New South Wales, Victoria, and Swan River.

Of these species C. suaveolens is generally, but not always smaller, has bracts at the base of the pedicel of each flower, and smaller yellowish flowers smelling strongly of storax; the flowers of C. australis are blue and inodorous.

(Page 281.) Mentha gracilis, Br., is considered by Archer to be a form of M. australis, Br.

(Page 284.) 4. Prostanthera cuneata, Benth.

Mueller tells me this is the P. retusa, Br. Prod. p. 509, which name it should bear.

(Page 285.) Westringia angustifolia, Br., is very different from W. eremicola, A. C. (Mueller).

(Page 288.) Solanum aviculare, Forst.

Berries oblong, yellow.—Mueller remarks that the plant which I have described under this name is certainly Forster’s, and is Brown’s S. laciniatum; but that his S. vesicum, which Oldfield assures him is not found in Tasmania, is a very different plant, has invariably large, green, eatable berries, and is the “Gunyang” of the aborigines. Mueller also thinks that the figure of S. laciniatum, Bot. Mag. t. 349, is his S. vesicum.

(Page 289.) Anthocercis Tasmanica, Hook. fil. For Tab. LXXXVIII. A. put XCII.

It is very nearly allied to, if not identical with, A. albicans, A. Cunn. (Sweet, Fl. Aust. t. 16).

(Page 291.) Gratiola pubescens, Br.

Mueller informs me that this is found in various parts of Tasmania, and I have excellent specimens from Archer, who suggests the possibility of all the three described Gratiola proving forms of one.

(Page 296.) Euphrasia alpina, Br., collina, Br., and multicaulis, Benth., are, according to Archer, forms of one species.

(Page 297.) Euphrasia cuspidata, Hook. fil.

Hab. Mount Lapeyrouse, Oldfield. Western Mountains, Archer.

(Page 304.) Plantago Brownii, Rap.

Mueller has found a plant very closely resembling this on the Australian Alps, and called it P. stellata, with a query as to whether it may not be a variety of P. Brownii.

(Page 310.) Trichinium spatulatum, Br.

Mueller observes that he has never found all the stamens to be fertile in this genus as represented in Tab. XCIV.

(Page 318.) Cassytha pubescens, Br.

Berry spherical, green (Mueller). C. glabella, Br.—Berry often red (Mueller).

(Page 321.) Persoonia Gunnii, Hook. fil.

Berry dull-red (Mueller).

(Page 323.) Grevillea Stuartii, Meisn., is a var. of G. australis, Br. (Mueller).

(Page 325.) Hakea lissosperma, Br., attains a height of 30 feet, Archer.

(Page 329.) Lomatia polymorpha, Br.

Mueller informs me that he was in error in supposing this to be a native of Victoria.

(Page 330.) Drapetes Tasmanica, Hook. fil.

Hab. Summit of Mount Lapeyrouse, Oldfield.

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Meisner, DC. Prod. xiv. p. 566, makes of this and the Borneo species a new genus *Daphnobryon*, removing it to another tribe of the Order from the Fuegian species, whilst the New Zealand species is placed in a third genus—*Kelleria*.

(Page 331.) Pimelea *drupacea*, Lab., *Gunnii*, Hook. fil., and *cinerea*, Br., are considered by Archer as possibly forms of one species.

(Page 333.) Pimelea *curnua*, Br., and *linifolia*, Ser.

Archer agrees with me in thinking that these may be referable to one species, to which Mueller adds *P. Lindleyana*, Meisn. in DC. Prod. xiv. p. 499.

Since the printing of the Pimeleas in the *Tasmanian Flora,* I have received Dr. Meisner's monograph of *Thymeolea* in De Candolle's *Prodromus,* vol. xiv.; he describes the following as Tasmanian species:

1. *P. curnua*, Br.,—the same as *linifolia*, Ser. (v. supra).
2. *P. nutans*, Meisn., Gunn, n. 623,—the same as *curnua* and *linifolia*, distinguished by Meisner by the always nodding heads, smaller sparingly pubescent calyx, and exserted style.
3. *P. Lindleyana*, Meisn.,—referred by Mueller to *curnua*, and probably correctly.
17. *P. pauciflora*, Br. (p. 335).

(Page 336.) *Exocarpus humifusa*, Br.

Probably a small state of *E. cupressiformis*, Lab., and scarcely distinguished from *E. Bidwilli*, Hook. fil., of New Zealand, and *E. Gaudichaudii*, A. DC., of the Sandwich Islands, of which I have examined a specimen gathered by Menzies in 1792: this latter I had referred to *E. humifusa* before the publication of the *Santalaceae* by A. De Candolle, who notes its resemblance to the New Zealand plant.

(Page 337.) 2. *Leptomeria glomerata* (Muell.); ramulis robustis, floribus glomeratis, glomerulis sessilibus, perianthio 4–5-fido.

HAB. Southport, Stuart. Police Point, Huon River, Oldfield.

A more robust species than *L. Billardieri*, easily distinguished by the sessile glomeruli of 3–4 flowers.

*Leptomeria Billardieri*, Br.

This has a 4–5-cleft perianth, which is often glabrous internally, but has occasionally a few minute hairs on the anterior face of the segments above the stamens. I have specimens from the Huon, collected by Oldfield, infested
with the same coccus as the var. β. The differences between \( L. \text{acida} \), Br., and \( L. \text{Billardieri} \), Br., its var. β with shorter fewer-flowered spikes, and \( L. \text{glomerata} \), seem to be mainly of degree only.

Var. β has shorter spikes and is intermediate between \( L. \text{glomerata} \) and \( L. \text{Billardieri} \).

Alphonse De Candolle, Prod. xiv. p. 681, states that he has seen specimens of \( \text{Omphacomeria psiloides} \), A. DC., from Tasmania, sent to Vienna under n. 541 of Gunn. The genus \( \text{Omphacomeria} \) coincides with Brown’s second section of \( \text{Leptomeria} \), which includes \( L. \text{acerba} \) (\( O. \text{acerba} \), A. DC.), a plant not hitherto found in Tasmania.

(Page 339.) Beyeria oblongifolia, Hook. fil., and \( B. \text{backhousii} \), Hook. fil.

Oldfield and Mueller both consider that there is but one Tasmanian species, and that the \( B. \text{viscosa} \) (\( \text{Croton viscosum} \), Lab.).

\( \beta \) major; foliis subuncialis basi cuneatis. Coal River Tier, Oldfield.

(Page 346.) \( B. \text{rosmarinifolia} \), Planch., is \( \text{Ricinocarpus Tasmanicus} \), Sond. and Muell. in Linnaea, 1856, p. 582.

(Page 344.) \( \text{Parietaria debilis} \), Forst.

Weddell (Monog. Urt. 517) considers the Levant and Portugal plant which I had referred to this, to be \( P. \text{Lusitanica} \), L., but adds many other tropical and temperate extra-European localities.

(Page 345.) \( \text{Australina pusilla} \), Gaud.; a minor. Southport and base of Quamby’s Bluff, Oldfield.

\( \beta \) major; foliis subuncialis basi cuneatis. Coal River Tier, Oldfield.

(Page 358.) \( \text{Microcachrys Tasmanica} \), Hook. fil.

Hab. Mount Lapeyrouse, Oldfield.

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MONOCOTYLEDONES.

(Page 3.) Alter the number of the genus \( \text{Thelymitra} \) to XVI., and of the succeeding genera accordingly.

(Page 12.) \( \text{Prasophyllum alpinum} \), Br.

Posterior sepals always united below the middle, Archer.

(Page 13.) \( \text{Prasophyllum brachystachyum} \), Lindl., and \( \text{nudiscapum} \), Hook. fil., are natives of Victoria.

(Page 14.) Alter the numbering of \( \text{Calochilus} \) to IV., and of the following genera accordingly.

(Page 17.) \( \text{Burnettia cuneata} \), Lindl., has been found at Oyster Cove by Dr. Milligan (Mueller).

(Page 18.) After \( \text{Calceana major} \) add—


Hab. Near Hobarton, Gunn. (Fl. Dec.)

Distrib. New South Wales and Victoria.

A much smaller plant than \( C. \text{major} \), with a narrower leaf, ebracteate scape, smaller flower, with tuberculate lamina of the lip.
ADDITIONS, CORRECTIONS, ETC.

Pterostylis pedunculata, Br., and P. nana, Br.

Archer considers that the figures A and B of Plate CXIV. are reversed; A being P. nana, and B pedunculata. Neither are good; but A certainly belongs to P. pedunculata, though the leaves should be more oblong and petiolated. B is perhaps the Australian P. concinna, Br., a larger plant than P. nana, but otherwise very near it.

Pterostylis obtusa, Br., often bears withered radical leaves on the flowering scape (Archer).

Page 21.) Line 4—for B. put A.

Chiloglottis Gunnii, Lindl., has been found in Victoria by Mueller.

Microtis rara, Br., is, as Dr. Lindley informs me, found in New Zealand (M. porrifolia, Spr.), Java, New Caledonia, and the Island of Bonin.—On re-examining the Tasmanian and Australian species of Microtis with the descriptions and drawings of this work, I find them to be inextricably confused, and do not see how to discriminate them.

Add—

3. Acianthus viridis (Hook. fil.); floribus 1-3, sepalo dorsali fornicato ovato-lanceolato oblongo-lanceolatis obtusis muticis, petalis brevissimis, labello trapezoideo obtuso.


This very distinct little plant was sent to me by Mr. Gunn in a letter, and, like the Calceana minor, arrived only as this sheet was passing through the press. It is of the same size as, and a good deal like, A. exsertus, but at once distinguished by its fewer flowers, green colour, blunt sepals, the lateral of which are recurved, minute petals, and very broad trapezoid labellum. The solitary leaf has undulated, almost crenate or sinuate margins.

Caladenia Patersoni, Br.

I omitted quoting Lindley, Gen. et Sp. Orch. p. 422.—Sweet-scented. Archer has Lindley's variety β, in which the glands are always in four rows only.

Caladenia pallida, Lindl.

Archer is doubtful as to this being distinct from C. Patersoni, and, with justice, quotes the figures of this work in corroboration. Mueller, on the other hand, considers all the species of the second section to be forms of one.

Caladenia barbata, Lindl.

Archer remarks that the old and young tubers are enclosed in a common tunic, as in Glossodia major.

Caladenia alata, Br.

Archer remarks that Brown's plant is described as having the glands biseriate, and that it has a musky odour.

Dipodium punctatum, Br. (Tab. CXXVII.)

By an unfortunate oversight the colouring of this Plate is very incomplete and inaccurate. It is well represented in the works quoted after the diagnosis,—Smith's 'Exotic Botany' and Lindley's 'Botanical Register,' and (as there represented) the scape should be washed over with a pale brown, leaving hardly a trace of green, and the flowers should be spotted.

Gunnia australis, Lindl., has been found at Cape Otway, Victoria, by Mueller, who reduces the genus to Sarcochilus (S. Barkleyanus, Fragment. Phyt.).

Add—

Gen. XXI. DENDROBIUM, L.

Perianthii foliola membranacea, patentia. Sepala lateralia majora, obliqua, cum pede columnae connata. Labellum sessile, cum pede columnae articulatum v. connatum. Columna semiteres, basi longe
ADDITIONS, CORRECTIONS, ETC.

ADDITIONS, CORRECTIONS, ET C.

Anthem 2-locularis. Pollinia 4, per paria collateralia.—Herbe caulescentes, epiphytica, habitu varie; caulibus elongatis, articulatis v. in pseudobulbos densinentibus; foliis coriaceis membranaceae, cum caule articulatis.

A very extensive Indian and Pacific Island genus, of which several species inhabit the east coast of Australia. —Stems generally rigid and tufted, long or short and swollen. Flowers often large and beautiful, small in the Tasmanian species. Sepals three, rather membraneous, the lateral largest, connate with the base of the column. Lip articulate or connate with the base of the column, which is produced at the base. Anther two-celled, with four pollen-masses. (Name from δαυδων, a tree, and βος; life, in allusion to the epiphytic habit.)

1. Dendrobium Milligani (Mueller, Fragm. Phyt. p. 88); caulibus radicantibus ramosis cylindraceis, vaginis membranaceis demum lacereis, foliis subulato-filiformibus browsculis, pediculis oppositifoliiis 1-floris, labelli 3-carinati lobo medio subovato acutiusculo apicem versus crispato lateralibus brevissimis obtusis.—Descript. e el. Muell. excerpt.

Hab. Strzelecki’s Peak, Flinders Island, alt. 3000 feet; and on granite rocks on Freycinet’s Peninsula, Milligan.

I am indebted to Dr. Mueller for specimens of this curious and very interesting plant, but they are in too imperfect a state for a satisfactory description; it is a small species, with alternate subulate leaves 1–3 inches long, and tufted fibrous roots.—Flowers small, yellowish, solitary, opposite the leaves.

2. Dendrobium, sp.?

Mr. Gunn has sent me a little fragment of a second species of this genus, gathered on the east coast, also by Dr. Milligan, which Dr. Lindley informs me is quite new, and allied to the D. Milligani.

(Page 34.) Add—

2. Patersonia longiscapa (Sweet, Austral. t. 39); scapo foliis longiore apice incrassato, spatha non striata, tubo perianthii piloso.—P. glauca, Bot. Mag. t. 2677, non Br.

Hab. Tasmania, Archer.

Distr. Victoria.

A very distinct species, though similar at first sight to P. glauca. I am indebted to Mr. Archer for drawing my attention to it in his herbarium: it does not occur in Gunn’s (whose specimens I have again examined in the vain endeavour to find more than one species amongst them). P. longiscapa is easily recognized by the scape longer than the leaves, and thickened below the spatha; by the spatha not being striate, and by the pilose tube of the corolla. The stigma appears to be erect. The quotation of the Bot. Mag. t. 2677, under P. glauca, should be cancelled.

(Page 34.) Libertia Lawrencei, Hook. fil., has been found in Victoria.

(Page 43.) Zannichellia palustris, L.

This is certainly the Z. Preissii, which I have doubtfully quoted, and differs from the ordinary forms of Z. palustris in the longer, slender style, even back of the carpel, and apparently six-celled anthers. The carpels and style, however, vary extremely in European specimens of Z. palustris, and I suspect that most of the so-called species of this genus will ultimately be reduced to that plant.

(Page 47.) Hewardia Tasmanica, Hook., has been found on Mount Lapeyrouse by Oldfield.

(Page 49.) Drymophila cyanocarpa, Br., has been found in Victoria by Mueller.

(Page 53.) Add—

4. Caesia? alpina (Hook. fil.); foliis anguste lineari-elongatis scapum brevem longe excudentibus, vol. ii. 5 c
floribus parvis spicatis suberectis paucis binis v. subfasciculatis flavis, pedicellis brevissimis infra florem articulatis, filamentis brevibus.

Hab. Western Mountains, Archer.

I am doubtful about the genus of this curious but insignificant little plant, which appears to differ from Casia in the perianth not being twisted after flowering.—Stem very slender, formed of the sheathing bases of the leaves, tufted, scarcely swollen at the base. Root of thick fibres. Leaves 2–3 from each stem, spreading, flaccid, 6–8 inches long, not ¼ inch broad, linear, quite flat. Scape ½–1 inch long, rather stout, curved, bearing 3–5 fascicles of two or more flowers, each fascicle subtended by a broadly ovate, membranaceous bract. Pedicels very short, ¼–½ lin. long; generally a flower and young fruit are together in each axil. Flower about ½ inch long; segments of the perianth linear-oblong, with three stout nerves united at the very base. Stamens short; filaments narrowed at both ends, their apices inserted under a small hood at the back of the anther below its middle. Anther broadly obovate-oblong; the valves somewhat recurved at their apices. Ovary of three unequal rounded lobes, each with two collateral ovules. Style two-thirds the length of the flower, minutely three-lobed at the apex.

(Page 59.) Laxmannia.

In the generic description I inadvertently omitted to mention the remarkable fact of a species of this genus being found in the Island of Timor. It is figured in Decaisne’s Herb. Timor. Descript.

(Page 68.) Luzula Oldfieldii, Hook. fil.

Mueller considers this to be a large state of L. campestris, L., in which opinion I can scarcely concur.

(Page 81.) Chatospora capillacea, Hook. fil., has a trëfïd style.

(Page 85.) Number the genus Eleocharis VII., and alter the succeeding genera accordingly.

(Page 90.) Add—

3. Scirpus lacustris (Linn.); culmo tereti aphylo, spiculis umbellatis paniculatis versus apicem culmi lateralibus ovatis, squamis late ovatis ciliatis trëfidis mucronatis, antheris apice appendiculatis, nuce trigona brevi obovata, setis 6 setulis reversis scabris.—Fl. N. Zeal. i. p. 269.

Hab. Marshy banks of rivers, and in still waters; probably common.

Distr. Abundant in all temperate and tropical regions.

A tall, leafless, marsh or water plant, the Bulrush of some parts of England, where it is extensively used for matting, thatching, and coopering.—Culms 2–8 feet high, rounded, sheathed at the base, spongy inside, Spikelets ovate, ½–¾ inch long, lateral, panicked or umbellate, sessile or peduncled. Scales broadly ovate, bluntly trëfid, ciliated, mucronate. Nut short, tricionous, with a 2–3-forked style. Bristles six, reversely hispid.


Mueller assures me that his Gahnia sulcata is a true Gahnia, having elongated filaments which retain the seed. It is a local species, growing also in South Australia.

(Page 105.) Microlea Gunnii, Hook. fil.

This species has no squamulae, the filaments being adnate to the base of the ovary; the generic character should be altered accordingly to “squamulae 2 v. 0.”

(Page 115.) Agrostis amula, Br., is considered by Mueller to be a variety of A. Billiardieri, Br.

(Page 116.) Agrostis contracta, Muell., has the lower palea sometimes shortly awned.

(Page 122.) Danthonia Archeri, Hook. fil.,—for Tab. CLXXXII., put CLXIII.
ADDITIONS, CORRECTIONS, ETC. 375

CRYPTOGAMIA.

(Page 133.) Hymenophyllum unilaterale, Willd., is considered by Mueller to be a form of H. Tunbridgeanum, Sm.

(Page 136.) Cystopteris fragilis, Br., has been found on the mountains of the Middle Island of New Zealand by Dr. Sinclair.

(Page 141.) Lomaria Patersoni, Br., has been found near New Norfolk by Oldfield (Mueller).

(Page 145.) Asplenium Trichomanes, L., has been found by Dr. Sinclair in the same locality in New Zealand as Cystopteris fragilis, Br.

(Page 147.) Doodia caudata, Br.

In the 'New Zealand Flora,' I referred D. Kunthiana, Endl., and D. aspera, Br., to D. caudata, Br. I did so because A. Cunningham had described them all as New Zealand plants. Sir W. Hooker, in revising this genus for the 'Species Filicum,' finds that Cunningham's New Zealand aspera and Kunthiana are not the plants of Endlicher and Brown, but mere varieties of D. caudata. These synonyms should therefore be omitted in the Tasmanian and New Zealand Floras. It is even doubtful whether the New Zealand D. caudata is the same as the Tasmanian.

(Page 152.) Schizsea bifida, Sw., and S. fistulosa, Lab., are different species, as has been pointed out to me by Mueller, and may be thus characterized:—

1. Schizsea bifida (Sw. Fil. 151); fronde antice late concava simplici v. divisa asperula, appendicibus ascendentibus elongatis, involucris crinitis.—Br. Prod. 162. S. dichotoma, Sw., var. bifida, Mueller.

Hab. Tasmania, Brown.

Distrib. Tropical and temperate Australia, New Zealand, Asia, and America.

Mueller (probably correctly) considers this a variety of the common tropical S. dichotoma, which has a broader, flabellately-divided frond.

2. Schizsea fistulosa (Lab. Fl. Nov. Holl. ii. 103. t. 250. f. 3); fronde teretiuscula antice sulcata simplici leviuscula, appendicibus brevibus, involucris fimbriato-laceris.—Br. Prod. 162. S. australis, Gaud.

Hab. Sandy plains; not uncommon, Gunn, etc. (v. v.)

Distrib. Temperate Australia, New Zealand, Lord Auckland's Island, Tropical America.

Distinguished from S. bifida by the terete frond, grooved (not concave) in front, and the much shorter lobes that are not so erect.

(Page 155.) Lycopodium variunum, Br., and L. Selago, L.

Mueller pronounces these to be assuredly forms of the same.

(Page 158.)—


Hab. South Esk River and other places in the southern parts of the island (Mueller).

Distrib. Victoria, Mueller, and Swan River, Preiss, Drummond, etc.

Distinguished from S. uliginosa by the smaller size, more flaccid habit, and frond divided at the very base only, not bifariously or dichotomously branched.
ADDITIONS, CORRECTIONS, ETC.

(Page 158.) *Isoetes, sp.?*

This may be a plant which Professor Braun has described as *Isoetes humilior*, Muell., of Victoria (Linnaea, vol. xxv. p. 722), and which Mueller informs me grows in the lowland waters of Tasmania, and of which his *I. elatio* is probably a variety. Both seem too closely allied to *I. lacustris*, L.

(Page 159.) *Pilularia globulifera*, L.

Professor Braun has described a *P. Nova-Hollandia* from Australia, to which this may be referable, but Dr. Valentine, who made a complete study of the British species (and published an admirable account of *P. globulifera* in the Linnean Transactions), assured Mr. Archer that the Tasmanian species differed in no particular from the English.

Various Tasmanian and Australian *Characeae* are described by Braun in the Linnaea, xxv. p. 704.

(Page 170.) After *D. angustifolium* insert—


*Hab.* Rocks behind Cumming’s Head, Western Mountains, Archer. Found also in Fuegia and the Australian Alps.

(Page 176.) In place of *Tortula minioides?*, read—

*Streptopogon minioides*, Mitten.

Fertile plants of this curious Moss, gathered in Chili by Leecher, have the calyptra large and mitriform; in other respects they agree well with Schwägerlichen’s figure. The cylindrical capsule is supported on a seta about one-third of an inch long; the peristome is that of *Tortula*. This species is very closely allied to *S. erythrodon*, found in Peru by Professor Jameson.

(Page 184.)—

6. *Macrocarpium asperulum* (Mitten); dioicum, *M. Archeri* statura simile; caule elongato repente, ramis brevibus cespitem densum formante, foliis densis patentibus siccitate incurvatis angustis, inferioribus e basi anguste elliptica paululo latiore lorum-formi-ligulatis spicis obtusis, superioribus acutioribus acutatis nervo in apiculo brevissimico excurrente carinatis, marginibus ob papillarum prominentiam ubique asperulis, cellulis basi pro spatio brevi latitudinem folii paululum excedente elongatis angustis inde ad apicem quadrato-rotundatis distinctis papillosis, perichaetialibus brevioribus sensim acutis, theca in pedunculo circiter trinarii ovali, collo sensim attenuato, ore intensorio colorato plicato, operculo conico-acuminato, calyptra nuda straminea, apicis fusco.

*Hab.* On trees, Lawrence and Gunn. Found also in New Zealand, near Wellington, Stephenson, and elsewhere, Knight and Lyall.

Whole plant of an intense ferruginous-brown colour, more densely cespitose than *M. Archeri*, with leaves of a different form and substance, as well as with erose margins. From *M. lingulare*, Mitten in Journ. Linn. Soc. ined., a New Zealand species, which has also a naked calyptra, it differs in its greater size, in the form of its leaves and of the cells of which they are at the base composed. There does not appear to be any peristome.

The Tasmanian examples of this species have been, in the Herbarium of Sir W. Hooker, referred to *M. microstomum*, Hook. et Grev., a rare Moss gathered also in New Zealand by Stephenson, but this last is in reality a totally different species, allied to *M. longipes*, Hook., and to *M. Reinwardtii*, Schw. This error appears to have arisen from the accidental sticking down on the same paper with the original a very small specimen of *M. microstomum* and of a small specimen of another species very nearly allied to *M. prorepens*, Hook., *M. erosulum*, Mitten in Journ. Linn. Soc. ined., having a pilose calyptra and the margins of its leaves erose. The *M. microstomum*, therefore, of the ‘Flora of New Zealand,’ is a compound of *M. asperulum* and *M. erosulum*, species closely related to *M. prorepens*, but with no near affinity to the original *M. microstomum*.
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