Enumeration of the Plants hitherto collected in Kerguelen Island by the "Antarctic," "Challenger," and "British Transit of Venus" Expeditions.

I.—*Flowering Plants, Ferns, Lycopodiaceæ, and Characeæ.*

By J. D. Hooker, P.R.S.

1. **Ranunculus crassipes,** *Hook. f. Fl. Antarct.* 224, t. 81.

Christmas Harbour, Observatory and Swain's Bay, Royal Sound (a form with petioles 5–7 inches long).

I have nothing to add to what I have said of this species in the Antarctic Flora, beyond that I can hardly doubt its being a derivative form of the Fuegian *R. biternatus*, Sm., with which it agrees in habit and its thick-walled beaked carpels, but differs chiefly in its robustness and simple leaves. *R. biternatus* has been found by Moseley in Marion Island, where it presents every character of the American plant.

2. **Ranunculus trullifolius,** *Hook. f. Fl. Antarct.* 226, t. 82 A.

In streamlets and lakes, Royal Sound, Swain's Bay, Betsy Cove; *Moseley, Eaton, Kidder.* (Fuegia and the Falklands).

Glaberrimus, caulibus prostratis radicantibus. *Folia* longe crasse petiolata, obovato-oblonga trulliformia v. fere orbicularia, apice obtuse 3–5-dentata v. lobata, carnosula, nervis obscuris; auriculis petiolaribus membranaco-dilatatis. *Flores* ad nodos solitarii, brevissime pedicellati. *Sepala* 3, orbicularia, concava, membranacea. *Petala* 3, sepalis æquilonga, obovato-oblonga v. spathulata, 3-nervia, nervo medio medium versus fossa nectarifera instructo. *Stamina* pauca. *Carpella* numerosa; matura cuneiformia, compressa, dorso incrassata, stylo gracili subulato.

I described this species in the Flora Antarctica from very imperfect specimens gathered by myself in the Falklands in mid-winter, along with the very similar *R. hydrophilus*, Gaud., and from a careful examination of the remains of the only flower found, which resembled in petals, sepals, and stamens those of its neighbour, I supposed it to be closely allied to it. Good specimens gathered by Cunningham in the Straits of Magalhaens, and by Eaton in Kerguelen, prove that it belongs to another section of the genus, differing from *R. hydrophilus* in the usually trimerous perianth and the long style of the flattened ripe carpels. *R. trullifolius* is, in fact, referable to St. Hilaire's genus *Casalia* (now reduced to *Ranunculus*), and its nearest ally is *R. bonariensis*, Poiret (R. Kunthii *Trian.* and *Planch.*), which differs by its ovate crenate leaves, long-peduncled flowers, and absence of style in the ripe carpels. *R. hydrophilus*, again, is probably a form of *R. adscendens*, St. Hil. (*R. humilis*,

Collie, in Hook. Bot. Beech. Voy. p. 4, t. ii.), which has similar minute subglobose ripe carpels without a style.

R. monanthos, Philippi of Chili, and *R. hemignostus* Steud. of Peru, are probably forms of *R. trullifolius*, which, as our figure shows, is a very variable plant in foliage and structure.

The *Ranunculus*, sp. 3, not in flower, of Kidder (Bull. U. S. Nat. Mus. 3, 21), of which Gray says it can hardly be a form of *trullifolius*, no doubt is this, if, as I apprehend, the term *caudate* as applied to the leaves is a misprint for *cordate*.

PLATE I., Figs. 1–5.—Plants in different states; of *natural size;* 6, 7, reduced leaves and stipules; 8, sepal; 9, petal; 10 and 11, stamen; 12, immature, and 13, mature carpels:—all *enlarged*.

3. **Ranunculus Moseleyi,** *Hook. f.;* pusillus, glaberrimus, acaulis, foliis radicalibus, petiolo in laminam obovatam v. oblongam integerrimam dilatato, floribus solitariis pedunculatis minutis 3–4-meris, petalis lineari-obovatis obtusis eglandulosis, staminibus 4–7, carpellis 10–12 maturis oblique subglobosis in stylum brevem gracilem abrupte attenuatis.—Ranunculus an nov. sp.; *Oliver, in Journ. Linn. Soc.* XIV., 389.

In the lake at Christmas Harbour, *Moseley*.

A very diminutive species, resembling in size and habit *R. limoselloides*, Muell, of Australia, but differing in the carpels, &c. In the latter respect it more nearly approaches *R. crassipes*, from which it differs in all other respects. Its allies are, no doubt, to be found amongst the S. American water-loving species.

PLATE II., Fig. 1—1 and 2, plants of *natural size;* 3, leaf; 4, flower; 5, sepal; 6, petal; 7, stamen; 8, immature; and 9, mature carpel:—all *enlarged*.

4. **Pringlea antiscorbutica,** *Br. MSS.; Fl. Antarct.* 238, t. 90, 91; *Kidder in Bull. U. S. Nat. Mus., No.* 321; *Oliver in Journ. Linn. Soc.* XIV., 389; *Dyer in Proc. Linn. Soc.* 1874, xxxiv.; *Hook. f.* l. c.

Throughout the island.—(Marion, Crozets, and Heard Islands).

Sepala lineari-oblonga, obtusa, membranacea, pilosa. *Petala* 0 in exemplaribus perplurimis a nobis scrutatis, in paucis 1–4, unguiculata, apice roseo-tincta, inconspicua, caduca. *Stamina* 6, subæqualia, filamentis elongatis complanatis, 4 longioribus per paria sepalis anticis posticisque opposita; antheræ magnæ, lineari-oblongæ, virescentes; pollen sphericum. *Disci* glandulæ 0 v. valde inconspicuæ. *Ovarium* oblongum, hirsutum, 2-loculare, carpellis lateralibus; stylus brevis, validus, glaber, stigmate capitato obscure 2-lobo dense villoso.

In the Proceedings of the Linnæan Society 1874, p. xxxiv, I have indicated the evidence of *Pringlea* being a wind-fertilized member of a natural order most or all the species of which are insect-fertilized. These indications are the usual absence of petals and disk-glands, the exserted anthers and long-tufted papillæ of the stigma, to which is to be added the absence of winged insects in Kerguelen Island. In reference to the last statement, it is a curious fact that wingless flies abound in the

island, and on this very plant. Moseley, Journ. Linn. Soc. xv., 54, in his notes on Kerguelen botany, mentions an apterous fly as big as a blow-fly, nestling at the base of the leaves of *Pringlea* and laying its eggs in the fluid which is caught there; every cabbage yielding ten or a dozen specimens. He adds that he did not observe whether it climbs to the inflorescence in sunny weather.

Mr. A. W. Bennett, Proc. Linn. Soc. 1874, xxxix., has described the pollen of *Pringlea* as differing from that of nearly all other Crucifers in being much smaller and perfectly spherical, instead of ellipsoid with three furrows. This he considers to be a striking confirmation of my suggestion that the plant is wind-fertilized, and which is further confirmed by the total absence of hairs on the style.

Moseley found one plant with 28 flower-stalks, three of the one season growth, the others appearing to belong to eight preceding seasons.

It is a remarkable fact that all attempts to grow this plant in England, Scotland, and Ireland have failed; the young plants, after attaining a height of a few inches and a good crown of leaves, have invariably succumbed to the combined effects of summer's heat, and the attacks of the common parasite fungus, *Cystopus candidus*, which infests the *Capsella Bursa-pastoris*. Some few, out of many hundreds, sown at different seasons and under very varied conditions, survived one winter, but perished in the following summer.

PLATE II., Fig. 3.—1, 2, 3, apetalous flowers; 4, monopetalous, and 5, tripetalous flowers; 6, petal; 7, ovary; 8, the same laid open; 9, ovule:—all *enlarged*.

5. **Colobanthus kerguelensis,** *Hook. f. Fl. Antarct.* 249, t. 92.

Christmas Harbour, Swain's Bay, &c. (Heard Island, *Moseley*.)

(*Stellaria media L.*)

Introduced by sealers.

(*Cerastium triviale*, Link.)

Introduced by sealers.

6. **Lyallia kerguelensis,** *Hook. f. Fl. Antarct.* 548, *t.* 122; *Kidder in Bull. U.S. Nat. Mus., No.* 3., 22. *Oliver in Journ. Linn. Soc. XIV.* 390. *Dyer in Proc. Linn. Soc.* 1874, xxxiv.

Christmas Harbour and Royal Sound.

The flowers have been described from Kidder's specimens by Asa Gray, and from Moseley's by Oliver and Dyer, the descriptions agreeing well. The stamens, which appear to be almost constantly three and hypogynous, are stated by Oliver to be variable in position. Kidder retains it in *Portulaceæ*, but Bentham and I had long previously placed it in *Caryophylleæ* in the Genera Plantarum and next to *Pycnophyllum*, a position which the discovery of the flowers confirms. It has many of the characters of *Colobanthus*, especially the androecium.

PLATE II., Fig. 2.—1, plant, of *natural size;* 2, leaves; 3, flower and bract; 4, flower laid open; 5, stamen:—all *enlarged*.

7. **Montia fontana,** *L.*

Common in wet places. (Marion Island, *Moseley,* and widely distributed in the N. and S. temperate regions).

8. **Acæna affinis,** *Hook. f. Fl. Antarct.* 268, t. 96 B.

Common throughout the island. (Marion and the Crozet Islands).

Called Kerguelen's tea, and used as a febrifuge by whalers (Kidder).

Unlike the *Pringlea* and *Cotula,* this plant has grown and flowered at Kew from roots sent by Moseley.

9. **Callitriche verna,** L.; Subsp. *obtusangula.* C. obtusangula, *Le Gall.; Hegelm. Monog. Gatt. Callit.* 54. C. antarctica, *Engelm. ex Hegelm.* l. c.; *Kidder in Bull. U.S. Nat. Mus., No.* 3, 23. C. verna, *Hook. f. Fl. Antarct.* 272.

Common in wet places. (Marion and Heard Islands, *Moseley,* and widely distributed in the N. and S. temperate regions).

From a drawing of the ripe fruit which I made when in Kerguelen in 1840, I have no hesitation in referring this to Subspecies *obtusangula,* as Hegelmeyer did from his examination of my dried specimens. The fruit lobes are nearly semi-circular, and each pair is united by about two thirds of their faces. The free portions are obtusely trigonous at the back. Two forms are common in Kerguelen, as elsewhere in the south temperate zone, one aquatic with long stem and proportionally large spathulate leaves, the other smaller, terrestrial, suberect, with obovate or oblong leaves; this flowers the most abundantly.

10. **Tillæa moschata,** *D.C.* Bulliarda moschata, *D'Urv.*

Abundant in moist places near the sea. (Marion Island, *Moseley,* Crozets, *Kidder;* widely spread in high southern latitudes).

11. **Azorella Selago,** *Hook. f. Fl. Antarct.* 284, *t.* 99.

Very abundant throughout the island. (Marion and Heard Islands, Moseley; Crozets, Kidder; Fuegia; Mac Quarrie Island.)

Kidder remarks that the flowers are greenish yellow, not pale pink as I found them to be in winter. Also, that the leaves have not the bristles on the faces of the lobes as figured in the Flora Antarctica. I find them on specimens from all localities.

Moseley observes, in reference to this plant at Marion Island, that the mounds it forms evidently retain and store up a considerable amount of sun's heat, and that this fact probably explains its peculiar mode and form of growth, and that of many otherwise widely different Antarctic plants. He found that a thermometer plunged into the heart of a hummock rose to 50°, when the temperature of the air was 45°.

12. **Galium antarcticum,** *Hook f. Fl. Antarct.* 303 bis.

Common, but not found at Christmas Harbour. (Crozets, *Kidder;* Fuegia and Falkland Islands.)

Kidder remarks that the flowers are distinctly pedicelled, and as often 4- as 3-merous, and even 5-merous ones occur. Eaton's specimens confirm this.

13. **Cotula** (LEPTINELLA) **plumosa,** *Hook. f. Fl. Antarct.* 26 and 308, t. 20.

On cliffs, especially near the sea, often forming immense luxuriant blue-green patches where the soil is enriched by the dung of birds and seals. (Crozets, *Kidder;* Lord Auckland, Campbell's, and Mac Quarrie Islands.)

Reputed by the whalers to be a prompt and effectual emetic. Through a typographical omission of the word *not* at p. 308 of the Antarctic Flora, this plant is stated to be found on the continent of America. The genus *Leptinella* is reduced to a *Cotula* in the Genera Plantarum. This plant, like the *Pringlea*, proved so impatient of heat in this country, that of innumerable seedlings raised at Kew to several inches high all perished.

14. **Limosella aquatica,** *L.*

Common in the freshwater lagoon at Christmas Harbour. (Fuegia and all temperate regions.)

A very small form, with the leaf-blade hardly broader than the petiole. *Stamens* included. *Ovary* globose; style rather long.

15. **Juncus scheuzerioides,** *Gaud.; Hook. f. Flor. Antarct.*, 79, 358.

Common in spongy places. (Fuegia, the Falkland, Lord Auckland, and Campbell's Islands.)

16. **Uncinia compacta,** *Br.; Boott in Hook. f. Fl. Tasman*, ii. 103, t. 153 B.

Royal Sound and Observatory Bay, *Moseley, Eaton.* (Mountains of Tasmania and New Zealand.)

17. **Deschampsia antarctica,** *Hook. Ic. Pl. t.* 150 (Aira); *Hook. f. Fl. Antarct.* 377, *t.* 133.

Common and ascending to considerable altitudes. (Fuegia, Falkland Islands, South Shetlands.)

A true *Deschampsia*, as that genus is now defined, by its 4-toothed flowering glume and free caryopsis, *Munro.*

18. **Agrostis magellanica,** *Lamk.; Hook. f. Fl. Antarct.* 373. A. antarctica, *ibid.* 373, *t.* 132. A multicaulis, *ibid.* 95.

Common throughout the island. (Marion and Heard Islands, *Moseley;* Chili, Fuegia, Falkland, and Campbell's Islands.)

Since the publication of this plant as *A. antarctica*, I have examined a specimen of Lamarck's *A. magellanica* named by Nees in Arnott's Herbarium, and find it to be identical. Further, Munro informs me that it is fairly described by Trinius in his "Agrostideæ," and by Kunth in his supplemental volume (p. 175) from a Lamarckian specimen; he adds that the Kerguelen specimens agree with these descriptions, except in the flowering glume being larger and much longer than the ovary. This glume is sometimes obtuse or rounded, at others deeply divided. The beard on the callus, which is very indistinct on the Kerguelen's plant, is conspicuous on some Fuegian ones.

19. **Poa Cookii,** *Hook. f.; Fl. Antarct.* 382, t. 139 (Festuca).

Forma 1.; foliis culmum superantibus, panicula elongata interrupta.

Forma 2.; foliis culmum superantibus v. æquantibus acuminatis pungentibus, panicula densa sub-cylindracea.

Forma 3.; foliis culmum æquantibus subacutis v. obtusis, panicula minore laxiore, spiculis paucifloris coloratis.

Abundant and ascending to a considerable height:—Forma 1. Christmas Harbour; Forma 3. Royal Sound, on a high hill, *Eaton.* (Marion and Heard Islands, *Moseley*).

This fine grass should, unquestionably, be referred to *Poa* (as now defined by the compressed flowering glume, &c.), along with its near congener *Dactylis cæspitosa* * of Fuegia and the Falklands, from which it differs, amongst other characters, in never forming tussocks. It is scarcely specifically distinct from *P. foliosa*, Hook. f. Handbook of N. Z. Flora 338 (Festuca foliosa, *Fl. Antarct.* i. 99, t. 55; *Fl. Nov. Zeald.* i. 308); and this, again, from the Fuegian *Poa lanigera, Nees* (Festuca fuegiana, *Fl. Antarct.* 380). The flowering glumes are often obscurely, or not at all toothed. The spikelets are 3–5-flowered and $\frac{1}{4}$–$\frac{1}{3}$ in. long (not eight lines as misprinted for three lines in the Antarctic Flora). A. Gray remarks of Kidder's specimens that they seem to be male only.

Poa pratensis, L.

Introduced by sealers.

Poa annua, L.

Introduced by sealers.

20. **Festuca erecta,** *D'Urv.*

Common and ascending to a considerable elevation. (Fuegia and the Falkland Islands.)

Often forming tussocks; panicles green or purplish.

21. **Festuca kerguelensis,** *Hook. f.* Triodia kerguelensis, *Fl. Antarct.* 379, *t.* 138 (*Poa*).

Common and ascending to 2,000 feet.

Spikelets sometimes 1-flowered. A very variable grass in stature, evidently allied to *F. erecta*, and more nearly still to *F. scoparia* (Fl. Antarct. 98; Fl. Nov. Zeald. i. 308), of which possibly it is a dwarf form, as suggested in the Handbook of the New Zealand Flora, p. 341. The naked base of the flowering glume, however, will always distinguish all the specimens I have examined.

Filices.

1. **Cystopteris fragilis,** *Bernh.*

Crevices of rocks near the hill-tops, Royal Sound, *Kidder, Eaton.* (Fuegia, Falklands, and N. and S. temperate regions generally.)

* The name *Poa cæspitosa* being occupied by Forster, though it is doubtful to what species it applies, I propose that of *flabellata* for the Tussock grass, which is the *Festuca flabellata*, Lamk.

2. **Lomaria alpina,** *Spreng.*

Common, often forming large beds, but not found at Christmas Harbour. (Marion Island, *Moseley;* Crozets, *Kidder;* all the colder S. temperate regions.)

3. **Polypodium** (GRAMMITIS) **australe,** *Mett.*

Crevices of rocks, Observatory Bay, *Kidder, Eaton.* (Marion Island, Moseley; Fuegia, and all the colder S. temperate regions.)

4. **Polypodium vulgare,** L. *var.* Eatoni, *Baker,* venis pellucidis.

Crevices of rocks by running streams, Observatory Bay, *Kidder, Eaton.* (Marion Island, Moseley; S. Africa; Sandwich Islands, and N. temperate hemisphere.)

This pellucid-nerved variety only occurs elsewhere in the Sandwich Islands.

Lycopodiaceæ.

5. **Lycopodum clavatum,** *L., var.* magellanicum; *Hook. f. Fl. Antarct.,* 113. L. magellanicum, *Swartz.*

Not uncommon throughout the island, but not met with at Christmas Harbour. (Var. *magellanicum,* Marion Island, Moseley; Fuegia, and all the colder S. temperate regions. The typical *L. clavatum* inhabits all northern cold damp climates.

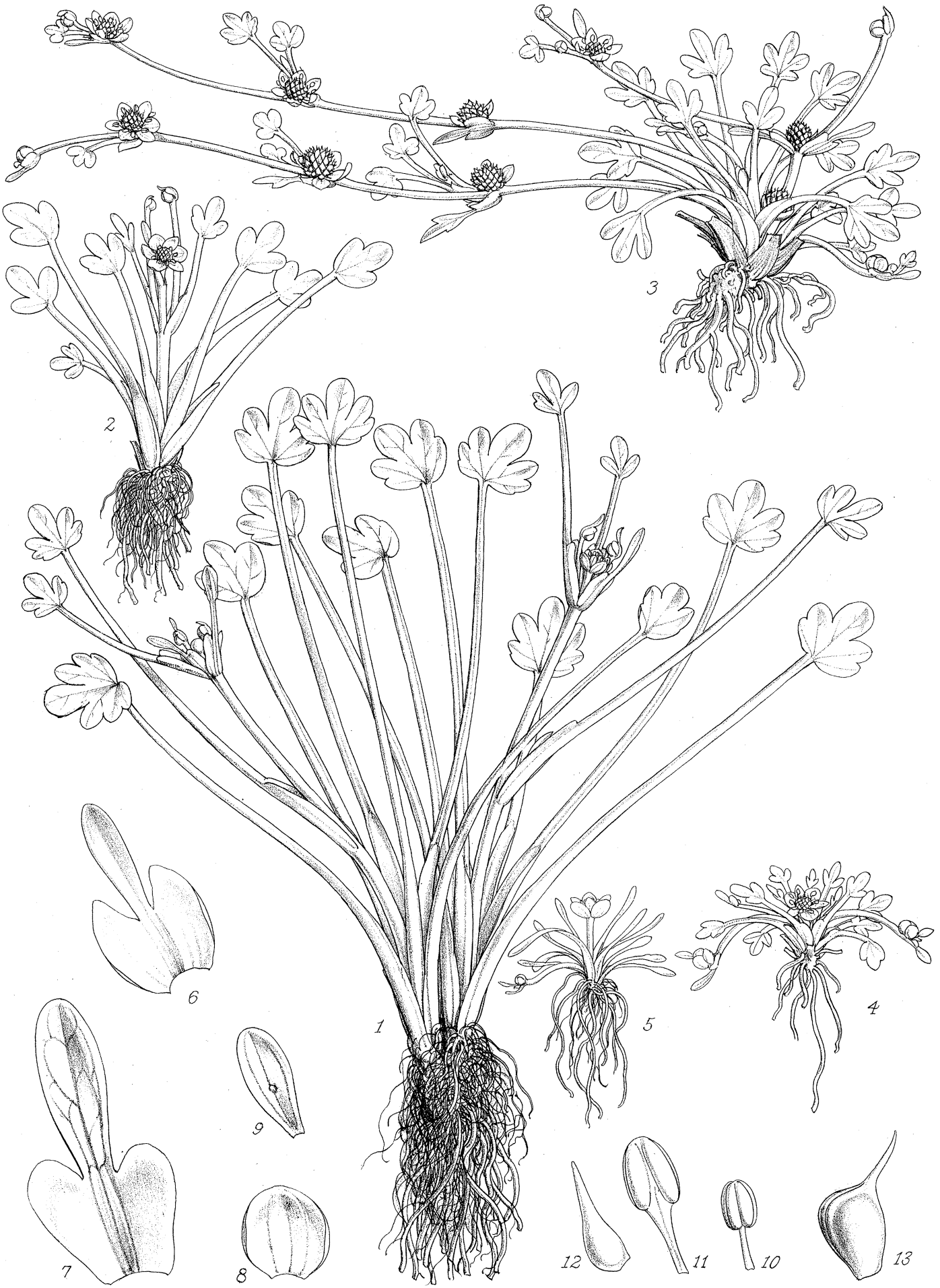
6. **Lycopodium Selago,** *L.* var. Saururus, *Hook. f. Fl. Antarct.* 394. L. Saururus, Lamk.

Not uncommon throughout the island. (Var. *Saururus,* Marion Island, *Moseley;* Tristan d'Acunha, St. Helena, Bourbon, Peru. The typical form inhabits all damp cold climates.)

Characeæ.

7. **Nitella antarctica,** *Braun.* N. Hookeri, *Reinsch in Journ. Linn. Soc.* xv. 219. Chara flexilis, *Linn;* Fl. Antarct. 395.

In the Lake at Christmas Harbour; and in that next but one to the Observatory, in Observatory Bay, *Eaton.*

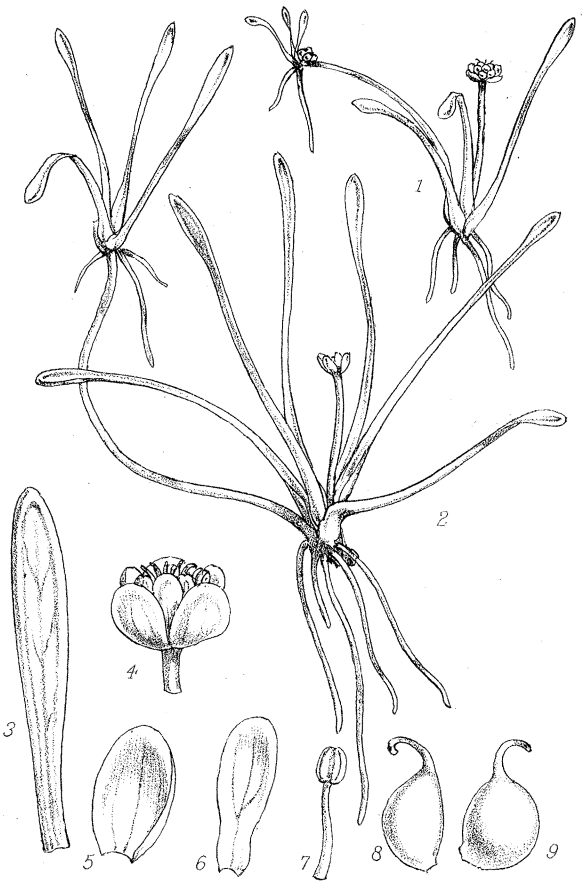


J.N.Fitch lith.

RANUNCULUS TRULLIFOLIUS, *Hook.f.*

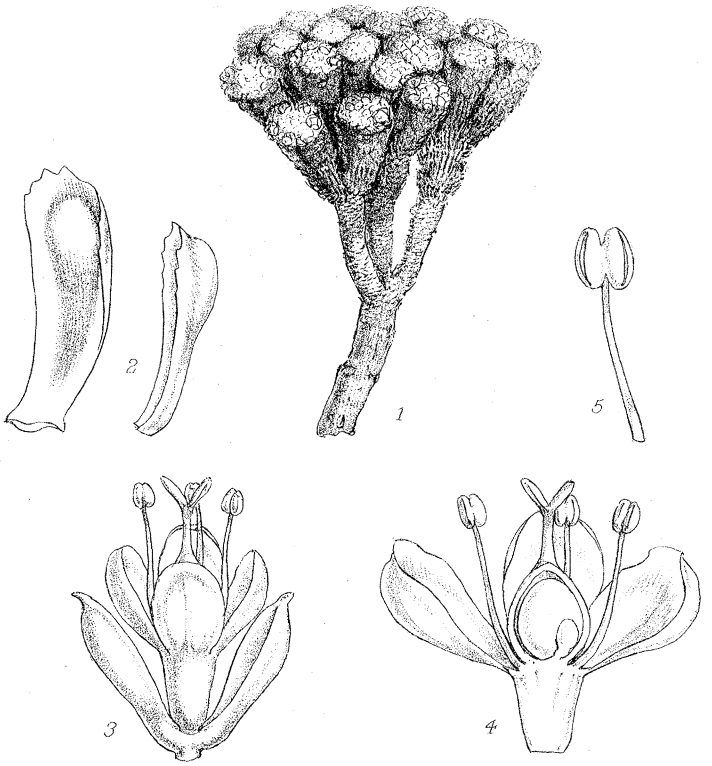
Fitch imp.

1



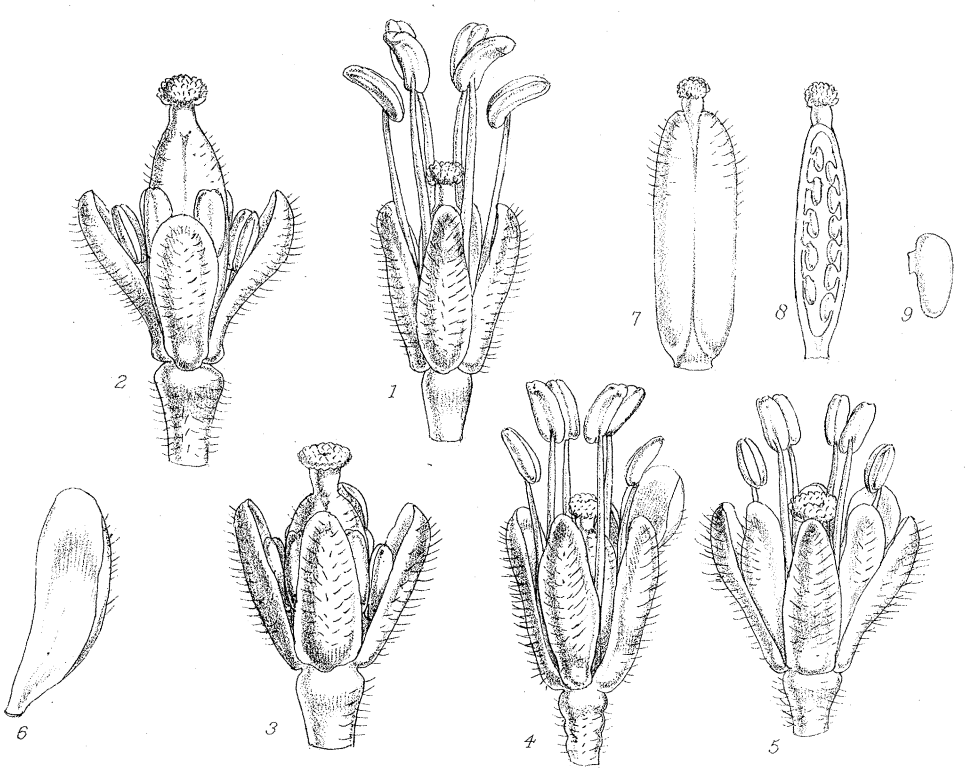
Ranunculus Moseleyi, *Hk.f.*

2



Lyallia Kerguelensis, *Hk.f.*

3



Pringlea antiscorbutica, *Hk.f.*