

IV.—*Lichens.*

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THE first record that we can find of the Lichen-flora of this remote island, is contained in a preliminary account of the Antarctic Lichens collected by Dr. J. D. Hooker\* during the voyage of the "Erebus" and "Terror," which was published by him and Dr. Thomas Taylor in the "London Journal of Botany" (1844), vol. iii. pp. 634–658. The Kerguelen Island lichens there enumerated amount in number to 17 species, named by Dr. Taylor; but at least one half of the names attributed to them are misapplied, and therefore must be excluded, owing chiefly to the determinations having been attempted in the absence of such microscopical analysis of the specimens as is now found to be essential for their discrimination. The number was subsequently raised to 27 species and varieties, when the list was revised by the Rev. Churchill Babington for publication in Dr. Hooker's "Flora Antarctica" (1847), vol. ii. pp. 519–542. A considerable proportion of the names in this later list must however be rejected for the same reason as those erased from the previous one. Unfortunately authentic examples of several of Dr. Taylor's critical species are wanting in the Kew Herbarium; † and his collection (now in the Herbarium of the Boston Society of Natural History), according to Professor Edw. Tuckerman, contains very little that is illustrative of his Kerguelen Island determinations. I have lately published a further revision of the Kerguelen Island Lichens collected by Dr. Hooker, in the "Journal of Botany" for April 1877, wherein the number of the species is reckoned to be 18 or 19 besides 2 named forms.

Mr. Moseley of the Challenger Expedition gathered in this island upwards of 13 species and 1 named form. (*Vide* Crombie in Journ. Linn. Soc. Bot. 1877.)

Dr. Kidder of the American Transit of Venus Expedition collected in the vicinage of Molloy Point 13 or 14 species and 1 named form. These with others from the Taylor collection are specified by Prof. Ed. Tuckerman in Bulletin U.S. Nat. Mus. No. 3 (1876), and are noticed by me in the "Journal of Botany" for April 1877.

The collection made by Mr. Eaton between the end of October 1874 and the end of February 1875, in the district immediately to the westward of Dr. Kidder's

\* One (or more) species of Lichens was obtained in Kerguelen Island in 1776 by Mr. Anderson, the Surgeon and Naturalist who accompanied Captain Cook.—A. E. E.

† Dr. Taylor died shortly after the publication of his first rough determination of the Antarctic Lichens, and it was impossible to recover from the heap of his unarranged materials, which were in a confused state, all of the specimens which should have been returned. I strongly suspect, from the state of his notes sent to me from time to time, that he did not attend sufficiently to localities, and that some of the specimens in the Herbarium labelled as from Kerguelen Island did not come from that island.—J. D. H.

station, comprises 50 or 51 species and 9 named forms. Of these about 30 were described as new species referred to known genera, in the *Journal of Botany* for November 1875 and January 1876, and again with fuller diagnoses with which Dr. Nylander (who most kindly assisted me in their determination) favoured me in the *Journal of the Linnæan Society (Botany)* for July 1876. Though several of the new species bear a superficial resemblance to some of our northern lichens, yet on analysis they are found to be quite distinct, and for the most part are peculiar to Kerguelen Island.

The results obtained by the German Transit of Venus and Surveying Expedition at Betsy Cove, are not yet published.

The total number of species obtained from the island is 61, and 10 varieties. Traces of a few other species exist in the various collections, consisting either of sterile thalli or undeveloped apothecia which are necessarily indeterminable.

1. **Lichina antarctica**, *Cromb. in Journ. Bot.* v. 21 (1876); *et in Journ. Linn. Soc.* xv. 181.

Observatory Bay, on dry rocks near the sea, *Eaton*.

1. **Amphidium molybdophlacum**, *Nyl. in Journ. Bot.* iv. 333 (1875) (errone molybdophœum); *Cromb. in Journ. Linn. Soc.* xv. 181, *et in Journ. Bot.* vi. 103, 106. *Lecanora melanaspis*, *Bab. in Flor. Antarct.* 536 (*excl. Syn. L. dichroa*) *Pannaria glaucella*, *Tuckerm. in Bull. U. S. Nat. Mus.* iii. 28.

On earth and stones, Christmas Harbour, *Hooker*; on stones in wet places, Swain's Harbour, *Eaton*; Molloy Point, *Kidder*.

1. **Stereocaulon cymosum**, *Cromb. in Journ. Linn. Soc.* xv. 182, *et in Journ. Bot.* vi. 103. *S. corallinum*, *Hook. f. et Tayl. Flor. Antarct.* 528.

On rocks, altitude 6–1200 feet, Christmas Harbour, *Hooker*, *Moseley*; top of a hill on west side of Carpenter's Cove, barren, *Smith Dorien (Eaton)*.

1. **Cladonia fimbriata**, *Hoffm.*; *Cromb. in Journ. Linn. Soc.* xv. 182. *C. pyxidata*, *Linn.*; *Tuckerm. in Bull. Torr. Bot. Club, October 1875, et Bull. U. S. Nat. Mus.* 3, 29.

Dry slopes, Swain's and Observatory Bays, *Eaton*; Molloy Point, *Kidder*.

VAR. COSTATA, Flk. Observatory Bay, *Molloy*.

2. **Cladonia cornuta**, *Linn.*; *Cromb. in Journ. Linn. Soc.* 1877.

Kerguelen Island, *Moseley*.

3. **Cladonia acuminata**, *Ach.*; *Cromb. in Journ. Linn. Soc.* xv. 182. *C. phyllophora*, *Tayl.*

Christmas Harbour, *Hooker*; observatory Bay, common, but sparingly fertile, *Eaton*.

1. **Neuropogon melaxanthus**, *Ach. (Usnea)*; *Cromb. in Journ. Linn. Soc.* xv. 182; *et in Journ. Bot.* vi. 103, 106 (1877). *Usnea sulphurea*, *Müll.*; *Tuckerm. in Bull. Torr. Bot. Club, 1875, et in Bull. U. S. Nat. Mus.* 3, 27. *Ramalina scopulorum*  $\epsilon$ , *Hook. f. et Tayl. Flor. Antarct.* 522.

Rocks and boulders, Christmas Harbour, *Anderson, Hooker*; on the upper slopes and tops of hills, *Eaton*.

VAR. SOREDIIFER, *Cromb. l. c.* Common at all altitudes, *Eaton*.

VAR. CILIATA, *Nyl. Crombie, l. c.* Observatory Bay, *Eaton*.

2. **N. Taylori**, *Hook. f.; Flor. Antarct.* 521, t. 195, Fig. i. (*Usnea*); *Cromb. in Journ. Linn. Soc.* xv. 183, et in *Journ. Bot.* vi. 103 (1877).

Rocks ascending to 1,200 feet; Christmas Harbour, *Hooker, Moseley*; Swain's Bay and Carpenter's Cove (but not near Observatory Bay), *Eaton*; Molloy Point, *Kidder*.

1. **Parmelia stygioides**, *Nyl.; Cromb. in Journ. Bot.* iv. 333 (1875), et in *Journ. Linn. Soc.* xv. 183.

Dry rocks and stony slopes, Swain's Bay, *Eaton*.

1. **Peltigera rufescens**, var. *spuria*, *DC.; Cromb. in Journ. Linn. Soc.* xv. 183; *Journ. Bot.* vi. 103. *Peltidea venosa*, *Hook. f. et Tayl. Flor. Antarct.* 525.

On wet moss, &c., Christmas Harbour, *Hooker*; Swain's Bay, *Eaton*.

2. **Peltigera polydactyla**, forma *HYMENINA*, *Ach.; Cromb. in Journ. Linn. Soc.* xv. 183. *P. polydactyla*, *Flor. Antarct.* 524. *P. horizontalis*, *Ach.; Flor. Antarct. l.c.* 525.

Amongst moss, &c., Christmas Harbour, *Hooker*; Observatory Bay, *Eaton*.

1. **Pannaria dichroa**, *Hook. f. et Tayl. in Lond. Journ. Bot.* iii. 643; *Cromb. in Journ. Bot.* vi. 106 (1877), et in *Journ. Linn. Soc.* xvi. *P. Taylori*, *Tuckerm. in Bull. Torr. Bot. Club, October 1875*, et in *Bull. U. S. Nat. Mus.* 3, 28. *P. placodicopsis*, *Nyl. in Journ. Bot.* iv. 334 (1875); *Cromb. in Journ. Linn. Soc.* xv. 183. *Lecanora melanaspis*, *Ach.; Hook. f. et Tayl. Flor. Antarct.* 536.

On rocks, Christmas Harbour, *Hooker, Moseley*; Observatory Bay, sparingly, *Eaton*; Molloy Point, *Kidder*.

2. **Pannaria obscurior**, *Nyl.; Cromb. in Journ. Bot.* iv. 334 (1875), et in *Journ. Linn. Soc.* xv. 183.

On decayed moss, Observatory Bay, *Eaton*.

1. **Psoroma hirsutulium**, *Nyl.; Cromb. in Journ. Bot.* iv. 333 (1875), et in *Journ. Linn. Soc.* xv. 184.

On moss and dead stems of *Acena*, very local, Observatory Bay, *Eaton*.

1. **Lecanora (PLACOPSIS) gelida**, *Linn.; Flor. Antarct.* ii. 535; *Tuckerm. in Bull. Torr. Bot. Club, Oct. 1875*, et in *Bull. U. S. Nat. Mus.* 3, 29; *Cromb. in Journ. Linn. Soc.* xv. 184, et in *Journ. Bot.* vi. 104, 106 (1877).

On stones, Christmas Harbour, *Hooker*; Observatory Bay, *Eaton*; Molloy Point, *Kidder*.

VAR. VITELLINA, *Bab. in Flor. Antarct.* l. c.; *Cromb. l. c.* Christmas Harbour, *Hooker, Moseley*.

VAR. LATERITIA, *Nyl.; Cromb. l. c.* *Placodium bicolor*, *Tuckerm. l. c.* Christmas Harbour, *Hooker, Moseley*. Swain's Bay and Royal Sound, *Eaton*.

2. **Lecanora** (PLACOPSIS) **macrophthalma**, *Hook. f. et Tayl. in Lond. Journ. Bot.* iii. 660 (Urceolaria); *Tuckerm. in Bull. Torr. Bot Club, Oct. 1875, et in Bull. U. S. Nat. Mus.* 3, 29; *Cromb. in Journ. Linn. Soc.* xv. 185 and xvi., et in *Journ. Bot.* vi. 104.

On stones in moist places, *Hooker, Eaton, &c.*

**Lecanora** (PLACODIUM) **elegans**, *Ach.; Cromb. in Journ. Linn. Soc.* xv. 184, et in *Journ. Bot.* vi. 104 (1877); *Tuckerm. in Bull. U. S. Nat. Mus.* 3, 28. *L. murorum*, var.  $\beta$ , *Flor. Antarct.* 535.

On rocks and stones, Christmas Harbour, *Hooker*; Observatory and Swain's Bays, *Eaton*.

Var. LUCENS, *Nyl.; Cromb. l. c.* On dead stems of *Acæna* and *Pringlea*, Observatory Bay, *Eaton*.

4. **Lecanora subunicolor**, *Nyl.; Cromb. in Journ. Bot.* v. 19 (1876), et in *Journ. Linn. Soc.* xv. 184.

On rocks, Royal Sound, very sparingly, *Eaton*.

5. **Lecanora vitellinella**, *Nyl.; Cromb. in Journ. Bot.* iv. 334 (1875), et vi. 104 (1877), et in *Journ. Linn. Soc.* xv. 184. *L. candelaria*, *Ach.; Flor. Antarct.* 537.

Maritime rocks, Christmas Harbour, *Hooker*; Observatory and Swain's Bays, *Eaton*.

6. **Lecanora cyphelliformis**, *Cromb. in Journ. Linn. Soc.* xvi.

Christmas Harbour, *Moseley*.

7. **Lecanora diphyella**, *Nyl.; Cromb. in Journ. Bot.* v. 21, et in *Journ. Linn. Soc.* xv. 184.

On rocks at low elevations, Observatory Bay, *Eaton*.

8. **Lecanora atro-cæsia**, *Nyl.; Cromb. in Journ. Bot.* iv. 334 (1875), et vi. 104 (1877), et in *Journ. Linn. Soc.* xv. 185. *L. confluens*, *Hook. f. et Tayl. in Lond. Journ. Bot.* iii. 636. *L. albo-cærulescans*, *Ach.? Bab. in Flor. Antarct.* 538.

Rocks at Christmas Harbour, *Hooker*; Observatory Bay and stony slopes at Volage Bay, plentiful, *Eaton*.

9. **Lecanora brocella**, *Nyl.; Cromb. in Journ. Bot.* v. 21 (1876), et vi. 104 (1877), et in *Journ. Linn. Soc.* xv. 185.

On dead moss, &c., Christmas Harbour, *Hooker*; Observatory Bay, *Eaton*.

10. **Lecanora umbrina**, *Ach.; Cromb. in Journ. Linn. Soc.* xv. 185.

On dead plants, Observatory Bay, *Eaton*.

11. **Lecanora kergueliensis**, *Nyl.; Cromb. in Journ. Bot.* vi. 106 (1877). *Urceolina kergueliensis*, *Tuckerm. in Bull. U. S. Nat. Mus.* 3, 29.

Rocks at Molloy Point, *Kidder*.

12. **Lecanora sublutescens**, *Nyl.; Cromb. in Journ. Bot.* v. 21 (1876), et in *Journ. Linn. Soc.* xv. 186.

On a shaded sea cliff near Observatory Bay, colouring the rock, *Eaton*.

[*L. CITRINA*, *Ach.*, *L. ERYTHROCARPA*, *Fr.*, and *L. HAGENI*, *Ach.*, enumerated in the Flora Antarctica, 536, from very imperfect materials, are too doubtful to be enumerated.]

1. ***Pertusaria perrimosa***, *Nyl.*; *Cromb. in Journ. Linn. Soc.* xv. 186; *Journ. Bot.* vi. 104. *P. communis*, *DC.*; *Flor. Antarct.* 540. ?*Lecanora tartarea*, *Ach.*; *Flor. Antarct.* 536.

On rocks, Christmas Harbour, *Hooker*; Observatory and Swain's Bays, *Eaton*.

2. ***Pertusaria subferruginosa***, *Cromb. in Journ. Linn. Soc.* xv. 186.

On rocks, Observatory Bay, *Eaton*.

3. ***Pertusaria cineraria***, *Nyl.*; *Cromb. in Journ. Linn. Soc.* xv. 186.

On rocks, Volage and Swain's Bays, *Eaton*.

1. ***Lecidea variatula***, *Nyl.*; *Cromb. in Journ. Linn. Soc.* xv. 186.

On dead stems of *Acæna*, Observatory Bay, *Eaton*.

2. ***Lecidea inundata***, *Fr.*; *Cromb. in Journ. Bot.* vi. 106 (1877). *Biatora rubella*, *Ehrh.*; *Tuckerm. in Bull. U. S. Nat. Mus.* 3, 29.

Molloy Point, *Kidder*.

3. ***Lecidea assimilata***, *Nyl.*; *Cromb. in Journ. Linn. Soc.* xv. 187, et in *Journ. Bot.* vi. 104. *L. aromatica* *Ach. in parte Flor. Antarct.* 538.

Christmas Harbour, *Hooker*; Observatory Bay in turf, *Eaton*.

4. ***Lecidea aromatica***, *Ach.*; *Nyl. in Journ. Bot.* vi. 104 (1877). *Flor. Antarct.* 538.

Christmas Harbour, *Hooker*.

5. ***Lecidea enteroleuca***, *Fries?*; *Tuckerm. in Bull. Torr. Bot. Club, Oct.* 1875, et in *Bull. U. S. Nat. Mus.* 3, 30. *Cromb. in Bot. Journ.* vi. 106 (1877).

On dead grasses, Molloy Points, *Kidder*.

6. ***Lecidea assentiens***, *Nyl.*; *Cromb. in Journ. Bot.* iv. 334, et vi. 105 (1877), et in *Journ. Linn. Soc.* xv. 187. *L. contigua* var. *hydrophila*, *Bab. in Flor. Antarct.* 538.

On rocks, Christmas Harbour, *Hooker*; Observatory Bay, *Eaton*.

7. ***Lecidea intersita***, *Nyl.*; *Cromb. in Journ. Linn. Soc.* xv. 187.

On rocks, Observatory Bay, very sparingly; also ? one mile N.W. of Mount Crozier, *Eaton*.

8. ***Lecidea phæostoma***, *Nyl.*; *Cromb. in Journ. Bot.* iv. 334 (1875), et in *Journ. Linn. Soc.* xv. 187.

On stones and bare soil, Observatory Bay, sparingly, *Eaton*.

9. ***Lecidea amylacea***, *Ach.*; *Cromb. in Journ. Linn. Soc.* xv. 188 (1876), et *Journ. Bot.* vi. 104. *L. spilota* *Ach.*; *Bab. in Flor. Antarct.* 538. *L. rivulosa*, *Tayl. in Linn. Journ. Bot.* iii. 636.

On rocks and stones, Christmas Harbour, *Hooker*; Volage and Swain's Bays, *Eaton*.

10. **Lecidea subassentiens**, *Nyl.*; *Cromb. in Journ. Bot.* v. 21 (1876), *et in Journ. Linn. Soc.* xv. 188.

On rocks, Observatory Bay, very sparingly, *Eaton*.

11. **Lecidea perusta**, *Nyl.*; *Cromb. in Journ. Bot.* iv. 334 (1875), *et vi.* 105, 106 (1877), *et in Journ. Linn. Soc.* xv. 188. *L. fusco-atra*, *Ach.*; *Flor. Antarct.* 539; *Tuckerm. in Bull. Torr. Bot. Club*, *et in Bull. U. S. Nat. Mus.*, 3, 30.

On rocks, Christmas Harbour, *Hooker*; Observatory Bay, *Eaton*; Molloy Point, *Kidder*.

12. **Lecidea asbolodes**, *Nyl.*; *Cromb. in Journ. Bot.* v. 21 (1876); *et in Journ. Linn. Soc.* xv. 188.

On rocks, Observatory Bay, *Eaton*.

13. **Lecidea lygomma**, *Nyl.*; *Cromb. in Journ. Bot.* iv. 334 (1875), *et in Journ. Linn. Soc.* xv. 189.

On rocks, Observatory Bay, *Eaton*.

14. **Lecidea subcontinua**, *Nyl.*; *Cromb. in Journ. Linn. Soc.* xv. 189, *et in Journ. Bot.* vi. 104, 106 (1877). *Urceolaria endochlora*, *in parte Flor. Antarct.* 537.

On rocks and stones, Christmas Harbour, *Hooker*; Swain's Bay, *Eaton*.

Var. *FERREA*, *Nyl.*; *Cromb. l. c.* Swain's Bay, *Eaton*.

15. **Lecidea Eatoni**, *Cromb. in Journ. Bot.* iv. 334, 1875, *et in Journ. Linn. Soc.* xv. 189.

On rocks and boulders, Observatory, Volage, and Swain's Bays, *Eaton*.

16. **Lecidea homalotera**, *Nyl. mss.*; *Cromb. in Journ. Bot.* vi. 105 (1877). *Urceolaria endochlora*, *Hook. f. et Tayl. in part. Flor. Antarct.* 537.

On rocks, Christmas Harbour, *Hooker*.

17. **Lecidea disjungenda**, *Cromb. in Journ. Bot.* vi. 105. *Urceolaria endochlora*, *Hook. f. et Tayl. in part. Flor. Antarct.* 537.

On rocks, Christmas Harbour, *Hooker*.

18. **Lecidea subplana**, *Nyl.*; *Cromb. in Journ. Bot.* iv. 334 (1875), *et in Journ. Linn. Soc.* xv. 189.

On boulders, sparingly, Observatory and Swain's Bays, *Eaton*.

19. **Lecidea stephanodes**, *Strn.*; *Cromb. in Journ. Linn. Soc.* 1877.

Kerguelen Island, *Moseley*.

20. **Lecidea Dicksonii**, *Ach.*; *Cromb. in Journ. Linn. Soc.* xv. 190. *L. sincerula*, *Nyl.*; *Cromb. in Journ. Bot.* v. 22 (1876).

On rocks, Royal Sound, Observatory, Volage, and Swain's Bays, *Eaton*.

21. **Lecidea tristiuscula**, *Nyl.*; *Cromb. in Journ. Linn. Soc.* xv. 190.

On stems, Volage Bay, sparingly, *Eaton*.

22. **Lecidea superjecta**, *Nyl.*; *Cromb. in Journ. Linn. Soc.* 1877.

Kerguelen Island, *Moseley*.

23. **Lecidea myriocarpa**, *DC.*; *Cromb. in Journ. Linn. Soc.* xv. 190, *et in Journ. Bot.* vi. 106 (1877). ? *Buellia parasema*, *Tuckerm. in Bull. Torr. Bot. Club*, *et in Bull. U. S. Nat. Mus.* 3, 30.

On rocks, Swain's Bay, sparingly, *Eaton*. Molloy Point, *Kidder*.

Var. *ERUMPENS*, *Crombie*, *l. c.* On dead *Acæna* stems, Observatory Bay (a single specimen), *Eaton*.

24. ***Lecidea subplicata***, *Nyl.*; *Cromb. in Journ. Bot.* iv. 334 (1875), *et in Journ. Linn. Soc.* xv. 190.

On rocks, Observatory and Swain's Bays, *Eaton*.

25. ***Lecidea cerebrinella***, *Nyl.*; *Cromb. in Journ. Bot.* v. 22 (1876), *et in Journ. Linn. Soc.* xv. 191.

On rocks, Observatory Bay, *Eaton*.

26. ***Lecidea stellulata***, *Tayl. in Flor. Hibern.* 118; *Flor. Antarct.* 539; *Tuckerm. in Bull. Torr. Bot. Club*, *et in Bull. U. S. Nat. Mus.* 30; *Cromb. in Journ. Bot.* vi. 105 (1877).

On rocks, Christmas Harbour, *Hooker*; near Molloy Point, *Kidder*.

27. ***Lecidea geographica***, *Linn.*; *Cromb. in Journ. Linn. Soc.* xv. 191, *et in Journ. Bot.* vi. 105 (1877). *L. geographica*, var. *urceolata*, *Schæerer*; *Bab. in Flor. Antarct.* 539. *Buellia geographica*, *Tuckerm. in Bull. Torr. Bot. Club*, *et in Bull. U. S. Nat. Mus.* 3, 30.

On rocks frequent, *Hooker*, *Moseley*, *Eaton*, *Kidder*.

1. ***Verrucaria tessellatula***, *Nyl.*; *Cromb. in Journ. Bot.* iv. 335 (1875), *et in Journ. Linn. Soc.* xv. 191.

On rocks and stones, Volage and Swain's Bays, and (where overflowed by the tides) at Observatory Bay, *Eaton*.

2. ***Verrucaria obfuscata***, *Nyl.*; *Cromb. in Journ. Bot.* v. 22 (1876), *et in Journ. Linn. Soc.* xv. 191.

On stones, hill N.W. of Mount Crozier, *Eaton*.

3. ***Verrucaria æthiobola***, *Ach.*; *Cromb. in Journ. Linn. Soc.* xv. 193.

On rocks, Observatory Bay, *Eaton*.

4. ***Verrucaria chlorotica***, *Ach.*; *Tuckerm. in Bull. Torr. Bot. Club*, *et in Bull. U. S. Nat. Mus.* 3, 30. (*Sagedia*); *Cromb. in Journ. Bot.* vi. 106 (1877).

Molloy Point, *Kidder*.

5. ***Verrucaria prævalesens***, *Nyl.*; *Cromb. in Journ. Bot.* xv. 192.

Rocks at Observatory Bay, and ? hill N.W. of Mount Crozier (*Eaton*).

6. ***Verrucaria kerguelina***, *Nyl.*; *Cromb. in Journ. Bot.* v. 22 (1876), *et in Journ. Linn. Soc.* xv. 192.

On rocks, Observatory Bay, sparingly, *Eaton*.

7. ***Verrucaria insueta***, *Nyl.*; *Cromb. in Journ. Linn. Soc.* xv. 192.

On rocks and stones, Volage Bay, *Eaton*.

8. ***Verrucaria congestula***, *Strn.*; *Cromb. in Journ. Linn. Soc.* 1877.

Kerguelen Island, *Moseley*.

[*ISIDIUM OCULATUM*, *I. LUTESCENS*, and *LEPRARIA FLAVA*, all enumerated in the *Flora Antarctica* as doubtful, are imperfect states of Lichens.]