

for in his MS. description attached to the specimen it is thus characterized:—"Corollæ labium alterum latum suborbiculatum obscure trilobum, alterum 2-partitum deorsum flexum segmento quolibet ambitu subrotundo adeo ut corolla primo aspectu 3-petala videri possit," a description which agrees with Mr. Walter's plant as well as with Commerson's type, and which is, indeed, very well shown in the rough original figure in Lamarck's Dictionary.

LICHENES CAPENSES :—An Enumeration of the Lichens collected at the Cape of Good Hope by the Rev. A. E. EATON during the Venus-Transit Expedition in 1874. By the Rev. JAMES M. CROMBIE, F.L.S. &c.

[Read February 3, 1876.]

ALTHOUGH various species of Cape Lichens were enumerated by Acharius and Thunberg, as also by Flotow, and more especially by Dr. Nylander in his Enum. Gen. and Synopsis, yet the first (and hitherto the only) separate list of such published is that of Massalongo, who, in 'Mem. dell' I. R. Ist. Venet. di Sc.' &c., x. 1861, pp. 33-82, records and describes those collected by Dr. Wawra, Surgeon of the corvette 'Carolina,' in 1857-58. These amount in all to 48 species, with a fair proportion of varieties, of which 23 species are described as new, though some deductions must be made from this. In the Appendix, pp. 83-90, he also enumerates 19 other species, which had been met with by previous collectors, such as Ecklon, Breutel, Drège, Zeyher, &c., several of which, however, are also to be deleted. The Cape Lichens thus recorded by Massalongo seem to have been collected in a different part or parts of the Colony from those which form the subject of the present memoir, so that little or no comparison can be instituted between them, only some 12 species being common to the two lists. The only locality examined by Mr. Eaton during the short stay of the Venus-Transit Expedition at the Cape, on its way to Kerguelen's Land, was Table Mountain, to which, however, he was able to make only a very few excursions. Unfortunately that to the summit was interrupted by mist; so that but few specimens were there gathered, though it would have been interesting to know what phyto-geographical types occur at that altitude in this region. In the determination of the valuable collection of Lichens

thus made I have been kindly assisted by Dr. Nylander, to whom I am indebted for the following diagnoses of the new species amongst them. Most of these I have recently briefly recorded in the 'Journal of Botany,' v. pp. 18-21.

Family BYSSACEI.

SIROSIPHON —? Infertile, and otherwise with thallus probably not fully developed. Indeterminable.

Family COLLEMACEI.

COLLEMA PULPOSUM, var. TENAX, *Ach.*

On the bare ground, very sparingly.

LEPTOGIUM TREMELLOIDES (*L.*), *Ach.*

Amongst mosses on rocks; fertile.

L. (STEPHANOPHORON) PHYLLOCARPUM (*Pers.*)

On the trunks of trees; barren.

Family LICHENACEI.

Tribe CLADONIEI.

CLADONIA FIMBRIATA, *Hffm.*

On the ground, sparingly, but fertile.

C. *F.* SUBCORNUTA, *Nyl.*

On the ground with the type, but barren.

C. FURCATA, *Hffm.*

Amongst mosses on the ground; small and infertile.

CLADIA AGGREGATA (*Sw.*).

On the ground; young and sterile.

Tribe SIPHULEI.

SIPHULA TABULARIS (*Thunb.*).

On the ground near the summit; very sparingly gathered.

Tribe USNEEI.

USNEA FLORIDA, *Ach.*

On rocks; infertile.

The specimens are more or less readily referable to the state called *rubiginea* (*Mich.*), whence *U. rubiginea*, *Mass. Lich. Cap.* p. 45, t. viii. f. 23-26, ut propria species!

U. LONGISSIMA, *Ach.*

On trees; infertile, and not very typical fragmentary specimens.

Tribe RAMALINEI.

RAMALINA YEMENSIS (*Ach.*).

On the trunks of trees; fertile.

R. CUSPIDATA (*Ach.*).

On rocks; apparently common and fertile.

Tribe PARMELIEI.

STICTA CROCATA (*L.*).

On mossy roots of trees; barren.

S. GILVA (*Thunb.*).

On trunks of trees, sparingly; fertile.

S. QUERCIZANS (*Ach.*).

On mossy rocks; small and infertile.

S. PULMONARIA, var. HYPOMELA, *Del.*

On trunks of trees; apparently common, but scarcely fertile.

S. AURATA, *Ach.*

Amongst mosses on rocks; barren.

PARMELIA PERFORATA, *Ach.*

On trees; infertile or scarcely fertile.

On one specimen a single apothecium is present, but without spores, and no spermogones are visible.

P. ATRICHOIDES, *Nyl.*, sp. n. Subsimilis *P. atrichæ*, *Nyl. Obs. L. Pyr. Or.* p. 17, sed sporibus minoribus (longit. 0·008–0·011 millim., crassit. 0·004–0·006 millim.). Spermata subbifusiformia, longit. 0·005–0·006 millim., crassit. 0·0006 millim.

On rocks; apparently not unfrequent.

P. MOLYBDIZA, *Nyl.*, sp. n. Affinis *P. atrichoidi* (etiam reactione CaCl_2 conveniens), sed thallo minore facile plumbeo tincto et magis adnato atque apotheciis lecanorinis. Sporæ longit. 0·009–0·011 millim., crassit. 0·006 millim. Spermata bifusiformia, longit. 0·006–0·007 millim., crassit. 0·0005 millim.

On rocks; very sparingly gathered.

P. SUBÆQUANS, *Nyl.* Sat similis *P. Borreri*, et forsan solum varietas, differens apotheciis, receptaculo firmiore nec soredioso-dissoluto. Apothecia juniora margine receptaculari radiatim sphinctrino-striato. Sporæ longit. 0·014–0·015 millim., crassit. 0·009–0·011. Iodo gelatina hymenialis cærulescens, thecæ præsertim tinctæ et deinde violascentes.

On the trunks of trees, amongst mosses.

P. CONSPERSA (*Ehrh.*).

Amongst mosses on rocks; sufficiently similar to the European lichen.

A state also occurs having the thallus internally sub-rose-coloured.

Var. *hypoclysta*, Nyl., with the receptacular margin sometimes subrenulated. On mossy rocks; sparingly gathered.

PARMELIA CONSTRICTANS, Nyl. Sit *P. conspersæ* subspecies, minor, stenophylla, laciniis hinc inde constrictiusculis, h. e. attenuatis.

On the ground towards the summit, apparently amongst detritus.

Var. *eradicata*, Nyl. Satis insignis, minor, tenuior, laciniis ascendentibus, etiam subtus glabris (rhizinis rarissimis vel obsoletis).

On the summit amongst mosses.

P. SUBCONSPERSA, Nyl. in *Flora*, 1869, p. 293.

On rocks; sparingly gathered.

P. ENDOMILTODES, Nyl., sp. n. Subsimilis *P. conspersæ* minori, sed thallo medulla insigniter cinnabarina (K +, violascente). Apothecia spadicea margine receptaculari subrenato. Sporæ longit. 0·008–0·010 millim., crassit. circiter 0·006 millim. Spermata subbifusiformia, longit. circiter 0·006 millim., crassit. 0·0006–0·0007 millim.

On rocks.

P. CONSPERSULA, Nyl., sp. n. Quasi *P. conspersa* parva, thallo adnato, centro areolato-diffracto (vel subgranulato-areolato, nam areolæ subconvexulæ). Apothecia lecanorina (latit. 1·5 millim. vel minora), margine thallino tenui integro. Sporæ longit. 0·007–0·008 millim., crassit. 0·006 millim. Spermata subbifusiformia, longit. 0·005–0·006 millim., crassit. 0·0006–0·0007 millim.

On rocks associated with other lichens, sparingly, and rarely fertile.

P. ADHÆRENS, Nyl., sp. n. Thallus stramineus, medio sordide lutescens, crustaceo-adnatus, areolato-diffractus, areolis convexiusculus (crassit. vel altit. circiter 0·5 millim.), ambitu effiguratus et sublaciniato-divisus, divisionibus planiusculis, contiguis subrenatis; apothecia spadiceo-fusca lecanorina (latit. 0·5–0·7 millim.), margine thallino integro cincta. Sporæ ellipsoideæ, longit. 0·009–0·011 millim., crassit. 0·005–0·007 millim.; paraphyses non distinctæ. Iodo gelatina hymenialis cærulescens, dein sordide lutescens.

Species prope *P. Mougeotii* disponenda. Lacinia thalli margine summo nigricante. Medulla K +, flavens. Spermata tenuiter fusiformia, longit. circiter 0·007 millim., crassit. vix 0·0005 millim. excedentia.

At first sight this species is sufficiently similar to *Squamaria saxicola** *diffracta*, Ach., but is a true *Parmelia* (as is at once evident from the spermogones).

On rocks (quartzose); sparingly gathered and very rarely fertile.

P. SQUAMARIATA, Nyl., sp. n. Thallus olivaceus vel castaneo-olivaceus, adpressus, adnatus, indistincte radiosio-divisus (ambitu dilutior), nitidiusculus, crenato-incisus, laciniis ibi distinctioribus sed contiguis et subconfluentibus (K medulla e flavo cinnabarine tincta); apothecia

spadicea minuta lecanorina (bene evoluta non visa). Sporæ ellipsoideæ, longit. 0·008–0·011 millim., crassit. 0·0035–0·0040 millim. Spermata acute fusiformia, longit. 0·005–0·007 millim., crassit. 0·0006–0·0007 millim.

In thalli divisionibus rimæ (fissuræ) frequenter obveniunt transversæ vel obliquæ. Variat thallus cinerascens et centro leviter fuliginosus (subfurfurellus),—f. *cinerascens*.

This species belongs to the section of *P. adhærens*. It presents somewhat the appearance of *Squamaria saxicola*, f. *Garovaglii* (Krb.); but the colour is different, as also the analytical characters. The spermogones show that it is a *Parmelia*, having arthrosterigmata with somewhat long thin articulations as in the *Parmeliei*. With reference to the specific name, Nylander observes, "Nomen *squamariata* est formatum ut *sulphuratum*, *sulphuraria*."

On rocks; very sparingly gathered.

PARMELIA MOLLIUSCULA, Ach.

On rocks; fertile. A state with more elongated and narrower lacinia; also occurs, but with the apothecia not rightly developed. In the fertile specimens the spores are about 0·008 millim. long, 0·005 millim. thick. The spermata are bifusiform, 0·006–0·007 long, 0·0007 millim. thick.

P. PROLIXULA, Nyl., sp. n. Thallus olivaceus vel olivaceo-fuscescens, stellato-laciniatus (laciniiis latit. circiter 0·5 millim., confertis), adpresso-adnatus (K $\bar{\tau}$, medulla e flavo rubricoseo tincta); apothecia spadicæo-fusca (latit. 1 millim. vel minora), sublecanorina, margine receptaculari subintegro. Sporæ oblongæ, longit. 0·009–0·015 millim., crassit. 0·0035–0·0045 millim.; paraphyses non discretæ; epithecium fuscescens. Iodo gelatina hymenialis cærulescens, dein subincolor et thecæ sordide violascentes. Spermata aciculari-fusiformia (vix vel obsolete observanda medio subtenuiora), longit. 0·005–0·006 millim., crassit. 0·0006 millim.

This species approaches *P. Dregeana*, Hmp., Nyl. Syn. p. 398, from which, however, it at once differs (as also from *P. stygiodes*, Nyl.) in the oblong form of the spores.

On rocks; very sparingly gathered.

P. FULIGINOSA (Fr.).

On rocks; very sparingly gathered, there being only slight though sufficiently distinct traces visible in a single specimen, associated with other lichens.

P. LICHINOIDEA, Nyl., sp. Thallus subsimilis ut in *P. lanata*, sed deplanatulus, laciniiis depressis (latit. circiter 0·3 millim.); medulla K non tincta. Apothecia et spermogonia non visa.

On the summit; amongst mosses on the ground.

PARMELIA HOTTENTOTTA, Ach.

On trunks of trees, very sparingly, and infertile.

Tribe PELTIGEREI.

PELTIGERA CANINA (L.).

Amongst mosses on trees; barren and not rightly developed. The few imperfect fragments gathered seem referable to this rather than to any other species of the genus, but can scarcely be rightly determined.

Tribe PHYSCIEI.

PHYSCIA FLAVICANS (Sw.).

On the branches of trees; infertile. One specimen approaches in colour to *f. crocea*, Ach.

P. MINOR. Thallus small or almost minute, branches short, attenuated; apothecia small, chiefly convex; spores 0·011–0·015 millim. long, 0·006–0·009 millim. thick.

On twigs; very sparingly gathered.

P. CHRYSOPHTHALMA (L.).

On branches; apparently not uncommon, and fertile.

To this belongs entirely *Tornabenia africana*, Mass. Lich. Cap.

p. 84.

P. FLAMMEA (L. fil.).

On twigs; fertile.

The specimens, however, are from Little Namaqua Land; though it is also met with at the Cape.

P. PARIETINA (L.).

On branches and twigs; apparently common and fertile.

F. AUREOLA (Ach.).

On the bark of trees; probably common, though scarcely entirely typical.

P. LEUCOMELA *ANGUSTIFOLIA, Mey. et Flot.

Amongst mosses on the ground; sterile.

P. AFFIXA, Nyl., sp. n. Subsimitis *P. obscura*, f. *lithotæ*, sed tenuior, magis adpressa et substrato agglutinato. Thallus castaneo-fuscus, centro subgranulato-inæqualis areolato-diffractus, ambitu laciniato-radians laciniolis incisus contiguus (latit. 0·2–0·3 millim.); apothecia et spermogonia non visa.

On rocks; very sparingly gathered.

P. SETOSA (Ach.).

This does not occur typical, but only *f. diminuta*, with minute thallus and apothecia.

On rocks; very sparingly, and only a single apothecium visible.

PHYSICIA SUBPICTA, *Nyl.* Comparabilis videtur cum *P. picta* vel *ægialita* (Ach.), sed minor, thallo glauco-albido opaco læviore, lobulis ambitu planis brevioribus. Apothecia non visa.

Tribe GYROPHOBEEI.

UMBILICARIA PUSTULATA, *Hffm.*

On rocks towards the summit; apparently not uncommon.

The specimens gathered are very small, though fertile, and may perhaps be regarded as constituting a distinct form—*f. minor*, “thallus and apothecia very small.”

U. RUBIGINOSA, *Pers.*

On rocks near the summit; fertile and apparently common.

Tribe LECANOREI.

PANNARIA RUBIGINOSA (*Thunb.*).

On the trunks of trees; fertile, also saxicole and sterile.

P. LEUCOSTICTA, var. *ISIDIOPSIS*, *Nyl.* Totus fere thallus isidio subcæsiō tectus. Sporæ longit. 0·012–0·018 millim., crassit. 0·008–0·011 millim.

On the bark of trees (as it would appear); only a single fragment seen.

LECANORA MURORUM (*Hffm.*).

On rocks; apparently common and fertile. The specimens scarcely differ from the European lichen, except that the thallus is subgranulated in the centre—a condition, however, which we have observed on maritime rocks in Scotland. The spores are 0·010–0·014 millim. long, 0·005–0·007 millim. thick.

L. CINNABARINA, *Ach.*

On rocks (quartzose); apparently common, but rarely fertile.

To this belongs *Callopisma capense*, Mass. Lich. Cap. p. 59, t. iii. f. 12–20. With reference to this species Nylander says *in litt.*, “Observatur thallum sæpe esse fere placodioideum et in typo Swartziano ex India occidentali minime esse vere nigro limitatum; nigredo ab Achario respecta est fortuita, nec characteri Lichenis adscribenda. Comparetur *L. holochracea*, *Nyl.*, affinis, sed tota ochracea, obveniens in India orientali, Mt. Khassya (Dr. Hooker) et in Himalaya boreali-occidentali (Kurz.)”

L. CINNABARINA, var. *PERMINIATA*, *Nyl.* Differens lichene toto intensive cinnabarino-tincto. Sporæ longit. 0·008–0·011 millim., crassit. 0·005–0·006 millim.

On rocks; apparently common, but, like the type, rarely fertile: a very beautiful plant.

LECANORA CINNABARIZA, *Nyl.* Vix nisi subspecies *L. cinnabarinæ*, differens thallo tenuissimo rimoso, ambitu non effigurato (vel inter particulas prominentes substrati disserpens); apothecia innata depressa. Sporæ longit. 0·009–0·013 millim., crassit. 0·005–0·007 millim.

On rocks; very sparingly gathered.

L. AURANTIACA * *ERYTHRELLA*, *Ach.* Thallus luteo-vitelline or subpalescent. Spores 0·015–0·017 millim. long., 0·008–0·009 millim. thick. On stones, associated with other lichens; sparingly.

L. SUBUNICOLOR, *Nyl.*, sp. n. Affinis *L. fulgescenti*, *Nyl. Lich. St. Paul*, p. 6, sed thallo tenuiore, minus læto, vitellino-aurantiaco, lævi, rimuloso; apotheciis aurantiacis biatoroideis (in *L. fulgescente* lecanorinis). Sporæ longit. 0·009–0·014 millim., crassit. 0·005–0·008 millim.

On rocks; very sparingly gathered.

L. PYROPECILA, *Nyl.*, sp. n. Thallus vitellino-aurantiacus opacus, minute granulosus, dispersus; apothecia croceo-aurantiaca (latit. circiter 0·5 millim.) margine thallino non prominulo. Sporæ longit. 0·011–0·013 millim., crass. 0·007–0·008 millim.

In external appearance this is almost similar to some small state of *L. schistidii* (Anzi); but the spores are different. From *L. pyræcea* it at once differs in the granular thallus and the apothecia not being biatoroid.

On rocks; very sparingly seen.

L. PYRÆCEA, f. *PICTA* (*Tayl.*), *Nyl.* Apothecia distinctly margined; spores 0·011–0·016 millim. long, 0·006–0·008 millim. thick.

On rocks, associated with other lichens.

L. PRÆMICANS, *Nyl.*, sp. n. Subsimilis *L. ferrugineæ* (Huds.), sed apothecia lætius tineta, cinnabarino-coccinea (biatorina). Sporæ longit. 0·009–0·015 millim., crassit. 0·006–0·008 millim.; paraphyses gracilentæ.

Colore apotheciorum maxime insignis. Thallus sordide albidus, inæqualis, rugulosus. Apothecia plana, marginata (latit. 1 millim. vel minora), margine demum flexuoso; partes coloratæ ex acido chrysophanico reagentes.

On the bark of trees; only a single small specimen seen.

L. CONFRAGOSULA, *Nyl.*, sp. n. Thallus cinereus tenuis areolato-squamulosus vel areolato-diffractus (K—), hypothallo nigro instratus; apothecia nigra minuta (juniora margine thallino subalbicante tenui subcrenulatò cincta, dein evanescente), plana (latit. 0·4 millim. vel minora); sporæ 8nae, fuscæ 1-septatæ, longit. 0·015–0·020 millim., crassit. 0·008–0·011 millim.; epithecium fuscum; paraphyses distinctæ mediocres; hypothecium incolor. Iodo gelatina hymenialis cærulescens, dein vinose rubens.

This species is referred to the section of *L. sophodes*, or almost to that of *L. atrocinerella*, Nyl.

On rocks (sandstone); rare.

LECANORA GLAUCO-LIVESCENS, Nyl., sp. n. Thallus glaucescens tenuis rimosus, hypothallo nigricante limitatus; apothecia lurido-fusca vel livido-fusca, plana (latit. 0.5–0.6 millim.), subzeorina vel margine thallino tenui evanescente cincta; sporæ 8næ, incolores, ellipsoideæ, 1-septatæ, longit. 0.009–0.011 millim., crassit. 0.004–0.005 millim.; paraphyses graciles, sursum clava fuscescente. Iodo gelatina hymenialis vinose rubens. Spermogonia arthrosterigmatibus munita; spermatia oblonga, longit. 0.0035 millim., crassit. 0.0005 vix superantia.

This species belongs to the section of *L. disparata*.

On rocks; only sparingly gathered.

L. ELÆOPHÆA, Nyl., sp. n. Thallus olivaceus, depresso-granulatus vel potius granulato-rugosus, tenuis, determinatus (hypothallo nigricante indistincto aut magis visibili limitatus); apothecia fusca, convexula (latit. 0.5–0.7 millim.), margine thallino tenui integro cincta aut magis convexa margine hoc excluso; sporæ 8næ incolores ellipsoideæ aut fusiformi-ellipsoideæ, uniseptatæ, longit. 0.012–0.016 millim., crassit. 0.004–0.006 millim.; epithecium fuscum; paraphyses gracilissimas. Iodo gelatina hymenialis vinose rubescens. Spermogonia arthrosterigmatibus munita longiusculis sat breviter articulatis (articulis crassit. 0.002–0.003 millim.); spermatia ellipsoidea vel oblongo-ellipsoidea, longit. 0.0015–0.0025 millim., crassit. vix 0.0010 millim.

This, like the preceding, as shown by the character of the spermogones, belongs to the section of *L. disparata*, although it might otherwise be readily supposed to be of the section of *L. erysibe*.

On rocks; rare.

L. GALACTINIZA, Nyl., sp. Thallus albidus tenuis subareolato-rimosus; areolæ ambitu interdum subcrenatae; apothecia fusca parva (latit. 0.3–0.5 millim.), margine thallino integro vix prominulo cincta; sporæ ellipsoideæ, longit. 0.010–0.013 millim., crassit. 0.006–0.007 millim.; paraphyses gracilissimas non bene discretæ et supra granuloso-inspersæ; epithecium fuscescens. Iodo gelatina hymenialis cærulescens, dein thecæ violascentes.

L. galactinella, Nyl. (in Obs. Lich. Pyr. Or., p. 53, erroneously written as "*L. galactina*"), differs from *L. galactina*, Ach., especially in the brown smaller apothecia; but *L. galactiniza*, which is subsimilar, is at the same time distinguished by the reaction of the thallus, K+, yellow; wherefore it may belong to the section of *L. subfusca*.

On rocks (quartzose); apparently rare.

LECANORA DIFFUSILIS, *Nyl.*, sp. n. Thallus albus vel albidus, inæqualis (crassit. circiter 0·5 millim.), rimosus (K +, yellow); apothecia nigra lecideina innata immarginata (latit. 1 millim. vel minora), intus concoloria, saepe 2-4 confluentia et inde difformia; sporæ ellipsoideæ, longit. 0·009-0·010 millim., crassit. 0·006 millim.; lamina tenuis apothecii tota sordide violascens. Spermogonia non visa.

This species seems to belong to the section of *L. atra*. *L. atroviolacea*, Flot. in Lechl. Pl. Maclov. 60, closely approaches.

L. ATORIMATA, *Nyl.*, sp. n. Thallus albus rugulosus rimoso-diffractus (crassit. circiter 0·5 millim.), rimis et ambitu nigris (K +, yellow); apothecia nigra innata plana lecideioidea immarginata (latit. circiter 1 millim.), intus obscura; sporæ 8nae incolores ellipsoideæ simplices, longit. 0·012-0·015 millim., crassit. 0·006-0·008 millim.; lamina tenuis apothecii violascens. Spermogonia non visa.

Allied to the preceding species, but at once differing in the nigro-rimate thallus and larger spores. In *L. atroviolacea*, Flot., the rimæ of the thallus are not black.

On rocks; only two fragments gathered.

L. PSAROMELA, *Nyl.*, sp. n. Thallus cinereus opacus tenuis sublævigatus areolato-diffractus expansus; apothecia nigra (vel obscure fusconigra), plana (latit. 0·8-1·6 millim.), margine thalino integro cincta; sporæ oblongæ vel fusiformi-oblongæ, longit. 0·010-0·015 millim., crassit. 0·003-0·004 millim.; paraphyses non discretæ; epithecium fuscescens. Iodo gelatina hymenialis cærulescens (dein thecæ violacee tinctæ). Spermata fusiformi-bacillaria, longit. 0·007-0·011 millim., crassit. 0·001 millim.

This species is most closely allied to *L. psarophana*, *Nyl.* Obs. Lich. Pyr. Or. p. 10, but differs especially in the plainer and darker (almost black) apothecia, and in the spores being usually longer, &c.

On rocks; very rare.

L. XANTHOPHANA, *Nyl.* *Add. Lich. And. Boliv.* p. 379.

On rocks; very sparingly gathered.

L. SMARAGDULA (*Whimb.*).

On stones; associated with other lichens, and only one or two squamules seen in the specimen.

Tribe PERTUSARIEI.

PERTUSARIA AMARA (*Ach.*), *Nyl.*

On rocks; only a single fragment present.

P. WAWREANOIDES, *Nyl.*, sp. n. Sat similis *P. Wawreana*, *Mass.*

Lich. Cap. p. 78, t. viii. fig. 1-18 (excl. spermogoniis, quæ sane aliena), sed thecæ bisporæ (sporæ longit. 0·060-0·070 millim., crassit. 0·038-0·048 millim.). Iodo gelatina hymenialis cærulescens, dein thecæ vinose rubentes.

Thallus K+, flavens, dein cinnabarinus-rubens. Apothecia incoloria.

Spermatia bacilliformia vel bacillari-fusiformia, longit. 0·006-0·008 millim., crassit. 0·0008 millim.

On rocks; probably not uncommon.

PERTUSARIA SUBDEALBATA, *Nyl.*, sp. n. Thallus albidus, conferte areolato-rimosus (crassit. circiter 0·5 millim. vel tenuior); apothecia nigricantia (in protuberantiis thalli convexis subdifformibus innata, singulum in quavis protuberantia), stratum sectione nigricans tenue (latit. 1 millim. vel minoris, crassit. vix 0·2 millim. in sicco statu) exhibentia; sporæ 2næ, longit. 0·046-0·056 millim., crassit. 0·018-0·022 millim. Iodo gelatina hymenialis cærulescens, deinde thecæ vinose rubescentes. Spermatia recta, longit. 0·005 millim., crassit. 0·0005-0·0006 millim.

From *P. Wavreanoides*, to which it approaches, it is distinguished by the different character of the apothecia and the thalline protuberances, as also by the smaller spores. The reaction of the thallus is the same in both, viz. K_+^+ , from yellow becoming saffron-ferruginous.

On rocks; apparently rare.

P. VEPALLIDA, *Nyl.*, sp. n. Thallus pallido-albidus, tenuis, lævigatus, areolato-rimosus; apothecia nigricantia, innata, plana, sublecanorina, difformia, subpruinosa, minuta (latit. vulgo 0·2-0·3 millim.), margine thalino parum vel vix prominulo (1-3 in quavis areola thalina fertili); sporæ 8næ, longit. 0·027-0·037 millim., crassit. 0·016-0·021 millim. Iodo gelatina hymenialis cærulescens, thecæ præsertim tinctæ. Spermatia recta, longit. 0·016-0·018 millim., crassit. 0·0005 millim.

This species is allied to *P. rubescens* (Tayl.); but this latter has the thallus somewhat thicker, rugose, the spores larger, &c.

On rocks; very sparingly gathered.

P. LEIOPLACA, f. *OCTOSPORA*, *Nyl.*

On the bark of trees, associated with other lichens; very sparingly gathered, but probably common.

Tribe THELOTREMEL.

URCOLARIA DEUTERIA, *Nyl. Lich. St. Paul*, p. 6.

On the ground; probably common.

U. SUBCUPREA, *Nyl.*, sp. n. Thallus lurido-fuscescens vel subcupreus,

opacus, tenuis, areolato-rimosus, superficie passim obsolete albido-reticulatus; apothecia nigricantia innata, demum supra pertusa (non actinostoma); sporæ incolores (vel vetustate infuscatæ), murali-divisæ, ellipsoideæ, longit. 0·018–0·022 millim., crassit. 0·009–0·010 millim.; perithecium cum hypothecio infuscatum. Iodo gelatina hymenialis non tineta. Spermogonia sterigmatibus longiusculis ramosis generis et spermatiis tenuiter fusiformi-oblongis (bacillaribus), longit. fere 0·004 millim., crassit. vix 0·0001 millim.

This species is very easily distinguished by the colour of the thallus and the thelotremoid apothecia. The thallus affords no reaction, either with K, CaCl, or with I. *U. stictica*, Krb., approaches less to it than *U. deuteria*.

On rocks; very sparingly gathered.

Tribe LECIDIEI.

LECIDEA CHLOROPHÆATA, Nyl., sp. n. Thallus cinereo-virescens, tenuiter granulatus, sat tenuis, indeterminatus; apothecia fusca vel rufescenti-fusca (lat. 0·5–0·9 millim.), juniora plana marginata, demum convexa et sæpe plura minora aggregata vel botryoideo-conglomerata, intus albida; sporæ aciculares rectæ vel rectiusculæ, tenues, indistincte 3–5-septatæ, longit. 0·060–0·075 millim., crassit. 0·0015–0·0025 millim.; paraphyses graciles; epithecium dilute subcærulescens, hypothecium supra rufescens et ceteroquin incolor. Iodo gelatina hymenialis vinose rubens.

The thallus is minutely cellulose. With reference to the specific name, Nylander observes, "Acceptum est in lingua Latina nomen adjectivum *leucophæatus*, quamobrem etiam *chlorophæatus* regulariter admitti possit.

On rocks; sparingly gathered.

L. SUBALBICANS, Nyl., sp. n. Thallus albidus, subopacus, tenuis, minute areolato-diffractus, subrugulosus (K +, flavescens); apothecia fusciscentia planiuscula, demum convexa (latit. 0·5 millim. vel minora), margine (sæpius pallescente vel albido) vix prominulo; sporæ 8nae, ellipsoideæ, longit. 0·009–0·011 millim., crassit. 0·005–0·006 millim.; paraphyses gracilescentes non bene discretæ; epithecium subsmaragdascens; hypothecium incolor. Iodo gelatina hymenialis cærulescens. Spermatia arcuata (rite evoluta forsân non visa, sed videntur longit. 0·012–0·016 millim., crassit. 0·0005 millim.).

This species approaches, as it seems, to *L. albicans*, Nyl., from India; but this latter has the thallus continuous, only rimose, the apothecia pale reddish, &c. Though lecanorine in appearance, the apothecia are entirely biatorine.

On rocks; apparently not uncommon, though rarely fertile.

LECIDEA LEUCOXANTHA, *Spr.* Apothecia biatorina K+ (chrysophanice reagentia). Forsan melius *Lecanora*; nam spermogonia habent arthrosterigmata breviarticulata, spermatis bacilliformibus (longit. 0·003 millim., crassit. 0·0005 millim.).

On the bark of trees; only a single fragment gathered.

L. BUMAMMA, *Nyl.*, sp. n. Thallus albidus, bullato-vesiculosus, bullis subplicatis, aggregatus (altit. cum basi 6–8 millim.), basi fusco-stipitatus; apothecia nigra plana innata immarginata (latit. 1 millim. vel minora), sæpe in depressionibus thalli oblonga, intus obscura; sporæ non visæ.

Thallus K+ (flavens). Estirpe est hæc species *L. vesicularis*, jam bullis thallinis magnis (latit. 3–5 millim.) insignis.

On the ground; very sparingly gathered.

L. PARASEMA, var. **ELÆOCHROMA**, *Ach.*

On the bark of trees, usually associated with other lichens.

L. GRANULOSULA, *Nyl.*, sp. n. Quasi *L. enteroleuca* (Ach.), *Nyl.*, præcipue differens thallo flavido minute granuloso vel subleproso. Apothecia convexula non marginata (latit. 0·4–0·5 millim.), intus tota albida; sporæ ellipsoideæ, longit. 0·009–0·011 millim., crassit. 0·006 millim.; epithecium cærulescenti-nigricans; paraphyses gracilescentes; hypothecium incolor. Iodo gelatina hymenialis cærulescens, dein vinose fulvescens.

On rocks, associated with various other lichens.

L. MEIOSPORA, *Nyl. Obs. Lich. Pyr. Or.* p. 38. Spores 0·011–0·014 millim. long, 0·007–0·008 millim. thick.

On rocks (schistose); sparingly seen.

L. TERRENA, *Nyl.* Thallus albidus, tenuis, subgranulatus; apothecia medioerica (lat. 0·7–1·4 millim.), epithecio cæσιο-pruinoso; sporæ longit. 0·011–0·014 millim., crassit. 0·006–0·007 millim.

On the ground amongst quartz detritus, sparingly.

L. OBUMBRATA, *Nyl.*, sp. n. Thallus umbrino-fuscus subopacus, sat tenuis (crassit. 0·5 millim. vel tenuior), areolato-rimosus, determinatus (medulla K e flavo subcinnabarino-tincta); apothecia nigra, plana vel convexuscula (latit. 1 millim. vel minora), immarginata, intus cinerascens; sporæ 8nae, oblongæ, simplices, longit. circiter 0·011 millim., crassit. 0·004 millim. (rite evolutæ vix visæ); paraphyses medioeres; epithecium fuscum; hypothecium subincolor.

This species probably belongs to the section of *L. tenebrosa*, though in consequence of the spermogones being unknown this is uncertain.

On rocks, very sparingly associated with other lichens.

L. LECIDEA CHALYBEIA, Borr.

On rocks; probably common.

L. CHLOROPOLIZA, Nyl.

On rocks; only sparingly seen.

L. CONTINGENS, Nyl., sp. n. Thallus cinerascenti-albidus tenuis (crassit. circiter 0·2 millim.), lævigatus, rimoso-areolatus, areolis contiguis, rimis nigris angustis, nigro-limitatus (K+, flavescens, dein ferrugineo-rubescens, etiam præsertimque medulla ita tum tincta, at I-); apothecia nigra, superficialia, plana, marginata (latit. circiter 0·5 millim.), intus concoloria; sporæ 8nae, fuscae, ellipsoideæ, 1-septatæ, longit. 0·010-0·013 millim., crassit. 0·004-0·007 millim.; epithecium obscuriuscule cærulescens; paraphyses mediocres; hypothecium fuscum. Iodo gelatina hymenialis cærulescens. Spermata bacillaria, longit. 0·005-0·006 millim., crassit. fere 0·001 millim., sterigmatibus subsimplicibus vel parum prolifero-articulatis, sat tenuibus.

The characters of the spermogones indicate that this species belongs to the section of *L. superans*, Nyl.; but there is no thalline reaction with CaCl.

On rocks; very sparingly gathered.

L. HALONIA, Ach.

On rocks; apparently not uncommon, usually associated with other lichens.

L. SPURIA (Schær.).

On rocks; pretty frequent, but always associated with other lichens.

With regard to the systematic place of this species, Nylander observes *in litt.*, "Forsan satius consideranda ut *Lecanora*; nam spermogonia vix differunt a spermogoniis stirpis *L. sophodis*. Est verisimiliter *Buellia antarctica*, Mass. Lich. Cap. p. 68, t. iv. fig. 18-32."

L. INCURIOSA, Nyl., sp. n. Thallus albidus, sat tenuis, granulatus vel granulato-subareolatus, inæqualis (K+, flavens); apothecia nigra, demum convexa immarginata (latit. 0·6-0·8 millim.), intus concoloria (strato hymeniali obscure in sectione cinerascente); sporæ 8nae, fuscae, 1-septatæ, longit. 0·022-0·025 millim., crassit. 0·008-0·011 millim.; paraphyses subgracilescentes; epithecium et hypothecium fusca. Iodo gelatina hymenialis cærulescens, dein subincolor et thecæ vinose subrubescentes. Spermata oblongo-cylindrica, longit. 0·003-0·004 millim., crassit. vix 0·001 millim. attingentia, sterigmatibus vulgo ex articulis saltem 2-3 constantibus parum tumidulis.

A species but little striking in appearance, belonging to the section of *L. spuria*.

On stones, generally on the underside; sparingly gathered, though what seems to be the barren thallus is more frequent.

LECIDEA DISTRATA, *Nyl.*, sp. n. Thallus albus vel albidus, tenuis, plano-areolatus vel areolato-diffractus (rimis nigris), K+ (flavens), I—, hypothallo nigro subsparse instratus; apothecia nigra, innata, plana, submarginata (latit. 0·2–0·4 millim.), juniora margine thallino obsoleto cincta; sporæ 8nae, fuscae, 1-septatae, longit. 0·014–0·019 millim., crassit. 0·007–0·009 millim.; epithecium fuscum; paraphyses mediocres (non semper bene discretæ); hypothecium incolor. Iodo gelatina hymenialis intensive et persistenter cærulescens.

Forsan in stirpe *L. spuria* locum habet; pertinet ad species illas quæ ambigunt inter *Lecideas* et *Lecanoras*. Conferenda est *Lecanora confragosula*.

On rocks (quartzose); very sparingly gathered.

L. MINUTULA (*Hepp.*).

On rocks; generally associated with other lichens, apparently common.

L. SUBTRISTIS, *Nyl.*, sp. n. Thallus fuscus, tenuissimus, lævigatus, rimulosus; apothecia nigra, plana, marginata (latit. 0·5–0·7 millim.), intus albida; sporæ 8nae, fuscae, biloculares, longit. 0·016–0·020 millim., crassit. 0·009–0·011 millim.; paraphyses mediocres, clava fusca; hypothecium incolor. Iodo gelatina hymenialis bene cærulescens.

In consequence of the spermogones not being visible, it is not certain whether this species be in reality a *Lecidea* belonging to *L. coniopts* or rather a *Lecanora* of the section of *L. coniopta*.

On rocks (quartzose); very sparingly gathered.

L. MYRIOCARPA, f. *MARCIDULA*, *Nyl.* Thallo pallido evanescente, sporis longit. 0·010–0·011 millim., crassit. 0·004–0·006 millim., paraphysibus non bene discretis.

Perhaps a distinct species—though, as the spermogones are not present, this is not certain.

On rocks, associated with other lichens.

L. GEOGRAPHICA (*L.*).

On rocks (quartzose) near the summit, very sparingly gathered.

Tribe GRAPHIDEI.

OPHGRAPHIA PARVULA, *Nyl.*, sp. n. Thallus cinerascens, obsoletus; apothecia nigra, minuta, rotundata vel oblongo-rotundata (latit. circiter 0·2 millim.), epithecio impresso; sporæ 8nae, incolores, fusiformes, 3-septatae, longit. 0·022–0·027 millim., crassit. 0·003 millim.; paraphyses mediocres; epithecium luteo-fuscescens; hypothecium cum perithecio nigrum. Iodo gelatina hymenialis vinose rubens (præcedente cærulescentia).

This species is easily known from the characters given. The gonidia are subchroolepoid.

On stones, on the underside; only a single small specimen seen.

Tribe PYRENOCARPEI.

NORMANDINA PULCHELLA (*Borr.*).

Amongst small mosses, associated with *Pannaria rubiginosa* (saxicole); very sparingly gathered and sterile.

ENDOCARPON HEPATICUM, *Ach., Nyl.*

On the bare ground; apparently not uncommon.

It will be seen from the above Enumeration that the present collection (made, as already observed, during a few days' excursions to the same locality) is larger, both in the total of species and varieties and also in the number of novelties gathered, than that of Dr. Wawra as recorded by Massalongo. At the same time the specimens collected both by Dr. Wawra and Mr. Eaton can evidently be regarded only as the firstfruits of the rich and rare Lichen harvest of the Cape that remains to be reaped by some resident botanist.

LICHENES TERRE KERGUELENI:—an Enumeration of the Lichens collected in Kerguelen Land by the Rev. A. E. EATON during the Venus-Transit Expedition in 1874-75. By the Rev. JAMES M. CROMBIE, F.L.S. &c.

[Read February 3, 1876.]

THE first record which we find of the Lichen-flora of this remote island is that given by Dr. J. D. Hooker and Dr. Thomas Taylor, in the 'London Journal of Botany,' vol. iii. (1844) pp. 634-658, amongst the other Antarctic Lichens collected by the former gentleman during the voyage of H.M. Discovery-ships 'Erebus' and 'Terror' (1839-43). The Kerguelen lichens thus enumerated amount to seventeen species, of which, however, at least one half must be excluded, as being hasty and erroneous determinations, resulting chiefly from the absence of microscopical analysis. This list was subsequently revised by the Rev. Churchill Babington for Dr. Hooker's 'Flora Antarctica,' vol. ii. (1847) pp. 519-542, where, with emendations and additions, it is increased to twenty-seven species and varieties. A considerable proportion of these, however, as in the former case and for the same reason, must be deleted. Unfortunately, I have not at present been able to find