

all its glossy beauty. It was only in this last year (1879), after very diligent research, that I succeeded in obtaining good fruiting specimens of this plant.

P.S.—Specimens of all the Plants described in this Paper have been forwarded with it to the Manager of the New Zealand Institute, for the Herbarium of the Colonial Museum, Wellington.

ART. LV.—*Contribution to the Lichenographia of New Zealand.*

By CHARLES KNIGHT, F.L.S.

Plates XII. and XIII.

[Read before the Wellington Philosophical Society, 21st February, 1880.]

1. *Sticta amphisticta*, Kn. ✓

Thallus pallido-ochro-fuscescens aut passim hepatico-fuscescens ambitum versus sæpe fuscus mediocris lævis parum rigescens, supra punctis albis sparsis pseudo-cyphelloideis minutis conspersus, laciniato-divisus, laciniis subcaniculatis varie lobatis v. grosse sinuato-crenatis, apice dichotomis v. obtusis; subtus ochro-fuscus aut pallido-fuscescens medio fusco-tomentosus; cyphellæ urceolatæ pallidæ, margine sæpe prominulo; cephalodia concoloria minuta parca. Apothecia sparsa badio-rufa, margine tenui crenulato pallido aliquando integro. Sporæ incolores v. dilute luteolæ oblongo-fusiformes v. oblongæ, 1-3-septatæ, longit. $\cdot 026$, crassit. $\cdot 007$ mm.

Ad cortices.

2. *Sticta episticta*, Nyl.

Thallus ochroleucus v. pallido-ochraceo-fuscescens mediocris vix nitidiusculus, supra punctis albis pseudo-cyphelloideis minutis sparsis conspersus, laciniatus, laciniis varie lobato-divisis subcaniculatis ambitu minute crenatis passim ibi laciniatulo-dissectis v. fere isidiosis; subtus ochraceus puberulus subnudus medio fusco-tomentosus, cyphellis parvis urceolatis perpaucis v. nullis pallidis, cephalodiis concoloris minutis parcis. Apothecia rara v. rarissima badio-rufa margine thallino crenulato v. leviter denticulato-inæquali cincta. Sporæ incolores v. dilute luteolæ oblongo-fusiformes v. oblongæ, 1-3-septatæ, longit. $\cdot 03$, crassit. $\cdot 007$ mm.

Ad cortices.

3. *Pannaria atrofumosa*, Kn.

Thallus cæruleo-olivaceus v. atro-fumosus squamulosus diffracto-areolatus, squamulis minutis concavis crenato-orbiculatis ambitu minutissime granulosus v. furfuribus, hypothallo atro late marginatus. Apothecia innata

v. immixta lecanorina intus incoloria, disco plano luteo-rubro v. luteo-fusco in centro plerumque fisso v. depresso v. decolore, margine nonnihil gyrato elevato minutissime granuloso, paraphysibus capillaribus discretis. Sporæ in ascis cylindricis uniseriales ellipsoideæ incolores, longit. $\cdot 015$, crassit. $\cdot 008$ mm.

Ad cortices.

Pannaria immixta v. *gyrantha*, Nyl. in litt.

4. *Pannaria apiculata*, Kn.

Thallus sordide fuscus passim fumoso-fuscus v. plumbeo-cinereus minute squamuloso-microphyllinus (squamulis nonnihil laciniato-effiguratis) v. diffracto-areolatus v. detritus tum demum hypothallo nigro passim v. omnino nudo. Apothecia biatorina brunnea v. rufo-nigra plana interdum convexa intus incoloria v. omnino dilute luteola, margine pallidiore tenui integro. Sporæ in ascis late cylindricis ellipsoideæ sæpissime utrinque apiculatæ dilute fuscescentes, longit. $\cdot 018$, crassit. $\cdot 009$ mm.

Ad cortices.

5. *Pannaria triptophylla*, Ach.

Apothecia biatorina margine erecto. Sporæ ellipsoideæ. *Hypothecium fusco-nigricante*. Hypothallus cæruleo-nigricans.

Ad cortices.

6. *Pannaria subsimilis*, Kn.

Thallus glauco-cervinus squamulosus v. microphylo-squamulosus, squamulis membranaceis contiguus adpressis rotundato-incisis singulis e centro radiantibus, granulis gonimis cærulescentibus, hypothallo cærulescenti-nigro limitatus. Apothecia rubra v. croceo-rubra biatorina plana marginata, margine pallido integro tenui discum æquante, excipulo proprio luteo-fusco, hypothecio concolore, paraphysibus gracilibus non bene discretis (apice non dilatis et vix incoloratis). Sporæ in ascis cylindræis ellipsoideæ incolores v. dilute luteolæ, longit. $\cdot 015$, crass. $\cdot 006$ mm.

Ad cortices.

The colour of thin sections of the apothecia seen by *reflected* light is a delicate rufous yellow.

Syn.: *Pannaria nigro-cincta*, Nyl., Handbook New Zealand Flora, fol. 575.

There is some confusion in respect of Montagne's lichen. Both Babington and Nylander consider the New Zealand lichen to be the *Psoroma nigro-cincta* of Montagne. But in fact Montagne's plant, of which there is an authentic specimen in the Kew Museum (probably contributed by Montagne himself), is a true *Psoroma*; the thallus with large green gonidia, apothecia biatorine, excipulum of a pale brown or "Indian pink," and agreeing closely with the description in "Sylloge Plant. Crypt." On the other hand No. 51 of Leighton's Ceylon Lichens, "*Pannaria nigro-cincta*, Mont," is a true *Pan-*



C Knight. del.

LICHENES.

naria; apothecia *lecanorine* with “*granulæ gonimæ*” in place of gonidia, the granules large, cæruleo-glaucous, margin prominent, crenulate. Again, No. 142, Spruce’s Lich. Amaz. et And., is a true *Psoroma*: apothecia *biatorine* symphy carpous, margin obscure, spores smaller, and the thallus with well defined layer of gonidial masses.

7. *Pannaria amphibola*, Kn.

Thallus e glauco-rufescente helvolus microphyllinus, phyllis subimbricatis planiusculis lobulatis, lobis crenatis ambitu albo-furfuraceis, granulis gonimis glauco-cærulescentibus, hypothallo rubro-fusco v. nullo. Apothecia luteo-rufa biatorina plana marginata intus luteo-fusca, margine concolore integro, paraphysibus crassis adglutinatis. Sporæ ellipsoideæ interdum utrinque attenuatæ simplices incolores, longit. .012, crass. .006 mm.

Ad cortices.

P. amphibola, Nyl. in litt.

8. *Pannaria biatorina*, Kn.

Thallus albo-virescens squamulosus, squamulis adpressis minutis crenulatis, granulis gonimis glauco-virescentibus, hypothallo nigro. Apothecia biatorina sparsa aurantiaca (diam. 0.4 mm. v. minora) superficialia intus pallida marginem pallidiorem demum æquantia, margine primo elevato integro, paraphysibus capillaribus adglutinatis. Sporæ in ascis clavatis ellipsoideæ subhyalinæ demum dilute luteolæ granulosæ, longit. .02 mm., crassit. .01 mm.

Supra Jungermannias.

9. *Pannaria subimbricata*, Kn.

Thallus glauco-albescens squamulosus, squamulis parvis rotundis crenatis confertis v. imbricatis, hypothallo nigro, granulis gonimis glauco-viridis v. glauco-brunneis 1–4 in nodulo singulo (microscopii area granula gonima obsita). Apothecia lecanorina fusca v. brunnea plana, margine crenato. Sporæ uniseriales simplices ellipsoideæ, longit. .014, crass. .008 mm.

Supra terram et lapides.

10. *Physcia plinthiza*, Nyl.

Thallus albo-glaucescens corrugatus rotundato-lobato-incisus in centro granulatus, laciniis arcte adpressis ambitu obscure crenatis. Apothecia madefacta diam. 1.7 mm. intus incolorata v. dilute glaucescentia, disco fusco v. atro-fusco plano, margine subinflexo tumido crenulato, excipulo thallino celluloso gonimico, gonimia magna numerosa, excipulo proprio (hypothecio) ex utroque latere evanescente, paraphysibus discretis apicibus elliptico-dilatis. Sporæ in ascis cylindræo-saccatis ellipsoideæ fuscæ 4–6-loculares, loculis tubulo junctis et mediis sæpe didymis (ita medio series 2 adsunt transversæ biloculares), longit. .03, crassit. .012 mm.

Ad cortices.

11. *Lecanora babingtonii*, Mass.

Thallus tenuis albo-cinereus granulosus v. minutissime squamulosus, squamulis arcte adpressis. Apothecia rosea v. luteo-coccinea (diam. 1.5 v. minora) marginata, margine granulato tandem flexuoso, excipulo thallino albido v. dilutissime colorato gonidia continente, excipulo proprio fibrato supra evanescente, paraphysibus non bene discretis apice minute granulosus non dilatis. Sporæ in ascis saccatis subarcuatae v. leviter curvatae aciculari-fusiformes 5-septatae, longit. .035, crassit. .004 mm.

Ad cortices.

Probably Babington's *L. punicea*, Ach. (Flora N.Z., p. 292). Comparing our lichen with Leighton's *L. punicea* (Ceylon Lichens, No. 62), it is seen that the thallus of the latter is fusco-cinereous, while the spores are .07 mm. in length, and the septæ from 7–15 in number (v. fig. No. 11, b.), and these measurements agree with Nylander's figure, v. Nylander's *Lichenes Novogranatenses*, p. 32, fig. 7, tab. 1, reproduced here to the same scale as all the other figures are drawn, v. fig. No. 11, c.

12. *Bacidia subscripta*, Kn.

Thallus sordide cinerascens v. sordide cinereo-albidus tenuis continuus v. minute areolatus v. fissus indeterminatus. Apothecia superficialia atrofuscescentia nuda plana v. concava marginata (diam. 1 mm.)—raro in juniore pallide fusca—margine concolore tenui, excipulo dilute fuscescente a lateribus v. a basi et lateribus per lineam tenuem fuscam contento, strato subhymeniale e pseudo-gonidiis liberis sphaericis incoloratis—aliis minutis aliis sat grandibus—formato, paraphysibus brevibus suberassis adglutinatiis grumosis. Sporæ in ascis clavatis fusiformi-aciculares subspiraliter contortae v. in arcum curvatae 3–7 septatae v. simplices (septis invisis?), longit. .04, crassit. .0035 mm.

Ad cortices arborum.

13. *Bacidia glomerulosa*, Kn.

Thallus sordide ochraceo-cinerascens byssaceo-pulverulens ubique diffractus v. dehiscens granulas gonimas virides in nodulis magnis receptas continens. Apothecia adnata v. innata (diam. 0.5 mm.) atrofusca, margine evanido, excipulo dilute colorato, hymenio fusco, paraphysibus gracilibus non bene discretis apicibus fuscis. Sporæ rectae aciculares 3–7 septatae, longit. .035, crassit. .0025 mm.

Ad cortices arborum.

14. *Bacidia eucoccodes*, Kn.

Thallus cinereo-viridescens granulosus v. microphyllino-granulosus effusus granulas gonimas virides in nodulis receptas continens. Apothecia innata v. adnata fusco-atra plana v. convexa marginata (diam. 1.3 mm.), margine concolore obscuro demum tenui, excipulo dilutissime colorato ab

linea atro-fusca cincto, paraphysibus gracilibus discretis. Sporæ in ascis clavatis aciculares gracillimæ infra attenuatæ rectæ sat 14-septatæ, longit. $\cdot 06$, crassit. $\cdot 0015$ mm.

Ad cortices arborum.

15. *Bacidia spirospora*, Kn.

Thallus cinerascens tenuis lævis continuus v. subtiliter fissus, gonidia vera offerens, per lineam atram determinatus. Apothecia nigro-fusca (diam. 1 mm.) plana demum convexa marginata, margine concolore, paraphysibus gracilibus non bene discretis, apicibus fuscis subincrassatis. Sporæ in ascis clavatis aciculares infra attenuatæ circiter 18-septatæ, septis distinctis, maxime spiraliter curvatæ, longit. $\cdot 06$, crassit. $\cdot 003$ mm.

Ad cortices arborum.

16. *Bacidia melastegia*, Kn.

Thallus sordide albo-ochraceus tenuis continuus. Apothecia minuta (diam. 0.4 mm.) atro-fusca plana adnata, margine pallidiore—intus fuliginoso,—excipulo dilute colorato, strato subhymeniale fuscescente, paraphysibus gracilibus apice anthracinis. Sporæ in ascis clavatis aciculares utrinque attenuato-acutæ 13–20 septatæ spiraliter curvatæ, longit. $\cdot 075$, crassit. $\cdot 002$.

Lecidea melastegia, Nyl. in litt.

Ad cortices arborum.

17. *Bacidia anceps*, Kn.

Thallus cinerascens tenuis minute albo-granulosus continuus. Apothecia rufo-fusca v. nigro-fusca (diam. 1 mm.) marginata, disco plano, margine crasso fusco (intus fusco), excipulo crasso dilute luteo cellulari (cella quadrata) in granulis comminatur, strato subhymeniale dilute succineo, paraphysibus discretis. Sporæ aciculares utrinque acutæ infra attenuatæ circiter 16-septatæ, septis distinctis, longit. $\cdot 07$, crassit. $\cdot 002$ mm.

Ad cortices arborum.

18. *Bacidia cerasentera*, Kn.

Thallus albo-cinereus areolatus tenuissimus v. macula alba indicatus. Apothecia atra minuta (diam. 0.4 mm.) innata v. adnata, in juvenis sæpe e thallo albo marginata, intus fusca v. purpureo-fusca, excipulo atro, margine concolore obscuro, paraphysibus crassis brevis excipulo atro enatis apice bulbosis purpureo-atris non bene discretis. Sporæ in ascis clavatis fusiformi-aciculares in arcum curvatæ 7–9 septatæ v. minus clare septatæ, longit. $\cdot 045$, crassit. $\cdot 004$ mm.

Lecidea cerasentera, Nyl. in litt.

Ad cortices arborum.

19. *Bacidia melasema*, Kn.

Thallus ochraceo-cinerascens tenuissimus squamulosus, squamulis minutis arcte adpressis, continuus linea atra limitatus. Apothecia ad-

nata atra convexa (diam. 0·8 mm.) intus colorata immarginata, excipulo glauco-nigricante v. nigro, strato subhymeniale (in sectione subtilissima) viridulo e pseudo-gonidiis liberis sphaericis oleaceis dilute viridis (aliis minutissimis aliis sat grandibus) formato, paraphysibus non discretis. Sporae fusiformi-aciculares curvatae circiter 7-septatae, longit. ·032, crassit. ·004 mm.

Lecidea melasema, Nyl. in litt.

Ad cortices arborum.

20. *Bacidia mesospora*, Kn.

Thallus tenuis sordide fuscus effusus leproso-pulverulens. Apothecia luteo-rubella plana demum convexa (diam. 0·4), margine concolore demum obscuro, excipulo incolore, paraphysibus gracillimis adglutinatiss. Sporae in ascis clavatis bacillares rectae non supra 8-septatae, interdum septis obscuris, longit. ·024, crassit. ·003 mm.

Ad cortices arborum.

21. *Bacidia stenospora*, Kn.

Thallus sordide ochraceus tenuis subtilissime areolo-granulosus (farinosus) indeterminatus. Apothecia pallido-livida ceracea plana adnata appressa (diam. 0·7 mm.) immarginata, excipulo luteo-fusco textura radiatim disposita, paraphysibus adglutinatiss obscuris apice incoloratis non dilatis. Sporae in ascis (longit. ·085, crassit. ·005 mm.) bacilliformibus aciculares rectae gracillimae circiter 30-septatae, septis parum obscuris, longit. ·075, crassit. ·0015 mm.

Ad cortices arborum.

22. *Bacidia pedicellata*, Kn.

Thallus cinerascens tenuissimus continuus. Apothecia superficialia (diam. 1·1 mm.) rufa v. fusco-rufa convexa nonnihil subglobosa, unde quasi pedicellata intus dilute fusco-lutea, margine obtuso concolore demum obscuro, strato subhymeniale fusco, paraphysibus concretis gracilibus apice non dilatis. Sporae aciculares rectae circiter 28-septatae, septis distinctis, longit. ·085, crassit. ·003 mm.

Supra Jungermannias.

23. *Bacidia rimosa*, Kn.

Thallus cinerascens tenuissimus effusus diffractus rimosus. Apothecia e strato thallode gonidiale enata rufa tandem rufo-fusca (diam. 0·6 mm.) plana marginata, margine concolore v. dilute concolore demum obscuro, excipulo dilute luteo, strato subhymeniale fusco, paraphysibus gracilis non bene discretis apice grumosis. Sporae aciculares infra attenuatae, supra obtusae, rectae circiter 20-septatae, longit. ·054, crassit. ·0025 mm.

Ad cortices arborum.

24. *Bacidia carneo-rufa*, Kn.

Thallus olivaceo-fuscus tenuis leprosus effusus. Apothecia carneo-rufa (diam. 1 mm.) plana, margine concolore, excipulo pallido, strato subhymeniale fusco, paraphysibus adglutinatis apice non dilatis. Sporæ aciculares supra obtusæ infra attenuatæ rectæ circiter 15-septatæ, longit. $\cdot 065$, crassit. $\cdot 002$ mm.

Ad cortices arborum.

25. *Bacidia rosello-carnea*, Kn.

Thallus ochro-cinerascens v. ochro-fuscescens leproso-granulatus tenuis continuus v. minute areolatus interdum subrugulosus indeterminatus. Apothecia (diam. $0\cdot 5$ mm.) adnata plana v. convexa sordide rosello-carnea tandem fuscescentia sæpius in parte decolorata intus luteo-fusca, margine concolore v. pallidiore demum evanescente, paraphysibus adglutinatis obscuris grumosis apice non dilatis. Sporæ vermiformi-aciculares subspiraliter curvatæ circiter 10-septatæ, longit. $\cdot 05$, crassit. $\cdot 002$ mm.

Ad cortices arborum.

Lecidea rosello-carnea, Nyl. in litt.

26. *Bacidia pseudo-pyræa*, Kn.

Thallus olivaceo-fuscus tenuissimus (pellucidus? unde matrice perlucida thallus coloratus). Apothecia luteo-alba minuta (diam. $0\cdot 3$ mm.) convexa, margine concolore obscuro, excipulo incolore v. strato subhymeniale dilute fusco, paraphysibus adglutinatis obscuris non grumosis. Sporæ in ascis clavatis bacillares subcurvatæ circiter 8-septatæ, longit. $\cdot 04$, crassit. $\cdot 0025$ mm.

Ad cortices arborum.

Closely allied to *B. albescens*, Hepp.

27. *Bacidia leuco-carpa*, Kn.

Thallus albido-cinerascens leproso-granulosus tenuissimus indeterminatus. Apothecia albida v. carneo-alba adnata plana v. convexa immarginata (diam. $0\cdot 8$ mm.), strato subhymeniale luteo-fusco, paraphysibus adglutinatis obscuris grumosis. Sporæ vermiformi-aciculares subspiraliter curvatæ sat 10-septatæ, longit. $\cdot 06$, crassit. $\cdot 002$ mm.

Ad cortices arborum.

28. *Bacidia spodoelæina*, Kn.

Thallus cinereo-olivaceus tenuis sublævis continuus indeterminatus. Apothecia fusca v. fusco-nigra (diam. $0\cdot 6$ mm.) convexa, margine concolore, disco in juvenis aliquando pruinosa, excipulo albo, strato subhymeniale incolorato, paraphysibus gracilibus non bene discretis apice non dilatis. Sporæ bacillares circiter 18-septatæ rectæ v. leviter curvatæ, longit. $\cdot 06$, crassit. $\cdot 003$ mm.

Ad cortices arborum.

29. *Bacidia chryso-carpa*, Kn.

Thallus albus v. sordide albescens tenuissimus subleprosus v. leproso-granulatus v. pulverulens indeterminatus. Apothecia flavescentia convexa (diam. 0·8 mm.), margine concolore indistincto demum excluso, excipulo (viso per reflectam lucem) albo, strato subhymeniale dilute luteo-fusco, paraphysibus adglutinatis gracilibus non grumosis apice non dilatis. Sporæ aciculares gracillimæ, septis invisis, longit. ·06, crassit. ·002 mm.

Ad cortices arborum.

30. *Bacidia nanospora*, Kn.

Thallus cinereus tenuis subleprosus, granulas gonimas virides in nodulis magnis receptas continens. Apothecia e thallo oriunda (in juniore biatorina urceolata, disco sordide fusco, margine pallidiore ceraceo prominente erecto, strato subhymeniale dilute luteo-fusco) tandem convexa (diam. ·6 mm.) fusca, margine obscurato, excipulo fusco, paraphysibus adglutinatis brevibus. Sporæ in ascis clavatis vermiformi-aciculares, septis invisis, longit. ·02 mm., crassit. ·0013 mm.

Ad cortices arborum.

31. *Bacidia pannaroidea*, Kn.

Thallus sordide ochraceo-cinereus carroso-leprosus spongiosus diffractus, granulas gonimas virides in nodulis magnis receptas offerens. Apothecia rufa v. rufo-fusca (diam. 1·2 mm.) margine concolore obtuso demum tenui, excipulo fusco, strato subhymeniale atro-fusco, paraphysibus non bene discretis gracilibus apice non dilatis. Sporæ aciculares infra attenuatæ gracillimæ rectæ sat 16-septatæ, longit. ·06 ad ·09, crassit. ·0015 ad ·002 mm.

Ad cortices arborum.

32. *Bacidia rhodocarpa*, Kn.

Thallus sordide ochraceus v. cinerascens pulverescens continuus, granulas gonimas in nodulis magnis receptas continens. Apothecia luteo-rufescentia v. rubra v. demum fuscescentia plana marginata (diam. 0·8 mm.) margine concolore demum obscuro, excipulo luteo-fusco, strato subhymeniale atro-luteo-fusco, paraphysibus capillaribus discretis, apicibus non dilatis. Sporæ aciculares rectæ circiter 20-septatæ, longit. ·06, crassit. ·002 mm.

Ad cortices arborum.

33. *Bacidia albedo-prasina*, Kn.

Thallus glauco-albidus v. albo-smaragdinus tenuis lævis continuus linea nigra limitatus. Apothecia carneo-alba adnata plana v. convexa (diam. 0·4 mm.) margine pallidiore demum obscuro, excipulo luteo-fusco, paraphysibus adglutinatis apice non dilatis. Sporæ aciculares simplices (septis invisis) gracillimæ, longit. ·05, crassit. ·002 mm.

Ad cortices arborum.



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