

THE LICHEN FLORA OF QUEENSLAND,

WITH DESCRIPTIONS OF SPECIES;

BY JOHN SHIRLEY, B.Sc.

PART III.

SUB-TRIBE V.—Eulecanorei.

Thallus crustaceous, granular or smooth or leprose, rarely radiating. Apothecia with a thalline border; thalamium always naked, flat or tumid; paraphyses separate; spores 8 or more, seldom septate, colourless, rarely fuscous. Spermatogonia with arthrosterigmata, or with very long, curved, acicular spermatia, or with straight simple sterigmata.

VII.—LECANORA.

Characters as in the sub-tribe above.

* Spores numerous.—*Acraspora*. *Fr.*

1. *L. vitellina*, *Ach.*

Thallus pale greenish yellow, indeterminate, leprose, granulated, granules minute, crenulate or crenate or sublobate or conglomerate; apothecia clustered, sessile, tawny yellow,

Sy. plane, at length convex and brownish; thalline margin elevated, entire or crenate; spores numerous, colourless, oblong, simple or subpolari-bilocular or obsoletely uniseptate.

Hab.—Moggill, on old fences by the ferry.

** Spores 8, simple, colourless, not pertusarioid.

2] *L. subfusca*, *L.*

Thallus effuse, continuous, crustaceous to leprose-pulverulent, smooth, rimulose, granulate, verrucose, rugose or diffract,

whitish or cinerascens; hypothallus white. Apothecia pale or dark-brown or black, often pruinose, plano-convex; epithecium red-brown; margin persistent, tumid, entire or crenulate; thecae short; spores oval or ellipsoid, colourless, Sn. simple or double walled, $\cdot 007$ — $\cdot 012 \times \cdot 003$ — $\cdot 007$ m.m.; paraphyses slender, delicate; hym. gel. with I. bluish then violet. Spermatogonia with large easily distinguished ostiolaria; sterigmata and spermatia of various forms; stylospores septate.

Hab.—Common on rocks and trees.

v. *coilocarpa*, *Ach.*

This form, common on rocks along the Brisbane River, is K. distinguished by its thin, unequal or granulate-rugose thallus, and its fuscous black or nigrescent apothecia, with entire margins.

v. *chlarona*, *Ach.*, is also common and usually corticolous, its thin, determinate thallus, and flat or sub-convex apothecia, Sn. with sub-entire or crenulate margins, separate it from other varieties.

3. *L. albella*, *Pers.*

Thallus white, silvery, determinate, thin, leprose or membranaceous, continuous, smooth; apothecia sessile, scattered, M. concave or plane, pale or flesh-coloured, caesio-pruinose or naked; margin thin, entire or wavy; spores 8, colourless, ellipsoid, simple; paraphyses thick, free.

Hab.—On trees, Toowoomba.

Syn.—*L. subfusca* v. *albella*, *Fries.*

4. *L. plumosa*, *Mull. Arg.*

Thallus suborbicular, thin, ashy-green, as if formed by pressure from small subcontiguous granules, bordered by a broad, snow-white hypothalline zone, which is closely plumose-fimbriate, at a later period ochraceo-rubescens. Apothecia thick, few, appressed, $\cdot 5$ — $\cdot 75$ m.m., small, plane,

M. pallid and nude ; with thin, pallid or albescent, and sub-crenate margin ; epithecium olive-brown ; hypothecium hyaline ; spores $\cdot 007$ — $\cdot 01$ x $\cdot 005$ — $\cdot 006$ m.m.

Hab —Toowoomba, on rocks.

Lich. Beit. von Dr. Müller. Sep.—Ab. aus. Flora XVI. 2.

5. *L. umbrina*, *Ehrb.*

Thallus nearly obliterated, showing patches of the olive-brown hypothallus, diffuse ; apothecia fuscous or fusconigricant, small, caesio-suffused, thalline margin white, sub-crenulate ; spores variable, simple or with one or more

Sn. nuclei or uniseptate, margined in maturity, ellipsoid or oblong or pyriform or oval, $\cdot 006$ — $\cdot 008$ x $\cdot 002$ — $\cdot 004$ m.m. ; paraphyses articulate.

Hab.—On rocks, Mt. Perry.

6. *L. pulverata*, *Stirton*.

Thallus pallid or pale blue-grey, thin, with a fine areolate network, here and there minutely granular (K—C—) ; apothecia sessile (width 8—1.6 m.m.), white or pale golden yellow, thickly white frosted, somewhat concave then flat, surrounded by a rather prominent crenulate excipulum ;

Sn. epithecium C— ; spores 8, colourless, ellipsoid, simple, $\cdot 009$ — $\cdot 012$ x $\cdot 006$ — $\cdot 0075$ m.m. ; paraphyses slender, with apices citrine tinged ; hypothecium colourless. Hym. gel. with I bluish then dull. This lichen seems to lie between *L. albella* and *L. galactina*.

Hab.—Brisbane, on bark.

Dr. Stirton in Proc. Roy. Soc. Vict., Sept., 1880.

7. *L. conizæa*, *Nyl.* (Ach).

Thallus albido-flavescent, finely granulate-pulverulent ; apothecia pale or carneo-pallid, thalline margin elevate,

M subentire, pulverulent ; spores 8, colourless, ellipsoid, simple, $\cdot 013$ x $\cdot 004$; hypothecium whitish ; paraphyses separating with difficulty, slender, apices brownish.

Syn.—*L. varia* v. *conizæa* Ach.

8. *L. atra*, *Huds.*

- Thallus thin, white, cracked into small irregular plates, determinate, bordered by a broad, distinct, black hypothalline zone ; apothecia to 1·6 m.m. in diameter, sometimes two or three united into one ; disk dull black, oval or circular or irregular, within black ; margin white, elevate, thin above, entire, flexuose ; spores ellipsoid, rarely slightly curved, grumous or pellucid, $\cdot 006 - \cdot 01 \times \cdot 003 - \cdot 004$ m.m. ; hypothecium in upper part cerasine-fuscos, spermatogonia black, conoid or papilliform, arthrosterigmata 0·5 m.m. long ; spermatia straight ; stylospores coloured.

Hab.—On rocks, Helidon.

Sy. v. virens, *Mull. Arg.*—On bark, Mt. Perry.

v. immarginata, *C. K.*

- Thallus white, tuberculose. Apothecia black, innate, flat, naked ; hymenium violet-black, thick, rising from the thallus and with attenuated circumference ; no proper excipulum ; spores $\cdot 009 \times \cdot 0075$, oval-ellipsoid, colourless, double-walled. Distinguished from forms of *L. subfusca* by the apothecia being black *ab initio*.

Hab.—On trunks of trees, Mt. Perry.

Dr. Knight in Syn. Queen. Fl. 2nd Sup.

9. *L. pinguis* *Tuck.*

- Thallus thinly crustaceous, rough and granular, whitish or cinerascens or ashy-green. Apothecia small, numerous, crowded, $\cdot 25 - \cdot 35$ m.m., at first showing only the white marginal ring, then revealing the reddish-brown or fleshy-brown disk ; margin finely crenulate ; thecae clavate-cylindrical, 8-spored, contents 1-seriate ; spores simple, pellucid, $\cdot 006 - \cdot 008 \times \cdot 002 - \cdot 004$ m.m. ; paraphyses not separating.

Hab.—Unrecorded.

10. *L. Queenslandiæ* *C. K.*

- Thallus sordid white or dull flavescent, granular in small rounded granules, resembling the verrucæ of a *Pertusaria*,

the prominences separated by a fine areolate network, surface irregular. Apothecia elevate, very numerous in the central area, $\cdot 7$ — $\cdot 9$ m.m.; disk waxy, pale-red; margin crenulate from the earliest stages, thickish, thalline, rosary-shaped
 K under the lens; spores simple, pellucid, oval, $\cdot 005$ — $\cdot 008$ x $\cdot 002$ — $\cdot 0035$ m.m.

Hab.—Mt. Perry on bark.

Very closely approximating to *L. pinguis*.

11. *L. sorediifera* *Fee.*

Thallus cinereo-flavescent and thickly granulose, granules somewhat gibbose—irregular. Apothecia from small and
 M. regular to 1 m.m. and plicate-angulose; margin entire or plicate; disk flat, nude; spores 8, simple, hyaline, $\cdot 012$ x $\cdot 006$ m.m. Near *L. granulosa* *Mull. Arg.*

Hab.—Unrecorded.

12. *L. melanommata*, *C.K.*

Thallus from very pale cinereous to white, minutely areolate, circumference subeffigurate, areolæ flat, variously angled, thin, smooth, discrete; hypothallus black, laid bare between the areolæ. Apothecia very small, $\cdot 27$ m.m. in diameter or
 K less, black, one or rarely two immersed in each areola; disk rising to the surface of the thallus, immarginate, no proper excipulum; hypothecium thick, colourless; paraphyses slender, not discrete, with rigrescent apices; spores ellipsoid, colourless, $\cdot 01$ x $\cdot 007$ m.m.

Hab.—Mt. Perry on rocks.

13. *L. lævissima*, *C.K.*

Thallus pale grey with slight reddish tinge (perhaps an accidental discoloration), smooth, continuous, very faintly reticulate-rimulose. Apothecia lecideine in appearance,
 K small, innate, level with the surface, the only margin being that portion of the thallus cut off between the disk and the surrounding chink. Spores simple, colourless, oval-oblong,

very regular in size and shape, $\cdot 009$ — $\cdot 011 \times \cdot 003$ — $\cdot 004$ m.m. Differs from *L. melanommata* in the thallus being almost continuous, and in the narrower spores.

Hab.—Mt. Perry on rocks.

14. *L. sordida*, *Fries.*

Thallus continuous, fissure cracked in flat tile-like divisions,
M whitish or cinereous, with white hypothallus. Apothecia flesh-coloured or light brown or black.

Syn.—*Zeora sordida*, *Pers* ; *Parmelia sordida*, *Fr* ; *Lecanora rimosa*, *Schaer.*

Hab.—On stones and rocks.

*** Spores 8, uniseptate, brown—*Rinodina*, *Fr.*

15. *L. continua*, *C.K.*

Thallus thin, sulphur-coloured, smooth, continuous or indistinctly reticulate-rimulose, determinate, bordered by a broad, distinct, dark-brown hypothalline zone. Apothecia small
K $\cdot 2$ — $\cdot 5$ m.m., immersed ; disk pale red to fuscous, plane ; margin fine, distinct, thalline, very slightly raised ; spores brownish, uniseptate, ovate-oblong, $\cdot 008$ — $\cdot 009 \times \cdot 003$ — $\cdot 0036$ m m.

Hab.—On rocks and stones, rising from the bed of Ithaca Creek, Taylor's Range.

16. *L. thiomela* *Nyl.*

Thallus sulphur yellow, thin, granulate or unequally subgranulate ; apothecia black or blackish, usually medium or small, bordered by a subentire or slightly crenulate thalline margin ; spores 8, brown, uniseptate $\cdot 023$ — $\cdot 03 \times \cdot 014$ — $\cdot 015$
M. m.m. ; paraphyses usually of medium thickness ; epithecium (appearing as a thin lamina) sordid yellow ; hypothecium colourless. Gel. hym with iodine caerulescent. Allied to *Lecidea lepida* *Nyl.* of Brazil, but differing in the granulate thallus and separating paraphyses.

Dr. Nyl. Lich. Nov. Zeal. p. 252

Hab.—Helidon, on rocks.

17. *L. exigua* *Ach.*

Thallus orbicular, granulated, whitish ash-coloured, thin, unequal, sub-effuse. Apothecia clustered, with a thin sometimes crenulate border, black brown when moist, small. Spores brown, 1-septate, ellipsoid; spermatogonia conoid; arthrosterigmata with straight spermatia of various sizes.

Hab.—On trees and rails.

Syn.—*L. sophodes* v. *exigua*; *L. atra* v. *exigua* *Schaer.*; *Psora exigua* *Hepp.*; *Rinodina metabolica* v. *exigua* *Kærb.*; *Rinodina exigua* *Mass.*

* * Spores 8, acicular, polyseptate—*Hæmatomma* *Fr.*

18. *L. punicea* *Ach.*

Thallus smooth, not shining, determinate, leprose, whitish or grey or glaucous, bordered with black. Apothecia numerous, crowded, in lines or in fours, or partly confluent and stellate; disk bright red, flat, or when old convex, appearing as if simply embedded in the thallus; margins indistinct, thin, white, finally crenulate; spores variable in size and shape, Sn. 9-polyseptate, fusiform-acicular, curved or sometimes twisted, & L. $\cdot 06 \times \cdot 0035$ — $\cdot 005$ m.m.; paraphyses with tips obscured by brownish-red colouring matter. Near *L. hæmatomma*.

Dr. Knight in lit. F.M.B. says identical with *L. Babingtonii*.

Hab.—Common on bark of trees.

Syn.—*Lecania punicea*, *Mull. Arg.*

19. *L. Babingtonii*, *Mass.*

Thallus pale grey with a greenish shade, roughened over with minute papillæ, leprose; apothecia raised; disk flat, bright light red; margins white, obscured in mature forms; asci saccate or oblong; spores linear, curved or subarcuate, K. $\cdot 029$ — $\cdot 035 \times \cdot 0025$ — $\cdot 004$ m.m., 5-septate, paraphyses not readily separating, apices minutely granulose, not dilated.

Hab.—Common on bark of trees in Brisbane scrubs.

* * * Spores pertusarioid—*Lecanorastrum*, *Mull. Arg.*

20. *L. parella*, *Ach.*

Thallus determinate, leprose to crustaceous, rimose-diffract or areolate-verrucose, sordid white or ashy-grey. Apothecia numerous, crowded, often angulose-diffract; disk plane or concave, dusky testaceous, coarsely albo-granulate; margin tumid, thick, often radiato-crenulate or verrucose; spores 6—8, large, $\cdot 05$ — $\cdot 06 \times \cdot 02$ m.m., double-walled,

Sn. colourless, simple; paraphyses indistinct, very delicate, without coloured or clavate heads. Spermatogonia show as minute yellow spots, sterigmata linear and simple, or slightly ramose, with acrogenous spermatia.

Hab.—Common.

Syn.—*Pertusaria parella*, *Mull. Arg.*

v. *phlæoleuca*, *Nyl.*

Thallus almost white, very thin, and in this differing from the type. Apothecia smaller than the normal form; spores

Sn. $\cdot 038$ — $\cdot 05 \times \cdot 023$ — $\cdot 025$ m.m.

Hab.—On bark of apple trees, Hocking's Nursery.

21. *L. pallescens*, *L.*

Thallus white or cinerascens, frequently isidioid or tuberculose-rugose, membranaceous or subcartilaginous or tartareous, when membranaceous rimose or areolate-verrucose,

K. when tartareous friable or mealy. Apothecia pale carneous,

Sn. white pruinose; margin white, thick, tumid, entire, smooth, truly thalline, including gonidia.

Hab.—Mt. Perry.

Syn.—*Pertusaria pallescens*.

22. *L. subundulata*, *C. K.*

Thallus a beautiful pearly white, suffused with pink pruina, surface even, finely rimulose. Apothecia not crowded, large; disk flat, pink-pruinose; margin thick, rounded, ring-like,

K. later on undulate and involute. Thecae clavate-cylindrical

or ovate ; spores 1—2 seriate, simple, colourless, $\cdot 009$ — $\cdot 015$ x $\cdot 004$ — $\cdot 006$ m.m.

Hab.—Mt. Perry, on bark.

23. *L. tartarea*, *L.*

Thallus white glaucescent, membranaceous to tartareous, rimulose, granular, areolate-tuberculose. Apothecia large, scattered, very irregular in form ; disk rugulose, convex, at length plane or tumid, reddish or brownish ; margin tumid, often flexuose, paler ; spores 8, oblong-ellipsoid, simple, colourless or sub-granular, resembling those of *L. parella* but

L larger. Spermatogonia concolorous, irregular, wart-like ; ostiolar large, brown, furnished with arthrosterigmata.

Hab.—Common.

VIII —*CALLOPISMA*, *De Not.*

Thallus uniform, crustaceous, not squamulose or foliaceous, grey or yellow. Apothecia scattered, usually yellow or orange. Spores simple or polari-bilocular.

1. *C. cinnabarinum*, *Ach.* (*Mull. Arg.*)

Thallus brick-red to orange, often in large patches, crustaceous, moderately thick, rimulose-areolate, subverrucose ; areolæ plane, smooth, within flavescent ; margins when moistened appear crenate ; hypothallus black, sparse. Apothecia (resembling those of the sub-genus *Aspicilia*), minute, at length exserted, sub-convex, pallid citrine, margin sub-entire, base wanting. Spores small, simple, colourless, oblong-ellipsoid, $\cdot 008$ — $\cdot 001$ x $\cdot 003$ — $\cdot 005$ m.m.

Syn.—*Amphiloma Debanense*, *Baggl*, *Lecidea* (*Biatora*) *cinnabarina*, *Somm.*, *Lecanora cinnabarina*, *Ach.*, *Callopisma capense*, *Mass.*, *Urceolaria tesellata*, *Tayl.*

Hab.—On rocks, Ipswich, Helidon and Rosewood.

2. *C. aurantiacum*, *Lghtf.*

Thallus citrine-yellow or flavescent, granulate, leprose or tartareous, rugose and rimose ; hypothallus white. Apoth-

ecia golden or orange-coloured, biatorine, sessile, rather convex, when young crowned by the hypothallus, finally shining, subglobose, or crowded and angular; margin obtuse, pale yellow, undulate; spores variable, ellipsoid, at times subglobose, normally polari-bilocular, with or without an axial septum, $\cdot 008\text{—}\cdot 012 \times \cdot 005\text{—}\cdot 007$ m.m. *Spermagonia* orange-yellow or red; sterigmata of numerous spherical or sub-cubical cells.

Hab.—Stanthorpe and Toowoomba on rocks; v. *erythrellum* *Ach.* found on basalt at Mt. Perry and Toowoomba, has an areolate-diffract thallus, and dark orange apothecia, almost immarginate.

3. *C. sanguinolentum*, *Krph.*

M. Syn.—*Lecidea russula*, *Ach.*

SUB-TRIBE VII.—*Pertusariei*.

Characters as in the genus below.

IX.—*PERTUSARIA*, *D.C.*

Thallus crustaceous or cartilaginous-membranaceous, continuous, irregularly warted or nearly smooth. Gonidia as in *Lecanora*. Apothecia verruciform, normally covered by a cortical layer of thallus, enclosing one or several waxy-gelatinous nuclei, enveloped in pale, membranaceous, thalline perithecia; ostiola usually depressed; spores 1-8, ellipsoid, large, with thick spore coat, simple. Spermatia acicular. Paraphyses usually intricate-ramose. Differs from *Lecanora* in the clathrate-connected paraphyses, and the spore membrane strongly stratose-incrassate.

* *Lecanorastrum*, *Mull. Arg.*

Disk of apothecia disclosed as in *Lecanora*.

1. *P. velata*, *Turn.*

Thallus milk-white or whitish, smooth or rugose-unequal, rimulose, determinate, radiato-rugose or plicate towards the

circumference; verrucæ small, depressed, concolorous; apothecia pale, plane, lecanorine; disk carneous or rosy; spores solitary, ellipsoid or oblong-ellipsoid, broadly margined, endospore pale-yellow, $\cdot 18\text{--}\cdot 22 \times \cdot 07\text{--}\cdot 12$ m.m.,
 K frequently with one or more longitudinal plications, and occasional with a few transverse terminal ones.

Syn.—*Pertusaria pilulifera Pers*, *Variolaria carnea Tayl.*

Hab.—Mt. Perry.

**** Pertusæ. (a). Flavescentes.**

Verrucæ subglobose, turgid, base constricted, more or less unequally gibbose-torquate, sparsely impresso-ostiolate.

2. P. thiospoda, C. K.

Thallus continuous, smoother than usual in the genus, from sulphurous to glaucous, gonidia large. Apothecia enclosed within small verrucæ, which are $\cdot 5\text{--}1$ m.m. in diameter; rarely confluent, convex or hemispherical-difformate, single-fruited, not sorediate; ostiola punctiform, often fleshy
 K papillate, finally opened. Spores in oblong asci, solitary or gemmate, large, ellipsoid, grumous, lutescent, normally 3-limbate, central stratum thick, $\cdot 095 \times \cdot 038$ m.m. C.
 Knight, Lich. N.S.W., Trans. Lin. Soc., Dec. 1882.

Hab.—Mt. Perry, on bark.

(b) Albidæ.

3. P. pertusella, Mull. Arg.

Thallus with fruit-bearing verrucæ leaden white, smoothish, somewhat thin, shining; verrucæ crowded, rather turgid, globose-hemispherical, smallish, many nucleate, with many black ostiola, which are depressed, from minute punctiform
 M to broadish; spores geminate, $\cdot 1\text{--}\cdot 11 \times \cdot 03$ m.m., not costate within.

Lich. Beit. von Dr. J. Müller, Sep.—Ab. aus. Flora, XIX. 8.

Hab.—Toowoomba.

4. *P. petrophyes*, *C. K.*

Thallus a faded white, with the matrix occasionally laid bare. Apothecia enclosed in thalline verrucæ, which are crowded together (width 2—3 m.m.) subglobose-diformate, base inflexed, many fruited, lacunose-unequal, often alio-farinaceous, then constantly sterile; ostiola minute;

- K hymenium colourless, paraphyses very slender, capillary, flocculose-ramulose. Spores in elongate-cylindrical asci, 8, uniseriate, sometimes at both ends truncate, 3-limbate, central stratum thick, ellipsoid, lutescent, grumous, $\cdot 085 \times \cdot 034$ m.m.

Hab.—On rocks, Mt. Perry and Brisbane valley.

C. Knight, *Trans. Lin. Soc.*, Dec. 1882.

*** *Pustulatæ*—(a). *Flavescentes*.

Verrucæ hemispherical, apices not depressed, ostiola broad, widely confluent. subemergent.

P. pustulata, *Duby*.

Thallus yellowish or grey or greyish-olive, smooth, thin, effuse, continuous or rimose Verrucæ scattered. small, convex, hemispherical; ostiola dark-brown, punctiform,

- M confluent, aggregated, very slightly depressed; spores geminate, colourless, ellipsoid, simple, resembling those of *P. thiospoda*, costulate within, $\cdot 095 \times \cdot 038$ m.m.

Hab —Toowoomba, on bark.

6. *P. leiotera*, *Mull. Arg.*

Thallus virescenti-flavid, thin, continuous, with smooth polished surfaces, at length obsolete granulose-unequal; verrucæ $\cdot 7$ —1 m.m. wide, commonly with transverse branch-

- M lets distinctly longer than wide, others hemispherical with truncate obtuse vertices, base gradually rising from the thallus, pallid or fuscous, 1—3 ostiolate; ostioles somewhat confluent and rimiform; spores 2, $\cdot 11 \times \cdot 035$ m.m., within costulate. Nearly agreeing with *P. melaleuca*, but thallus intensely flavicant, with verrucæ strikingly smooth,

and in form and colour diverse. Lich. Beit. von Dr. J. Muller, XIX. 10.

Hab.—Rockhampton, on bark.

7. *P. lutescens*, *Krph.*

Thallus lutescent, bordered by a fine obscure line; verrucæ
M numerous, small, crowded and often confluent; ostiola
punctiform, black, 2—4 in each verruca. Spores 2, $\cdot 08$ — $\cdot 132$ x $\cdot 036$ — $\cdot 066$ m.m.; endospore transversely plicate, often in the middle longitudinally fissured.

Hab.—Rockhampton.

(b). *Albidæ.*

8. *P. sorediata*, *C. K.*

Thallus white or grey, at times with faint greenish tinge, seldom more than 4 m.m. thick, with surface closely and evenly rimose-areolate. Verrucæ hemispherical, to 1.5 m.m., with sorediferous summits, showing a coarsely granular formation. Sterile.

K *Hab.*—In patches frequently 3—4 ft. wide, on rocks, near Brisbane.

* * * *Depressæ.*

Fruit bearing verrucæ hemispherical, with apex at length depresso-concave, in the depression crowdedly or sub-confluently ostioligerous.

Albidæ.

9. *P. melaleuca*, *Duby.*

Thallus yellowish cream colour, thin, membranaceous, sub-determinate, smoothish; verrucæ scattered, hemispherico-depressed, irregular, polycarpous; ostiola brownish-black, pseudo-disciform, depressed, thalline margin lacerate; spores
M 2, colourless, ellipsoid, simple, $\cdot 045$ — $\cdot 08$ m.m. long,

This plant normally in parts or wholly pallido-flavescent, by decortication changes to white, and falls away like farina. Lich. Beit. v. Dr. J. M., XIX. 11.

Hab.—On bark, near Rockhampton.

10. *P. gibberosa*, *Mull. Arg.*

Thallus effuse, thin, here and there evanescent, continuous and smooth, milk-white; verrucæ concolorous with the thallus, depressed-hemispherical, 1—1½ m.m. wide, younger forms with base effuse, at length the same sub-contracted, at contact with thallus 3—5 gastrico-gibbose, in the centre of the apex with a few, or very few, close, at length sub-confluent, black ostiola; spores 8, .03—·035 x .014—·017 m.m., 1-seriate, not costate. Near *P. leioplaca*, but spores smaller, and verrucæ peculiarly gibbose-polygastric.

* * *
* * * *Leioplacæ*.

Verrucæ hemispherical or subglobose, base various, apex obtuse or deplanate (not depresso-concave) variously sparingly (not confluent) ostioligerous; ostiola not depressed.

(a) *Albidæ*.11. *P. leioplaca*, *Ach.*

Thallus glauco-cinereous, somewhat thin, smooth, membranaceous, determinate; verrucæ turgido-subglobose, smooth, distinctly constricted, scattered, rimose-fissured, large; vertex rotundate-obtuse or slightly deplanate; apothecia solitary; ostiola brownish-black, punctiform, slightly depressed; spores 3—4—6, colourless, ellipsoid, simple, not costate, .06—·09 x .035—·045 m.m.; hym. gel. with iodine cærulescent.

Hab.—Common on bark.

12. *P. leioplacoides*, *Mull. Arg.*

Similar to *P. leioplaca* *Ach.* in the smooth thallus, but the verrucæ smaller, 1—1½ m.m. wide, hemispherical, whitish and shining, apex at length truncate-obtuse or vertex slightly depressed or deplanate; ostiola whitish 2—5, not prominent or finally mamillari-prominent, somewhat crowded together, especially near the vertex; spores 4 (often 2 or 3), .0—·12 x .03—·038 m.m. or larger, varying very considerably in size in the same apothecium, endospore within

prominently about 25-costate. Distinguished from *P. leioplaca* by the whitish ostiola and by the structure of the endospore. Lich. Beit. v. Dr. J. M. XIX 15.

13. *P. trypeteliiformis*, *Nyl.*

Thallus cinereous, somewhat flavescent, thin, effuse, rugulose ; verrucæ concolorous, scarcely mediocre, about 1 m.m., at the base clearly distinct from the thallus, hemispherical and often irregular, vertices sub-truncate ; ostiola small, few, at first brown, then nigricant, not depressed, mammosse-emergent ; spores 3—4, $\cdot 04$ — $\cdot 09 \times \cdot 022$ — $\cdot 045$ m.m.

Hab.—On bark near Toowoomba.

v. *Hartmanni*, *Mull. Arg.*

Thallus ashy, somewhat yellowish, thin, effuse, roughened ; verrucæ concolorous, scarcely mediocre, hemispherical, and often irregular, with vertex sub-truncate, and ostiola few ; spores 2, $\cdot 13$ — $\cdot 15 \times \cdot 04$ m.m. Outwardly like the type, but differs in the 2-spored asci and larger spores.

Hab.—Toowoomba, on bark.

Lich. Beit. v. Dr. J. M. XVI., 3.

14. *P. minuta*, *C.K.*

Thallus grey, thin, fissured, almost continuous, evenly spread over small twigs, verrucæ very small with smooth apices ; between the verrucæ are small rugose points ; ostiola black, not depressed, few punctate ; spores 2, oblong-ellipsoid, marked transversely with striæ as in *P. communis*, but the markings more delicate, requiring high powers, $\cdot 06$ — $\cdot 08 \times \cdot 025$ m.m. ; paraphyses very fine, branching, matted, brownish with iodine.

Hab.—Unrecorded.

(b). *Flavicantes*.

15. *P. porinella*, *Nyl.*

Thallus yellowish white or cinereo-flavescent, diffuse, leprose-crustaceous, granular, with determinate margin ; verrucæ

Sn. smooth, rounded or lobed; ostiola brownish, irregular, approximating; thecae broad, 2-spored, often constricted in the centre; spores 2-coated, oval-oblong, smooth within, $\cdot 09\text{--}\cdot 12 \times \cdot 03\text{--}\cdot 04$ m.m. Gonidia small.

Hab.—On bark, Bowen Park, Mt. Perry, &c.

16. *P. xanthoplaca*, *Mull. Arg.*

Thallus yellow, moderately thin, effuse, very rugulose, at length rimose, superficially freely solediose-ulcerate; verrucæ $1\cdot 5$ m.m., hemispherical, with constricted base, obsoletely
M rotundate-gibbose, ostiola pallid, neither emergent nor depressed; spores 8, $\cdot 045\text{--}\cdot 05 \times \cdot 025$ m.m., not costate within.

Hab.—On rocks Toowoomba.

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17. *P. leioplacella*, *Nyl.*

Thallus yellow-white, thinly crustaceous, very similar to *P. porinella*, but with smaller rugose points between the verrucæ, which are not lævigata. Thecae cylindrical, spores 8, uni-

Sn. seriate, spore coat thickish, not costate within, $\cdot 037 \times \cdot 02$ m.m.; paraphyses matted, not granular.

Hab.—On bark of trees, Hocking's Nursery.

18. *P. subflavens*, *Mull. Arg.*

Thallus flavicant; verrucæ hemispherical, apex obtuse not depresso-concave, ostiola not confluent or depressed; spores costulate within.

M *Hab.*—Corticolous.

* * * Irregulares.
* * *

Verrucæ small, irregularly confluent, more or less sparingly punctiform-ostiolate, ostiola not at all immerso-depressed.

19. *P. leucostigma*, *Mull. Arg.*

Thallus scattered over with sordid-whitish, small, punctulate, mamillari-prominent verrucæ, glauco-cinereous, rugulose-unequal, margins argillaceo-pallid, faintly bordered by a

zonal line ; verrucæ to 1—5 m.m., nano-hemispherical, broadly deplanate-obtuse ; base not distinctly circumscribed, smooth, and concolorous with the thallus, subirregularly confluent, 1—3 fruited, 1—3 ostiolate ; ostiola often united in one, here and there 2—3 approximating, not depressed, brown, minutely punctiform, at length perforate-aperient, and girdled by white thalline areolæ ; spores 7—8, below 2-seriate, $\cdot 09$ — $\cdot 105$ x $\cdot 03$ — $\cdot 038$ m.m., not costulate. Lich. Beit. XIX. 33.

Hab.—Cunningham's Gap.

* * * * * Polycarpicæ.

Verrucæ irregular, deplanate, often but slightly emergent, commonly many fruited, and multiostiolate ; ostiola foveolate depressed.

20. *P. dermatodes*, *Nyl.*

As above. In old forms the ostioles are never delapso-concave or urceolate as in *P. leucodes* *C. K.*, which also differs in possessing black ostioles.

Hab.—Daintree River, Pentzke.



Shirley, J. 1889. "The lichen flora of Queensland, with description of species. Part III." *The Proceedings of the Royal Society of Queensland* 6(4), 129–145.
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