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Critical Notes on some Australian Helotiales and Ostropales

R. W. G. Dennis

The following notes and descriptions are based in part on collections forwarded to Kew from the Herbarium of the Waite Agricultural Research Institute, Adelaide. I have added observations made on the type collections of a number of species briefly described by Berkeley, Cooke, Massee, Hennings and the late L. Rodway of Tasmania. Very few of these have previously been figured and the diagnoses usually omitted features regarded as essential for recognition of species of these fungi by modern standards. It seems likely that most of the species will prove to be widespread in south-east Australia but hitherto they have seldom been collected, or at least identified.

Rodway's type collections have most kindly been sent on loan to Kew from the herbarium of the Tasmanian Museum, Hobart, and examination of them has shown that he had only the vaguest ideas regarding the limits of fungus genera. Hence it has been necessary, not only to amplify his descriptions, but also to redispose most of his species. It must be realised, however, that though the modern concept of genera is more precise, there is still no general agreement regarding the application of the older generic names in this group of ascomycetes. Thus, the genus called *Rutstroemia* by White and the writer was termed *Phialea* by Boudier and *Calycina* by Seaver. *Phialea* as employed in this paper is, of course, a very different genus. Rodway cited no collections and designated no types in his published diagnoses but fortunately he indicated which collection was regarded as the type on his herbarium packets so that there is little risk of misinterpreting his species now that his herbarium has been re-examined.

Hyaloscyphaceae

Perrotia lutea (*Phill.*) *Dennis*, comb. nov.

Erinella lutea Phill. in Grevillea **19,** 61 (March 1891).

Erinella novae-zelandiae Massee in Journ. Bot. **34,** 147 (1896).

Apothecia gregarious, up to 3 mm. across, disc concave, light yellow, receptacle cupshaped with prominent broad margin, densely hairy, margin white, the remainder brown with yellowish hairs, seated on a short, stout, darker brown stalk. Excipulum pseudoparenchymatous, formed of isodiametric cells 6–8μ across, hairs cylindrical, obtuse, septate, their walls thin and colourless at the tip, becoming thicker and brown towards the base, covered with fine granules throughout, up to about 150 × 3–4·5μ, sap yellowish. Asci cylindric-clavate, thick-walled and obtuse, 8-spored, 210–225 × 20–22μ, apex unstained in Melzer's reagent ; ascospores fasciculate, cylindric-fusiform, somewhat more tapering in the lower half, up to 31-septate, hyaline, 90–125 × 4–5μ. Paraphyses narrowly cylindrical, obtusely rounded, septate, 2·5–3μ thick. On dead wood and bark. Fig. 1.

VICTORIA : *Mrs. Martin* 514, typus of *E. lutea.*

SOUTH AUSTRALIA : *Craigie*, 17.6.1917, leg. *E. J. Simmens* 52, W.A.R.I. 2741.

NEW ZEALAND : Not localised, typus of *E. novae-zelandiae.*

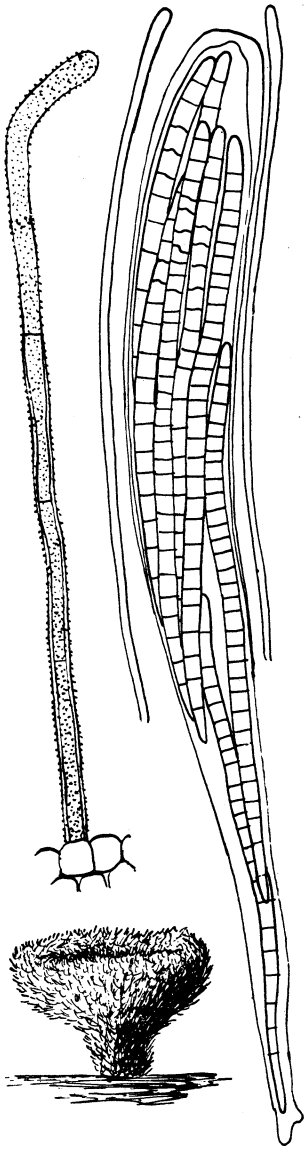

FIG. 1. *Perrotia lutea.* Apothecium × 10, ascus, paraphyses and hair × 660.

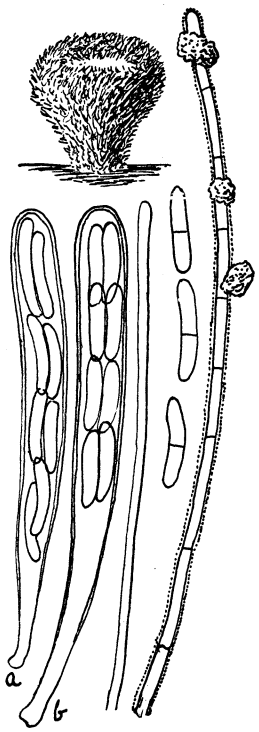

FIG. 2. *Perrotia aurea.* Apothecium × 10, details × 660. (a) ascus of P. flammea, (b) ascus, paraphysis, spores and hair of P. aurea.

Massee described the ascospores of *E. novae-zelandiae* as 85–95μ long but in the type collection I find them up to 125μ, just as in *E. lutea.*

To what genus should this curious fungus be assigned? In notes on each of the three collections cited I have commented that the asci appear bitunicate and in two of them asci were seen in which the contents, still apparently retained by a thin inner membrane, protruded through the thick outer

wall which had been ruptured by squashing the mount. Truly bitunicate asci are, however, quite unexpected in a fungus of this kind and it seems likely the unusually thick wall in *E. lutea* is due to the exceptionally large size of the asci in this species. It seems best to await observations on dehiscence of living asci before pronouncing them to be bitunicate.

Erinella Quél., to which Phillips and Massee referred their species, is regarded today as a synonym of *Dasyscyphus* S. F. Gray. The habit of the apothecia and the kind of hair are like those of a *Dasyscyphus*, even the pseudoparenchymatous excipulum can be matched in *D. cerinus*, to which indeed *E. lutea* bears considerable resemblance. The very large asci and ascospores and the cylindrical obtuse paraphyses, however, are not those of a typical *Dasyscyphus*. Even in those species described as having the paraphyses " filiform " their tips are usually pointed, not obtusely rounded, as here. *Dasyscyphella* Tranzschel was founded for *Dasyscyphus*-like fungi with acicular ascospores. Its type species has not been studied by modern methods but it was stated to have the ascus pore blued by iodine, as have the tropical species referred to *Dasyscyphella* by subsequent authors. The type species of *Lasiobelonium* Sacc. has very delicate smooth hairs and quite a different habit from *E. lutea*. I have not seen the curious genus *Arenaea* Penz. & Sacc. and it is not clear from the diagnosis and published figures whether its asci are thick-walled or not nor whether the pore is blued by iodine. Its ascospores, however, appear to be very different from those of *E. lutea*. A closer resemblance to the latter is to be found among the species of *Trichoscyphella* Nannfeldt, which show a wide range in size and shape of ascospores and have cylindrical, obtusely rounded paraphyses. All *Trichoscyphellas* have white hairs and their asci are relatively thinwalled and in these features they differ from *E. lutea*. Probably the closest resemblance to the latter is shown by the curious fungus *Peziza flammea* Alb. & Schw. ex Fr., on which Boudier based his genus *Perrotia*, distinguished by its peculiar asci which he thought to be operculate. *P. flammea* has coloured hairs very like those of *E. lutea*, though with reddish instead of yellow pigment, similarly shaped though much smaller asci, with relatively thick walls and rounded tips not blued by iodine and septate ascospores rounded at the ends. The habit, too, on bark, is like that of the Australian fungus. I propose, therefore, to revive the genus *Perrotia*, but amongst the Helotiales instead of amongst the Pezizales where Boudier placed it, and to transfer to it both *E. lutea* and the following species, *Dasyscypha aurea* Massee.

Perrotia aurea (*Massee*) *Dennis*, comb. nov.

Dasyscypha aurea Massee in Journ. Bot. **34,** 146 (1896).

Apothecia gregarious, disc yellow, concave, up to 2 mm. across, receptacle cup-shaped, with a short stout base, buff, clothed with short sulphur-yellow hairs. Hairs cylindrical, up to 200 × 3μ, multiseptate, with thin, hyaline to light yellow walls covered with fine granules and with rounded tips. Amongst the hairs and especially those towards the margin of the disc are irregular masses of a yellow granular substance, insoluble in water or KOH solution. Asci cylindric-clavate with rounded tips, not blued in Melzer's reagent, 105–110 × 10μ, 8-spored ; ascospores biseriate, cylindrical with rounded ends, straight or slightly curved, 1-septate at maturity, 14–21 × 3–4μ. Paraphyses cylindrical, 2μ wide, with rounded tips. Fig. 2.

VICTORIA : On bark, leg. *F. Reader* (Typus).

TASMANIA : On bark of *Casuarina*, Nov. 1917, *L. Rodway*.

The resemblance to *Perrotia flammea* is here particularly striking, as is shown in Fig. 2a, b, where the asci of the two species are drawn side by side at the same magnification. In the European species, however, the granules among the hairs are reddish-purple and dissolve in ammonia or KOH solution. Massee commented on the close resemblance between *D. aurea* and *E. novae-zelandiae* but was forced to place them in different genera because he was following the artificial system popularised by Saccardo, in which the shape and septation of the ascospores is a primary generic character.

Zöllneria eucalypti (*Berk.*) *Dennis*, comb. nov.

Dasyscyphus eucalypti (Berk.) Sacc., Sylloge Fungorum **8,** 462 (1889).

Peziza eucalypti Berk. apud Hooker, Flora Tasmaniae **2,** 274 (1860).

Ciboria strigosa Rodway in Proc. Roy. Soc. Tasmania **1924,** 105 (1925).

Apothecia scattered, superficial ; disc 1 mm. or more in diameter, concave, light yellow, drying orange ; receptacle saucer-shaped, soft-fleshed, yellow to olive when fresh, drying dark reddish-brown, bearing scattered, stiff, somewhat spreading, dark red to blackish bristles. These measure up to about 350 × 11μ, with numerous septa and moderately thick, smooth, red-brown walls, tapering slightly to the thinwalled, almost hyaline, rounded tips; between them are short, nonseptate, smooth, brown hairs adpressed to the excipulum and formed by the free tips of the excipular hyphae. Stalk cylindrical, slender, often longer than the diameter of the disc, concolorous, with few hairs in the upper part or none. Asci cylindric-clavate, 95–110 × 8–9·5μ, 8-spored, the pore outlined blue in Melzer's reagent ; ascospores uniseriate, ellipsoidal or inequilateral, slightly pointed below, nonseptate, hyaline, 12–17 × 3–5μ. Paraphyses cylindrical with rounded tips, 2–2·5μ wide, with oily contents. On fallen leaves and cladodes.

TASMANIA: Mt. Nelson range, on *Acacia melanoxylon*. June 1918, *L. Rodway* 832; National Park, June 1924. leg *Rodway* ; unlocalised, probably on the same substrate, leg. *W. Archer* (Typus). Fig. 3 right.

SOUTH AUSTRALIA: On *Eucalyptus*, Mt. Lofty, 21.5.1954, leg. *C. G. Hansford*; On *Banksia*, Bangham, 13.6.1952, leg. *J. Warcup*.

VICTORIA: Macedon, on *Acacia longifolia*, leg. *F. Martin* 464.

Massee (1897) suggested *P. eucalypti* 'should be placed in the genus *Cyathicula* characterized by the spines or teeth of the margin consisting of a fascicle of hyphae' but did not make the required combination. This opinion appears to have originated in a misunderstanding of the nature of the bristles.

Zöllneria clelandii (*Hansford*) *Dennis* comb. nov.

Lachnella clelandii Hansford in Proc. Linn. Soc. New South Wales **79,** 126 (1954).

Differs from the preceding in its usually larger apothecia, dark coloured stipe bristly throughout, longer bristles and larger asci, 150–190 × 10–11μ, with slightly larger ascospores, 15–19 × 5–7μ. On fallen twigs and woody debris.

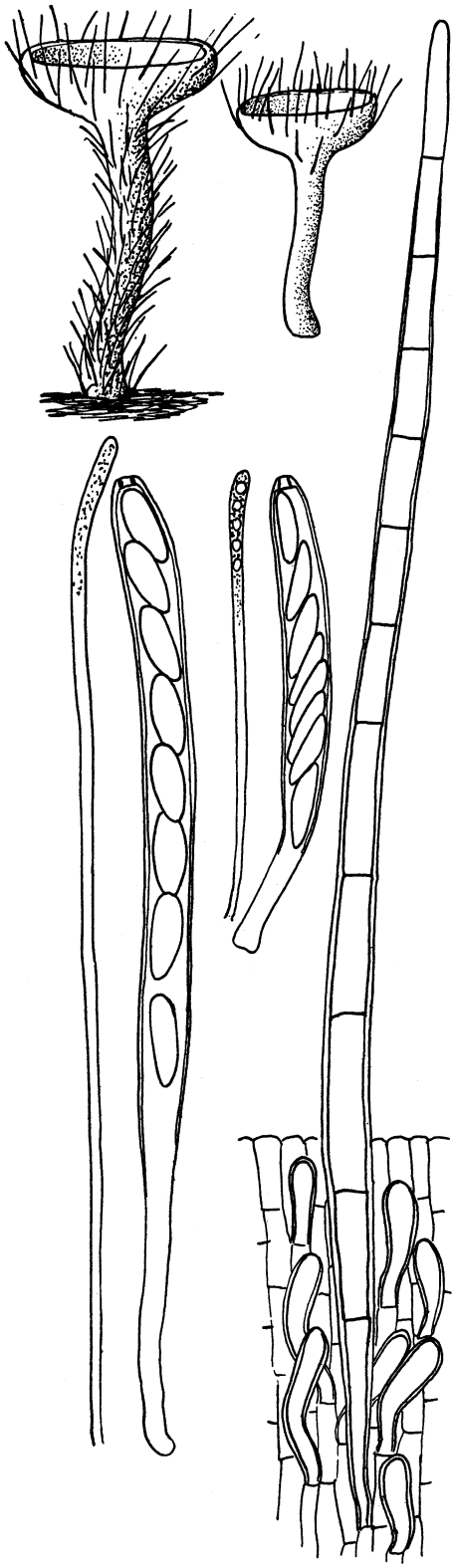

FIG. 3. *Zollneria* spp. On left apothecium, ascus and paraphysis of Z. clelandii; on right apothecium, ascus, paraphysis, hair and part of excipular surface of Z. eucalypti. Apothecia × 20, details × 660.

FIG. 4. *Dasyscyphus lachnodermus*. Apothecium × 10, ascus, paraphyses, spores and hairs × 660.

SOUTH AUSTRALIA: National Park, on *Eucalyptus* twigs, leg. *J. B. Cleland*, 26.5.1926, W.A.R.I. 2545; Meningie, July 1957, leg. *L. D. Williams*, W.A.R.I. 8579.

Judging by Rodway's published comments it seems doubtful if *D. clelandii* will prove specifically distinct from *D. eucalypti*. In Proc. Roy. Soc. Tasmania 1919, p. 114, 1920, he noted '*Dasyschypha eucalypti* Berk. is much more variable than indicated in Cooke's Handbook. It grows on all sorts of dead twigs and leaves, sometimes attaining 4 mm. diameter, the disc is livid when fresh, deep orange when dry, spores 16–24 × 4·5–8μ.' This description seems intended to cover both species. So, probably, was his second description in the same journal for 1924, p. 105, 1925, where he transferred the species to *Ciboria* under the new name *Ciboria strigosa*, with the note, 'Disc concave to convex, fleshy yellow when fresh, dark when old and dry, 2–6 mm. diameter; externally pale livid then dark; armed externally especially on the margin with few dark stiff bristles; stem thin, long, black to very short; spores 16 × 4–5μ. When the ascophore arises in a crevice and is erumpent the stem is very long; when growing in shade on dead leaves or twigs it is medium and when on smooth bark it is almost obsolete.' Hansford made no reference to Rodway's papers when he published *L. clelandii* and it seems likely he did so in ignorance of the above suggestive field notes and clearly expressed opinion on the variability of the fungus.

These two species or varieties differ from those in *Dasyscyphus* section *Glandulosae* in having stipitate apothecia and perfectly cylindrical paraphyses with rounded tips. Section *Glandulosae* appears to be a natural group and may well prove worth generic rank though the name *Lachnella* often applied to it is inapplicable as it was based on a basidiomycete. Just this combination of rather sparse, smooth, brown, glandular hairs and cylindrical obtuse paraphyses is found in *Zöllneria rosarum*, on dead rose leaves in Europe, and I accordingly propose to transfer *D. eucalypti* and *L. clelandii* to *Zöllneria*.

Dasyscyphus lachnodermus (*Berk.*) *Rehm* in 26 Berichte Naturhist. Vereins Augsburg, 761 (1881).

Peziza lachnoderma Berk. apud Hooker, Flora Tasmaniae **2,** 274 (1860).

Lachnum lachnodermum (Berk.) Hahn & Ayers in Mycologia **26,** 174 (1934).

Apothecia gregarious, superficial ; disc concave, yellow, 2–3 mm. across; receptacle shallow cup-shaped, soft, covered with short, white, somewhat spreading hairs; stalk short, stout, white and hairy above, dark brown to black at the base. Hairs cylindrical, often slightly undulating, thin-walled, hyaline, obtusely rounded or tapering slightly to a point, up to 160 × 4–5μ, sparingly septate, their walls covered with minute granules. Asci cylindrical, apex pointed, stalk short, 8-spored, pore blued by Melzer's reagent; ascospores biseriate, cylindric-clavate, pointed below, 1-septate, hyaline, 15–23 × 1·5–2μ. Paraphyses narrowly lanceolate, 3μ wide, about 10μ longer than the asci, with finely granular contents. On bark of living trees. Fig. 4.

TASMANIA: unlocalised, leg. *Archer* (Typus).

VICTORIA: Belgrave, 27.9.1934, leg. *Willis*, W.A.R.I. 2781.

Peziza lanariceps Cooke & Phillips in Grevillea **8,** 62, 1879 may be only a stunted form of the above species for I cannot find in the scanty type collection any of the purple granules mentioned in the diagnosis.

Dasyscyphus virgineus *S. F. Gray*, Natural Arrangement of British Plants **1,** 671 (1821).

Apothecia scattered, disc up to 1·5 mm. diameter, yellowish; receptacle saucer-shaped, white, drying pale yellowish-brown, clothed with persistently white short hairs; stalk slender, cylindrical, concolorous and equally hairy. Hairs cylindrical, up to 55 × 3–4μ with tips usually slightly swollen to 4·5–6μ, usually 3-septate, wall thin, finely granular, apical cell stained deeply by cotton blue. Asci 40–44 × 4–5μ, pore blued by Melzer, ascospores fusiform, 7–9 × 1–1·5μ; paraphyses lanceolate, 3μ wide, up to 15μ longer than the asci.

NEW SOUTH WALES: Mosman, on slender twigs, 1944, W.A.R.I. 2744.

The above brief description drawn up from the Australian material is sufficient to show it to be specifically identical with this common European fungus.

Dasyscypha candida Rodway 1925, on bark in Tasmania, is in my opinion not specifically distinct from *D. virgineus*. The type collection, Cascades, July 1924, differs only in its rather broad ascospores, 7–8 × 2μ, and less lanceolate paraphyses 2·5–3μ wide. The fungus published by Rodway as '*Dasyscypha virginea* Fckl.' is a *Hyaloscypha*, possibly undescribed, but the material in Rodway's packet is insufficient to form the basis of a new species.

Dasyscyphus glabrescens (*Cooke & Phillips*) *Saccardo*, Sylloge Fungorum **8,** 451 (1889).

Peziza glabrescens Cooke & Phillips in Grevillea **8,** 62 (Dec. 1879).

Apothecia scattered, superficial; disc concave, up to 1 mm. diameter; receptacle cupshaped, soft, white, drying cream coloured, clothed with fine, downy, white hairs; stalk slender, cylindrical, downy, concolorous. Hairs cylindrical, often undulating, 1–2-septate, with thin, hyaline, granulate walls, up to 60 × 4μ, their tips vary from slightly enlarged to more often slightly tapering, sometimes tipped by coarser granules. Asci cylindric-clavate, about 80 × 9μ, 8-spored, pore blued by Melzer's reagent; ascospores cylindric-fusiform, nonseptate, 13–18 × 3μ. Paraphyses narrowly cylindrical, 1·5–2μ wide, with pointed tips, not longer than the asci. On bark.

VICTORIA : Melbourne, on ?*Rhipogonum* (Liliaceae), No. 379 (Typus). Fig. 5.

Dasyscyphus hyalopus (*Cooke & Massee*) *Dennis*, comb. nov.

Erinella hyalopoda Cooke & Massee in Grevillea **19,** 48 (Dec. 1890).

Apothecia scattered, superficial ; disc concave, about 0·5 mm. diameter; receptacle cup-shaped, soft and delicate, white, clothed with short white hairs; stipe slender, cylindrical, hairy, white or drying buff towards the base. Hairs cylindrical, 80–100 × 3–4μ, tips slightly swollen to 4–6μ and rounded, walls thin, hyaline, granulate, septa usually 3. Asci cylindric-clavate, 95–100 × 9–10μ, 8-spored, pore blued by Melzer's reagent; ascospores parallel, narrowly cylindrical, curved or undulating, ends obtuse, ultimately multiseptate, 39–46 × 2μ. Paraphyses lanceolate, 3μ wide. Fig. 6.

NEW ZEALAND: on dead *Phormium*, leg. *T. Kirk*, 340 (Typus).

This species closely resembles *D. dussii* Dennis, on twigs in Guadeloupe, but in the latter the whole fungus is light yellow and the terminal cell of each hair is filled with yellow oil. Fresh collections or good field notes on fresh apothecia are desirable for comparison with the common *D. apalus* (Berk. & Br.) Dennis which, however, typically lacks the swollen tips to the hairs and is commonly supposed to be confined to *Juncus*.

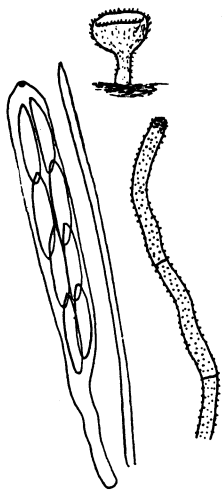

FIG. 5. *Dasyscyphus glabrescens*. Apothecium × 8, ascus, paraphysis and hair × 660.

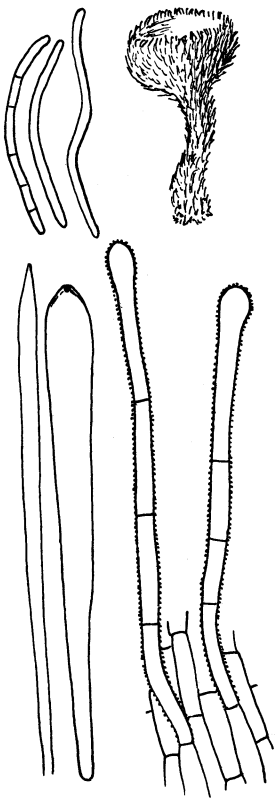

FIG. 6. *Dasyscyphus hyalopus*. Apothecium × 30, ascus, paraphysis, spores and hairs × 660.

Dasyscyphus pritzelianus (*P. Henn.*) *Dennis*, comb. nov.

Erinella pritzeliana P. Henn. in Hedwigia **42,** Beiheft (86), 1903.

Apothecia scattered, superficial, disc concave, pale yellow, scarcely 1 mm. across, receptacle shallow cup-shaped, pure white, with a well defined cylindrical white stalk shorter than the diameter of the disc, downy throughout. Hairs cylindrical, thinwalled, finely granulate, hyaline, sparingly septate, 35–50 × 3·5–4μ. Asci cylindric-clavate, short-stalked, 70 × 8μ, apex conical with minute pore blued by Melzer's reagent, 8-spored; ascospores fasciculate, usually slightly curved, cylindrical with rounded ends, hyaline, 50–55 × 1–1·5μ, nonseptate but crowded with 35–40 minute guttules. Paraphyses abundant, cylindrical, 2–3μ wide, only slightly longer than the asci. On dead 'twigs'. Fig. 7.

QUEENSLAND: Russel River, June 1902, *Pritzel* 154, portion of the type number in Herb. Sydow, Stockholm.

The hairs are considerably longer than stated by Hennings, 10–20 × 3·5μ, and are those of a typical *Dasyscyphus*. The substrate appears to be a scrambling woody Monocotyledon, probably a *Calamus*, having the axis set with groups of 5 spines at about 2·5 cm. intervals.

Dasyscyphus pteridophyllus *Rodway* in Pap. & Proc. Roy. Soc. Tasmania **1920,** 158 (1921).

Apothecia gregarious, superficial, disc concave, light yellow, up to 0·5 mm. diam. receptacle cupshaped, with a cylindrical slender stalk, lemon yellow, downy throughout. Hairs cylindrical, obtuse, up to 55 × 3μ, with thin, yellow, granulate walls, sparingly septate, liberating a little yellow sap into ammonia. Asci cylindric-clavate, 40–50 × 4–5μ, pore minute, blued by Melzer's reagent, 8-spored; ascospores irregularly biseriate, narrowly fusiform, pointed at each end, 11–17 × 1–1½μ. Paraphyses delicate, cylindrical with pointed tips no longer than the asci, with finely granular contents. On dead stalks of *Dicksonia antarctica*.

TASMANIA: National Park, Oct. 1920 (Typus); June 1924. Herb. Tasmanian Museum. Fig. 8.

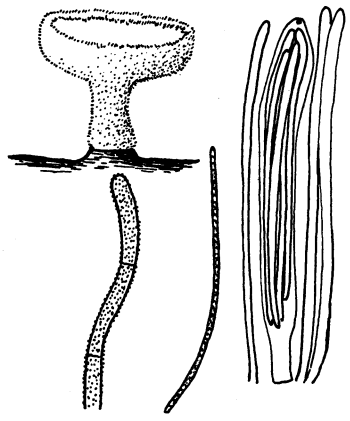

FIG. 7. *Dasyscyphus pritzelianus*. Apothecium × 20, ascus, paraphyses, spore and hair × 660.

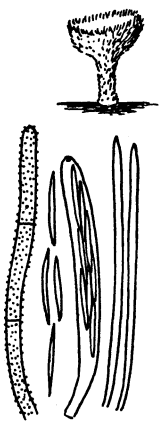

FIG. 8. *Dasyscyphus pteridophyllus*. Apothecium × 20, hair, spores, ascus and paraphyses × 660.

Dasyscyphus subciboria (*Rodway*) *Dennis*, comb. nov.

Phialea subciboria Rodway in Pap. & Proc. Roy. Soc. Tasmania **1924,** 104 (1925).

Apothecia scattered, superficial; disc flat or slightly concave, up to 2 mm. diameter, white, drying light brown to black; receptacle saucer-shaped on a short slender stalk, black throughout, minutely downy. Excipulum composed of 2–3 layers of angular almost isodiametric cells, 8–12μ across, with very dark brown thin walls, becoming more elongated and rectangular towards the margin, bearing numerous cylindrical, sparsely septate, hairs up to 100 × 2·5–3μ, with thin very dark gray-brown walls sheathed by a hyaline, brittle, incrustation about 1μ thick. Flesh thin, whitish, composed of closely woven hyphae; subhymenium thin, light brown. Asci cylindric-clavate,

60 × 5μ, 8-spored; ascospores irregularly biseriate, hyaline, nonseptate, elliptic-cylindric, 7–10 × 2–2·5μ; paraphyses slender, cylindrical, obtuse, 2μ wide. On decorticated wood. Fig. 9.

TASMANIA: Cascades, Hobart, Oct. 1919, typus Herb. Tasmanian Museum.

The closest analogy is with *D. elegantulus* (Karst.) Karst., common on herbaceous stems in Scandinavia. There seems to have been a curious confusion in Rodway's herbarium about this name. He evidently collected two fungi at the same time and the envelope of *Phialea subciboria* now contains two packets. That labelled *Phialea subciboria* in Rodway's handwriting contains another fungus, perhaps a state of that described below as *Rutstroemia lanaripes*. In spite of the label this cannot be the fungus published as *P. subciboria* which, on the contrary, is to be found in the other packet, labelled *Helotium subciborium*.

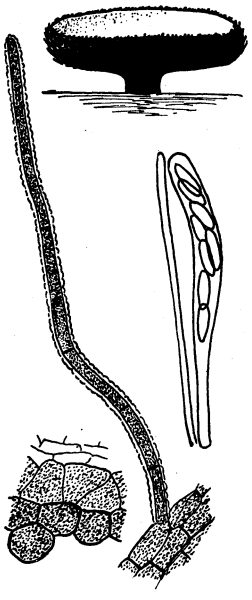

FIG. 9. *Dasyscyphus subciboria*. Apothecium × 15, hair, excipular cells, ascus and paraphysis × 660.

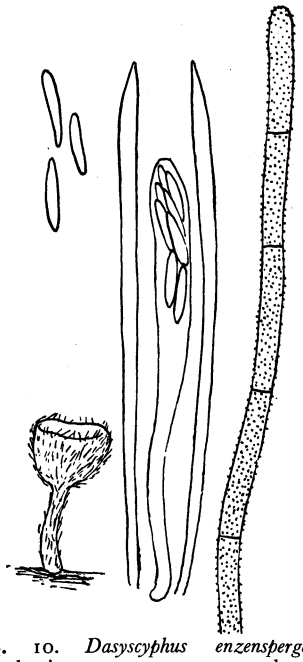

FIG. 10. *Dasyscyphus enzenspergerianus*? Apothecium × 10, ascus, paraphyses, hair and spores × 660.

?Dasyscyphus enzenspergerianus (*P. Henn.*) *Dennis*, comb. nov.

?*Lachnum enzenspergerianum* P. Henn. in Deutsche Sudpolar Exped. Bd. **8,** 1906.

Apothecia scattered, superficial; disc about 0·5 mm. diameter, concave, white; receptacle cupshaped, white, drying pinkish, hairy, with a slender cylindrical stalk up to 0·5 mm. long. Hairs cylindrical, straight or undulating, obtuse, with thin, hyaline, granulate walls, up to 125 × 4–5μ and up to 4 septate; asci cylindric-clavate, 75–85 × 5–7μ, 8-spored, pore not blued by Melzer's reagent; ascospores biseriate, elliptic-fusiform, nonseptate, 9–15 × 2–2·5μ; paraphyses lanceolate, hyaline, 3–4μ, wide, up to 20μ longer than the asci. On dead leaves of *Poa foliosa*.

MACQUARIE ISLANDS: leg. *J. Blunt*, 28.12.1954. Fig. 10.

The above determination is queried because I have been unable to trace authentic material of *L. enzenspergerianum* for comparison. It was described from leaves of *Poa cookii*, on Possession Island in the Crozet group, about latitude 46° S. in the Indian Ocean, i.e. in a similar latitude and habitat to that of the fungus collected by Blunt. There are, however, minor discrepancies between the description given by Hennings and that set out above, especially in the length of the stalk, which he gives as 100 × 100μ.

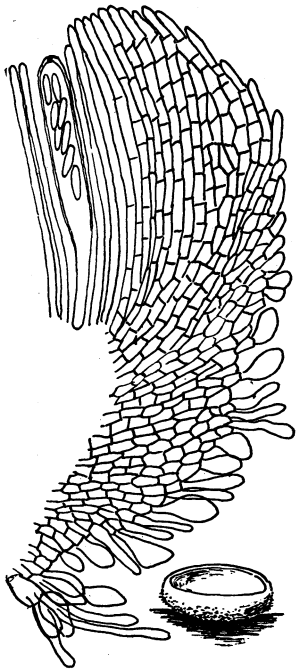

FIG. 11. *Cistella carnosa*. Apothecium section × 660.

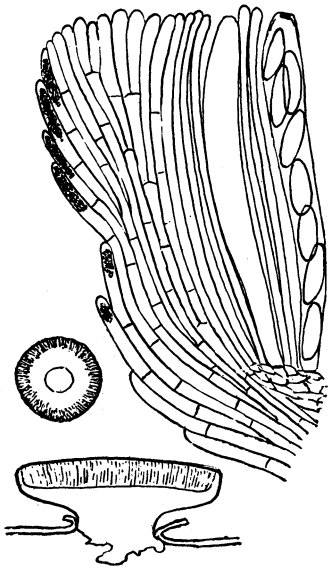

FIG. 12. *Pezizella notofagi*. Under side of apothecium × 10, diagrammatic section × 30, section of marginal tissues × 660.

Cistella carnosa (*Rodway*) *Dennis* comb. nov.

Helotium carnosum Rodway in Pap. & Proc. Roy. Soc. Tasmania **1920,** 155 (1921).

Apothecia scattered, superficial; disc flat or convex but with an involute margin, whitish, then ochraceous; receptacle saucer-shaped, sessile on a broad base, concolorous, minutely pruinose. Flesh composed throughout of short and narrow thinwalled cells, running out at the surface into 1–2-celled hairs with thin colourless walls, some cylindrical, up to 25 × 2μ, the majority more or less ovate and up to 5μ wide. Asci cylindric-clavate, 50–55 × 6–7μ, 8-spored, the minute pore blued by Melzer's reagent; ascospores usually biseriate, cylindric-fusiform, nonseptate, 6–7 × 1·5μ; paraphyses numerous, cylindrical, obtusely rounded at the tip, 1·5–2μ thick. On decorticated wood. Fig. 11.

TASMANIA: Cascades, Hobart, August 1919, typus in Herb. Tasmanian Museum.

Helotiaceae

Pezizella notofagi (*Rodway*) *Dennis* comb. nov.

Mollisia notofagi Rodway in Pap. & Proc. Roy. Soc. Tasmania **1924,** 102 (1925).

Apothecia scattered, erumpent from the mesophyll; disc flat, 0·5 mm. diameter, hyaline-gray, drying light yellowish brown; receptacle saucer-shaped, with a short stem-like base, smooth, concolorous but striate with short, blackish-brown, vertical lines below the margin. Excipulum of parallel, thin-walled, hyphae 2·5–3μ wide, terminal cell often filled with dark brown matter, to form the dark striae on the upper parts of the receptacle; asci sessile, cylindric-clavate, 70–75 × 7–8μ, 8-spored, pore blued by Melzer's reagent; ascospores uniseriate, or biseriate at the tip of the ascus, elliptic-cylindric, nonseptate, 10–14 × 3·5–4·5μ, paraphyses cylindrical, enlarged to 2–3μ wide above. On dead leaves of *Notofagus cunninghami*. Fig. 12.

TASMANIA: unlocalised, typus in Herb. Tasmanian Museum.

This fungus obviously cannot be referred to *Mollisia* or to any genus of Dermateaceae and seems to find its natural position beside *Pezizella punctoidea* (Karst.) Rehm. It lacks the basal ring of dark brown cells found in many species of *Calycellina*.

Calycella striata (*Rodway*) *Dennis*, comb. nov.

Helotium striatum Rodway in Pap. & Proc. Roy. Soc. Tasmania **1920,** 155 (1921).

Helotium microsporium Rodway op cit., 155 (1921).

Apothecia scattered, superficial, cupshaped, sessile on a small base or with a basal peg penetrating a short distance into the substrate; disc flat or concave, 1–2 mm. diameter, whitish, drying yellow; receptacle smooth, sooty brown below, paler and shading into yellow towards the incurved margin, which may be slightly striate with lighter and darker vertical lines. Flesh thick, white, firm, with a thin sooty-brown rind. Excipulum composed throughout of subparallel, undulating, hyphae with lumen 1·5–2μ wide and thick, glassy, colourless walls, terminal cells filled with dark brown granular matter to form the thin dark rind of the receptacle; subhymenium sharply differentiated, about 50μ thick, composed of loosely packed thinwalled hyphae. Asci cylindric-clavate, about 40–45 × 5–6μ, 8-spored, the minute pore blued by Melzer's reagent; ascospores uniseriate or biseriate above, broadly elliptical, hyaline, 4·5–6 × 2–3μ; paraphyses slender, cylindrical. On decorticated wood. Fig. 13.

TASMANIA: Cascades, Hobart, Aug. 1919, typus of *H. striatum*; July 1919, typus of *H. microsporium*, both in Herb. Tasmanian Museum.

The only difference I can see between *H. striatum* and *H. microsporium* is that in the apothecium of the former examined the entire flesh is composed of undulating hyphae with thick glassy walls, whereas in that of *H. microsporium* this '*Calycella*' structure is confined to the flanks of the hymenium and the outermost layer of the receptacle, the remainder of the flesh being composed of irregularly arranged thinwalled cells 6–20μ across. In view of the complete agreement of the two collections in all other characters I feel this difference in structure of the flesh is probably due to the apothecia having

been collected at different stages of growth and is not a specific character. The difference in spore size indicated by Rodway is not borne out by his material. Dried apothecia of *C. striata* bear a striking superficial resemblance to those of *Chlorosplenium chlora* but the two species have quite different excipular structures as well as different shaped ascospores.

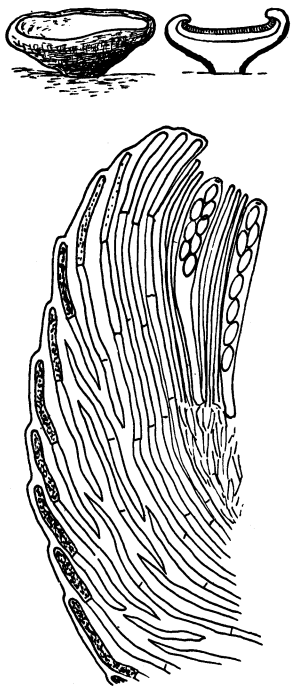

FIG. 13. *Calycella striata*. Apothecium × 20, section × 660.

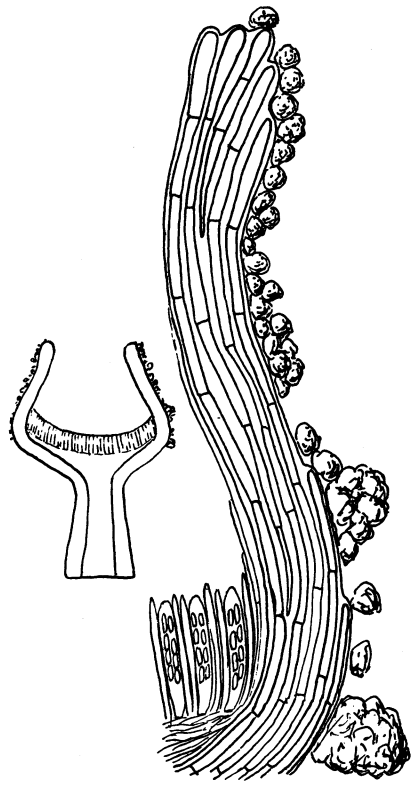

FIG. 14. *Phialea epitephra*. Diagrammatic section × 80, section of margin × 660.

Phialea epitephra (*Berk.*) *Dennis*, comb. nov.

Peziza epitephra Berk. apud Hooker, Flora Tasmaniae **2,** 275 (1860).

Tapesia epitephra (Berk.) Sacc., Sylloge Fungorum **8,** 381 (1889).

Apothecia scattered, superficial; disc concave, about 0·25 mm. diameter, drying yellowish, deeply sunk between the erect sterile margins; receptacle goblet shaped, pure white, pruinose, with a short slender stalk. Excipulum composed of parallel hyphae with thick hyaline walls, outer surface coated with irregularly rounded glassy matter, presumably calcium oxalate; subhymenium thin, formed of slender thinwalled hyphae. Asci subsessile, cylindric-clavate, 25 × 3μ, 8-spored, the minute pore blued by Melzer's reagent; ascospores biseriate, cylindric-fusiform, 2·5 × 1μ; paraphyses numerous, cylindrical, 1·5μ wide. Seated on spiral hairs on the under surface of dead leaves of *Bedfordia Salicina* DC. (Compositae). Fig. 14.

TASMANIA: unlocalised, leg. *Archer*.

The 'uniform brown stratum consisting of even curled brown threads', to which Berkeley referred in his diagnosis, consists of spiral hairs of the host. Saccardo was thus quite mistaken in transferring the species to *Tapesia* and also in his alternative suggestion that, as Berkeley did not see asci or spores, it might be a *Cyphella*. The fungus on rotten wood to which Rodway applied the name *Tapesia epitephra* has nothing in common with Berkeley's species, which is a typical *Phialea* in the sense of von Höhnel and of Nannfeldt. Rodway's fungus is an *Arachnopeziza* sensu Korf, near *A. eriobasis* (Berk.) Korf, but with smaller spores, 5–6 × 1μ and nonseptate. It differs from *Eriopezia caesia* (Pers. ex Fr.) Rehm in its hyaline celled excipulum as well as its narrower spores. The material in Rodway's herbarium is not well enough preserved to be described in detail.

I am indebted to Mr. V. Summerhayes for suggesting the identity of the type host and to Mr. Richardson for confirming this by anatomical studies.

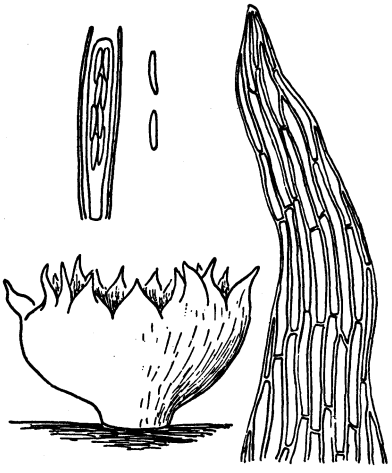

FIG. 15. *Cyathicula multicuspidata*. Apothecium × 70, marginal tooth in surface view, ascus, paraphyses and spores × 660.

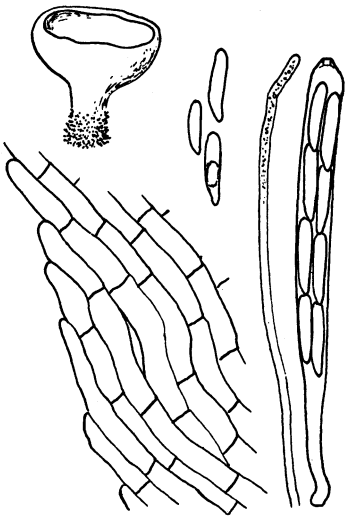

FIG. 16. *Helotium pezizoideum*. Apothecium × 10, outer layers of excipulum, spores, ascus and paraphysis × 660.

Cyathicula multicuspidata Rodway in Pap. & Proc. Roy. Soc. Tasmania **1920,** 154 (1921).

Apothecia scattered, superficial; disc up to 0·5 mm. diameter, concave, white; receptacle cupshaped, sessile on a small base, white, smooth but prolonged at the margin into long triangular membranous teeth, which curve over the disc when dry. Excipulum composed of parallel hyphae with thick hyaline walls; asci cylindric-clavate 35–40 × 4μ, 8-spored, pore not blued by Melzer's reagent; ascospores biseriate, elliptic-fusiform, 7–9 × 1–1·25μ; paraphyses filiform, obtuse, 1μ thick. On decaying rachis of *Dicksonia*. Fig. 15.

TASMANIA: Gordon, Nov. 1905, Typus in Herb. Tasmanian Museum.

Helotium pezizoideum *Cooke & Phillips* in Grevillea **19,** 72 (March 1891).

Apothecia scattered, superficial; disc slightly concave, ochraceous, up to 2 mm. across; receptacle slightly paler, shallow cupshaped, smooth, with a short, stout stalk, usually strigose with white hairs towards the base. Excipulum of slightly undulating parallel hyphae, 5–6μ wide, lying at a moderate angle to the surface. Asci cylindric-clavate, 70–90 × 6–7μ, 8-spored, the pore only faintly blued by Melzer's reagent; ascospores biseriate, cylindric-clavate, tapering below, straight or slightly curved, 10–14 × 2·5–3μ. Paraphyses cylindrical, not enlarged at the tips, 2μ thick, with granular contents. On decorticated wood.

NEW ZEALAND: Waitaki (Typus). Fig. 16.

QUEENSLAND: unlocalised, *Langdon* 1460, 21.3.1954.

This is clearly a member of the *H. calyculus–H. conscriptum* series but is probably worth maintaining as a distinct species because of its narrower ascospores and rather shorter asci.

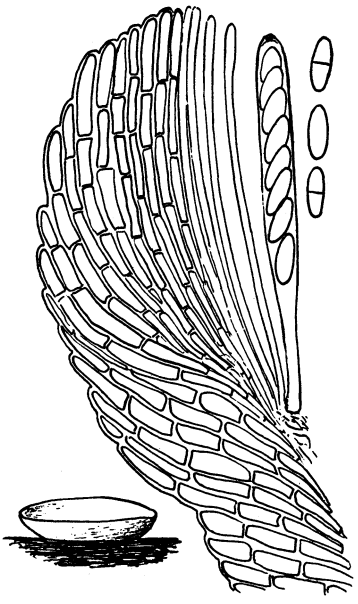

FIG. 17. *Helotium brevisporum.* Apothecium × 7, section of margin and free spores × 660.

FIG. 18. *Helotium ceratinum.* Apothecium × 15, excipular cells in surface view and spores × 660.

Helotium brevisporum *Cooke & Phillips* in Grevillea **8,** 63 (Dec. 1879).

Apothecia scattered, superficial, subsessile; disc flat, up to 3 mm. across, ochraceous, with a low obtuse margin; receptacle saucer-shaped, paler than the disc, smooth, with a short stout stalk, largely immersed in the substrate. Excipulum of parallel hyphae lying at a moderate angle to the surface, 4–5μ wide, with rather thick hyaline walls; flesh of loosely woven hyaline hyphae, stained brown in the base of the stalk only. Asci cylindric-clavate, about 75 × 6μ, 8-spored, pore blued by Melzer's reagent; ascospores uniseriate, elliptical, 8–12 × 3–4μ, becoming 1-septate. Paraphyses cylindrical, 2μ wide. On decorticated wood.

NEW ZEALAND: Waitaki, S. Berggren 30b (Typus). Fig. 17.

Helotium ceratinum (*Berk.*) *Dennis*, comb. nov.

Peziza ceratina Berk. apud Hooker, Flora Tasmaniae **2,** 275 (1860).

Phialea ceratina (Berk.) Sacc., Sylloge Fungorum **8,** 267 (1889).

Apothecia scattered, superficial; disc scarcely 1 mm. across, flat; receptacle funnel-shaped, smooth, very soft, now light brown, seated on a long, slender, cylindrical, smooth, concolorous stalk. Excipulum composed of large, delicate, thin-walled cells, about 15–25 × 7–12μ, in rows almost parallel to the surface. Asci clavate, about 110 × 10μ, iodine reaction uncertain, 8-spored; ascospores narrowly elliptical, 18–20 × 4–4·5μ. Paraphyses not clearly seen. On cladodes, probably of *Acacia* sp. Fig. 18.

TASMANIA: leg. *Archer* (Typus).

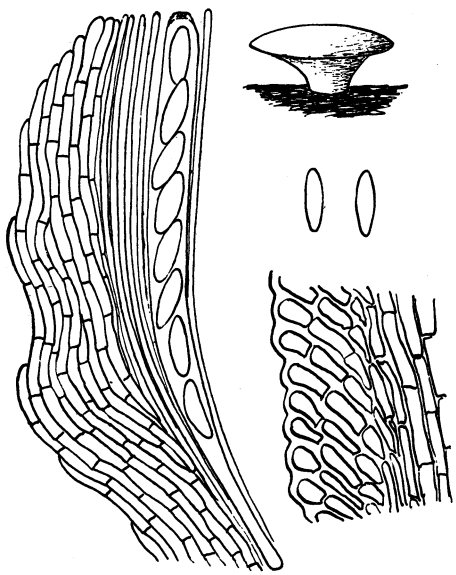

FIG. 19. *Helotium gratum.* Apothecium × 10, section of margin, spores and portion of excipulum from stalk × 660.

Massee (1901) was mistaken in his opinion that 'this species proves to be identical with *Helotium virgultorum* Karst.' The latter has larger, tougher apothecia, on dead twigs in Europe, and is generally regarded as a synonym of *H. calyculus* (Sow. ex Fr.) Fr., or at least as a member of the *H. calyculus* complex. In transferring the species to *Phialea* Saccardo was no doubt influenced by its long stalk and small stature but *P. ceratina* is not congeneric with *Phialea cyathoidea* (Bull. ex Fr.) Gill., the type species of *Phialea.* Its fresh colour is uncertain, some white species dry a similar brownish hue.

Helotium gratum (*Berk.*) *Cooke* in Grevillea **11,** 103 (March 1883).

Peziza grata Berk. apud Hooker, Flora Tasmaniae **2,** 275 (1860).

Apothecia scattered, superficial or partially inserted in the substrate ; disc convex, reddish brown, dull orange according to Berkeley, about 1–2 mm. across, margin obsolete; receptacle thin, smooth, paler than the disc, stalk short, smooth, cylindrical, concolorous. Flesh formed of slender, hyaline, loosely woven hyphae; excipulum flanking the hymenium composed

of parallel hyphae 2–3μ wide, curving to lie parallel with the surface; that of the stalk consists of similar hyphae with a superficial layer of rather thicker short-celled elements lying irregularly or almost at right angles to the surface. Asci narrowly cylindric-clavate, up to 125 × 8μ, 8-spored, pore rather feebly blued by Melzer's reagent; ascospores uniseriate, elliptical, usually biguttulate, nonseptate, 10–13 × 3–4μ. Paraphyses slender, cylindrical, 1·5μ thick. On decorticated wood. Fig. 19.

TASMANIA: leg. *Archer* (Typus).

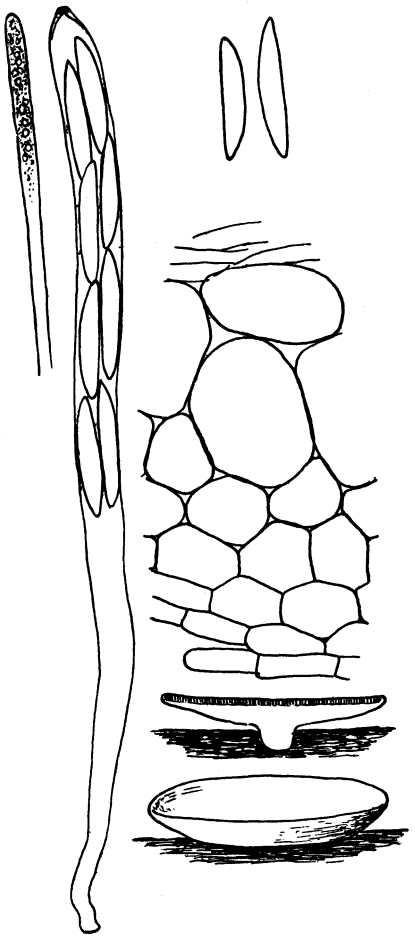

FIG. 20. *Helotium pateriforme*. Apothecium and diagrammatic section × 10, ascus, paraphysis, spores and portion of excipulum from under side of receptacle × 660.

Helotium pateriforme (*Berk.*) *Cooke* in Grevillea **11,** 102 (March 1883).

Peziza pateriformis Berk. apud Hooker, Flora Tasmaniae **2,** 276 (1860).

Mollisia verrucosa Rodway in Pap. & Proc. Roy. Soc. Tasmania **1924,** 102 (1925).

Apothecia scattered, superficial, subsessile; disc flat, pale straw colour drying ochraceous up to 5 mm. across; receptacle saucer-shaped, smooth, concolorous towards the margin, dark brown below, with a small stem-like base immersed in the substrate. Flesh composed of loosely woven hyphae,

some with light brownish walls; excipulum relatively thin in the lower part of the receptacle, formed of broadly elliptical to subglobose thinwalled cells, up to 30 × 20μ, covered externally by one or two rows of short-celled hyphae, 5μ wide, which are brown-walled on the stem-like base, elsewhere almost hyaline, marginal portion of excipulum composed of similar but uncoloured hyphae throughout. Asci cylindric-clavate, 170–180 × 9 10μ. 8-spored, the small pore blue in Melzer's reagent; ascospores biseriate, elliptic-fusiform, 23–28 × 4–5μ, nonseptate; Paraphyses cylindrical, 4μ wide, filled with brownish granules. On decorticated wood and dead sticks. Fig. 20.

TASMANIA: leg. *Archer* (Typus); Marriotts Falls, June 1924, L. Rodway (Typus of *M. verrucosa*).

Massee (1896) found even larger ascospores, 27–30 × 7–8μ, with a tendency to become 1-septate at maturity. In structure *H. pateriforme* agrees with *Helotium uliginosum* var. *cortisedum* (Karst.) Karst., see Dennis (1956), but with much larger ascospores. Massee cited *Helotium aglaeosporum* Berk 1875, on rotten wood in North America, as a synonym of *H. pateriforme*. It certainly has a similar structure but in the sole remaining apothecium I have failed to find entire asci or spores. According to Berkeley's notes the latter were 1/1,500–1/750 inch long, converted in the published diagnosis to ·0013–·0006, i.e. 33–15μ, not 8–15μ as given by Saccardo! In view of the close relationship between the Australian and North American fungus floras Massee's suggestion is by no means impossible but the bad state of the type of *H. aglaeosporum* makes it advisable to suspend judgement until fresh collections resembling *H. pateriforme* are produced from the Carolinas.

Helotium tasmanicum *Rodway* in Pap. & Proc. Roy. Soc. Tasmania **1920,** 155 (1921).

This differs from *H. pateriforme* only in its smaller ascospores, 12–18 × 4μ, in asci 155 × 8μ. In this it agrees with *H. gratum* which, however, apparently differs in shape and excipular structure.

TASMANIA: on decorticated wood, Cascades, Hobart, Oct. 1919, typus in Herb. Tasmanian Museum.

Phialea byssogena (*Berk.*) *Sacc.*, Sylloge Fungorum **8,** 267 (1889).

Peziza byssigena Berk. apud Hooker, Flora Tasmaniae 2, 275 (1860).

Only one immature apothecium remains on the type collection. From this I have been unable to obtain asci but its excipular structure is clear, composed of parellel thinwalled hyphae 5μ wide, therefore that of a *Helotium* or *Pezizella*, not that of a *Phialea*. Massee's (1901) statement 'this species is identical with *Helotium aureum* Pers.' reflects his misconception of the latter species. As I have shown elsewhere, the true *H. aureum* Pers. is the stilbaceous fungus commonly called *Dendrostilbella baeomycioides* (Massal.) Lindau, which is confined to resinous exudations from conifers. According to Berkeley the ascospores of *P. byssigena* were elliptic-cylindric, 1/3000 inch long, i.e. 8·5μ, a little short for those of *Pezizella parile* (Karst.) Dennis, which is presumably the fungus Massee had in mind and which it does in general closely resemble. The basal mycelium to which Berekley referred and which inspired the name may not be connected with the apothecia.

Phaeohelotium recurvum (*Rodway*) *Dennis*, comb. nov.

Cenangium recurvum Rodway in Proc. Roy. Soc. Tasmania **1924,** 95 (1925).

Apothecia superficial, disc flat, up to 6 mm. diameter, 'bright yellow brown', receptacle obconical, narrowed to a short stem-like base, smooth, straw-coloured. Flesh composed of closely packed thinwalled hyphae, excipulum about 70μ thick, formed of thinwalled–globose cells 15–20μ diameter. Asci cylindric-clavate, 115 × 9μ, 8-spored, pore blued by Melzer's reagent; ascospores uniseriate, elliptic-fusiform or slightly ovoid, non-septate, hyaline, 10–12·5 × 4–4·5μ; paraphyses cylindrical, 2μ thick. Apparently growing amongst moss on very rotten wood. Fig. 21.

TASMANIA: Bellerive, Aug. 1920.

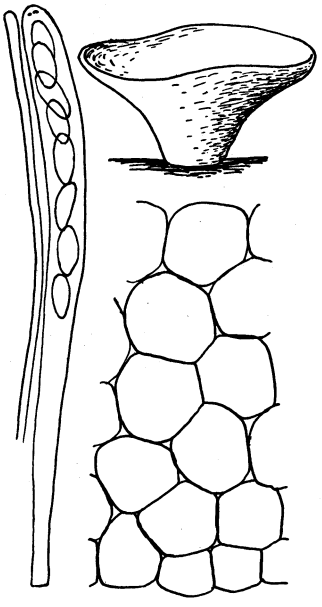

FIG. 21. *Phaeohelotium recurvum.* Apothecium × 5, ascus, paraphysis and excipular cells × 660.

The substrate was not indicated in the diagnosis but the bases of the apothecia in the type packet bear what appear to be fragments of rotten wood amongst grains of sand. The diagnosis was clearly based primarily on the above collection, which was marked 'Type' by Rodway, but the published spore size, 12–16 × 4–7μ, was extended to cover a second collection, Mt. Field, Dec. 1910, which is probably to be referred to another species.

Chlorociboria aeruginosa (*Oeder ex Fr.*) *Seaver* in Mycologia **28,** 391 (1936).

Apothecia scattered or in small clusters; disc concave, then convex, up to 3 mm. across, green, then yellow; receptacle cup-shaped, minutely pruinose, bright blue-green, stalk short, cylindrical, concolorous. Flesh white, spongy, formed of very loosely woven hyaline hyphae 2μ wide; excipulum a very thinwalled pseudoparenchyma with hyaline angular cells 5–10μ, diameter, bearing a pallisade of closely packed, short, cylindrical, simple or forked, bright blue-green hairs. Asci soft and delicate, 80–105 × 8–9μ, 8-spored,

pore deep blue in Melzer's reagent; ascospores biseriate, elliptic-cylindric, 11–15 × 2·5–3·5μ; paraphyses cylindrical 2μ thick. On decorticated green-stained wood.

NEW ZEALAND: Auckland.

AUSTRALIA: Toowoomba, leg. *Hartman* F 58.

This is *C. aeruginosa* in the sense of Nylander, Karsten and Rehm but not that of British authors, which is the smaller-spored fungus named *Peziza aeruginascens* by Nylander. Which of these two is the genuine *Elvella aeruginosa* of Oeder figured in Florae Danicae 1770 it is now impossible to discover. The type locality was in Iceland but Larsen, in listing *C. aeruginosa* from that country, does not say whether it is the large-spored or small-spored fungus that is indicated. Rodway's (1925) description makes it clear that it was the species with ascospores 10–14 × 3μ that he found on stained wood in Tasmania. *Chlorociboria versiforme* (Pers. ex Fr.) Seaver has similar asci and ascospores but has more olive-coloured apothecia with less defined stalks, brownish flesh and excipular hairs that dry yellow.

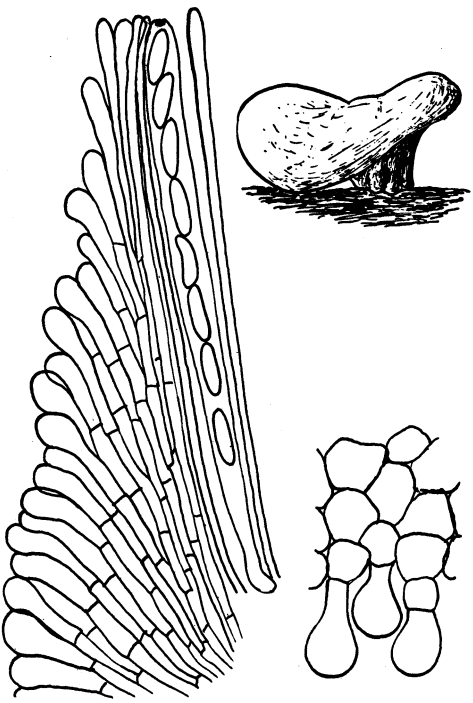

FIG. 22. *Chlorociboria versiforme* var. *olivacea*. Apothecium × 8, section of margin and of outer layers of excipulum from under side of receptacle × 660.

Chlorociboria versiforme (*Pers. ex Fr.*) *Seaver* var. olivacea (*Rodway*) *Dennis*, comb. nov.

Ciboria olivacea Rodway in Pap. & Proc. Roy. Soc. Tasmania **1924,** 105 (1925).

Apothecia solitary or in small clusters, superficial; disc convex or repand, olive-green, drying black, up to 5 mm. diameter; receptacle obconical with a short, stout, longitudinally furrowed base, pruinose throughout with minute, downy, blackish-brown hairs. Flesh composed of tightly woven hyphae, light brown in section, subhymenium thin, dark brown; excipulum-

dark brown, that of the stalk composed of undulating short-celled hyphae, approximately at right angles to the surface, that on the under side of the receptacle appearing pseudoparenchymatous in section, with angular, thin-walled, brown cells 10–15μ across, that on the flanks of the hymenium composed of brown, parallel, slender hyphae, with clavate terminal cells. Excipular hairs short, thinwalled, brown, with rounded and swollen tips about 10μ across. Asci narrowly clavate-cylindric, 115 × 6μ, 8-spored, pore blued by Melzer's reagent; ascospores uniseriate, elliptic-cylindric or slightly allantoid, 10–12 × 2·5–3·5μ; paraphyses cylindrical, slightly enlarged to 3μ at the tip. On dead wood, not stained green. Fig. 22.

TASMANIA: National Park, June 1924, typus in Herb. Tasmanian Museum.

The only differences between this and typical *C. versiforme* of Europe are that the apothecia are more uniform and less prone to unilateral growth and that the downy surface of the receptacle does not dry sulphur yellow. There are, however, irregular masses of bright yellow oily matter scattered throughout the flesh of the apothecia.

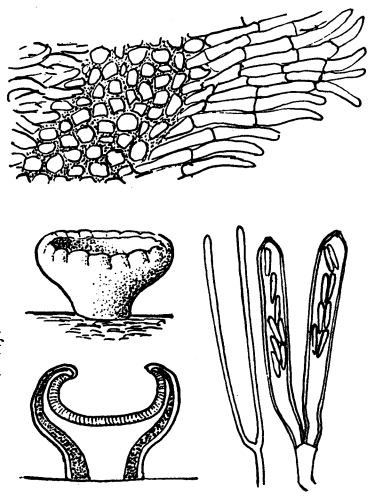

FIG. 23. *Chlorosplenium chlora*. Apothecium and diagrammatic section × 10, section of excipulum from under side of cup, asci and paraphyses × 660.

Chlorosplenium chlora (*Schwein.*) *Massee* in Journ. Linn. Soc. Bot. **35,** 116 (1901).

Peziza chlora Schwein. in Schrift. d. Naturf. Ges. zu Leipzig **1,** 122 (1822).

Chlorosplenium schweinitzii Fr., Summa Veg. Scand. Sect. Post., 356 (1849).

Peziza crocitincta Berk. & Curt. in Grevillea **1,** 6 (1872).

Pezizella crocitincta (Berk. & Curt.) Sacc., Sylloge Fungorum 8, 286 (1889).

Apothecia scattered or gregarious, subsessile, disc concave, 1–2 mm. across, bright yellow, drying ochraceous; receptacle cupshaped, glabrous, though the margin is often vertically ribbed and furrowed when dry, yellow at the margin, shading to dark brown below and in the short stem-like base. Flesh composed of closely woven pale hyphae, about 2·5μ wide, inner excipulum a zone of brown pseudoparenchyma which is replaced towards the outside by a narrow zone of paler subparallel hyphae lying at a high

angle to the surface and with free hyphal tips. Asci cylindric-clavate, short-stalked, 40–50 × 6μ, 8-spored, the minute pore blued by Melzer's reagent; ascospores irregularly biseriate, narrowly fusiform-clavate, 6–7 × 1–1·5μ; paraphyses filiform, 1μ thick, with unthickened rounded tips, branched below. The tissues yield a lemon yellow colour in KOH solution. On decorticated wood. Fig. 23.

NEW SOUTH WALES: Blue Mountains, May 1915, leg. *J. B. Cleland.*

The type collection of *P. crocitincta* looks to the unaided eye rather like an *Orbilia* but the paraphyses are not capitate, the asci and ascospores match those of *C. chlora*, and I think the tradition, beginning with Peck, which regards it as a synonym of the latter is correct. Seaver (1951) is, however, mistaken in suggesting that *Peziza pomicolor* Berk. & Rav. may be another synonym. *Chlorosplenium chlora* is a common species in North America but is apparently unknown in Europe. Its occurrence in New South Wales is thus a further indication of the American rather than Eurasian affinities of the Australian fungus flora, a circumstance which might be more easily understood if we knew a little more of the fungi of far eastern Asia. In microscopic characters this fungus is not so very unlike *Chlorociboria aeruginascens* (Nylander) Kanouse and as yellow pigment occurs in *Chlorociboria versiforme* it seems the genera *Chlorosplenium* and *Chlorociboria* are not as diverse as Seaver supposed, when he proposed the latter.

Discinella terrestris (*Berk. & Br.*) *Dennis*, comb. nov.

Helotium terrestre Berk. & Br. in Trans. Linn. Soc. London, ser. 2, **2,** 69 (March 1883) non *H. terrestre* Feltg. in Recueil Mem. Trav. Soc. G.D. Bot. Luxembourg **15,** 63 (1902).

Dasyscypha terrestris (Berk. & Br.) Sacc., Sylloge Fungorum 8, 468 (1889).

Phaeopezia ochracea Massee & Rodway in Kew Bull. **1901,** 159 (1901).

?*Aleurina readeri* Rehm in Ann. Mycol. **6,** 324 (1908).

Aleurina ochracea (Massee & Rodway) Rodway in Proc. Roy. Soc. Tasmania **1924,** 117 (1925).

Apothecia up to 1 cm. diameter, disc flat, pale ochraceous to orange, margin rather prominent, crenate; receptacle shallow cup-shaped, white, minutely downy, seated on a short cylindrical stalk. Flesh white, composed throughout of undulating hyphae about 4μ wide, which lie parallel towards the surface where their free tips protrude as short, hyaline, obtuse, smooth-walled hairs up to about 30 × 4μ. Asci cylindrical, long-stalked, about 200–225 × 10–14μ, with truncate tips in which the broad pore becomes outlined in blue by Melzer's reagent, 8-spored; ascospores elliptic-fusiform, their ends usually slightly apiculate, 14–25 × 7·5–9μ, 2–4 guttulate, wall smooth, at first hyaline but ultimately becoming brown. Paraphyses narrowly cylindrical, about 2μ thick, rounded at the tips. On soil. Fig. 24, left.

QUEENSLAND: on damp earth, Brisbane, leg. *F. M. Bailey* 299 (Typus).

NEW SOUTH WALES: Paramatta, 10.7.1912, J. B. Cleland; Kurrajong Heights, 19.8.1912, *J. B. Cleland*; National Park, Sydney, in sand, 15.7.1916, *J. B. Cleland*; Fitzroy Falls 8.6.1919, *J. B. Cleland.*

SOUTH AUSTRALIA: Meningie, on sandy soil amongst moss, July 1956, *L. D. Williams* 50; Aug. 1954, *L. D. Williams* s.n.; Port Lincoln, on ground

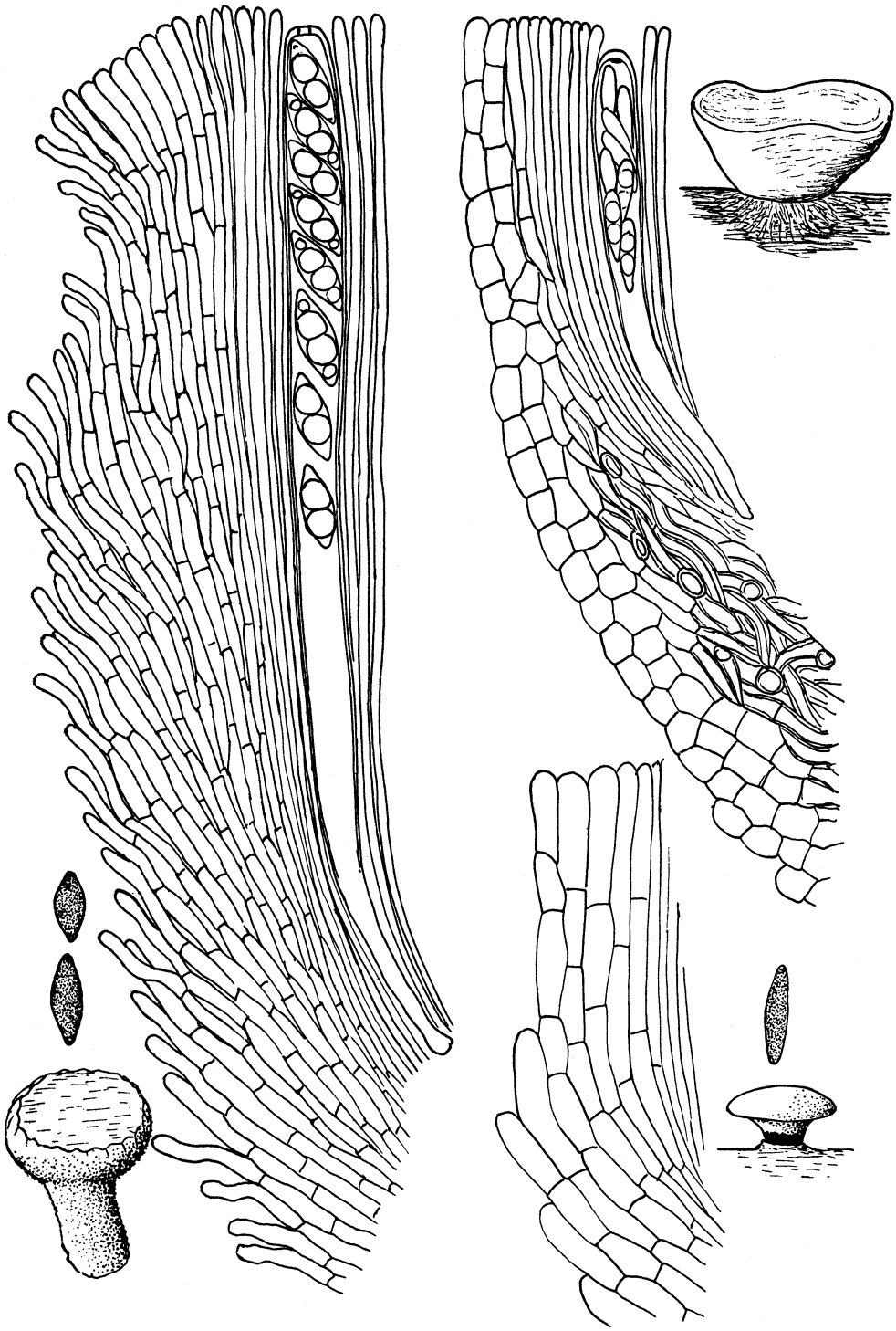

FIG. 24. Left. *Discinella terrestris*; upper right *Phaeohelotium flavum*; lower right, *Phaeociboria sejournei*; comparative studies showing habit, excipular structure and spores.

amongst moss, 16.7.1952, *N. T. Flentje*; Mt. Lofty, on bare soil, 13.7.1952; on wet soil 20.7.1952, both leg. *C. G. Hansford.*

TASMANIA: Cascades, Rodway 650 (Typus of *P. ochracea*).

I have not seen the type of *A. readeri*, from Folett County, Victoria, and refer it to *D. terrestris* from the description only. Both in its excipular structure and hymenial characters, as well as in its terrestrial habit, this common Australian fungus agrees well with European species of *Discinella*. It differs from them in its ascospores ultimately becoming brown and the genus to which it is referred will depend on the weight one lays on this character. I am inclined not to stress it and to consider our fungus more closely akin to *Discinella* than to the type species of the rather similar genera with brown ascospores, *Phaeohelotium* and *Phaeociboria*, which are illustrated with it in Fig. 24. The type species of the former, *P. flavum* Kanouse, has a thin but distinct cellular excipulum enclosing the prosenchymatous flesh. As the brown colour in the ascospore wall develops tardily and is probably not in itself a good generic character, *Phaeohelotium* would appear to provide a generic name for such species as *Pachydisca nobilis* (Vel.) Le Gal, *P. umbilicata* Le Gal, *Helotium citrinum* var. *turfaceum* (Karst.) Karst. and *Helotium lutisedum* (Karst.) Karst. all with yellow subsessile apothecia on rotten wood or humus and with a thin cellular excipulum covering a flesh of interwoven hyphae. Madame Le Gal (1953) has shown that the type species of *Pachydisca* Boud., to which two of them have been referred, is a *Rutstroemia*. The type species of *Phaeociboria* von Höhnel, *P. sejournei* (Boud.) v H., as represented by Jaap, Fungi selecti exsiccatti 501, is a softer fleshed fungus growing on plant tissue. In spite of its rather similar excipular structure and similarly shaped brown ascospores it is probably to be maintained in a different genus from *D. terrestris*. I am indebted to Miss Kanouse for authentic material of *P. flavum* for comparative studies.

Velutarina rufo-olivacea (*Alb. & Schw. ex Fr.*) *Korf* in Mycologia **45,** 476 (1953).

Peziza rufo-olivacea Alb. & Schw. ex Fr., Syst. Myc. **2,** 99 (1822).

Dasyscypha ovina Rodway in Pap. & Proc. Roy. Soc. Tasmania **1920,** 156 (1921).

The type collection of *Dasyscypha ovina* Rodway shows this species to have been based on quite typical material of the cosmopolitan *Velutarina olivacea*. It is surprising that Rodway did not recognise this for he noted most of the diagnostic characters, the peculiar mealy excipular cells, the olive-green tipped paraphyses and the brown colour of the mature ascospores. He overlooked the very characteristic elliptic green cells scattered through the flesh though they are abundant in his material. *V. rufo-olivacea* has been often figured, best in Boudier's brilliant plate Icon. mycol. 558.

TASMANIA: Cascades, Hobart, on dead bark, Aug. 1918, typus of *D. ovina.*

Encoelia toomansis (*Berk. & Br.*) *Dennis* in Kew Bull. **1957,** 398 (1958).

Tympanis toomansis Berk. & Br. in Trans. Linn. Soc. London, ser. 2, **2,** 222 (1887).

Recent collections of this beautiful species were briefly cited by Dennis (1958) and the opportunity may now be taken to describe and figure its distinctive anatomical characters.

Apothecia gregarious, about 2 mm. diameter, presistently cup-shaped, with strongly inrolled margin and long cylindrical stalk; receptacle and stalk dark brown to blackish, ornamented in the upper part with a white meal, which almost completely conceals the surface around the margin; disc gray, persistently concave; flesh whitish, with a darker core and blackish rind, hard when dry, leathery when soaked up. Flesh of the receptacle three-layered, central core composed of closely compacted subparallel hyphae about 2·5μ wide, with thin walls and brownish finely granular contents; intermediate layer with very slender, subhyaline, much branched hyphae, 1–1·5μ thick, sparsely distributed through a firm, colourless, gelatinous matrix and curving outwards towards the surface; rind two or three cells thick, individual cells subglobose, 6–9μ diameter, with dark brown walls, running out on the upper part of the receptacle into cylindrical, sparsely septate, subhyaline hairs about 4μ thick. Subhymenium thin and poorly differentiated; hymenium with numerous, slender, cylindrical, septate paraphyses, 1μ thick, embedded in a firm, light brownish, gelatinous matrix; asci not clearly seen, cylindrical, about 4μ wide, apparently unstained by iodine, with at least 4, possibly 8, ascospores. Ascospores elliptic-cylindric, hyaline, 6–10 × 2·5–3μ. On old cones of *Banksia* sp. Fig. 25.

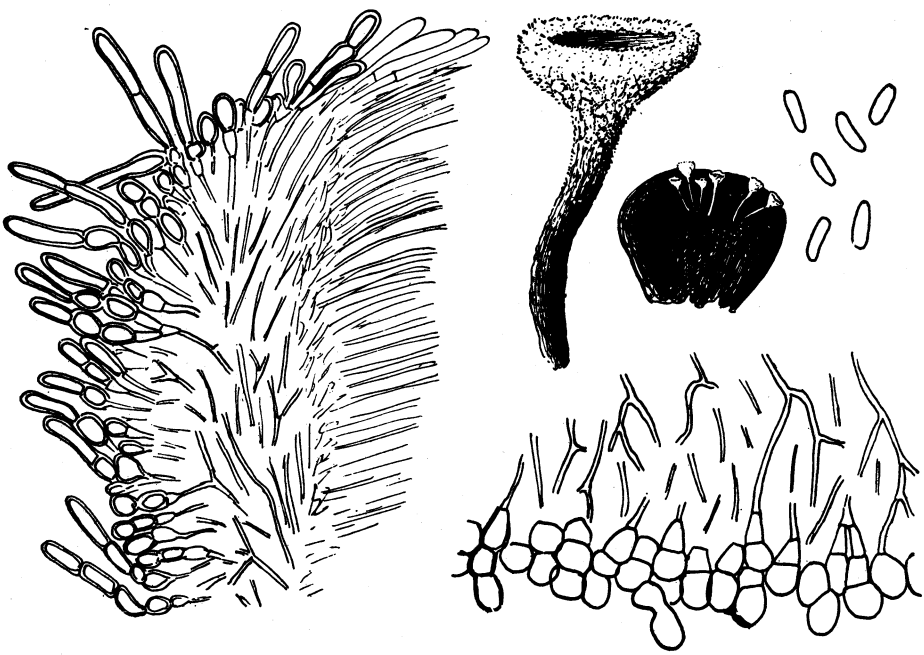

FIG. 25. *Encoelia toomansis*. Apothecia on Banksia scale natural size, one enlarged × 12, spores, section of margin and of excipulum on under side of cup × 660.

Collections made in September were immature, with only young asci beginning to appear between the paraphyses; that made in June 1957 was obviously over-mature, with its ascospores almost all discharged and the asci effete. This accounts for the uncertainty expressed regarding the ascospore number and it is also possible that the measurements cited, made on free ascospores from the hymenial surface, will be found to be rather in excess of those made on ripe ascospores in undischarged asci. The fungus appears to be

adapted to a very dry habitat and differs from other species of *Encoelia* and *Cordierites* in its gelatinous flesh and hymenium, as well as in the well developed submarginal hairs. The flesh yields no trace of the coloured solution with KOH characteristic of *Ionomidotis*. Nothing is known of the life history of the species or of its relationship with the host. In general appearance *E. toomansis* rather closely resembles *Dasyscyphus pulveraceus* (Alb. & Schw. ex Fr.) but the latter lacks the sharply differentiated cellular rind characteristic of *Encoelia*.

Rutstroemia macrospora (*Peck*) *Kanouse* in Canadian Journal of Research **18,** 547 (1940).

Helotium macrosporum Peck in Ann. Rept. New York State Mus. **26,** 82 (1874).

Apothecia solitary or in small clusters, disc up to 1·5 cm. diameter, flat, pale greyish-white, margin obsolete; receptacle thin, smooth, grey, seated on a short central stalk. Flesh composed of loosely woven hyaline hyphae 3–4μ wide; excipulum about 50μ thick, with parenchymatic cells up to 20 × 16μ, with thin brown walls, superficial cells often narrower and subcylindric. Asci slightly clavate, 140–195 × 14μ, pore blued by Melzer's reagent, 8-spored; ascospores irregularly biseriate, elliptic-fusiform or slightly curved, 28–40 × 5–7μ, hyaline, continuous, becoming up to 3-septate at maturity and budding spherical spermatia; paraphyses cylindrical, obtuse rounded, 3μ wide, with oily contents. On rotting logs of *Eucalyptus*.

VICTORIA: Hume ridge, Wallaby Creek, *Melville* 3945.

This is a common species in North America and has an extensive synonymy which may be consulted in White (1941).

Rutstroemia lanaripes *Dennis*, spec. nov.

Apothecia superficialia, sparsa, stipitata, convexa, atra, 4–10 mm. diam. ; receptaculum radiatim striolatim, margine obtusi, laevi; stipes tenuissimus; excipulis hyphis compactis, parallelis, 3–4μ diam., brunneis, efformantibus ; asci clavato-cylindracei, 115–125 × 8μ, octospori; ascosporae uniseriatae, unicellulares vel 1–3 septatae, 13–17 × 3·5–4·5μ; paraphyses angustae, simplices, apice subclavatae 2μ diam. Fig. 26.

TASMANIA: on rotting wood, leg. *Archer*, in herb. Berkeley as *Peziza lanaripes* but published by him as *P. firma*; Falls track, 13.4.1897 (Typus); Cascades, July 1920; May 1924, all in herb. Tasmanian Museum as *Ciboria firma*, leg. *L. Rodway*.

Berkeley, Cooke and Rodway all published this fungus as *Peziza firma* Pers. ex Fr., i.e. *Rutstroemia firma* (Pers. ex Fr.) Karst., from which it differs in its slaty black colour, simple excipular structure and occurrence on rotting wood instead of on twigs of *Quercus*. According to Rodway's notes and paintings the fresh apothecia are almost black throughout but in dried specimens the under surface of the receptacle and the lower part or whole of the stalk tend to become reddish-brown and the base of the stalk appears downy. The flesh is dark brown throughout, contrasting with the hymenium which appears subhyaline in section, the brown colour appears to be supplied largely by granules encrusting the hyphae. Secondary spores, so characteristic of *R. firma*, have not been observed in *R. lanaripes*.

Coryne tasmanica (*Rodway*) *Dennis*, comb. nov.

Cenangella tasmanica Rodway in Pap. & Proc. Roy. Soc. Tasmania **1920,** 156 (1921).

Apothecia gregarious, superficial, disc flat or convex, black, 1–5 mm. diameter; receptacle saucer-shaped, sessile on a broad base, smooth, black, margin often undulating. Flesh composed of closely packed hyaline hyphae, 4–5μ wide, with thick, glassy, subgelatinised walls, passing at the margin into a narrow belt of thinwalled parallel hyphae. Excipulum of angular isodiametric cells, those of the inner zone thinwalled, those of the outer layers about 5μ diameter and thick-walled, sheathed towards the base of the

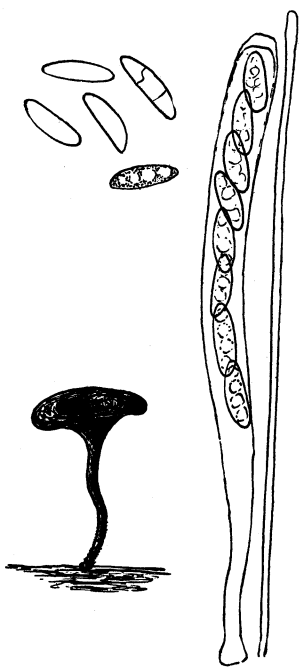

FIG. 26. *Rutstroemia lanaripes*. Apothecium natural size, ascus, paraphysis and spores × 660.

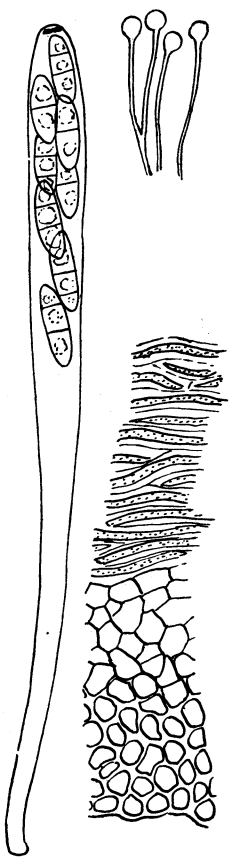

FIG. 27. *Coryne tasmanica*. Ascus, paraphysis and section of excipulum × 660.

receptacle by a zone of very slender hyphae, about 1μ wide, closely packed in a gelatinous matrix. Asci narrowly cylindric-clavate, 170× 10–12μ, 8-spored, with massive apical ring stained blue by Melzer's reagent; ascospores uniseriate, sometimes becoming biseriate at the tip of the ascus, elliptic-fusiform, 12–17 × 5μ, hyaline with oily contents, becoming 1–3-septate; paraphyses very slender, abruptly enlarged above into subglobose tips 3–4μ across, not cemented into an epithecium. On dead wood. Fig. 27.

TASMANIA: near Fern Tree, May 1912, *L. Rodway*, Typus in Herb. Tasmanian Museum.

There are odd discrepancies in Rodway's two published descriptions of this species. In the original diagnosis the apothecia are black and the spores 'light purple when mature'. In his revised description of 1925 the apothecia are purple and the spores hyaline. The type packet bears a pencil note under the sketch of a spore 'Smooth, coat thick, light purple' followed by the comment in ink 'Subsequent exam. of dry material shows spores appear hyaline or slightly tinted'. The dried material now yields a purplish-brown stain in ammonia and any colour seen in the fresh spores was probably in the sap rather than in the spore wall. *Cenangella* Sacc. is currently regarded as a synonym of *Dermea* Fr. but *C. tasmanica* does not appear to be a typical *Dermea*. The apothecia would be very large for that genus, they are not obviously erumpent but superficial on very rotten decorticated wood and there is no associated conidial state. The flesh seems to have been rather less gelatinous than in the well known *C. sarcoides* of Europe, but in all other features the two species are very alike, especially if *C. tasmanica* was purple when fresh.

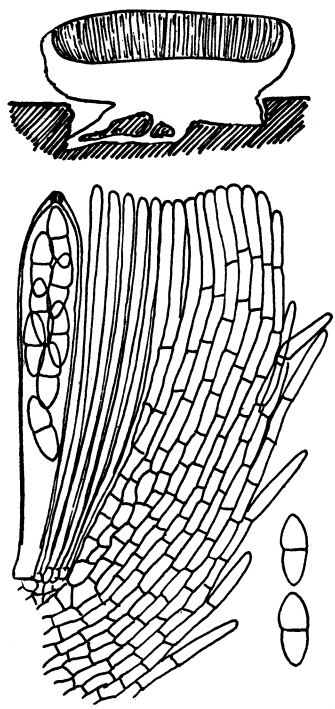

FIG. 28. *Pezicula sessilis*. Diagrammatic section × 60, section of margin and spores × 660.

Dermateaceae

Pezicula sessilis (*Rodway*), *Dennis*, comb. nov.

Helotium sessile Rodway in Pap. & Proc. Roy. Soc. Tasmania **1924,** 103 (1925).

Apothecia scattered, each on a small hyphal pad erumpent from the bark, discoid; disc flat or convex, up to 0·5 mm. diameter, pale ochre; receptacle slightly paler, minutely pruinose, sessile on a broad base. Excipulum composed of small, short, thinwalled cells, the terminal ones running out into free hair-like tips up to 18 × 3μ. Asci clavate, 70–95 × 12μ, 8-spored, with

massive apical ring blued by Melzer's reagent; ascospores usually biseriate, elliptic-fusiform, 1-septate and slightly constricted at the septa, 12–15 × 4–6μ; paraphyses cylindrical, 2μ wide. On bark of twigs. Fig. 28.

TASMANIA: Cascades, Hobart, 7.8.1898, typus.

This is certainly not a typical *Helotium*. In proposing to transfer it to *Pezicula* I have been influenced by the erumpent sessile habit and the relatively large asci with consistently septate ascospores. The convex bright coloured disc is also like that of a *Pezicula*, as is the friable consistency of dry apothecia.

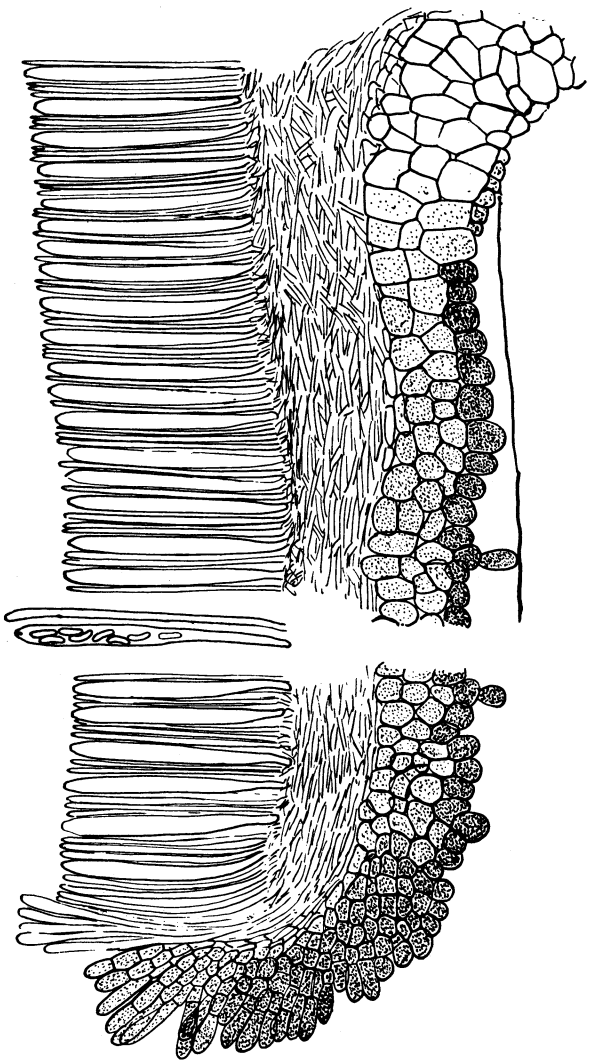

FIG. 29. *Mollisia sublividula*. Section of apothecium × 500, ascus and paraphysis × 660, from the Australian material.

Mollisia sublividula (Nyl.) Sacc., Sylloge Fungorum 8, 341 (1889).

Peziza sublividula Nyl. in Not. Sallsk. Fauna Flora Fennica 10, 61 (1869).

Apothecia gregarious, superficial but with a small peg-like base slightly inserted in the substrate. Disc up to 1 mm. across, flat and dark blue-gray

when moist, concave and dark yellowish-brown when dry; receptacle saucer-shaped, very dark brown to black, minutely downy, with a narrow white margin. Excipulum formed of thinwalled subglobose cells, for the most part 7–10μ across, 4–5 cells deep, the outermost layer very dark brown, inner layers paler, outer cells subcylindrical on the flanks of the receptacle, passing into distinct downy hairs, becoming progressively paler towards the margin where they are hyaline. A collar of larger, subhyaline, polygonal cells surrounds the peg-like base. Flesh thin, fibrous, composed of colourless hyphae. Asci very narrowly cylindric-clavate, about 50 × 4μ, 8-spored, pore minute but blued by Melzer's reagent; ascospores irregularly biseriate, narrowly cylindrical, often slightly curved, 4–6 × 1–1·5μ. Paraphyses cylindrical with rounded tips, about 2μ wide. On decorticated wood.

South Australia: Meningie, *L. D. Williams*, 9.7.1953, W.A.R.I. 3549. Fig. 29.

I am indebted to Madame Le Gal for most kindly confirming the identity of this rather scanty collection with *M. sublividula* as currently interpreted in Europe.

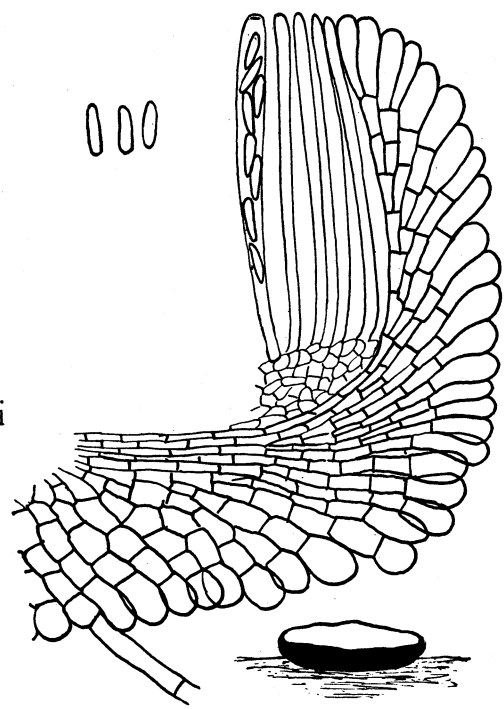

Fig. 30. *Mollisia ellipsospora.* Apothecium × 10, section and spores × 660.

Mollisia ellipsospora Rodway in Pap. & Proc. Roy. Soc. Tasmania 1924, 110 (1925).

Apothecia scattered, superficial; disc flat. 1–3 mm. across, straw yellow; receptacle discoid, sessile on a broad base, smooth, jet black throughout, margin flat, not incurved. Excipulum 30–40μ thick, formed of subglobose cells with thin dark brown walls arranged in radial rows, those towards the margin elongated with clavate terminal cells, dark brown right to the edge of the hymenium; flesh very thin formed of closely packed, slender, dark

brown hyphae; subhymenium thin, pale. Asci narrowly cylindric-clavate, 65–70 × 5μ, 8-spored, pore feebly blued by Melzer's reagent; ascospores uniseriate or a few biseriate above, elliptic-cylindric, non-septate, straight or very slightly curved, 8–10 × 2·5–3μ; paraphyses obtuse, hyaline, 3μ wide. On decorticated wood. Fig. 30.

TASMANIA: Cascades, Hobart, July 1920, typus in Herb. Tasmanian Museum.

This is the only collection in the *M. ellipsospora* packet and was labelled 'Type' by Rodway. I am unable to explain how he came to publish the spores at double their actual size, 16 × 6μ. The species is remarkable for the complete absence of a pale margin to the receptacle; in this and in its structure it recalls some of the forms referred to *Tapesia fusca* (Pers.) Fuck. A few dark brown anchoring hyphae are present on the under side of the apothecium.

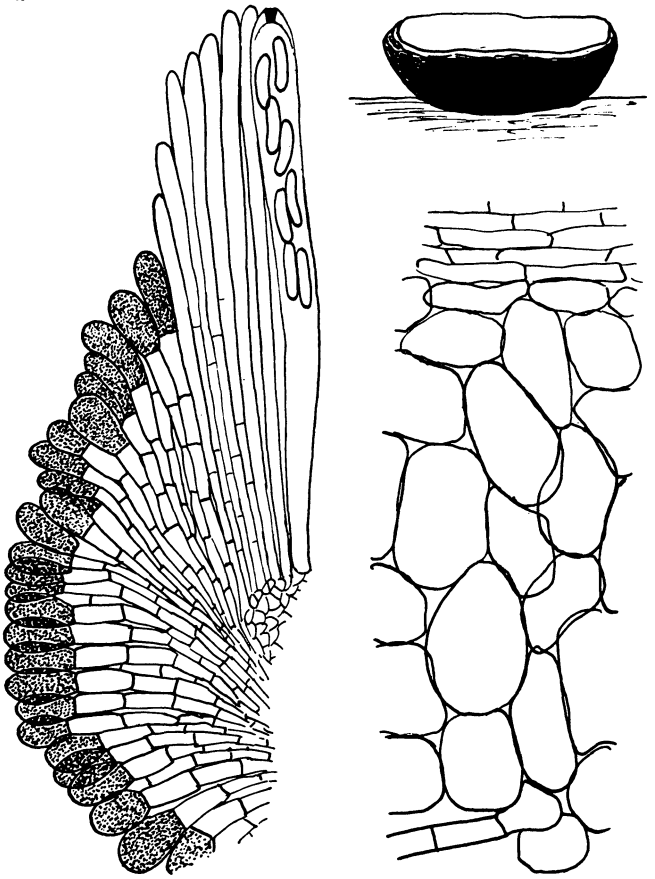

FIG. 31. *Mollisia ochronigra*. Apothecium × 10, section of margin and of basal excipulum × 660; the latter is dark-celled throughout.

Mollisia ochronigra *Rodway* in Pap. & Proc. Roy. Soc. Tasmania **1924,** 102 (1925).

Apothecia scattered, superficial; disc concave, 2–4 mm. diameter, light gray-brown; receptacle smooth, cupshaped, sessile on a broad base, dark

brown, almost black, rim broad, concolorous but with a narrow, light gray-brown, inner margin. Excipulum in the lower part of the receptacle about 100μ thick, with about 5 layers of elliptical to subglobose cells, up to 30μ diameter, with thin dark-brown walls; that flanking the hymenium composed of radiating hyphae terminated by dark-brown pyriform cells, about 12–15 × 6–8μ, passing at the margin into a few rows of hyaline hyphae parallel with the hymenial elements and considerably outtopping the last brown pyriform cells; flesh whitish, of compact thinwalled hyphae 5–6μ wide. Asci cylindric-clavate, about 110 × 9–10μ, 8-spored, the large pore deep blue in Melzer's reagent; ascospores biseriate, cylindrical with rounded ends, often slightly curved, 11–13 × 2μ; paraphyses cylindrical with rounded tips, 2·5μ wide. On decorticated rotting wood.

TASMANIA: unlocalised, typus in Herb. Tasmanian Museum. Fig. 31.

There is no subiculum but a few dark-brown anchoring hyphae are present.

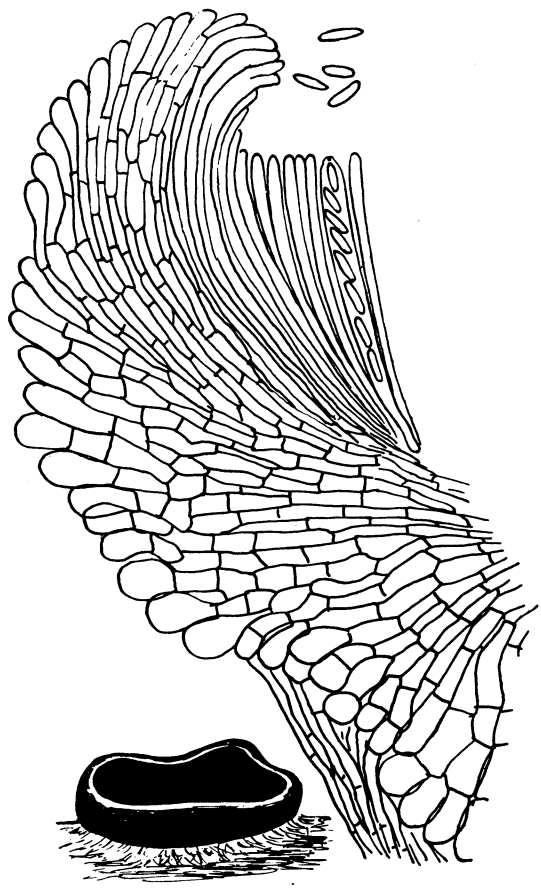

FIG. 32. *Mollisia undulata*. Apothecium × 5, section of margin × 660.

Mollisia undulata *Rodway* in Pap. & Proc. Roy. Soc. Tasmania **1920,** 155 (1921).

Apothecia gregarious, superficial; disc flat, up to 8 mm. diameter, cinereous, drying black; receptacle discoid, smooth, black, with slightly

incurved cinereous margin, sessile on a broad base. Excipulum in the basal region very thick, about 150μ, composed of thinwalled subglobose cells 20–40μ diameter, the outer 4–5 layers brown-walled, the remainder hyaline, resting on a pad of hyaline matted hyphae, excipular cells smaller towards the margin where they are cylindric-clavate, 4–5μ wide and hyaline. Flesh thick, white, composed of closely packed hyaline hyphae 4–5μ wide; subhymenium well developed. Asci narrowly cylindric-clavate, about 65 × 4μ, 8-spored, the pore blued by Melzer's reagent; ascospores uniseriate, narrowly elliptic-cylindric, straight, nonseptate, hyaline, 5–9 × 1·5–1·75μ; paraphyses cylindrical, obtuse, 2μ wide. On decorticated rotten wood. Successive apothecia occur superimposed on one another and bound together by the compact basal mat of agglutinated hyphae, which also envelopes neighbouring moss shoots.

TASMANIA: Cascades, Hobart, Aug. 1919, typus in Herb. Tasmanian Museum. Fig. 32.

Mollisia carneo-alba *Rodway* in Pap. & Proc. Roy. Soc. Tasmania **1924,** 102 (1925).

This is an operculate fungus, referable to the genus *Octospora* S. F. Gray emend. Korf (=*Humarina* Seaver), of the *Humariaceae.*

Mollisia subglobosa *Rodway* in Pap. & Proc. Roy. Soc. Tasmania **1924,** 102 (1925).

The type material appears to have been mostly destroyed by insects and very few apothecia can be detected on it. The following observations are all I have been able to make:

Apothecia scattered, superficial; disc flat to convex, 0·25–0·5 mm. diameter, pale yellowish when soaked up in ammonia, ('pale then smoky-livid to dull green or dull brown', Rodway), soft; receptacle discoid, thin, smooth, black throughout. Excipulum in the basal part composed of 4–5 layers of subglobose cells, about 10μ diameter, with thin dark purplish-brown walls; subhymenium pale, thin, Asci cylindric-clavate, long stalked, 65–70 × 6μ, 6-8-spored, pore blued by Melzer's reagent; ascospores uniseriate, ovate to pyriform, 6–8 × 3–3·5μ, colourless in ammonia but stained red-brown by Melzer's reagent and then appearing distinctly punctate; paraphyses not clearly seen. On dead bark amongst *Nectria* sp. Fig. 33.

TASMANIA: Marriotts Fall, June 1924, typus in Herb. Tasmanian Museum.

No purple stain was observed in ammonia but the structure and ascospore shape are reminiscent of *Catinella olivacea* (Batsch ex Fr.) Boud. The apothecia are much too small to be referred to that species, however, and in view of the scanty material available I prefer not to propose a redisposition of the fungus at present. It certainly is not a member of the Lecanorales.

Sorokina lignicola (*Rodway*) *Dennis*, comb. nov.

Rhizina lignicola Rodway in Pap. & Proc. Roy. Soc. Tasmania **1924,** 117 (1925).

Apothecia solitary or gregarious, superficial; disc convex, then flattened with recurved margin, black, up to 2·5 cm. diameter; receptacle thin,

pruinose, concolorous, sessile. Flesh about 0·5 mm. thick, composed of light brown, loosely woven, hyphae 3–4μ wide; excipulum thin, very dark brown, with thinwalled, subglobose cells, 10–15μ diameter, becoming scurfy; asci cylindric-clavate, 80–90 × 5–6μ, 8-spored, apex not blued by Melzer's reagent; ascospores uniseriate or biseriate above, elliptical, 1-septate, hyaline, then light brown, often appearing faintly longitudinally striate with about 4 striae visible at one time; paraphyses slender, 1μ thick, tips agglutinated by a brown matrix. On rotten wood. Fig. 34.

TASMANIA: West coast, December 1923, Typus in Herb. Tasmanian Museum.

This is doubtfully distinct from *S. microspora* (Berk.) Sacc., from Venezuela, which, however, has slightly smaller ascospores, 6–7 × 2·5–3μ with less distinct striae. Any resemblance of either fungus to a *Rhizina* is, of course, purely superficial.

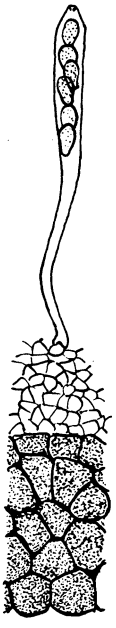

FIG. 33. *Mollisia subglobosa.* Portion of section of centre of apothecium × 660.

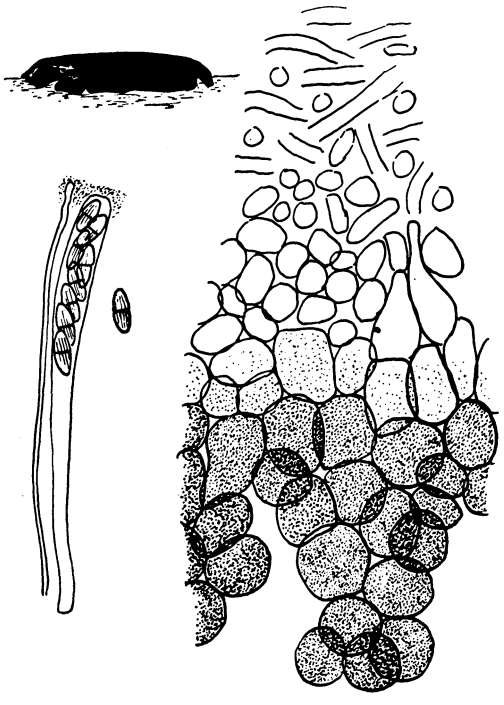

FIG. 34. *Sorokina lignicola.* Apothecium natural size, ascus, paraphysis, spore and section of excipulum × 660.

Hysteropezizella (Phaeonaevia) dianellae *Dennis*, spec. nov.

Apothecia sparsa, erumpentia, subsuperficialia, patellaria, sessilia, 0·5 mm. diam. atra, humectate plana. Excipulum fuscum, textura globulosa vel breviter prismatica, membranis cellularum atro-brunneis, subopacis. Asci cylindrici vel clavati, apice obtuso-rotundati, octospori, 60–70 × 6–7μ, Iodo non coerulescentes. Ascosporae oblique distichae, hyalinae, continuae, cylindrico-clavatae, 11–14 × 2·5μ. Paraphyses hyalinae, ramosae, filiformes, epithecium formantes, apice paullo incrassatae, atrobrunneae, ad 3μ crassae.

Hab. in foliis emortuis *Dianellae revolutae* (Liliaceae). Fig. 35.

SOUTH AUSTRALIA: Meningie, leg. *L. D. Williams*, January 1956, W.A.R.I. 6668 (Typus); February 1956, W.A.R.I. 6645.

Though the host is neither a grass, sedge nor rush and the apothecia eventually become fully erumpent, this species seems better referred to the subgenus *Phaeonaevia* of *Hysteropezizella* than to *Pyrenopeziza* because of its strongly developed epithecium with swollen brown tips to the paraphyses.

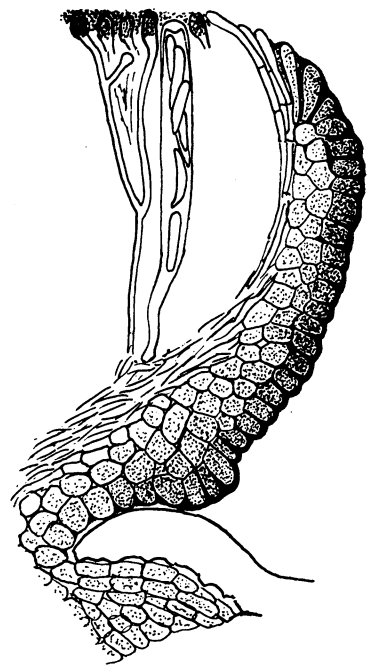

FIG. 35. *Hysteropezizella dianellae*. Section × 660.

Phacidiaceae

Cerion coccineum *Massee & Rodway* in Kew Bull. **1901,** 159 (1901).

Apothecium immersed, approximately circular, polygonal or square, erumpent through bark; disc flat, 1–2 mm. across, waxy, 'Apricot orange' or 'Flame scarlet' (Ridgway), rim erect, black, smooth, clearly divided into 4 or 5 lobes or merely uneven but continuous. Excipulum composed of agglutinated hyphae with short, thick-walled, opaque cells at their tips, forming the black surface layer. Asci 190–200 × 8μ, not capitate, pore not blued by Melzer's reagent, 8-spored; ascospores parallel, cylindrical, straight or slightly curved or undulating towards the upper end, non-septate, hyaline, about 125 × 1μ. Paraphyses simple, cylindric-clavate, 3–4μ thick towards the rounded tip, with reddish oily contents. On dead twigs.

TASMANIA: *Rodway* 654 (Typus). Fig. 36.

SOUTH AUSTRALIA: Mt. Lofty, 13.7.1952, leg. *C. G. Hansford*, W.A.R.I. 2110.

According to Massee the ascospores are 'for a long time continuous then multiseptate, finally breaking up at the septa into cells about 8–10μ long.' This was not observed in the South Australian material examined. As the asci are narrowly clavate rather than strictly cylindrical and are not capitate the genus seems to find its place among the Phacidiaceae rather than in Ostropales. In general appearance and colouring it bears a striking resemblance to '*Godronia*' *splendida* Speg., on dead branches in Brasil, but in the

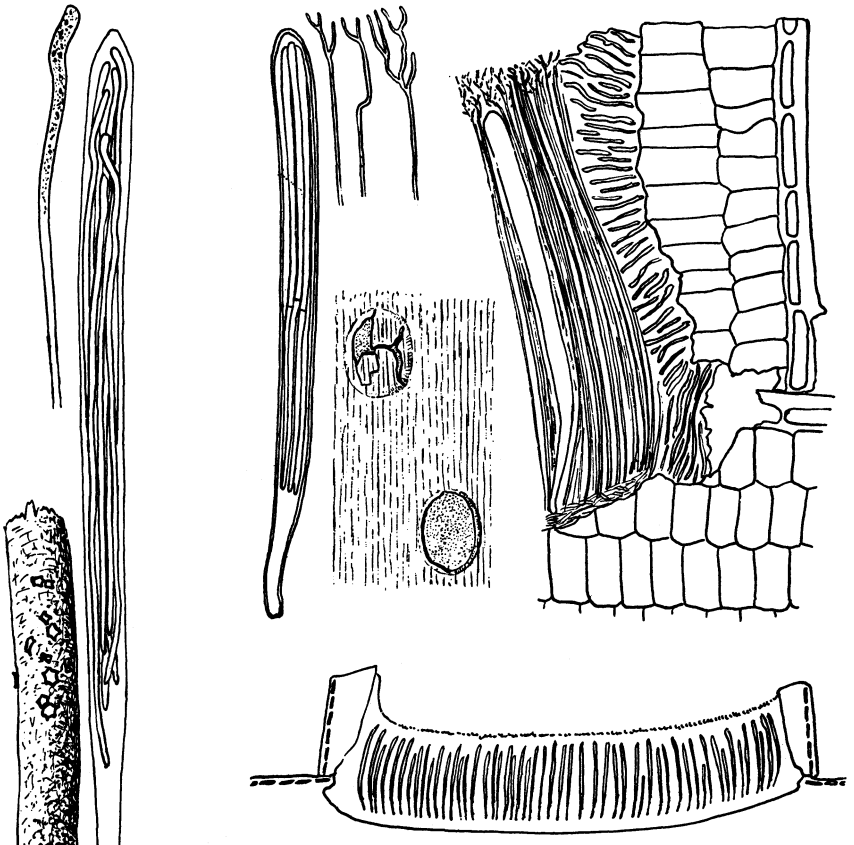

FIG. 37. *Nemacyclus gilvus*. Two apothecia in surface view × 20, diagrammatic section × 150, section of margin × 500, ascus and paraphyses × 660.

FIG. 36. *Cerion coccineum*. Apothecia on twig natural size, ascus and paraphysis × 660.

latter the apothecia become superficial and the paraphyses have dichotomously branched unswollen tips. The two species are evidently not congeneric. The affinity of *Cerion* seems to be rather with *Colpoma* Wallroth than with *Schizoxylon* Pers., to which Massee compared it. Typical species of *Colpoma*, however, have peculiar whip-like paraphyses, not enlarged at the tip. In its asci, paraphyses, ascospores, excipular structure, iodine reaction and colouring *Cerion* is totally unlike *Stictis*, to which Ainsworth and Bisby unaccountably refer it.

Nemacyclus gilvus *Rodway* in Proc. Roy. Soc. Tasmania **1917,** 107 (1918).

Apothecia scattered, immersed, broadly elliptical, up to 0·5 mm. diameter, exposed by breaking away of the host epidermis in irregular flakes. Disc flat, white, pruinose, margin surrounded by a narrow rim of upturned host

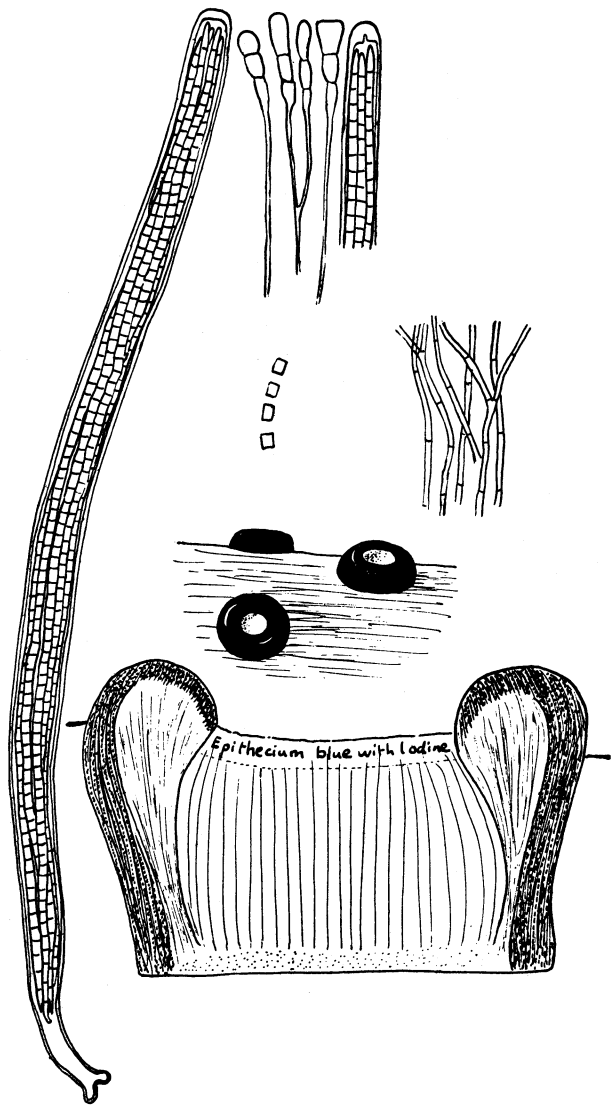

FIG. 38. *Schizoxylon hansfordii.* Three apothecia 5, diagrammatic section × 100, details × 660.

epidermis, coated on the inner side by a thin layer of slender hyphae in a hyaline matrix which, owing to their attachment to the upturned remnant of the lid, have come to lie at right angles to the rest of the hymenium. Hymenium pale buff, asci cylindrical, short-stalked, about 115 × 8μ, 8-spored, wall not thickened at the apex, with no indication of a pore plug in iodine; ascospores parallel, cylindrical, straight or nearly so, hyaline, sparingly septate, 90–100 × 1–1·5μ; paraphyses abundant, thread-like, 1μ

thick, more or less branched at the tips, which protrude above the hymenium to form the pruinose epithecium. Hypothecium very thin, hyaline, of slender woven hyphae. Fig. 37. On dead leaves of *Lepidosperma laterale*, Cape Frederick Henry, Tasmania, Nov. 1907.

Rodway's brief published diagnosis gave no anatomical details or dimensions of microscopic features but indicated that the spores break down at maturity into numerous globose particles. This is not apparent in the Kew material.

Ostropales

Schizoxylon hansfordii *Dennis*, spec. nov.

Gregarium vel sparsum; ascomatibus corticolis, erumpentibus, primitus subhemisphaercis, supra explanato marginatis, centro umbilicatis, margine atro, disco albo, pruinoso, ad 0·5 mm. latis; ascis cylindraceis, capitatis, c. 210 × 9μ, jodo haud tinctis; sporidiis filiformibus, parallelis, pluriseptatis, mox in ipso asco in articulos secedentibus; articulis elongatis vel subcuboidis, utrinque truncatis, 2·5–6 × 1·5–2·5μ; paraphysibus filiformibus, 1μ crassis, versus apicem incrassatis, 3–5μ crassis, epithecium jodo intense coeruleum efformantibus. Fig. 38.

Hab. in caulibus siccis *Lini marginalis*. Meningie, South Australia, Jan. 1957, W.A.R.I. 7719 (Typus).

The excipulum is composed of very slender, branched, septate hyphae in a gelatinous matrix. These hyphae are hyaline in the inner zone, slightly thicker and dark-brown in the outer zone of the excipulum.

Critical revisions of the genera *Stictis* Pers ex Fr. and *Schizoxylon* Pers. ex Chev. are much needed but the above collection seems different from most of the described species in its smooth black rim and white pruinose disc, probably also in the swollen tips of its paraphyses. Among those available for comparison at Kew it most closely resembles *Stictis glaucoma* Berk. & Curt., on twigs in eastern North America. In the latter, however, the blue reaction of the epithecium with iodine has not yet been observed.

Stictis arundinacea *Pers.*, Mycologia Europaea **1,** 336 (1822).

Schmitzomia arundinacea (Pers.) Karst., Mycologia Fennica **1,** 239 (1871).

Cyclostoma arundinacea (Pers.) Crouan, Florule du Finistère 30 (1867).

Apothecia scattered, immersed, about 0·5 mm. across, disc flat, dark gray, margin prominent, white pulverulent. Asci cylindrical, about 200 × 5μ, 8-spored, capitate, not blued by iodine; ascospores fasciculate, undulating, about 1·5μ wide and almost as long as the asci, cells 5–8μ long; paraphyses filiform; hypothecium and marginal hyphae dark gray-brown. Neither the epithecium nor the hymenium shows any blue reaction with Melzer's reagent. On dead grass stems.

South Australia: Meningie, *L. D. Williams* 146, May 1957.

Literature cited

Dennis, R. W. G. 1956. Revision of British Helotiaceae.
Le Gal, M. 1953. in Revue de Mycologie N.S. 18, 73–152.
Massee, G. 1901, in J. Linn. Soc. Bot. 35, 90–119.
White, L. 1941. in Lloydia 4, 153–240.