

the botanist of the *Bounty*, buried the French scientist nearby, and raised a monument with a suitable inscription in memory of the two men who had fallen by the way, struck down by ill-fortune when working for the advancement of knowledge. The incident reminds us of that occasion when in far-off Petropavlovsk La Pérouse paid a somewhat similar tribute to the memory of Captain Clerke in 1787.

Coming now to those items more immediately connected with Tasmania that had their place in the conversations between the three men in the cabin of the *Géographe*, it is a little surprising that the shallow areas of the Derwent well above Risdon should have formed a subject of discussion. The matter was after all a trivial one, but we can well understand that the question of the true position of Tasman's Frederick Henry Bay came to the front insistently, for Baudin could correctly claim credit that his work had solved a long-outstanding problem. The French commander showed himself in a well-disposed and neighbourly mood when he exhibited to his guests the coloured drawings of the natives of Van Diemen's Land, the sketches of their huts and tombs and canoes, and even the charts that had been executed. We may assume, I suppose, that the drawings displayed on that occasion are amongst those that were afterwards reproduced and published in the *Book of Illustrations* issued in Paris about the time that Péron's first volume concerning the voyage made its appearance. The same remark may be made with regard to the charts, about which Flinders expressed to Brown an unfavourable opinion.

As the host, and with some noteworthy results of the efforts of his expedition to show to his visitors, it is not to be wondered at that Baudin "held the floor" while entertaining them. Flinders recorded the fact that Baudin was more inclined to give than to receive information, though he did learn something from the Englishman about the chances of obtaining much needed food and water in the vicinity of the spot where they were conversing. Flinders's opportunity to show some of his own work to the French captain came three months later at Sydney.

Robert Brown called his notes Memoranda. They were evidently written soon after the interviews had taken place, and they show the variety of subjects that came up for discussion during the hour and three-quarters in all that he and his chief spent on the *Géographe*. We may be grateful for the things that his memory preserved for our benefit.

NOTES ON THE GENUS *PORIA*.

No. 3.

By

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and

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(Read 13th May, 1929.)

THE AUSTRALIAN PORIAS AND PORIA-LIKE FUNGI WITH HYPHÆ NOT DEEPLY COLOURED.

CONTINUED.

The present paper concludes our provisional attempt to disentangle the Australian species of the genus *Poria* and is continued from No. 2, published in these Papers and Proceedings, 1928, pp. 73-86. We are still left with a number of specimens, some probably representing other species, which time and further material may enable us eventually to define. The Australian specimens subjected to our revision have all been those in our own collections.

Owing to slipping of the type having rendered obscure the sub-headings of our section IV. in the Key, we re-submit this Key, published in our last part, completed by the addition of the species now discussed and lettered under major and minor sub-headings so as to prevent ambiguity.

KEY.

IV. Hyphæ not deeply coloured.

A. *Merulius* or meruloid.

- a. *Merulius*, sterile surface extensive, curling up at edges, whitish, reticulations flesh colour, pale tan or ochraceous tawny .. 18. *Merulius corium*
- a. Meruloid, variable, richly coloured (vinaceous cinnamon to brown) 19. *Poria merulina*
- a. *Merulius*, pure white with tendency to brownish discoloration, pores very shallow, orifices rather large 20. *Merulius candidus*

- A. Irpiciform.
- Cinnamon drab to vinaceous drab, when old dark violaceous grey, edges villose to almost byssoid
21. Resupinate forms of *Polystictus (Irpeix) versatilis*
- A. Pore mouths relatively large, 0.5 mm. or more, edge determinate, colour pallid buff
. 22. *Poria subserpens*
- A. Plants more or less brightly coloured with pink, scarlet, orange, or apricot.
- a. Definitely vinaceous pink . . 23. *Poria vinaceo-rosea*
- a. Scarlet to salmon orange . . . 24. Resupinate forms of *Trametes (Polystictus) cinnabarinus*
- a. Apricot-coloured (capucine buff, capucine orange), thin, orifices readily recognisable to naked eye 25. *Poria Archeri*
- a. Orange-tinted (warm buff, ochraceous buff, paler than capucine orange) including subiculum, relatively thick (up to 4 mm.), sometimes stratose 26. *Poria subaurantiacus*
- A. Sterile edge white, contrasting with the brown (Verona brown, warm sepia, bone brown, army brown) pore surface
. 27. Resupinate forms of *Polyporus dichrous*
- A. Tawny Olive. 28. *Poria*-like forms of *Trametes protea*
- A. Spores brown, 8 to 10 x 6.5 to 7 μ ., pores dark brown, up to 2.5 mm. deep, sterile edge dirty whitish often with tints of orange, causing a dry rot 29. *Poria incrassata*
- A. Spores white, large, 13 to 15 x 4.5 to 6.5 μ ., usually abundant, plants buff to clay colour, sterile edge white or whitish, variable, sometimes with raised edges, pores usually very oblique 30. *Poria macrospora*
- A. Spores white, usually abundant, oval or elliptical, 6 to 9 x 4 to 7 μ . Cutting like firm cheese when fresh, often with a phosphorus smell, usually inside burnt trunks, creamy-white becoming brownish, hyphæ thick, soon attacked by insects, spores 6 to 7 x 4 to 6 μ 31. *Poria dictyopora*

- A. Firmer, whitish to light buff becoming brownish, determinate, often extensive, not specially attacked by insects, spores thick-walled, 6.5 to 9.5 x 5.2 to 7.5 μ 32. *Poria medulla-panis*
- A. Hyphæ very broad, up to 7.5 μ ., very irregular, thick-walled, plants white with a cinereous tinge, up to 5 mm. thick 33. *Poria Wakefieldii*
- A. Corky-tough, rather thick (2 to 5 mm.), pallid to pale buff, rather soft to the touch, pores usually oblique, stratose, orifices 4 to 7 in 1 mm.
. 34. *Poria subcrassa*
- A. Pores rather large, 2½ to 3 in 1 mm., shallow, becoming sauff-brown, margin whitish, smooth, separating 35. *Poria westraliensis*
- A. Buff tints distinct.
- a. In parts at least definitely irpiciform. Indeterminate, pinkish buff, light ochraceous buff or cinnamon buff, orifices usually 0.2 to 0.4 mm. wide, readily recognisable to naked eye
. 36. *Irpeix obliquus*
- a. Orifices regular, true *Poria*. Indeterminate, pinkish buff or cinnamon buff, edge paler, orifices 3 to 6 in 1 mm. 37. *Poria selecta*
- A. Pinkish buff to buffy whitish, orifices minute.
- a. Edge white becoming smooth, orifices 7 in 1 mm.
. 38. *Poria minutipora*
- a. Edge like pore-surface or paler, orifices 5 in 1 mm. 39. *Poria carneo-lutea*
- A. Pores sub-hyaline in appearance, whitish to dingy whitish to ochraceous buff, orifices 4-8 in 1 mm.
. 40. *Poria hyalina*
- A. Hard, chalky white to light buff, indeterminate, intimately adherent, orifices minute, about 6 in 1 mm. 41. *Poria calcea*
- A. Purplish to vinaceous drab in parts, elsewhere often pale buff to tawny olive, pores at first meruloid, indeterminate 42. *Poria purpurea*
- A. Vinaceous flesh colour usually present, when thick throughout the substance, when thin often shades of cinnamon with paler edge, thin to thick, orifices minute, 6-11 in 1 mm. . . . 43. *Poria vineta*

- A. Pallid ochraceous, becoming ochraceous salmon and finally dark near Burnt Umber, tubes up to 2 mm. deep, orifices about 6 in 1 mm.
 44. *Poria attenuata*
- A. On the ground and rotting logs, white turning brown in drying, rarely pileate, pores oblique, spores globose, 4 to 5 μ . . . 45. *Polyporus adiposus*

32. *Poria medulla-panis* (Pers.), Fr.—Additional notes. On section the pore-surface usually presents a pallid brownish appearance. We have several collections from Tasmania which agree with the mainland forms though the characteristic spores were not found. Tasmania.—Cascades near Hobart, May, 1925, and August, 1918; National Park, January, 1928 (section of pore-surface white). Specimens collected at the National Park in January, 1928, differ from our other specimens in the substance on section being a darker brown (near Wood Brown, XL.); the pore surface is like N.S.W. specimens, but the plants are thicker (nearly 1 cm.) and the characteristic spores were not seen.

34. *Poria subcrassa*, n.sp.—Forming adherent patches up to 7.5 x 4 cm., rather thick (2 to 5 mm.), Pale Pinkish Buff to Pinkish Buff (XXIX.), Light Buff (XV.) or approaching Warm Buff (XV.), corky-tough, usually rather soft to the touch, pores stratose, usually forming most of the substance, sometimes with a thin context layer. Pores often oblique, orifices 4 to 7 in 1 mm., dissepiments rather thick, setulose. Hyphæ rather wavy and somewhat varicose, 2 to 3.5 μ ., usually about 2.5 μ ., spores not seen. Tasmania.—Cascades, November, 1919 (type), July, 1919; Mt. Nelson, July, 1919, and two other collections without localities. The species approaches *P. medulla-panis*, Pers., and *P. pulchella*, Schw., which is sometimes considered a thin variety of the former (*vide* Bourdot et Galzin). It differs from Australian specimens of *P. medulla-panis* in being usually rather soft to the touch and thicker, the pores more frequently oblique, the orifices reaching to a smaller size and the absence of the abundant oval spores of *P. medulla-panis*.

35. *Poria westraliensis*, n. sp.—Forming sharply defined patches, 8.7 x 1.8 cm. or less, with edges separating from the substratum, nearly membranous, with a broad smooth sterile margin which is whitish with a slight buffy tint. On this the shallow pores develop, becoming near Snuff Brown

(XXIX.), rather large, 2½ to 3 in 1 mm., regular, dissepiments thin, not setulose. Hyphæ pallid, thick-walled, 3 to 4.5 μ . Spores not seen. W.A.—Pemberton, August, 1926.

36. *Irpex obliquus* (Schrad.), Fr.—Rea in his *British Basidiomycetes* gives *I. obliquus* without any synonym and states that it is common. Under *Poria mucida* (Pers.), Fr., he gives = *Irpex obliquus* (Schrad.), Fr., and says that *P. mucida* is uncommon. Bourdot et Galzin (Hyménom. de France in Bull. Trimestr. de la Soc. Mycol. de France, XLI., 1925, p. 237) under *Poria mucida*, Pers., give *Irpex deformis*, Fr., *I. obliquus* (Schrad.), Fr., and *I. paradoxus* (Schrad.), Fr., as varieties.

This is a common and variable Australian species. Until identified for us by Miss Wakefield as *Irpex obliquus*, we had placed it under *Poria*, to which we feel that it more properly belongs. Anyone examining a series of specimens of it, as we have done, without knowing its name, would be inclined to place it under *Poria*, and the young mycologist will here search for it.

We have fortunately had a large amount of material, over 50 collections, at our command. Otherwise we might have failed to realise the degree of variation that exists and have inferred that we were dealing with several species. Some that we have excluded may perhaps be only extreme variants, not separate species. The species is one that must certainly possess many synonyms.

With us it is found growing on the rough bark of many of our Eucalypts and on fallen branches, bark, and wood. When growing vertically, the irpicoid arrangement is clearly shown, and as the majority of specimens are in a more or less vertical position, the irpex form of the plant is a common one. Sometimes on the underside of a log it grows horizontally, and then it would be classed as a *Poria*, though even thus the pore mouths are rather plate-like and jagged. Amongst our specimens, chiefly collected in New South Wales and S. Australia, we find that in addition to the irpicoid and poria forms, what appears to be the same species may sometimes grow on a rough uneven surface as little projecting knobs, and the pore mouths on these knobs may show a labyrinthiform or fluted arrangement with the dissepiments defective in places. This is evidently merely a growth form and not a variety, as normal growth and the labyrinthiform knobby one, or a labyrinthiform arrangement without knobs,

may occur on the same piece of wood. The colour also varies somewhat in depth and we have established a variety which is clay-coloured.

We describe the irpicoid form as met with in Australia as follows:—Colour deeper than Pinkish Buff (XXIX.), approaching Cinnamon Buff (XXIX.), or Light Ochraceous Buff (XV.) passing into Cinnamon Buff, when young whitish, creamy white, or pallid, deepening in colour on drying, irregularly effused with an indefinite felted sterile edge of the same colour or slightly paler, rarely whitish, not readily separable from the substratum, punky-friable, often many inches in extent and sometimes with outlying scattered masses. Thickness up to 1 mm. Pore mouths about 0.2 to 0.4 mm., occasionally 0.5 to 0.7 mm. and once 1.25 mm. wide when growing horizontally, just readily seen by the naked eye, larger and coarser and more irpiciform when growing vertically or the dissepiments then appearing as linear irregular plates, the dissepiments fluted when oblique. When horizontal, the pore mouths vary in size, often with a few considerably larger than the others. About 4 pore mouths, sometimes 2 or 3, in a length of 1 mm. when growing horizontally. Edges of the pore-mouths irregular, jagged, often plate-like, more or less finely setulose, septa sometimes imperfect. Depth of pores about 0.5 to 0.75 mm. Spores slightly yellowish, oval or pear-shaped flattened on one side, with an oblique apiculus and a central globule, 5 to 7 x 2.5 to 4 μ ., usually about 5.6 to 6 x 3.5 μ . Hyphæ faintly tinted, rather irregular, sometimes ribbon-like, thick-walled, occasionally septate, 2.5 to 4 μ ., occasionally 4.5 μ .

N.S.W.—On trunk, Hill Top, October (identified by Miss Wakefield, No. 8); Neutral Bay, Sydney, on dead tree, March (identified by Miss Wakefield, No. 13), on dying trunk, August and September; Hawkesbury River, June; near Wangan, Pillaga Scrub, October; near Dubbo, August; locality not stated, turns yellowish-fawn when bruised; locality not stated.

V.—Ararat (E. J. Semmens, No. 10); on the ground, Craigie, June (E. J. Semmens, No. 17).

S.A.—Kuitpo, May; National Park and Belair, April, May (turns yellow with spirit), June (identified by Miss Wakefield, Nos. 1 and 4), on dead branch of *Exocarpus cupressiformis*, Labill., June (identified by Miss Wakefield, No. 2), July, and August; Mt. Lofty, June, July, September; on pine cone, Glen Osmond, July; on fence, Fullarton, July

(colour Light Buff, XV.); Botanic Gardens, Adelaide, on rough *Eucalyptus* bark on living tree, May; Stirling West, July; Mylor, June; Mt. Compass, May (creamy white when fresh); Blackfellow's Creek, February; Encounter Bay, January, May (under-side of fallen *Eucalyptus* bark); Mt. Gambier, May; Quorn, August (edge whitish). One S.A. collection (1926, no locality) has much sterile surface on which in places shallow pores have developed with thick rounded dissepiments and here and there are widely spaced shallow reticulations.

W. Australia.—Pemberton, August.

Tasmania.—Cascades near Hobart, May, August, September; Waterworks, Hobart, July; Port Arthur, January (some of these are *Poria*-like).

N. Zealand.—Wairoa near Rotorua, February.

The *Poria* form presents the same general appearance, though the colour may tend to be deeper. The tints specially noted have been Cinnamon Buff, Warm Buff (XV.), and Ochraceous Buff. The sterile edge may be narrow or in growing parts extensive. Pore mouths as small as 0.15 mm. have been seen and spores measuring 4.8 x 2 to 3 μ . The localities of the more *Poria*-like plants are as follows:—Q.—Bunya Mts., October. N.S.W.—Moss Vale, November; locality not stated. V.—Staughton Vale, Brisbane Ra., November. S.A.—Kuitpo, March; Mt. Lofty, May; Beaumont, Adelaide, December; Inman Valley, January.

Form of I. obliquus resembling Poria sinuosa.—The following agrees almost exactly with specimens identified as *Poria sinuosa*, Weir, No. 10,784, on *Larix occidentalis*, Montana, but does not agree with Rea's description of *Trametes sinuosa*. Ochraceous Tawny (XV.), becoming Ochraceous Buff (XV.) at the edge. Pore mouths 0.25 to 0.5 mm. in diameter, about 3 in 1 mm., edges lacerated, very irregular, mouths finely setulose, substance up to 1.3 mm. deep, subiculum thin, periphery of felted fibres slightly coloured. We refer this plant to *I. obliquus*.

Form of I. obliquus resembling Poria corticola.—Dr. G. H. Cunningham has lent us American (?) specimens ($\frac{1.57}{3/1/5/2}$) identified for him as *Poria corticola*, Fr. Three collections of our series we referred to this species on this determination. They, as well as Dr. Cunningham's specimens, present *Poria*-like but also in places irpicoid appearances.

On comparing them with specimens identified for us as *I. obliquus* by Miss Wakefield, we are unable to find any means of distinguishing them therefrom, and hence conclude that they are really forms of *I. obliquus*, as is probably Dr. Cunningham's species also. We do not mean to infer, of course, from this that *Poria corticola*, Fr., is synonymous with *I. obliquus*—of this we have no means of judging and the descriptions given by Rea in his *British Basidiomycetes* do not agree. Our specimens to which we refer are the following:—Mosman, Sydney, June, Pinkish Buff to Cinnamon Buff (XXIX.); Cremorne, Sydney, June, Cream Buff to Cinnamon Buff (XXIX.), returned by Miss Wakefield as "indeterminable"; and Neutral Bay, Sydney, December, near Light Pinkish Cinnamon (XXIX.)—all from a locality from which Miss Wakefield has identified *I. obliquus* for us.

Aberrant and weathered forms of I. obliquus.—An irpicoid form, paler than Pinkish Buff (XXIX.), which Miss Wakefield (No. 6) considered indeterminable, is, we think, a form of *I. obliquus*. It was responsible for rotting on a fence near Gympie, Q., in August, 1920.

We consider as weathered forms of *I. obliquus* three irpicoid Porias which have assumed a dirty greyish or greyish-brown colour and are obviously old. One was on soft worked wood at Fullarton, S.A., the second on an old board at Millbrook, S.A., and the third on a rotting verandah board, Neutral Bay, Sydney.

Deeper-coloured form of I. obliquus.—A plant collected near Ashbourne, S.A., in August, 1924, is deeper than Ochraceous Buff (XV.), up to 1 mm. thick, with the pore orifices irregular, jagged, slightly pilose, 0.15 to 0.25 mm. wide and about 4 in 1 mm., with the dissepiments thin and practically no subiculum.

Forma labyrinthiformis.—The following we consider as a growth form. In parts of the same collection, the more normal appearance may be presented. Growing on a rough surface, forming knobby elevations on the subiculum, the tubes more or less fluted or labyrinthiform, often with the dissepiments in places imperfect. A labyrinthiform arrangement may be present without nodular elevations. N.S.W.—Malangane, 25 miles W. of Casino, August, 1917, returned by Miss Wakefield (No. 9) as indeterminable, between Cinnamon Buff and Clay Colour (XXIX), pores tending to be labyrinthiform, orifices 0.15 to 0.2 mm. wide, edges setulose,

dissepiments thin; Milson Island, Hawkesbury River, August, 1912, not knobby but pores more or less labyrinthiform, near Light Ochraceous Buff (XV.), pores sinuous, septa often imperfect, orifices 0.2 to 0.5 mm. or more wide, about 3 in 1 mm., dissepiments fairly thin with the edges finely shaggy. V.—Staughton Vale, Brisbane Ra., November, showing little coral-like nodules in places. S.A.—On rotting dressed log, Glen Osmond, July.

I. obliquus var. argillaceo-cinnamoneus, var. nov.—A variety with the pores becoming Clay Colour (XXIX.) or deeper and a pale edge, the general appearance rather coarse. N.S.W.—Yanco, November, 1919, returned by Miss Wakefield (No. 5) as indeterminable, near Clay Colour or darker, the edge pallid and nearly white, felted and almost separable, pore orifices 0.2 to 0.4 mm., about 4 in 1 mm., dissepiments thin with rather jagged edges. S.A.—Mt. Lofty, June, 1917, Clay Colour, deeper than Cinnamon Buff, irpiciform, pore orifices about 0.4 mm.

What we in Australia understand as *Irpex obliquus* is a variable species. One form grades into another, but the extremes may differ so from each other that anyone, not having an ample series of "between" forms, may readily consider he is dealing with several distinct species. No one can say whether or not these forms breed true, and so are incipient varieties. As the irpiciform, poria-like, and labyrinthiform appearances may occur in the same plant, this aspect of the shape of the pores is evidently chiefly one of position and not varietal. It may be well for us to state in broad terms as a guide to other collectors what types of plants we would place under *Irpex obliquus*. Resupinate irpiciform, or poria-like fungi, indeterminate and often extensive, in colour near Pinkish Buff, Cinnamon Buff, or Light Ochraceous Buff, with a felted sterile edge sometimes extensive of the same colour or slightly paler but not pure white, thin (up to 1 mm.), adherent, the tubes somewhat variable in size but mostly 0.2 to 0.4 mm. in diameter, 2 to 4 in 1 mm., irpiciform or definitely poria-like but if the latter with thin dissepiments tending to be lacerated and the mouths more or less setulose, spores 5.2 to 7 x 2.5 to 3.8 μ ., usually 5.5 to 6 x 3.5 μ .

37. *Poria selecta*, Karst.—We have had considerable difficulty in placing a not uncommon usually thin cinnamon buff or pinkish buff *Poria* which resembles in general *Irpex obliquus*, but has smaller and more regular pores and nar-

rower, slightly curved spores ($5.5 \times 2 \mu$). There seems to be considerable variation in our specimens, probably dependent for the most part on the age and on the substratum. This variability has led to our being able to match individual plants reasonably well with several exotic species which have been identified and forwarded to us by authorities in other parts of the world. Thus Dr. J. R. Weir's No. 15,904 from *Pinus contorta*, Idaho, labelled *Poria selecta*, Karst. (= *P. vulgaris* var. *flava*, Fr.), corresponds almost exactly with plants from Bradley's Head, Sydney, April, 1919. Specimens also resemble closely *Poria vulgaris*, Fr., kindly forwarded by Miss E. M. Wakefield, though in most cases the colour is more vivid, and this supports the identification of *P. selecta* which Dr. Weir indicates has been considered as a variety of *P. vulgaris*. Other specimens from near Ashbourne, S.A., August, 1924, resembled so closely Dr. Weir's No. 11,666, *Poria cinerescens*, Bres., growing on *Pinus monticola* in Idaho that we at first placed it under this species. His specimen has, however, a pure white edge and ours one which is nearly but not quite pure white. Moreover, Bourdot et Galzin in their "Hyménomycètes de France" (Bull. Trem. de la Soc. Mycol. de France, XLI, 1925, p. 227), refer to this species as "très robuste, très lignivore, à la manière de *P. medulla-panis*," which hardly fits our plants or, as a matter of fact, Dr. Weir's. Other specimens have shown a resemblance to American plants identified as *Poria corticola*, Fr., but Rea's description of the species in his *British Basidiomycetes* seems to rule this out. We have therefore decided to refer our plants to *P. selecta*, Karst., considering the variations as being due to habitat, etc., and not of specific significance and in any case being so intangible and so grading into each other as to defy description and differentiation in words. It may be that we have thus grouped together more than one true species and that in the future some clear-cut means of distinguishing these may be found. Moreover, considering the habitat, frequently on *Eucalyptus* bark or wood, it is quite likely that we have to do with a purely Australian species. For the present, we place our plants under *P. selecta* and describe separately several different collections so as to indicate the variation. Some specimens seem to grade into *Irpex obliquus* and it may be hard to decide to which they belong.

Forming irregular patches, 10×2 cm. in size, near Pinkish Buff (XXIX.) or greyer, semi-detachable, with a broad irregular indeterminate felted-fluffy nearly whitish

margin, very thin, rarely nearly 1 mm. thick, pores about 0.25 mm. deep, orifices variable, somewhat angular, 0.1 to 0.32 mm. wide, 3 to 5 in 1 mm., dissepiments thin, smooth. Spores $5.5 \times 2 \mu$. Hyphæ septate, irregular, sometimes varicose, branching at right angles, 2.5 to 4, rarely 7, μ . wide. Near Ashbourne, S.A., August, 1924. Specimens from Mt. Lofty, S.A., July, 1927, were readily triturated, orifices 3 to 4 in 1 mm., dissepiments rather thick, setulose, shed spores slightly curved, narrow, hyaline, $5.6 \times 2 \mu$, hyphæ 3 to 5 μ .

A *Poria* growing as small rounded discoid patches on twigs, Milson Island, Hawkesbury River, N.S.W., July, 1912, returned by Miss Wakefield (No. 17) as indeterminate, appears to be this species.

Forming widely effused indeterminate patches, 8×4 cm. or more, in colour Cinnamon Buff (XXIX.) or paler, the sterile narrow irregular margin paler and membranous—arachnoid, membranaceous (0.25 mm. thick) to 2.5 mm. (Neutral Bay specimens), adherent, pores from very shallow to 2 or 2.5 mm. long, pore orifices 0.1 to 0.15 mm. wide, often sinuous, the dissepiments thin and often defective, the edges finely setulose, sometimes irpicoid, subiculum very scanty, covering rotten wood near the ground and sometimes extending to the soil and felting small sticks and soil together by a pore-bearing irregular surface. N.S.W.—Bradley's Head, Sydney, April, 1919, and Neutral Bay, Sydney, February, 1913.

Specimens from the National Park, Tasmania, January, 1927, form thin ill-defined extensive patches many inches long and several wide, pore orifices 4 to 5, sometimes 6, in 1 mm., dissepiments thin, fibrillose, hyphæ irregular, often thick-walled, 2.5 to 4 μ . We have specimens also from The Cascades near Hobart, May, 1924.

38. *Poria minutipora*, n. sp.—Forming extensive patches up to 10×5 cm. or more, more dingy and in places darker than Pinkish Buff (XXIX.) with a sheen, rather silky-soft to the touch, 1 mm. thick, consisting chiefly of the pores with a thin layer of white byssoid subiculum, indeterminate, with in parts a narrow or more extensive sterile byssoid or quite smooth white edge. Pores 0.7 mm. deep, orifices 0.1 mm. diameter, 7 in 1 mm., dissepiments thin, rounded, edges tending to be setose or jagged. Hyphæ 2 to 3 μ . thick, rather irregular, white. N.S.W.—Malangancee, 25 miles west of Casino, August, 1917.

We refer to this species three Tasmanian collections with very minute pores, 5 to 6 in 1 mm., the dissepiments rather rounded or thin and jagged, in colour whitish with a delicate buffy tint, up to 1.5 mm. thick and forming discoid or elongated patches several inches long and with edges fairly sharply defined or thin and encrusting with ill-defined edges. The whitish edge and penetrating mycelium are fluffy. Hyphæ rather irregular, 2 to 2.5 μ . National Park, January; Cascades near Hobart, October.

39. *Poria carneo-lutea*, n. sp.—Irregularly effused forming a thin crust-like layer, not readily separable, Pinkish Buff (XXIX.), the growing edge narrow, of the same colour or a little paler and finely pilose, up to 1 mm. thick, corky to subfriable, tending to crack, pores 0.5 mm. deep, orifices 0.1 to 0.32 mm. wide, usually under 0.24 mm., 4 to 5 in 1 mm., the edges pilose and not ragged, dissepiments rounded and 0.05 to 0.1 mm. thick, substratum almost negligible, spores not seen, hyphæ faintly tinted yellowish, rather irregular, 2 to 3.7 μ . N.S.W.—Bullahdelah, August, 1919—returned by Miss Wakefield, No. 10, as indeterminable.

40. *Poria hyalina*, Berk.—Miss Wakefield (No. 18) has identified the following specimen for us. It forms a somewhat circumscribed thin patch with an indefinite edge, between Clay Colour and Tawny Olive (XXIX.), in places darker than the latter, composed of the very small obliquely set pores presenting a somewhat translucent appearance (like dried gristle) resting on a very thin whitish subiculum. The surface tends to split. The thickness is about 1 mm. The orifices are closely set, about 6 in 1 mm., with thin dissepiments. Hyphæ nearly colourless, 2 to (usually) 3.7, occasionally 4.2 μ ., calibre a little irregular. N.S.W.—Orange, October, 1914.

We also identify as this species a Tasmanian *Poria* (No. 1, specimen 2)—the type came from Tasmania. In this the plant is thicker (2.5 mm.), the colour is near Clay Colour (XXIX.) towards the surface and only the terminal parts of the tubes present a somewhat hyaline appearance, the basal parts like the thin subiculum being white. The pores are approximately of the same size but set vertically. The surface also splits. Hyphæ faintly yellowish, rather thick, 3.7 to 4.6 μ ., a little irregular. Specimens from The Cascades near Hobart, November, 1919, form a very thin layer (about 1 mm.), show many small cracks and the older pores are of the Clay Colour and sub-hyaline appearance, but

the younger ones are paler gradually fading to nearly white. Hyphæ a little irregular, 2 to (usually) 2.5 μ . in diameter. Amongst other specimens collected at The Cascades in September, 1920, and May, 1924, are examples showing a nearly white opaque pore surface with patches showing a semi-translucent appearance or a whitish periphery with the clay colour appearing in the older parts.

A South Australian specimen collected on the Sturt River, Coromandel Valley, June, 1927, seems identical with one of the Cascades specimens. We believe that three further South Australian collections should also be placed here, agreeing in the minuteness of the pore orifices and a sub-hyaline appearance of the pore surface but presenting a deeper colour (ochraceous buff, cinnamon buff). These may be mature plants but fresher and less weathered. Kuitpo, May, 1921—forming small patches about 2.5 x 1.5 cm. in size, with pallid felted edges contrasting with the pore-bearing surface which is between Ochraceous Buff and Ochraceous Orange (XV.), later approaching Ochraceous Tawny (XV.). Tubes about 1 mm. deep, forming most of the thickness, orifices about 0.1 mm. wide, about 9 in 1 mm., honey-comb-like and rather polygonal, sometimes fluted, dissepiments very thin. Mt. MacIntyre near Kalangadoo, S.E., Dec., 1922.

Forming extensive thin patches up to 10 x 4 cm., tending to split, near Cinnamon Buff (XXIX.) or paler, subdeterminate, with a narrow sterile felted white edge, thin, usually about 0.75 mm., rarely in places 3 mm. thick, the white subiculum contrasting with the cinnamon buff pores, tubes 0.75 to 2 mm. long, orifices 0.15 to 0.24 mm., about 6 in 1 mm., edges smooth, dissepiments thin or rounded. Spores (?) spherical, 4.5 to 5.5 μ . Hyphæ a little irregular, thick-walled, apparently sometimes septate, 2 to 3.5 μ . Dr. Weir says of this specimen that it "may be referred to *Poria vaporaria*, Fr. form. The spores are, however, not very allantoid. "The species has no doubt a name, but I have not yet located a type. It may be *Poria tarda* (Berk.) from W. "Australia." A specimen identified by Dr. Weir as *P. tarda* for Dr. Cunningham in New Zealand is however quite unlike our plant, and we think the latter is best placed under *P. hyalina*. The third collection is from Mt. Lofty, June, 1928.

41. *Poria calcea*, Berk. and Br. (non *P. calcea* (Fr.), Bres.)—Through the courtesy of Mr. Cyril White, Govern-

ment Botanist of Queensland, we have portion of the specimen collected by the late F. M. Bailey (No. 119) and recorded in Cooke's Handbook of Australian Fungi (No. 817) for Queensland. This was collected at Trinity Bay. A specimen of ours from Lismore, N.S.W., October, 1912, exactly matches it. The species forms extensive hard but brittle patches, up to 20 x 8 cm. in size, Light Buff (XV.) or a little darker in colour, rather than "chalky white," under 0.5 to 1 mm. thick, densely adherent to the substratum. The pores are very minute, usually about 6 in 1 mm., 0.174 to 0.260 mm. in diameter, and very shallow, the orifices rather polygonal and the dissepiments very thin. When developed, the pores may form about half of the total thickness, but even in large patches are often not much more than raised reticulations, with the dissepiments occasionally defective. On dead decaying wood, sometimes penetrating through thin superficial layers, and appearing below, where separation occurs, as a tenuous pallid indeterminate film on which the minute pores soon appear. Hyphæ white, in short lengths, slender, 1.5 to 2.5 μ . We have not seen the spores in our specimens.

This species approaches in general appearance thin specimens of *P. medulla-panis*. The abundant characteristic spores of the latter are, however, absent.

42. *Poria purpurea*, Fr.—Bourdôt et Galzin (Bull. Trem. de la Soc. Mycol. de France, XLI., 1925, p. 220) place *Poria purpurea* in Sect. *Merulicæ*, in which the pores are meruloid and later more definitely tubular with entire orifices. In their description of the species they describe it as "rounded, oblong, then confluent, tender, thin, more or less adherent, at first white (or yellowish sub-ochraceous), soon purplish or rosy, then purplish red or blackish purple; pores reticulated alveolar, then rounded angular . . .; edge usually straight, pubescent or pruinose, white or clear rosy; . . . spores 6 to 9 x 2 to 2.5 μ ." From this description, there seems no doubt that the following Australian plants belong to this species, though the spores are definitely smaller (4.2 to 5.5 x 2 μ).

Forming small to extensive thin adherent ill-defined patches sometimes 8 ins. (20 cm.) or more long, with the pores at first meruloid, and in which vinaceous purple tints are present in places, though sometimes the predominant colour may be a pale buff passing into a tawny olive. Spreading edge indefinite, filmy, byssoid to villous, Light Buff

(XV.), Pale Pinkish Buff (XXIX.) to Cream Buff (XXX.), sometimes with vinaceous tints which may also appear in the substratum. As the substance increases in thickness, eventually reaching 1 mm., pores develop, first as shallow reticulations (often purplish), producing alveoli varying in size, averaging about 3 in 1 mm., sometimes 5 in 1 mm., the pore surface thus produced pale buff in colour, but in parts Dark Purple Drab and Vinaceous Drab (XLV.) or Perilla Purple (XXXVII.). As the pores develop they increase in depth to reach in places nearly 1 mm., forming most of the substance; the orifices vary in size, about 3 in 1 mm., some 0.5 mm. in diameter, others 0.25 mm. or even 0.16 mm., the dissepiments thin or in places thicker and rounded or sometimes the pores may appear like pinholes widely separated from each other. Eventually the thicker parts of the pore layer may assume a Tawny Olive (XXIX.) tint. Hyphæ whitish, septate, thick-walled, irregular, branching at right angles, 3.5 to 5 μ . Shed pores slightly curved, narrow, rod-shaped, cream-coloured to white, 4.2 to 5.5 x 2 μ . S.A.—Humbag Scrub, April, 1926; National Park, May, 1925 (the Vinaceous Drab pore area forms a considerable patch). N.S.W.—On dead stump, Neutral Bay, Sydney, May, 1913.

43. *Poria vincta*, Berk.—This species is placed by Cooke (Handb. of Aust. Fungi, No. 822) under the heading "Pores flesh-coloured," and is described as "wholly resupinate, rather thick in the centre; margin thin, somewhat free, tinged above with red (4 mm. thick in the centre); pores small, pallid, substance wood colour."

One of us submitted a Tasmanian *Poria* to the late Dr. C. G. Lloyd as probably *P. vincta*. Dr. Lloyd in replying said that "*Poria vincta* was an Eastern species named by Berkeley that came into use in American tradition, but this is not the plant that has been called in the United States "*Poria vincta* of Berkeley." Dr. G. H. Cunningham has lent us a specimen, No. 20,059, identified by Dr. J. R. Weir as "*Poria vincta*, Berk. (= *P. attenuata*, Peck) on *Pinus virginiana*." The Australian species is close to this but not, we think, identical—though the colour is nearly the same, the pores in our plants are much smaller.

We have a series of Australian plants which, though very variable, seem all to link on with each other, extremes being sometimes met with in the same collection, and in which the whole plant or some part shows a colour which may be called a vinaceous-flesh (vinaceous fawn, pinkish

cinnamon), the colour extending into the substance, the pores minute. The plants may be very thin and nearly membranous, or become thick from 1 to even 6 mm. in depth. Though the plants usually have the above vinaceous or fleshy tint this may not be appreciable in thin specimens in which the colour may be cinnamon or brown. We describe separately thick specimens from N.S.W. and Queensland, and thin specimens rarely up to 1 mm. thick from Tasmania.

Forming extensive patches 10 cm. or more long and up to 4 cm. wide, in colour near Vinaceous Fawn and Avellaneous (XL.) becoming browner, varying in thickness from 1 to 6 mm., the edges irregular but sharply defined with a very narrow paler sterile edge. Substance corky to woody, near Avellaneous. Pore mouths very minute, about 6 in 1 mm., dissepiments rounded. Spores (apparently) subspherical, 2.5 to 5 μ . Hyphæ whitish, about 3 μ . thick, with much granular material. N.S.W.—Malanganee near Casino, August, 1917; Comboyne, August, 1918. Queensland.—Bunya Mts., October, 1919.

Forming thin patches up to 7 x 4 cm., Pinkish Cinnamon, Cinnamon and Olay Colour (XXIX.), or between Light Pinkish Cinnamon and Pinkish Cinnamon but darker, or near Light Ochraceous Buff (XV.), or Light Vinaceous Cinnamon, or paler than to deeper than Light Pinkish Cinnamon becoming when old near Cinnamon (XXIX.) to Cinnamon Rufous (XIV.) or browner than Cinnamon near Sayal Brown (XXIX.), rather indeterminate, with the sterile edge paler and sub-byssoid, occasionally with a reflexed villose border above, forming a narrow pileate shelf, membranous, very thin (usually under 0.5 mm., rarely nearly 1 mm. thick), pore orifices minute 0.08 to 0.13 mm., 6½ to 11 in 1 mm., finely setulose, dissepiments thin.

Tasmania.—Many specimens, including Cascades (January, 1920; May, 1926; August, 1918), Waterworks Gully (July, 1920), Brown's River (January, 1928). S.A.—On dead wood, Mt. Lofty, June, 1917.

44. *Poria attenuata*, Peck.—The following agrees with American specimens on *Picea Engelmanni*, in Montana, kindly forwarded by Dr. James R. Weir. Forming irregular patches up to 7 x 3 cm. in the hollows and interstices of a rotting *Pinus* log. The sterile mycelium is extensive, villose, and pallid ochraceous, as the pores develop, first as minute pits, becoming Ochraceous Salmon (XV.), passing

as the tubes elongate to near Argus Brown (III.) and when old becoming darker near Burnt Umber (XXVIII.). The fungus is firmly adherent to the substratum. The brown pores eventually form a layer up to 2 mm. thick, resting on the light pale decaying wood without any obvious substratum. The orifices are exceedingly minute, about 6 in 1 mm., slightly variable in size, the dissepiments rounded. Hyphæ whitish, irregular, branching irregularly, with transverse connections and much debris, 2 to 4.8 μ . Beaumont, Adelaide, June, 1917.

45. *Polyporus adiposus*, B. and Br.—Rea, in his *British Basidiomycetes* describes this species as being white, here and there acquiring a foxy tinge, often entirely resupinate, and with the tubes whitish, tinged in places with brown, short or long, their orifices small and round or angular and torn, the spores white, globose, 4 to 5 μ ., the whole fungus turning brown in drying. It is found on ditch sides, the ground beside stumps, and messes. As a synonym, he gives *P. undatus*, Pers. sec. Brcs. and refers under this name to Lloyd, Synop. Sec. Apus Gen. Polyp. figs. 662 and 663.

Lloyd describes *P. undatus* as white, usually resupinate, rarely developing a pileus, turning dark reddish brown in drying, the pores minute or hiascent, in an oblique position, the mouths cinereous when dried, spores globose, 3 to 4 μ . He says that in the United States it always occurs as a *Poria*, is frequent and forms slabs on very rotten logs. It has been distributed as *Polyporus Broomei* by Rabenhorst and by Sydow, and Bresadola referred *P. adiposus* to it.

Miss Wakefield has sent us a specimen of *P. adiposus* from soil on the side of a drain, Doncaster, England. We have a specimen collected at Mosman, Sydney, in June, 1919, which we refer to this species. It forms a layer about 2 mm. thick, covering the irregularities of caked soil near wood and in colour is near Sayal Brown (XXIX.) which is perhaps somewhat "foxy" in tint. The tubes are mostly oblique, but in places horizontal, when the orifices are fairly regular, about 5 in 1 mm., the dissepiments rather thin. The colour is a little deeper than in Miss Wakefield's specimen, and the mouths of the pores are not cinereous, as they are to some extent in the English specimen. There are abundant, white, irregularly spherical (collapsed?) spores, 3 to 4 μ . in size, and the hyphæ are fine, irregular, nearly colourless, about 1.5 μ . in diameter.