

Studies of some South African Resupinate Hymenomycetes.

Part II.*

By

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The following descriptions and notes are based on material seen since the first paper in this series was published. I am indebted to the Transvaal and Orange Free State Chamber of Mines Timber Research Laboratory for submitting several interesting collections and particularly for allowing Miss V. C. Green to collaborate in the preparation of descriptions and illustrations of three of the species discussed here. My sincere thanks are also due to the Directors of the following institutions for the loan of specimens: Herbarium, Royal Botanic Gardens, Kew; Herbarium, British Museum (Natural History); Museum National D'Histoire Naturelle, Paris; U.S. National Fungus Collections, Beltsville; Herbarium, S.A. Museum, Cape Town; Herbarium, Dept. of Agriculture, Southern Rhodesia; Herbarium Len Verwoerd, Stellenbosch-Elsenburg Agricultural College.†

PLATYGLOEA Schroet.

1. *Platygløea opalina* sp. nov.

FIG. 1.

Resupinate, effused, gelatinous, forming a thin opalescent pellicle, drying to an extremely thin, shiny, light grey, subpruinose film, occasionally cracked across. Thickness in section 130–146 μ .

Basidia: probasidia arising as lateral branches of hyphae, clavate-cylindrical almost from the beginning, elongating and changing into a cylindrical metabasidium divided by transverse septa into 3–4 metabasidial cells each with a sterigma. Metabasidia 6.4–9 \times 60–80 μ .

Spores: hyaline, smooth, elliptical with one side flattened, or cylindrical-depressed, with a lateral apiculus and often with one or more conspicuous guttules, (7.2)–8–9.6 \times (14.4)–16–18.4 μ , germinating to form secondary spores on a lateral germ tube.

Hyphae: 2.4–5.6 μ wide, branched, with numerous septa, lacking clamp connections, thin-walled, erect, possessing large guttules in the wider hyphae, loosely intertexted.

Specimens examined: Type, 36951, Talbot, on *Acacia mollissima*, Atholl Expt. Stn., 1949.

This species does not correspond with any previously described species that I have been able to trace, including those in Bandoni's survey of the genus (in *Mycologia* 48, 1956, 821–840).

* Part I of these studies appeared in *Bothalia* 6 (1951) 1–116.

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Platyglea opalina sp. nov.

Fungus resupinatus, effusus, gelatinosus, opalinus, tenuissimus, nitidus, pallidogriseus, 130–146 μ crassus, ut siccus subpruinosis vel membranaceus. Probasidia ab initio cylindraco-clavata; metabasidia cylindraco, transverso-septata, cellulis 3–4, 6.4–9 \times 60–80 μ . Sporae hyalinae, leves, ellipticae, uno latere compressae, laterale apiculatae, (7.2)–8–9.6 \times (14.4)–16–18.4 μ . Hyphae 2.4–5.6 μ diam., ramosae, septatae, non nodoso-septatae, tenue tunicatae, erectae, laxe intertextae. Typus No. 36951, leg. P. H. B. Talbot, in ramis *Acaciae mollissimae*.

EICHLERIELLA Bresadola.

1. *Eichleriella macrospora* (Ell. & Everh.) Martin in Univ. Iowa Stud. Nat. Hist. 18 (1944) 48, Ibid. 29 (1952) 65, Figs. 14, 36.

Corticium macrosporum Ell. & Everh. in Bull. Torrey Bot. Club. 27 (1900) 49.

Sebacina macrospora (Ell. & Everh.) Burt in Ann. Mo. Bot. Gard. 2 (1915) 759.

FIG. 2.

Resupinate, composed at first of small, very thin, suborbicular, pruinose to byssoid growths of a light brown colour with white, cottony margin, becoming confluent to form a coriaceous-membranous patch, 6 \times 1 cm, with a narrow, determinate, white margin, adherent in the present specimen. Hymenium light brown, to greyish-white or pale dirty grey-brown, pruinose under the lens, beset with small, blunt tubercles which are fertile. Thickness in section 130–230 μ . Adnate, becoming cracked with deep fissures down to the substratum, revealing a white, cottony trama.

Basidia: tremelloid, the metabasidia clavate to elongated obovate, cruciately longitudinally divided, 9–11.5 \times 21–23 μ , sometimes showing a basal clamp connection. Sterigmata four, 3.5–4.5 \times 11.5–21 μ .

Spores: hyaline, smooth, oblong or broad-cylindric, sometimes very slightly depressed on one side, with a lateral apiculus, 0–2 guttulate, 5.7–(10) \times 11.4–14.8 μ .

Paraphyses: (1) surrounding the basidia and projecting beyond them, 2.3–4.5 \times 22–45 μ , flexuous, tortuous, hyaline; (2) more clavate and not tortuous, arising from a clamp at the base of a basidium branch.

Hyphae and Tissue Differentiation: Some hyphae appearing to be next to the substratum are colourless, much branched, 2.8–3.4 μ wide, (thin) to thick-walled; also present are plentiful brownish concretions which take phloxine stain readily and are apparently mixed with gelatinised hyphae in an intermediate layer.

Specimens examined: 39090, *Talbot*, On *Acacia* sp., Buffelspoort.

Except for the margin, which in this specimen is not free or reflexed, there is good agreement with Martin's description of *E. macrospora*. From McGuire's monograph of *Sebacina* (in Lloydia 4, 1941, 23) it appears that *Sebacina calcea* (Pers.) Bres. is close in characters to the present specimen, but may be distinguished by its longer spores, absence of tubercles, and paraphyses loaded with granules.

HETEROCHAETE Patouillard.

1. *Heterochaete byliana* sp. nov.

FIG. 5.

Resupinate, orbicular then widely effused, closely adnate, crustose-farinaceous. Hymenium whitish to pale straw-coloured or slightly greyed, somewhat pruinose, bearing scattered, sterile white (occasionally pale tinted) hyphal pegs which are not perfectly cylindrical and are sometimes forked, arising near the surface of the hymenium

and projecting 90–160 μ , measuring 32–48 μ wide, composed of practically hyaline hyphae 1.8–3.2 μ in diameter, somewhat dendroid, without appreciably thickened walls. Margin indeterminate, pruinose, concolorous, without a conspicuous bordering zone free from pegs. Thickness in section about 65 μ , excluding the pegs.

Basidia: probasidia pyriform to ovate, 12.8–19 \times 7.7–11 μ ; metabasidia cruciately longitudinally divided; sterigmata two, of variable length (up to 18 μ seen) and 3.2–3.7 μ wide.

Basidiospores: broad elliptic-depressed to subballantoid, hyaline, smooth, occasionally apiculate, 11.4–17.4 \times 5–8.3 μ .

Hyphae: hyaline, subgelatinous, difficult to distinguish except at the base where they are light brown with thin, rigid walls, 1.8–2.3 μ diam.; all hyphae lacking clamps.

Tissue differentiation: white, subgelatinous throughout except for the darker basal seam of more or less horizontal hyphae sometimes distinguishable.

Conidial stage: seen in part of a specimen, consisting of white, pruinose tufts with globose, hyaline conidia 2.3–3.6 μ diam.; conidial hyphae hyaline, thin-walled, 1.4–3.2 μ diam.

Chlamydospores terminal or intercalary, sometimes in short chains.

Specimens examined: Type, 41049, *Talbot*, Umtentweni, Natal, 1955; As *Heterochaete andina* Pat. & Lagerh.: Universiteit van Stellenbosch, Herbarium P. A. van der Byl No. 629, No. 698, on *Euphorbia pulcherrima*, No. 785, on *Plectronia*, all from Durban.

Van der Byl (in Ann. Univ. Stellenbosch, 1, 1923, 5), classed his specimens as *H. andina*, but thanks to Bodman's account of this species (in Mycologia 41, 1949, 529, f. 2) it is possible to differentiate it. *H. andina* has a pinkish tint to the fructification and possesses gloeocystidia and cystidia, but otherwise appears to be close to the new species *H. byliana*. The latter differs from *Heterochaete grandispora*, which was collected in the same locality, in its appreciably smaller spores and lack of gloeocystidia, and in being totally resupinate.

Heterochaete byliana sp. nov.

Fungus resupinatus, orbiculatus deinde late effusus, adnatus, crustaceo-farinaceus. Hymenium albidum vel pallido-stramineum vel griseum, pruinosum, fasciculos hypharum ferens albidos, pallidos, 32–48 μ diam., 90–160 μ emergentes, ex hyphis hyalinis, dendroideis, 1.8–3.2 μ diam. formatos. Margo indeterminata, concolor. Probasidia pyriformia vel ovata, 12.8–19 \times 7.7–11 μ . Metabasidia sterigmatibus 2 usque ad 18 μ longa et 3.2–3.7 μ diam. Basidiosporae ellipticae vel subballantoideae, hyalinae, leves, 11.4–17.4 \times 5–8.3 μ . Hyphae hyalinae, subgelatinosae; hyphae basales pallido-brunneae, 1.8–2.3 μ diam., tenue tunicatae, non nodoso-septatae. Conidia hyalina, globosa, 2.3–3.6 μ diam. Chlamydosporae adsunt. Typus No. 41049, leg. P. H. B. *Talbot*.

2. *Heterochaete grandispora* sp. nov.

FIG. 4.

Resupinate or with reflexed margin, at first orbicular then confluent up to 1.5 cm diam., coriaceous. Hymenium white to pale straw colour, beset with abundant light brown, sterile, hyphal pegs originating in the trama and projecting 187–295 μ , 40–65 μ wide, composed of yellow-brown, parallel, interwoven hyphae 3.2 μ wide, with thickened walls. Margin concolorous, not adnate, determinate, often very slightly reflexed, free of hyphal pegs up to 1 mm from the edge. Context pale brown below a colourless hymenial layer. Thickness in section 280–380 μ .

Basidia: probasidia ovate-pyriform, becoming longitudinally cruciately divided, $18-20 \times 10-11.8 \mu$, embedded below the surface; metabasidia of the same dimensions; sterigmata of variable length, 2.7μ wide.

Spores: cylindric-curved to allantoid, smooth, hyaline, $(15)-23-30 \times (5.9)-7.3-9 \mu$, with a prominent truncate apiculus, germinating by repetition.

Gloeocystidia: in the hymenium, hyaline with a homogeneous content, not readily seen, $34-63 \times 4.5-8.2 \mu$.

Paraphyses: the hymenial hyphae rarely run out into rather simple hyaline dendrophyses, forked shortly once or twice, $1.4-2.7 \mu$ diam.

Hyphae: lightly coloured, densely intertexted, rarely branching or septate, thick-walled, $1.5-3.2 \mu$ diam., with undulating walls, lacking clamps. Hymenial hyphae similar but colourless.

Tissue differentiation: There is a colourless, subgelatinous hymenial layer above a light brown context.

Specimens examined: Type, 41050, *Talbot*, Umtentweni, Natal, 1955.

Martin [in *Univ. Iowa Stud. Nat. Hist.* 19 (1952) 62] estimates that about thirty species of *Heterochaete* have been described. Descriptions of most of these have been traced without finding any species approaching *H. grandispora* in spore size. Its margin, which is free of hyphal pegs and tends to be reflexed, and the widely spaced hyphal pegs, are characteristic.

Heterochaete grandispora sp. nov.

Fungus resupinatus vel margine reflexa, orbiculatus deinde confluens, coriaceus. Hymenium albidum vel pallido-stramineum, fasciculos hypharum ferens pallido-brunneos, $40-65 \mu$ diam., $187-295 \mu$ emergentes, ex hyphis parallelis, luteo-brunneis, 3.2μ diam., formatos. Margo concolor, determinata, sine fasciculis hypharum. Probasidia ovato-pyriformia; metabasidia $18-20 \times 10-11.8 \mu$, sterigmatibus 2.7μ diam. Sporae cylindraceo-curvatae, leves, hyalinae, apiculo truncato, $(15)-23-30 \times (5.9)-7.3-9 \mu$. Gloeocystidia hyalina, $34-63 \times 4.5-8.2 \mu$. Paraphyses $1.4-2.7 \mu$ diam., hyalini, simplices, dendrophytici. Hyphae pallidae, dense intertextae, crasse tunicatae, $1.5-3.2 \mu$ diam., undulatae, non nodoso-septatae. Typus No. 41050, leg. *P. H. B. Talbot*.

PELLICULARIA Cooke sensu Rogers.

M. A. Donk (in *Reinwardtia* 2, 1954, pp. 425-434; *ibid.* 3, 1956, p. 369) argues with great justification that *Pellicularia koleroga* Cooke, the type species of the genus *Pellicularia*, is a *nomen confusum*, and that accordingly the generic name to be used for this group of species is *Botryobasidium* Donk. In the latter paper Donk also proposed two generic segregates, *Uthatobasidium* and *Thanatephorus*. Several "*Pellicularia*" species have already been combined under *Botryobasidium*, but there are still some for which a new combination would be necessary if the genus *Pellicularia* is to be dropped. It is to be regretted that Donk did not formally propose such combinations in his recent papers cited above. Without studying a much greater range of material than was available to me, I do not wish to propose the new combinations that might be necessary, and for the sake of uniformity have treated all these species under *Pellicularia*.

One new combination that Donk did make (in *Reinwardtia* 3, 1956, 376) may be noted: This is *Thanatephorus cucumeris* (Frank) Donk [= *Hypochnus cucumeris* Frank; *Hypochnus solani* Prill. & Delacr.; *Pellicularia filamentosa* (Pat.) Rogers].

1. *Pellicularia vaga* (B. & C.) Rogers ex Linder in *Lloydia* 5 (1942) 170; Rogers in *Farlowia* 1 (1943) 110, f. 9.

Corticium vagum Berk. & Curt. in *Grevillea* 1 (1873) 179. Further references and synonymy are given by Rogers (1943, l.c.).

FIG. 6.

Resupinate, thin, discontinuous, arachnoid later becoming hypochnoid, dirty whitish to pale tawny-yellowish.

Basidia: collapsing rather readily, $6.4 \times 17.6 \mu$, cylindrical or somewhat inflated at the base or apex [fide Rogers " $13-22-(27) \times 6.5-10-(15) \mu$, bearing rarely 4 or 5, mostly 6-8 stout, divergent recurved sterigmata ($3-4.5-6 \times 1.5-2 \mu$ "]].

Spores: hyaline, smooth, navicular or asymmetrically fusiform, obliquely tapered, $4.5-6 \times 9.6-12.8 \mu$ [fide Rogers " $7.5-12-(17) \times (2.5)-3.5-5-(5.5) \mu$ "]].

Hyphae: loosely intertexted, smooth, lacking clamps, branching at right angles, with thin, rigid walls and a wide lumen, the basal hyphae slightly yellowish and up to 13μ wide with long internodes, the superior hyphae narrower, colourless, short-celled.

Specimens examined: 41048, *Talbot*, on dead wood in contact with the soil, Umtentweni, Natal, 1955.

Corticium vagum B. & C. has been recorded previously for South Africa by Doidge (in *Bothalia* 5, 1950, 483) who cites *Corticium solani* (Prill. & Delacr.) Bourd & Galz. as a synonym. These records require confirmation by reference to the cited specimens since the name *C. vagum* has been used in conflicting senses. Rogers (1943, loc. cit.) identifies the type material of *C. vagum* with *Pellicularia vaga* (B. & C.) Rogers ex Linder, and points out that *C. vagum* sensu Burt (in *Ann. Mo. Bot. Gard.* 13, 1926, 295) is synonymous with *Pellicularia filamentosa* (Pat.) Rogers, and that *Corticium solani* is another synonym of this parasitic species.

The collection described above was saprophytic and corresponds well with *Pellicularia vaga*, whose distinguishing features, according to Rogers are its saprophytic habit, its smooth navicular spores, its lack of clamp connections and cystidia, and its wide hyphae. *Pellicularia filamentosa*, on the other hand, is parasitic, and its spores are ellipsoid or oblong-ellipsoid, flattened on the inside, with an abruptly truncate apiculus.

2. *Pellicularia fodinarum* Talbot & Green, *sp. nov.*

FIG. 7.

Resupinate, thin, easily separable, pruinose-pellicular, with a similar margin. Hymenium yellowish, discontinuous, beset with long, emergent, hairlike septocystidia.

Basidia: in botryose clusters, very easily collapsing, cylindrical-clavate, $4-6 \times 15-22 \mu$; adventitious groups of basidia arise as lateral offshoots of some of the septocystidia.

Spores: hyaline, smooth, subglobose to broad ovate-elliptical, $5-7.5 \times 4.5-6 \mu$.

Cystidia: very long, cylindrical, hyaline, septate, lacking clamps at the septa, with rounded apex, encrusted their full length with small wartlike granules (probably derived from a mucilaginous investment), up to 360μ long and $6-9 \mu$ wide.

Hyphae: loosely intertexted, collapsed in the hymenium otherwise distinct, much branched, anastomosed, septate, lacking clamps, thin-walled, encrusted with small wartlike granules, $4-6 \mu$ wide.

Minerals: abundant throughout the tissues.

Specimens examined: Type, 40679 (T.R.L. 2635), *A. L. James*, on underground timber, Brakpan No. 1 Shaft, Dec., 1950.

In its yellow colour, possession of septocystidia and spore characters this species is closely allied to *Pellicularia zealandica* G. H. Cunn. (in Trans. Roy. Soc. N.Z. 81, 1953, 322, Figs. 1, 2). *P. zealandica* does not, however, produce adventitious basidia from the septocystidia, possesses clamps in the hyphae and septocystidia, lacks encrusted hyphae and has the encrustation of the septocystidia confined to near the apex. Some rather similar fungi are placed by Bourdot & Galzin (Hym. de Fr., 1928) in the section Hyphales of the genus *Peniophora* but none of these corresponds exactly with this new species.

Pellicularia fodinarum Talbot & Green, sp. nov.

Fungus resupinatus, tenuis, non adnatus, pruinoso-pelliculatus. Hymenium luteolum, septocystidiis longis, emergentibus, ad pilos accedentibus. Basidia cylindraceo-clavata, $4-6 \times 15-22 \mu$; basidia adventitia lateralia ex quibusdam septocystidiis oriuntur. Sporae hyalinae, leves, subgloboasae vel ovato-ellipticae, $5-7.5 \times 4.5-6 \mu$. Cystidia cylindracea, hyalina, septata, non nodoso-septata, apicibus rotundis, undique granis verrucosis incrustata, usque ad 360μ longa, $6-9 \mu$ diam. Hyphae laxae intertextae, ramosae, anastomosae, septatae, non nodoso-septatae, 6μ diam., granis verrucosis incrustatae. Typus No. 40679 (TRL 2635), leg. A. L. James, in ligno in aurifodinae.

3. *Pellicularia filamentosa* (Pat.) Rogers in Farlowia 1 (1943) 113, Fig. 11.

Hypochnus filamentosus Pat. in Bull. Soc. Myc. de Fr. 7 (1891) 163, Pl. 11, Fig. 2.

Corticium solani (Prill. & Delacr.) Bourd. & Galz. in Bull. Soc. Myc. de Fr. 27 (1911) 248.

Corticium vagum sensu Burt in Ann. Mo. Bot. Gard. 5 (1918) 128, Fig. 3, a, Ibid. 13 (1926) 295, Fig. 3, *pro parte* (nec. *C. vagum* Berk. & Curt.).

Corticium vagum var *solani* Burt ex Rolfs in Science n.s. 18 (1903) 729. For further synonymy see Rogers, loc. cit.

FIG. 8.

Fructifications resupinate, hypochnoid to pellicular, delicate, thin, drying white or buff-coloured.

Basidia: in botryose clusters, often discontinuous, subcylindrical to clavate or widest in the middle, $13-22 \times 9-11 \mu$, with four long sterigmata.

Spores: hyaline, smooth, ellipsoid, flattened on one side, with a truncate apiculus, $8-12 \times 5-7 \mu$.

Hyphae: hyaline, thin-walled, except at the base where they have slightly thickened walls and are pale coloured, lacking clamps, not encrusted, much branched at right angles, septate, $5-12 \mu$ wide (up to 17μ wide fide Rogers).

Specimens examined: Myc. Herb. Dept. Agric. S. Rhodesia, No. 5151, J. C. Hopkins, on *Solanum tuberosum*, Inyanga (as *Corticium solani*); 41434, Martin, on *Amarantus paniculatus*, Kempton Park.

Doidge (in Bothalia 5, 1950, 483) cites this specimen of Hopkins under *Corticium vagum* Berk. & Curt., but it is in excellent condition and a very good match with *P. filamentosa*. The former confusion existing between *Pellicularia vaga* (B. & C.) Rogers ex Linder and *P. filamentosa* (Pat.) Rogers is noted under the first of these species.

Two other specimens cited by Doidge viz. Myc. Herb. Dept. Agric. S. Rhodesia Nos. 4863 and 1783 as *Corticium vagum* were examined, but these have apparently deteriorated and no *Pellicularia* was found upon them. Another specimen, Pons, 29964, is sterile and indeterminable, though its wide hyphae and their arrangement suggest a species of *Pellicularia*.

4. *Pellicularia asperula* Rogers in Farlowia 1 (1943) 100, f. 2.

FIG. 37.

Fructification resupinate, delicate, pruinose to subpellicular, discontinuous, with conspicuous basal hyphae showing under the lens, drying near Pale Olive Buff or Smoke Gray (Ridgway).

Basidia: $9.5-17.2 \times 7-8 \mu$, subcylindric, with a more or less truncate, slightly expanded apex, with 6-(8) curved sterigmata up to 4.5μ long.

Spores: $4.5-5.2-5.6-(6) \times 3.0-4.0-(4.5) \mu$, ellipsoid, a little flattened on one side, apiculate, minutely asperulate, abundant, often coherent, hyaline to faintly coloured.

Hyphae: $4-15.5 \mu$ wide, without clamps, branched at right angles, the basal hyphae widest, long celled and with lightly coloured thickened walls up to 1.7μ thick; the superior hyphae hyaline, narrower, shorter celled, thin-walled and with cruciform cells.

Specimens examined: 41545, *P. H. B. Talbot*, on fallen twigs and litter of *Acacia mollissima*, Byrne, Natal, Apr., 1956. (Part also in New York Bot. Garden Herbarium).

This species was abundant when collected, forming a thin greyish covering to fallen twigs and humus, but only seen when the top layer of humus was disturbed. Microscopically the spores are very distinctive and differ from those of all other known species of *Pellicularia*. I am greatly indebted to Dr. D. P. Rogers for confirming my identification of this material and comparing it with the type collection. The species was previously known only from the type collection from Cuba.

CONIODICTYUM Har. & Pat. emend. G. Malençon.

1. *Coniodictyum chevalieri* Har. & Pat. in Bull. Soc. Myc. de Fr. 25 (1909) 13-14, Figs. a-c; Malençon in Bull. Soc. Myc. de Fr. 69 (1953) 77-100, Figs. 1-8 (as *Coniodictyum*).

Hyalodema evansii P. Magnus in Ber. Deutsch Bot. Gesellsch. 28 (1910) 377-380, Pl. 11.

Coniodictyum evansii (P. Magn.) P. Magn. in Ber. Deutsch Bot. Gesellsch. 29 (1911) 1-2; Doidge in Bothalia 5 (1950) 685.

FIG. 3.

Mycelium parasitic in tissues of *Zizyphus*, filamentous, intercellular, hyphae $2-4 \mu$ diam., branched, septate, hyaline, with short coralloid, poorly differentiated haustoria, forming galls on the fruits, leaves, petioles and twigs. Hymenium subcortical, covered then erumpent, pulverulent, whitish-yellow, composed of homobasidia bearing basidiospores.

Basidia: clavate, $7-8 \times 23-36 \mu$, often deformed or atrophied, sometimes thick-walled especially near the apex, asterigmate.

Basidiospores: borne in a corona of (2)-4-8 sessile, ovoid, smooth spores at the apex of the basidium, hyaline, often deformed, coherent, becoming falsely septate through the development of a number of hyaline, spherical to compressed polygonal internal chlamydospores, the basidiospores finally coalescing into an irregular, hyaline, multicellular, dictyosporous ball, $15-20 \times 18-28 \mu$, which is detached as a whole from the basidium.

Specimens examined: All on *Zizyphus mucronata*: 92, *J. Burt Davy*, Zoutpansberg (presumed part of type of *H. evansii*); 1006, *Pole Evans*, Fountains; 30667, *L. Krause*, Johannesburg; 30223, *W. G. Rump*, Pietermaritzburg; 20611, *E. M. Doidge*, Hartebeestpoort; 15019, *J. M. Sim*, Pietermaritzburg; 11812, *T. Pallister*, Marikana;

11240, *J. M. Sim*, Buccleuch, Natal; 10095, *A. Jansen*, Dundee; 41019, *S. Truter*, Pietermaritzburg; 1214, *P. J. Pienaar*, Garstfontein; 2537, *H. L. Hall*, Nelspruit; 5648, *Pole Evans*, Cramond; 8789, *A. Pegler*, Kentani.

The genus *Coniodyctyum* was at first classed as a member of the Hyphomycetae (Mucedineae-Hyalodictyae), and only recently has Malençon (loc. cit.) shown in an excellent paper on the nature and affinities of *C. chevalieri* that this and three other puzzling genera are actually homobasidiomycetes and may best be accommodated in a new family, the Cryptobasidiaceae G. Malençon, coming near to the Exobasidiaceae. So far as is known *C. chevalieri* is purely African in distribution, and in South Africa it is recorded from parts of the Transvaal, Natal and Cape Provinces.

CONIOPHORA DC. ex Pers.

1. *Coniophora arida* (Fr.) Karsten, Finska Vet.-Soc. Bidrag Natur och Folk 37 (1882) 161; Saccardo Syll. Fung. 6 (1888) 648; Burt in Ann. Mo. Bot. Gard. 4 (1917) 244, f. 3; Bourdot & Galzin, Hym. de Fr. (1928) 359.

Thelephora (Coniophora) arida Fries, Elenchus Fung. 1 (1828) 197.

Corticium (Coniophora) aridum Fries, Hym. Eur. (1874) 659.

FIG. 9.

Resupinate, effused, adherent, floccose then pellicular or arid, or thinly submembranous, not readily separable. Hymenium smooth, not tubercular, pulverulent, bright sulphur yellow dulling to ochraceous or chamois then fawn olive to brown. Margin indeterminate, widely fibrillose to byssoid, eventually much reduced, whitish, composed of cordons of hyphae.

Basidia: subcylindrical to clavate, $25-50 \times 6-8 \mu$, with four sterigmata.

Spores: smooth, pale yellow to brown, ovate to ellipsoid, $10-13 \times 6-7 \mu$.

Hyphae: thin-walled, non-encrusted, septate, hyaline or pale coloured, $3-6 \mu$ wide, the basal and marginal hyphae often up to 12μ wide; ordinary clamp connections rare, whorled clamps present on some of the wide marginal hyphae, with branch hyphae often arising in whorls from these clamps.

Specimens examined: 41051, *Forest Res. Officer*, on *Pinus taeda*, Border Plantation, Natal; 39075 and 39076, *Talbot*, on *Acacia mollissima*, Atholl. Expt. Stn., E. Tvl.

Coniophora arida differs from *C. puteana* in the brighter colour of its fructification, which is also thinner, drier, less fleshy-membranous, and whose hymenium is not tuberculate and not easily separable from the substratum. The hyphae of *C. arida* tend to become pale coloured and are less compactly arranged than those of *C. puteana*. The characteristic whorled clamps which often give rise to whorls of branches on the wide marginal hyphae are not mentioned in descriptions available to me, but I have found them also on reliably determined exsiccati from England and Europe.

2. *Coniophora atrocinerea* (Karst.) Karst.; Recorded by van der Byl in Ann. Univ. Stellenbosch 7 (1929) 17; Doidge in Bothalia 5 (1950) 480.

The record of this species is based on two specimens on *Pinus* in Universiteit van Stellenbosch, Herbarium P. A. van der Byl Nos. 2451 and 2433. Both specimens have been examined and are referable to *Coniophora olivacea* [(Fries) ex Pers.] Karst., a species dealt with previously [in Bothalia 6 (1951) 35]. Rogers & Jackson (in Farlowia 1, 1943, 273) state that *C. atrocinerea* is synonymous with *C. olivacea*, and they give a very full synonymy and useful taxonomic notes on the species.

3. *Coniophora betulae* (Schum.) Karst.; Recorded by Doidge in Bothalia 5 (1950) 480.

The specimen of this record is No. 30633, *K. Morgan*, which is here made the type of *Coniophora incrustata* Talbot, sp. nov.

4. *Coniophora cerebella* Pers.; South African records cited by Doidge in *Bothalia* 5 (1950) 481.

Doidge (loc. cit.) indicates this species as a synonym of *Coniophora puteana* (Schum. ex Fr.) Karst., which it is generally accepted to be. However, none of the South African specimens cited are the latter species. (see under *C. puteana*).

5. *Coniophora incrustata* sp. nov.

FIG. 10.

Resupinate, membranous, not adnate, readily detached from the substratum in large sheets. Margin not notably differentiated. Hymenium light brown to "Warm sepia" or "Bister" (Ridgway) from the accumulated spores. Thickness in section about 650 μ .

Basidia: not seen.

Spores: deep red-brown in a mass, yellow-brown in the microscope, smooth, ovate-elliptical, (5·6)–6·6–5–(8) \times (8·8)–9·6–11 μ , very copiously produced, some embedded in the tissues.

Hyphae: hyaline to pale straw-colour, the upper ones more or less indistinct, the basal ones distinct, very thin-walled and soon collapsing, 3–6–(8) μ wide when not collapsed, coated very heavily with mineral granules.

Specimens examined: Type, 30633, *K. Morgan*, on walls in dairy, Hopevale, Donnybrook, 1939.

This species has heavily encrusted, readily collapsing hyphae like those of *Coniophora betulae* (Schum.) Karst. or *C. suffocata* (Peck) Masee, but differs from these in several respects. It is appreciably thicker, more membranous, separable in large pieces, lacks a notably whitish margin, and above all has much darker spores which colour the hymenium a warm sepia or bister colour in contrast to the yellowish-olive-brown (tawny olive or umber) of the other two species. It is felt that these differences are sufficient to warrant the proposal of a new species. It is not entirely certain whether or not *C. betulae* and *C. suffocata* are distinct from one another, and in *Coniophora* as a whole there are few differential characters and numerous intermediates occur. *C. fumosa* Karst. has somewhat the same colour as *C. incrustata*, but rather smaller spores and non-encrusted hyphae, which are darker and distincter.

Coniophora incrustata sp. nov.

Fungus resupinatus, membranaceus, facile separabilis. Hymenium pallido-brunneum vel sepiaceum. Sporae in cumulo atro-badae, in microscopo luteo-brunneae, leves, ovato-ellipticae, (5·6)–6·6–5–(8) \times (8·8)–9·6–11 μ . Hyphae hyalinae vel pallido-stramineae; hyphae basales distinctae, tenue tunicatae, mox collabentes, 3–6–(8) μ crassae, mineralibus forte incrustatae. Typus No. 30633, leg. *K. Morgan*, in muro.

6. *Coniophora pulverulenta* (Lév.) Masee in Journ. Linn. Soc. Bot. 25 (1889) 129; Saccardo Syll. Fung. 6 (1888) 649; Doidge in *Bothalia* 5 (1950) 480.

Thelephora (*Stereum*) *pulverulenta* Lév. (!) in Ann. Sci. Nat. ser. iii, 5 (1846) 149; Doidge in *Bothalia* 5 (1950) 491; Talbot in *Bothalia* 6 (1954) 323.

Corticium (*Coniophora*) *pulverulentum* (Lév.) Cooke in *Grevillea* 8 (1880) 89.

The type of this species, Drège 9442, has been examined and, as noted in *Bothalia* 6 (1954) 323, proved to be most probably *Hymenochaete luteobadia* (Fr.) Höhnelt & Litsch.

7. *Coniophora puteana* (Schum. ex Fr.) Karst.; Doidge in *Bothalia* 5 (1950) 481.

The records of this species in South Africa are summarised by Doidge (loc. cit.) All the specimens cited, except that collected by Laughton at Tokai, have been seen, and none of them is *C. puteana*. The three collected by Mrs. R. Brown in gold mines are all *Coniophora fodinarum* Talbot; No. 29723 on imported timber, is a species of *Coniophora* but not *C. puteana*; No. 30799 is a specimen of wood showing a cubical rot but the fungus is so scanty that it is indeterminable, and it bears basidiospores which are hyaline, 3.5-8.8 μ , and are certainly not those of a *Coniophora*.

PUNCTULARIA Patouillard.

1. *Punctularia tuberculosa* (Pat.) Pat. (!) apud Patouillard & Lagerheim in *Bull. Herb. Boiss.* 3 (1895) 57, Pl. 2, Figs. 1, a-g; Patouillard, *Essai Taxon sur les Hym.* (1900) 57, f. 60; Saccardo *Syll. Fung.* 14 (1899) 223.

Corticium ? tuberculosum Pat. apud Patouillard & Lagerheim in *Bull. Soc. Myc. de Fr.* 8 (1892) 118; Saccardo *Syll. Fung.* 11 (1895) 126.

Punctularia atropurpurascens (B. & Br.) Petch in *Ann. Roy. Bot. Gard. Perad.* 6 (1916) 160.

Thelephora atropurpurascens B. & Br. in *Journ. Linn. Soc. Bot.* 14 (1875) 64; Saccardo *Syll. Fung.* 6 (1888) 546.

Punctularia affinis (B. & C.) Talbot in *Bothalia* 6 (1951) 25, Pl. 17.

Reticularia affinis B. & C. (!) in *Journ. Linn. Soc. Bot.* 10 (1869) 347; Saccardo *Syll. Fung.* 7 (1888) 418.

Reticularia venulosa B. & C. (!) in *Journ. Linn. Soc. Bot.* 10 (1869) 347; Saccardo *Syll. Fung.* 7 (1888) 419 (as *R. venosa*).

Reticularia atro-rufa B. & C. (!) in *Journ. Linn. Soc. Bot.* 10 (1869) 347; Saccardo *Syll. Fung.* 7 (1888) 419.

Ceratomyces venulosus (B. & C.) Torrend in *Bull. Soc. Portug. Sci. Nat.* 4 (1910) 9.

Trichosporium curtisii Masee in *Journ. Mycol.* 5 (1889) 185, t. 14, f. 3; Saccardo *Syll. Fung.* 10 (1892) 583.

Corticium conigenum Shear & Davidson (!) in *Mycologia* 36 (1944) 296, f. 1-2.

FIGS. 14-25.

Conidial Stage: loose, floccose, pulvinate or irregular tufts of hyphae, forming a growth several mm thick, powdery with innumerable conidia, later collapsing into a tangled mass of hyphae and conidia, coloured various shades of red-brown to purple-brown or vinaceous-brown (carob brown, burnt umber, cameo brown, vinaceous brown, seal brown, warm blackish brown—Ridgway) or sometimes partly violaceous to lavender blue or greyish blue (greyish violet-blue, dark plum-purple, bluish violet-black—Ridgway), the margin whitish when young.

Hyphae: often adhering in strands, 2-3 μ wide, lightly coloured, thin-walled, branched, with clamp connections and septa, often minutely sculptured or encrusted with small mineral granules.

Conidia: purplish-brown in a mass, globose, oval or ellipsoid with much variation in shape, (3.6)-4.4-5-(6) μ diam., or 3.6-4.5 \times (5)-5.5-6.8-(8) μ . In culture the conidiophores are much branched and modified above into an acropetal chain of

alternately swollen and clamped portions. The specialised terminal and intercalary swellings round off into atherosporous conidia which are set free by dissolution of the adjoining parts of the conidiophore, fragments of which may remain attached to one or both ends of the conidia. The liberated conidia are smooth or very minutely punctate at first, later becoming minutely verrucose, and finally strongly verrucose and shrunken in old cultures.

Basidial Stage: effused, resupinate, loosely adnate, rarely narrowly but distinctly reflexed, subgelatinous, drying waxy to horny and crustose. Margin inconspicuous or shortly byssoid, indefinite or definite. Hymenium developed on small, discoid to elongated pulvinae which are seated on a common foundation tissue and separated by sterile fissures containing amorphous mineral matter which occasionally forms a conspicuous pale buff-coloured fringe to the pulvinae. When moist the pulvinae are irregularly hemispherical, wider at the apex than the base, and coloured a medium to rich reddish-brown; when dry they are flattened, irregularly areolate, coloured deep purple-brown or blue-black to fuscous (deep slaty brown, aniline black, fuscous—Ridgway), with a minutely dark-punctate surface which is not conspicuously convoluted. Dark brown abhymenial hairs are present in both resupinate and reflexed parts of the fructification. Thickness in section averages 400–500 μ , excluding the abhymenial hairs.

Basidia: long, flexuous, cylindric-clavate, $27\text{--}51 \times 4\text{--}7 \mu$, with 4 sterigmata, often with basal clamps. The basidia are seldom mature when collected, but fresh specimens may be induced to spore after a few hours in a damp chamber.

Basidiospores: hyaline (? finally very dilutely coloured), smooth, ovoid to ellipsoid, often with one flattened side, $(2\cdot7)\text{--}3\cdot5\text{--}4\text{--}(5) \times 5\cdot5\text{--}7\cdot3\text{--}(8) \mu$.

Dendrophyses: in hymenium, composed of a hyaline, thick-walled stem bearing a dark brown, irregularly swollen, shortly branched apex. Apical part up to $5\cdot4 \mu$ wide and 29μ long; stem $2\cdot3\text{--}4\cdot1 \mu$ diam.

Context hyphae: subgelatinous, hyaline, smooth, mostly rather indistinct, about 2μ wide, with clamp connections.

Abhymenial hyphae: dark brown, fibrillose, densely interwoven, branched, smooth, thick-walled, with clamps, $(2)\text{--}2\cdot5\text{--}4\cdot5 \mu$ wide, some penetrating the substratum.

Tissue differentiation: the abhymenial hairs arise from a dark basal seam. The middle layer is hyaline, subgelatinous, containing scattered mineral concretions and somewhat indistinct hyaline hyphae. The hymenium is subgelatinous, containing abundant lightly coloured mineral granules and dark dendrophyses giving it a general light brown colour.

Specimens examined: As *P. tuberculosa* ex Herb. Mus. Paris—Type, leg. de Lagerheim, Puente de Chimbo, Ecuador, Aug., 1871; *C. Torrend*, Mycotheca Lusitanica, on *Olea europea*, Lumiar, 1–08; *Rick*, Fungi Austro-Americani 54, Sao Leopoldo, Brazil; As *Corticium conigenum*—Type, Shear (1405), on *Quercus* sp., Weikiwa Spa, Florida, ex U.S. National Fungus Coll.; Also specimens listed in Bothalia 6 (1951) 26, and No. 40150, Talbot, Pretoria.

In a previous publication (Talbot, loc. cit.) I regrettably overlooked the Rule (Art. 69, Stockholm Code) that the first valid name or epithet applied to the perfect state must take precedence as the name for the fungus, and incorrectly combined the earliest epithet for the conidial state under *Punctularia*.

Corticium conigenum Shear & Davidson, was suspected to be a *Punctularia* from the authors' description and illustrations. Comparison of its type with that of *P. tuberculosa* has not revealed any specific differences. In interesting cultural studies

Shear & Davidson found that single basidiospore cultures produced no clamps and consisted of two sex strains, which when grown together would produce clamps along the line where the two opposite strains met in culture. Clamps were not produced by combinations of cultures within the same sex strains. Basidiospore cultures gave rise to the conidial stage.

The method by which the conidia are formed in *P. tuberculosis* is particularly interesting, and approximates to that shown by the mould fungi grouped in Section 1 B of Hughes' classification of the types of conidiophore and conidium development (Hughes in *Canad. Journ. Bot.* 31, 1953, 577-659), except that here it is modified by the clamp connections.

In his description and illustrations of *P. tuberculosis*, Patouillard exaggerated the discreteness of the hymenial pulvinae. In rather small areas of the type they are discrete and surrounded by the pale coloured amorphous mineral matter, but mostly they are so close together, and separated by such narrow fissures, that the mineral fringe is not really conspicuous, and the whole appears more or less areolate and flattened, especially when dry. The dendrophyses occur in the hymenium, and not as a fringe to the pulvinae as stated by Patouillard. The pulvinae are seldom perfectly discoid, but are usually elongated and irregular in shape. My impression is that they dry more or less flat, and not into the depressed, saucer-like bodies illustrated by Patouillard.

There are most impressive and detailed similarities between *Punctularia tuberculosis* and *Phlebia strigoso-zonata* (Schw.) Lloyd, which has recently been excellently redescribed and made the type species of a monotypic genus, *Phaeophlebia* W. B. Cooke (Cooke in *Mycologia* 48, 1956, 401).

Punctularia tuberculosis and *Phaeophlebia strigoso-zonata* agree in the purple-brown to blue-black colour of the hymenium when dry, and its red-brown colour when moist. They have essentially the same kind of hymenium. It tends to be pulvinate in *Punctularia* and smooth to veined in *Phaeophlebia*, but the pulvinae of the former are often elongated and parts of the latter are often almost pulvinate. Both have a hymenium which, when dry, appears minutely punctate under a lens and is full of a cementing substance composed of lightly coloured granules forming a darkish zone around and above the hymenial elements. In each, the hymenial convolutions are separated by narrow deep fissures which are sterile and contain amorphous mineral granules, sometimes forming a fringe to the papillae. Each has a subgelatinous texture, drying horny to waxy. The basidia in each are rarely found in a mature condition and are long, narrow and flexuous, with basal clamps. Sections of these two species are extraordinarily alike and no significant difference in the arrangement of the tissues can be detected, though in *Phaeophlebia* the context hyphae are perhaps a little more distinct. In both, the hymenium contains dark dendrophyses. *Phaeophlebia* is usually resupinate-reflexed or pileate; *Punctularia* is usually resupinate, but (as shown in local specimens matched with the type and bearing also the conidial stage) can become reflexed as much as 1 cm from the substratum. In each species there are hyaline, clamped hyphae forming the middle layer and there is a dark basal seam and a trichoderm of dark, thick-walled, clamped hyphae. I regard this trichoderm as an indicator of potential reflexion even in species or specimens which are normally resupinate. The margin of *Phaeophlebia* is definite; that of *Punctularia* is usually indefinite, but not always so.

Punctularia tuberculosis has a known conidial stage and lacks gloeocystidia; *Phaeophlebia* has no known conidial stage and possesses gloeocystidia. These features are not, in my opinion, sufficient to hold the two genera apart, while in all other respects I regard them as congeneric. Accordingly I propose to sink the genus *Phaeophlebia* W. B. Cooke under *Punctularia* Pat. and to make the combination:

***Punctularia strigoso-zonata* (Schw.) Talbot comb. nov.**

= *Merulius strigoso-zonata* Schw. in Trans. Amer. Phil. Soc. n.s. 4 (1834) 160.

Phlebia strigoso-zonata (Schw.) Lloyd in Lloyd Myc. Writ. 4 (1914) L. 53, p. 15;
Talbot in Bothalia 6 (1951) 28.

Phaeophlebia strigoso-zonata (Schw.) W. B. Cooke in Mycologia 48 (1956) 401.

For a description of this species see W. B. Cooke (loc. cit.).

The systematic position of the genus *Punctularia* is still doubtful. *P. tuberculosa* has been placed by various authors in *Corticium* and *Thelephora*, and has been likened to *Grandinia*, *Aleurodiscus* or *Porothelium*. *P. strigoso-zonata* has previously been classified as a *Phlebia*, *Stereum*, *Auricularia* or *Phaeophlebia*. Most of these can be eliminated as not being near relatives. The nature of the hymenium, basidia, sterile structures and perhaps the spores, set *Punctularia* apart from other genera. Its holo-basidia remove it from the Heterobasidiomycetes. Its structure is certainly not hydneous, nor cyphelloid. It has some brown hyphae, but does not accord with the hymenochaetoid or xanthochroic fungi. The distribution of the tissues in *Punctularia* is decidedly *Stereum*-like, though the texture and hymenium are different. Martin (in Proc. Iowa Acad. Sci. 50, 1943, 167) remarked that *Phlebia strigoso-zonata* had little in common with the Hydnaceae but a closer resemblance to the more fleshy species of *Merulius*. There might be a good case for the proposal of a new family to accommodate *Punctularia*, but this seems premature until the majority of the species and genera of the Thelephoraceae are known in greater detail. I would therefore place *Punctularia* provisionally in the subfamily Meruloideae of the Thelephoraceae, realising however that both the family and subfamily as now constituted are heterogeneous and artificial.

I wish to acknowledge the courteous and stimulating assistance given to me by Professor G. W. Martin and Dr. W. B. Cooke in correspondence about the genus *Punctularia*. This helped greatly in the formation of my ideas on this subject, for which, however, I accept full responsibility.

CORTICIUM Pers. ex Fries.

1. *Corticium abeuns* Burt in Ann. Mo. Bot. Gard. 13 (1926) 250; van der Byl in Ann. Univ. Stellenbosch 7 (1929) 29, f. 10.

This record for South Africa rests on the specimen in Universiteit van Stellenbosch, Herbarium P. A. van der Byl, No. 1495. It was cited by Burt as a paratype of *C. abeuns*. Rogers & Jackson (in Farlowia 1, 1943, 280) have examined all Burt's paratypes of this species and concluded that the description was misleading and the paratypes confused. They identified some of the paratypes but, being mainly concerned with North American species, did not mention van der Byl's collection. This collection has been examined and is here referred to *Corticium porosum* Berk. & Curt.

2. *Corticium bombycinum* (Sommerf.) Bres.; Recorded by Doidge in Bothalia 5 (1950) 481.

One specimen is cited in support of this record, namely No. 33185, *Doidge & Bottomley*, Wolhuterskop, Boschfontein. This specimen is undoubtedly *Peniophora arenata* Talbot, and *C. bombycinum* should be omitted from South African records.

3. *Corticium lacteum* Fr.; Recorded by Saccardo, Syll. Fung. 6 (1888) 610; van der Byl in Ann. Univ. Stellenbosch 7 (1929) 30; Doidge in Bothalia 5 (1950) 482.

No South African specimens under this name have been located and the record is based on Saccardo's mention of "Capite Bonae Spei" as one of the localities for this fungus, without giving any other details.

Rogers & Jackson (Farlowia 1, 1943, 294) give a long discussion on the status of the name *C. lacteum* Fr. and reject it as a *nomen dubium*.

4. *Corticium laetum* (Karst.) Pers.; Recorded by Lloyd, Myc. Writ. 6 (1920) 952; Doidge in Bothalia 5 (1950) 482.

Presumably the specimen sent by van der Byl to Lloyd, which is the basis of this record, is one of those in the National Herbarium, since there are none in the van der Byl Herbarium. All the specimens assigned to this species in Doidge (loc. cit.) have been examined and are referable to *Corticium salmonicolor* B. & Br., except No. 9154 which is *Helicobasidium compactum* (Boedijn) Boedijn. The material of No. 27267 is poor but may be the *Necator decretus* state of *C. salmonicolor*. This conidial stage has recently been found on *Pyrus malus* in Natal (No. 41053).

5. *Corticium moniliforme* sp. nov.

FIG. 11.

Resupinate, effused over soft, dead wood, adnate, deeply and abundantly cracked down to the substratum when dry, the cracks not usually connected by subicular strands. Hymenium smooth, white, chamois or biscuit colour when dry, with a paler white, indefinite, pruinose or pellicular margin. Texture membranous-waxy. Context somewhat stratified, concolorous, 400–450 μ thick in section.

Basidia: clavate, often with a basal clamp connection, (27)–32–40 \times 6.5–8.5 μ , with four sterigmata.

Spores: cylindrical to elliptical, hyaline, smooth, non-amyloid, with rounded ends, 7.4–10 \times 3–4.8 μ .

Gloeocystidia: arising in the middle layers or below and extending into the hymenium but not emerging, originating from a system of tortuous hyphae, thin-walled, with homogeneous contents, with a cylindric-clavate basal part or cell and the superior part divided by as many as 12 constrictions into a moniliform structure with constrictions often so deep that a chain of superimposed cells is formed, with a scarcely perceptible isthmus between each. The globose cells get progressively smaller towards the apex of the gloeocystidium. Gloeocystidia 85–100 μ long and 5.7–9.6 μ wide, sometimes with a basal clamp connection.

Hyphae: (1) the system from which the gloeocystidia arise has hyaline, thin-walled hyphae, very much branched and anastomosing in a wide network, tortuous, with nodular swellings and irregular outline, septate, easily stained with phloxine, 2.8–4.3 μ wide, found throughout the context; (2) a ground tissue of hyaline, septate, thin-walled, branched hyphae, with occasional clamp connections, which do not stain and are always indistinct as they collapse easily.

Minerals: present throughout the tissues.

Specimens examined: Type, 36899, *Talbot*, Hennops River; 36936, *Talbot*, Hennops River.

The moniliform gloeocystidia suggest an *Aleurodiscus* but the relatively small basidia and small non-amyloid spores and lack of other paraphysoid structures, distinguish the present species from *Aleurodiscus*. In the genus *Corticium* I have found only two species described with moniliform gloeocystidia: *Corticium radiosum* Fr., according to Cunningham (Trans. Roy. Soc. N.Z. 82, 1954, 290) has moniliform gloeocystidia, but its spores are oval or subglobose, 8–11 \times 7–8 μ . *Corticium septentrionale* Burt, which is a synonym of *Corticium litschaueri* Burt (fide Rogers & Jackson in Farlowia 1, 1943, 300), also has gloeocystidia of the same type, but according to Cunningham (loc. cit. p. 293) these may project sometimes up to 14 μ and its spores are smaller, 6–8 \times 2.5–3 μ . It appears to differ from the new species in hyphal characters, the hyphae being much more regular, not tortuous nor collapsing.

Corticium moniliforme Talbot sp. nov.

Fungus resupinatus, effusus, adnatus, membranaceo-ceraceus, ut siccus profunde fissus. Hymenium leve, albidum, bubalinum vel isabellinum. Margo indefinitus, pruinosis vel pelliculosus, albidus. Basidia clavata, (27)–32–40 × 6·5–8·5 μ , saepe ad basem nodoso-septata, sterigmatibus 4. Sporae cylindraceae vel ellipticae, hyalinae, leves, non amyloideae, 7·4–10 × 3–4·8 μ . Gloeocystidia cellulis basalibus cylindraceo-clavatis, partibus superioribus moniliformibus, interdum ad basem nodoso-septata, non emergentia. Hyphae (1) hyalinae, tenue tunicatae, tortuosae, anastomosae, septatae, tumoribus nodulosis inaequalibus (2) hyalinae, tenue tunicatae, ramosae, nodoso-septatae, obscurae. Typus No. 36899, leg. P. H. B. Talbot.

6. *Corticium pelliculare* Karst.; Recorded by van der Byl in Ann. Univ. Stellenbosch 7 (1929) 29; Doidge in Bothalia 5 (1950) 482.

The only specimen on which this record is based is Universiteit van Stellenbosch, Herbarium P. A. van der Byl No. 2225, Knysna. This specimen is certainly not *C. pelliculare*, but instead is readily identifiable with *Peniophora arenata* Talbot (in Bothalia 4, 1948, 945, f. 4 and Ibid. 6, 1951, 22). *Corticium pelliculare* should be eliminated from South African records.

7. *Corticium porosum* Berk. & Curt. apud Berk. & Br. in Ann. Mag. Nat. Hist. ser. v, 3 (1879) 211; Rogers & Jackson in Farlowia 1 (1943) 300; Cunningham in Trans. Roy. Soc. N.Z. 82 (1954) 295, f. 13. Further synonyms and literature references given by Rogers & Jackson, loc. cit.

FIG. 13.

Resupinate, effused, thin, membranous, separable in small pieces when moist, white to ivory yellow, drying chamois. Hymenium cracked occasionally and smooth, or faintly tuberculate. Margin whitish, thinning out. About 220–250 μ thick in section. Basidia: clavate, 15 × 4 μ .

Spores: ellipsoid to subglobose, 3 × 4 μ (4–6–7 × 3–4 μ , fide Bourdot & Galzin), hyaline, amyloid, appearing smooth under low magnification but actually minutely roughened under oil immersion.

Gloeocystidia: mostly originating in the basal layer but some small ones are hymenial, thin-walled, sometimes the wall slightly thickened at the base, subulate to ventricose or fusiform, usually becoming narrow towards the apex, flexuous, possessing granular yellowish contents, not becoming brown in Iodine solutions, abundant, 8–13 μ wide at the base and tapering to 3–6 μ wide higher up, 40–186 μ in length.

Hyphae: 2–3 μ diam, branched, interwoven in a more or less vertical direction, not encrusted.

Specimens examined: As *Corticium abeuns* Burt: Universiteit van Stellenbosch, Herbarium P. A. van der Byl Nr. 1495, Houtbos, Tvl.

Although determined as *Corticium abeuns* by Burt, this specimen is not that species. Rogers & Jackson (loc. cit.) found that three other paratypes of *C. abeuns* were actually *Corticium porosum*. The present collection has the general structure of the *C. porosum* group and corresponds with this also in having amyloid, minutely roughened spores, and gloeocystidia which do not turn brown with Iodine. Its spores are small, being at the minimum range of size for this species. The gloeocystidia of typical examples of *C. porosum* are frequently, but not invariably, bifurcate at the base, while their apex is possibly a little less flexuous than those in the present specimen. Nevertheless the species is known to very variable in the nature of its gloeocystidia. Cunningham (loc. cit.) notes that "Practically every section examined shows a somewhat different microstructure, consequently it is advisable to regard these as forms of this variable species, as Rogers & Jackson have done. In general, thick specimens have longer gloeocystidia and more of them in the lower portions of the context".

It seems likely that this species will find general acceptance as *Gloeocystidiellum porosum* (B. & C.) Donk (see Donk in *Fungus* 26, 1956, 9).

8. *Corticium punctulatum* Cooke in Grevillea 6 (1878) 132; Further references and synonymy, see Rogers & Jackson in *Farlowia* 1 (1943) 320.

Hypochnus eylesii van der Byl (!) in S.A. Journ. Sci. 22 (1925) 168, in *Ann. Univ. Stellenbosch* 7 (1929) 18.

FIG. 12.

Resupinate, widely effused, hypochnoid to submembranous, not cracked, adherent, light yellowish to creamy. Hymenium pruinose, pubescent from the projecting gloeocystidia. Margin entire or pruinose. Thickness in section about 230 μ .

Basidia: clavate to cylindrical, 5.6–6.5 μ wide.

Spores: Hyaline, finely asperulate, subglobose to broad elliptic, 4.8 \times 5.6 μ or 4.8–6.4–8 μ diam., often uniguttulate, thin to thick-walled, very abundant, free or embedded in the context.

Gloeocystidia: embedded in all parts of the trama, some also projecting 22–64 μ above the hymenium where they are cystidioid and usually lightly encrusted with large mineral particles; the embedded gloeocystidia are smooth, thin-walled, with hyaline, homogeneous contents, ventricose to subulate or cylindrical, with a blunt, rounded apex, 13–(19) μ wide at the base, 70–115 μ long.

Hyphae: basal hyphae clearly seen, hyaline, with frequent clamps, septate, smooth, branched, with thickened walls, 4–6.4 μ wide. Hyphae of middle layer compacted and indistinct, but apparently like the basal ones only with thinner walls.

Specimens examined: 40684 (T.R.L. 2937), *M. Mrost et al.*, on underground timbers, Venterspost Mines; 40678 (T.R.L. 2617), *A. L. James et al.*, on underground timbers, Venterspost Mines; 40682, (T.R.L. 2758) *A. L. James*, on pitch pine sills, Blyvooruitzicht Mine; As *Hypochnus eylesii* (Isotype) in Herbarium Len Verwoerd (30), Stellenbosch-Elzenburg Agric. Coll., leg *F. Eyles*, Stellenbosch, May, 1923.

These collections come clearly in the group of species which includes *Corticium albostramineum*, *Peniophora sphaerospora*, *Gloeocystidium cremicolor* and *G. eichleri*. These four are regarded by Bourdot & Galzin (*Hym. de Fr.*, 1928, 262) as forms of *Gloeocystidium albostramineum*, and by Rogers & Jackson (*Farlowia* 1, 1943, 320) as synonyms of *Corticium punctulatum* Cooke, which we accept here as the name for this complex. Bourdot and Galzin distinguish these forms on differences in spore size, compactness of the tissues, and so on, but evidently Rogers and Jackson regard these as minor variations about a central species.

The isotype of *Hypochnus eylesii* van der Byl, apparently the only material of this species in existence, is an excellent match with *C. punctulatum*. Its tissues are more laxly intertexted than those of the specimens from Transvaal mines, while more of its spores have the walls thickened. The Transvaal material corresponds most closely with the description of *C. cremicolor* in spore size and in the compact trama, but undoubtedly the watersoaked habitat has had an effect on the appearance of this material.

9. *Corticium solani* (Prill. & Delacr.) Bourd. & Galz.; Records cited by Doidge in *Bothalia* 5 (1950) 483.

= *Pellicularia filamentosa* (Pat.) Rogers, q.v.

10. *Corticium vagum* Berk. & Curt.; Records cited by Doidge in *Bothalia* 5 (1950) 483.

= *Pellicularia vaga* (B. & C.) Rogers ex Linder, q.v.

11. *Corticium vagum* var *solani* Burt ex Rolf; Records cited by Doidge in *Bothalia* 5 (1950) 483.

= *Pellicularia filamentosa* (Pat.) Rogers, q.v.

PENIOPHORA Cooke.

1. *Peniophora carnosa* Burt in Ann. Mo. Bot. Gard. 12 (1925) 325; Doidge in Bothalia 5 (1950) 486.

The specimen on which this record is based is No. 27761 (*Rump*, 107). This is definitely not *P. carnosa*, which has hairlike, non-encrusted cystidia, a bright yellow hymenium and context, and occurs on coniferous wood. Instead this specimen has large, conical, encrusted cystidia and occurs on frondose wood. Though poor in condition and lacking spores it may be identified by its general structure and cystidia as *Peniophora roumeguerii* Bres., which was noted in Bothalia 6 (1951) 22, pl. 14.

2. *Peniophora cinerea* (Pers. ex Fr.) Cooke in Grevillea 8 (1880) 20, pl. 123, f. 8.; Saccardo Syll. Fung. 6 (1888) 643; Burt in Ann. Mo. Bot. Gard. 12 (1925) 353; van der Byl in Ann. Univ. Stellenbosch 7 (1929) 16; Doidge in Bothalia 5 (1950) 486.

Corticium cinereum Pers. ex Fries, Epicr. Syst. Myc. (1838) 563.

Doidge cites three collections in support of this record. I have examined Universiteit van Stellenbosch, Herbarium P. A. van der Byl Nr. 326, on *Pyrus malus*, determined by Burt, loc. cit. This is a resupinate, grey member of the *Coloratae* group of *Peniophora*, and is probably referable to *P. cinerea*. But as it is very young, consisting only of primordia just emerging from the lenticels, I would wish to see further specimens before being certain that this species is represented here. In this specimen the margin is free but not reflexed, and the spores are $11-11.5 \times 4-5 \mu$.

No. 22044 (Fungi MacOwaniani No. 1054, Boschberg, Somerset East, as *Corticium cinereum* Fries) is a typical specimen of *Stereum umbrinum* B. & C. The copy of MacOwan 1054 in Herb. S.A. Museum No. 34248 resembles the Pretoria copy superficially but is a true species of *Hymenochaete*. It is however fragmentary and indeterminate.

3. *Peniophora cremea* Bresadola, Fungi Trid. 2 (1898) 63; Recorded for South Africa by Burt in Ann. Mo. Bot. Gard. 12 (1925) 263; van der Byl in Ann. Univ. Stellenbosch 7 (1929) 16, f. 3; Doidge in Bothalia 5 (1950) 486.

All the specimens noted by Doidge in support of this record have been examined, and none is considered to represent *P. cremea*. The record rested originally on Burt's determination of van der Byl No. 612, but he was evidently in some doubt about it since this collection is annotated by van der Byl (translated), "Species unknown by Burt. In all probability *P. cremea*." The three specimens in Universiteit van Stellenbosch, Herbarium P. A. van der Byl, Nos. 612, 1468, 1488 are *Peniophora pelliculosa* Talbot, No. 1468 being the most typical. Nos. 30231 and 34359 in the National Herbarium are also *P. pelliculosa*, while No. 28288 is the type of *Corticium gloeosporum* Talbot. On present knowledge *P. cremea* is not acceptable as a South African species.

4. *Peniophora gracillima* Ell. & Everh. ex Rogers & Jackson in Farlowia 1 (1943) 317.

Peniophora glebulosa sensu Bresadola, Fung. Trid. 2 (1898) 61, Pl. 170, f. 2; Saccardo Syll. Fung. 16 (1902) 195; Rea, Brit. Basid. (1922) 688; Bourdot & Galzin, Hym. de Fr. (1928) 288; Burt in Ann. Mo. Bot. Gard. 12 (1925) 282; van der Byl in Ann. Univ. Stellenbosch 7 (1929) 15; van der Byl in S.A. Journ. Sci. 23 (1926) 288; Doidge in Bothalia 5 (1950) 486.

FIG. 28.

Resupinate, effused, membranous, rather adherent, whitish to cream or yellowish, pubescent on account of the projecting cystidia, becoming cracked into small clods when dry. Margin thinner, similar or pruinose. Up to 200μ thick in section.

Basidia: small, clavate, about $10 \times 3.5 \mu$.

Spores: hyaline, allantoid or cylindrical-curved, smooth, $1.5 \times 6.4-7.2 \mu$. [(5)-9-10 \times 1.5-3 μ fide Bourd. & Galz.; 6-9 \times 1.5-2 μ fide Burt].

Cystidia: abundant, arising deep in the trama and transversing it, embedded or projecting 40-64 μ beyond the hymenium (up to 110 μ in European material); tubuliferous, cylindrical, hyaline, 60-120 μ long or longer, 7-12 μ wide, very thick-walled with a canalicular lumen which is dilated brusquely at the apex so that the apex is thin-walled. Apex rounded, smooth or often covered with granular mineral matter. Walls of the cystidia soluble in KOH, but not in lactic acid, leaving only the lumen visible. Cystidia borne laterally on basal hyphae, sometimes bifurcate at the base.

Hyphae: indistinct. The basal cystidiophores in European material are 3-5 μ wide, thick-walled, and the tramal hyphae are indistinct, 2-3 μ wide, thin-walled.

Specimens seen: Universiteit van Stellenbosch, Herbarium P. A. van der Byl, Nr. 1477, Woodbush, Transvaal.

This most interesting species has cystidia characteristic of the section Tubuliferae of *Peniophora*, whose walls are dissolved by KOH. The allantoid spores are also distinctive.

Though the species is better known as *P. glebulosa* Bres., Rogers & Jackson, loc. cit., have pointed out that this name is invalid, and they published the new species *P. gracillima* Ell. & Everh. to take its place. Malençon (in Bull. Soc. Myc. de Fr. 70, 1954, 139) gives useful notes on the taxonomy and nomenclature of this species. According to Malençon the cystidia are amyloid. Donk (in Fungus 26, 1956, pp. 13-16) retains the epithet *glebulosa* for this species and places it in a new genus *Tubulicrinis* Donk, which appears to be a distinctive and well-founded genus. He characterises the cystidia as "lyocystidia".

5. *Peniophora incarnata* (Pers. ex Fr.) Karsten; Recorded for South Africa by Doidge in Bothalia 5 (1950) 486.

The specimen for this record, Scott No. 33768, is a member of the Coloratae group of *Peniophora*, but differs from *P. incarnata* in colour and in its lack of gloeocystidia. It is close to *Peniophora versicolor* (Bres.) Sacc. & Syd., as described and figured by John Eriksson (in Symb. Bot. Uppsal. X: 5, 1950, 18) but differs in colour and in having larger cystidia. It may represent a new species, but requires further study.

6. *Peniophora longispora* (Pat.) Höhnelt var *brachyspora* Talbot & Green var. nov.

FIG. 26.

Resupinate, very thin, easily separable, pruinose-pellicular, with similar margin. Hymenium white, discontinuous, beset with emergent, hairlike, encrusted cystidia.

Basidia: clavate, usually with a basal clamp, 13-17 \times 3-4 μ with four sterigmata up to 4 μ long.

Spores: elliptic-fusoid, 2.2-3.2 \times 6.4-8 μ , hyaline, smooth, sometimes with a faint band about the middle.

Cystidia: hyaline, cylindrical to acicular, tapering to a sharp subulate apex, thin-walled, with a wartlike, denticulate, incrustation or relatively large mineral granules, arising laterally from the subhymenial hyphae and emergent for most of their length, 3.2-3.5 \times 67-88 μ .

Hyphae: hyaline, loosely intertexted, thin-walled, smooth or a little encrusted, branched, septate, with abundant clamp connections, 2.5-3.2 μ wide.

Specimens examined: Type, No. 40683 (T.R.L. 2901), *M. Mrost*, on underground timbers, Venterspost Mine, 27/vi/52.

The general aspect of this variety is very like that of *P. longispora*, but the latter is distinguished by having spores twice as long and somewhat narrower ($1-3 \times 12-18 \mu$ fide Bourdot & Galzin), and also in having a bulbous base to many of the cystidia. The pruinose-pellicular fructifications, loose hyphae with clamps, characteristic cystidia and banding of the spores are distinctive of both. The faint banding of the spores is probably due to the formation of two polar guttules.

Another very similar fungus, possibly to be included under var *brachyspora* is No. 40979, Talbot, on *Populus deltoides*, Piet Retief. This has bulbous-based cystidia like *P. longispora*, but its spores measure $1.6-2 \times 6.4-8 \mu$ and are cylindrical-curved. That is, the spores correspond in length but not in shape with those of var *brachyspora*. Bourdot & Galzin describe several varieties of *P. longispora* with varying shapes and sizes of spores. None had spores as short as the present collections, and their length is rather constant.

The spores of *P. longispora* var *brachyspora* correspond in length with those of *Peniophora soraria* G. H. Cunn. (Cunningham in Trans. Roy. Soc. N.Z. 83, 1955, 280, f. 18) but the latter differs in having wider, less fusoid spores, $4-5 \mu$ wide, and wider cystidia, $5-7 \mu$ wide.

Peniophora longispora (Pat.) Höhnelt var *brachyspora* Talbot & Green var. nov.

Fungus resupinatus, albidus, pruinoso-pelliculatus, margine simili. Basidia clavata, $13-17 \times 3-4 \mu$, ad basem nodoso-septata, sterigmatibus 4, usque ad 4μ longis. Sporae elliptico-fusoideae, hyalinae, leves, interdum virga pallida circum mediam sporam, $2.2-3.2 \times 6.4-8 \mu$. Cystidia hyalina, cylindracea vel acicularia, apicibus subulatis, tenue tunicata, emergentia, granis verrucosis complanatis incrustata, $3.2-3.5 \times 67-88 \mu$. Hyphae hyalinae, laxae intertextae, tenue tunicatae, leves vel parum incrustatae, nodoso-septatae, $2.5-3.2 \mu$ diam. Typus No. 40683 (T.R.L. 2901), *M. Mrost*.

7. *Peniophora nuda* (Fries) Bresadola in I. R. Accad. Agiati Atti iii, 3 (1897) 114; van der Byl in Ann. Univ. Stellenbosch 7 (1929) 17; Doidge in Bothalia 5 (1950) 486.

Corticium nudum Fries, Epicrisis Syst. Myc. (1838) 564.

Thelephora nuda Fries, Syst. Myc. 1 (1821) 447.

The only collection of this species recorded for South Africa is *Medley Wood* No. 161. I have not been able to trace this collection in any herbarium.

8. *Peniophora papyrina* (Mont.) Cooke in Grevillea 8 (1880) 20; South African Records cited by Doidge in Bothalia 5 (1950) 486.

Stereum papyrinum Montagne.

Welwitsch, Iter Angolense No. 433, cited by Doidge is a specimen of *Stereum fulvum* (Lév) Sacc., with pseudosetae derived from the ends of skeletal hyphae. *Peniophora papyrina* has a rather similar external appearance, but its skeletal hyphae are modified apically into wider, more peniophoroid cystidia resembling those of *Stereum umbrinum*.

The other specimen of *P. papyrina* mentioned by Doidge has not been traced. It seems dubious whether the species is represented in South Africa.

9. *Peniophora pruinata* (B. & C.) Burt in Ann. Mo. Bot. Gard. 12 (1925) 340; Doidge in Bothalia 5 (1950) 486.

Stereum pruinatum Berk. & Curt. (!) in Journ. Linn. Soc. Bot. 10 (1868) 332.

This species is discussed under *Stereum pruinatum* B. & C. in Bothalia 6 (1954), 323. The only specimen recorded for South Africa under this name, *MacOwan* (1227) in Herb. Kew., is not determinable, but lacks cystidia and does not match the type of *S. pruinatum* in several other respects. *P. pruinata* must be omitted from South African records.

10. *Peniophora pruinosa* (Pat.) Jackson in Canad. Journ. Res. 28 (1950) 530, f. 2.

Corticium pruinatum Pat., Cat. rais. pl. cell. Tunisie (1897) 60; Saccardo, Syll. Fung. 14 (1899) 222.

Peniophora chordalis Höhn. & Litsch. in K. Akad. Wiss. Wien Sitzungsab. 115 (1906) 1598; Bourdot & Galzin, Hym. de Fr. (1928) 280; Wakefield in Trans. Brit. Myc. Soc. 35 (1952) 58, f. 34.

Peniophora subgelatinosa Litsch., Österr. Bot. Zeitschr. 77 (1928) 128. Above synonymy after Jackson loc. cit.

FIG. 30.

Resupinate, effuse, inconspicuous, gelatinous, to mucoid when fresh, hyaline or blue-grey, drying as a greyish vernicose film which is white-pruinose under the lens showing protruding cystidia, adnate, not more than about 50 μ thick.

Basidia: not seen (fide Jackson "cylindric or cylindric-clavate, 15-25 \times 7.5-8 μ with (4)-5-6-(7) short sterigmata").

Spores: hyaline, appearing smooth in KOH but actually minutely punctate all over as seen under oil immersion in lactic acid mounts, not amyloid, ovate-elliptical often with one flat side, laterally apiculate, 5-6-(7) \times 3-4 μ .

Cystidia: projecting for most of their length, hyaline, smooth, not encrusted, tapering from base to rounded apex, the base thick-walled and 8-11 μ wide often showing one or two short rootlike branches, the apex thin-walled and 4.5-6 μ wide. The cystidia are 60-120 μ long and in old collections may break off leaving the thick-walled basal part behind as a short tubule.

Cystidioles: rare and not well shown in our material, but 45-50 \times 4 μ with a simple or shortly lobed capitate apex. (Fide Jackson, "Cylindric or tapering gradually from base to apex, 25-45-(60) \times 2.5-3.5 μ , wall slightly thickened below, apex occasionally simple or capitate when young, more commonly with 3-5 short, blunt lobes").

Hyphae and Tissues: gelatinised and obscure.

Specimens examined: 39051, *W. G. Rump*, Town Bush Valley, Pietermaritzburg.

There is very little material of this collection but fortunately just enough to see the characteristic texture of the fructification and the spores and cystidia. No basidia and only two cystidioles were found.

This species differs from *Peniophora rimicola* (see next entry) in the smaller spores, in the apically lobed cystidioles, and in having basidia with a greater number of sterigmata.

11. *Peniophora rimicola* (Karst.) Höhnelt & Litsch. in K. Akad. Wiss. Wien Sitzungsber. 115 (1906) 1556; Bourdot & Galzin, Hym. de Fr. (1928) 281; Rogers in Univ. Iowa Stud. Nat. Hist. 17 (1935) 31; Jackson in Canad. Journ. Res. 28 (1950) 527, f. 1.

Corticium rimicolum Karsten in Hedwigia 35 (1896) 45; Saccardo, Syll. Fung. 14 (1899) 221.

FIG. 29.

Resupinate, effused, inconspicuous, gelatinous to mucoid when fresh, hyaline or grey-blue, drying to a grey-blue or whitish vernicose film which is white-pruinose under the lens showing numerous protruding cystidia, adnate but sometimes lifting as a vernicose flake, not more than about 50 μ in thickness.

Basidia: not seen (fide Jackson, "cylindric or somewhat clavate, 15-25 \times 7.5-8 μ , base usually obscure, sometimes bifurcate, bearing 2, 3 or 4 short arcuate sterigmata 3-4 μ long").

Spores: hyaline, appearing smooth in KOH but actually minutely punctate all over as seen under oil immersion when mounted in lactic acid, not amyloid, broad ovate-elliptical, often with one side flattened, laterally apiculate, (5.6)-6.4-7-(8.8) \times 8-10-(12) μ .

Cystidia: projecting for most of their length, hyaline, smooth, not encrusted, tapering from base to rounded apex, the base thick-walled and 8-11 μ wide often showing one or two short rootlike branches, the apex thin-walled and 4.5-6 μ wide. The cystidia are 60-120 μ long and in old collections may break off leaving the thick-walled part as a short tubule.

Cystidioles: present but not well shown in our material. (Fide Jackson, "cylindrical or slightly clavate, 25-35 \times 2-3 μ , simple, or more commonly capitate at the apex to 3-5 μ ").

Hyphae and Tissues: gelatinised and obscure.

Specimens examined: 30952, *P. H. B. Talbot*, on *Eucalyptus*, Buffelspoort Expt. Stn.; 41024, *P. H. B. Talbot*, on *Populus deltoides*, Piet Retief; also collected on dead wood at Fountains, Pretoria, 24/X/1948.

These dried collections were not in prime condition for examining and describing. The basidia and hyphae were not clearly seen and the cystidioles were scanty and inconclusive, but in other essentials they agree very well with Jackson's excellent account of this species.

Jackson characterises the *P. rimicola* group by their mucous-gelatinous fructifications which are often bluish and pruinose, and dry to a vernicose film. They tend to produce marginal or superficial cordlike mycelial strands. Their tissues are gelatinised and rather featureless, but the cystidia and cystidioles are distinctive, as also are the non-amyloid minutely roughened spores. The basidia in *P. rimicola* are categorised as "pleurobasidia" by Donk (in Reinwardtia 3, 1956, 370-371).

12. *Peniophora tenuis* (Pat.) Masee in Journ. Linn. Soc. Bot. 25 (1889) 149; Burt in Ann. Mo. Bot. Gard. 12 (1926) 317; Rogers and Jackson in Farlowia 1 (1943) 322.

Corticium praetermissum (Karst.) Bresadola in Ann. Mycol. 1 (1903) 100.

Sebacina africana Burt (!) in Ann. Mo. Bot. Gard. 13 (1926) 338; van der Byl in Ann. Univ. Stellenbosch 7 (1929) 20, f. 4; Doidge in Bothalia 5 (1950) 475; McGuire in Lloydia 4 (1941) 43.

For an extensive synonymy and discussion see Rogers & Jackson loc. cit.

FIG. 27.

Resupinate, effused, adnate, whitish, becoming light creamy or isabelline. Hymenium smooth, becoming vaguely granular to almost poroid in parts, not cracking.

Margin thin, indeterminate. Thickness in section about 100–130 μ .

Basidia: subcylindric, closely compacted, 5–6.5 μ wide.

Spores: cylindrical, oblong or ellipsoid with one side flattened, not amyloid, hyaline, sometimes guttulate, 3–5 \times 7–10 μ .

Gloeocystidia or Cystidia: embedded in all parts of the trama but especially arising from the basal tissues, ventricose, fusiform or subcylindrical, with pale yellowish or hyaline, homogeneous contents, yellow in Iodine, very variable in size, 8.5–12 \times 39–135 μ ; a few of these bodies may be emergent, subcylindrical, with colourless contents, smooth or slightly encrusted, cystidioid.

Hyphae: colourless, not encrusted, very compact and difficult to distinguish, forming a dense tissue, mostly 3–5 μ wide.

Specimens examined: 39088 (T.R.L. 2436), *James & Breyer*, on underground timbers, C.M.R., Johannesburg, 1949.

The identification of the above specimen was confirmed by Dr. D. P. Rogers. We have followed Rogers & Jackson, loc. cit., in their interpretation of *P. tenuis* as a variable complex of species. In some of its forms it might easily be taken for a gloeocystidiate *Corticium*; in others the emergent cystidia are more conspicuous and it is readily placed in *Peniophora*. The cystidioid organs are especially variable in size and degree of exertion, but the spores are rather characteristic of the group. The Transvaal specimen had a denser trama than is often seen in this group. The same tendency was noted in specimens of *Corticium punctulatum* recovered from underground timbers.

The type specimen of *Sebacina africana* Burt was examined in Universiteit van Stellenbosch, Herbarium P. A. van der Byl No. 1342, Knysna. The spores measured 9–13 \times 3–5 μ , and the other characters agree with the *P. tenuis* group, to which *S. africana* is here assigned.

13. *Peniophora velutina* (DC. ex Fr.) Cooke; Recorded by Doidge in *Bothalia* 5 (1950) 487.

The specimen on which this record is based, No. 27764 (*Rump* 117), is *Peniophora roumeguerii* Bres.

MERULIUS Haller ex Fr.

1. *Merulius confluens* Schweinitz, *Naturforsch. Ges. Leipzig* 1 (1822) 92; Nel in *Ann. Univ. Stellenbosch* 20 (1942) 77.

Nel's record of this species for South Africa is based on the specimen in Universiteit van Stellenbosch, Herbarium P. A. van der Byl Nr. 753. I am unable to differentiate this specimen from *Merulius corium* (Pers. ex Fr.) Fr. (Compare *Bothalia* 6, 1951, 30).

Cunningham (in *D.S.I.R. New Zealand Bull.* No. 83, 1950, 6) states that *M. confluens* differs from *M. corium* in having a darker hymenium with deeper pores, smaller spores, and context hyphae which are thinner-walled, often collapsing, and usually (but not always) coated with crystals.

2. *Merulius lacrymans* Wulf. ex Fries, *Syst. Myc.* 1 (1821) 328; Doidge in *Bothalia* 5 (1950) 502.

Boletus lacrymans Wulfen in *Jacquin, Misc. Austr.* 2 (1781) 111.

Mycelium loosely intertexted in a thick felted mat, fibrous, often with conspicuous strands, whitish to pale fawn coloured. Fructification resupinate, widely effused and sometimes reflexed, thick, spongy to fibrous-fleshy, readily separable from the substratum. Surface light brown to greyed-brown. Hymenium gyrose, somewhat poroid or becoming flattened-dentate or raduloid. Pores 1–2 mm diam. and about half as

deep, rust coloured, ferruginous yellow to Brussels brown or Sepia. Margin widely sterile, pale to fawn colour, more or less tomentose. Thickness in section 2 mm or more.

Basidia: clavate, $6.4-8 \times 50 \mu$, with 4 sterigmata; accompanied by narrow paraphysoid hyphae about 2μ diam.

Spores: ellipsoid with one side often flattened, bright ochraceous or honey yellow, $4.8-6.4 \times 9.6-12.8 \mu$, frequently guttulate.

Hyphae: (1) coloured, thick-walled, with a narrow or invisible lumen, $5.6-8-(11.2) \mu$ wide; (2) hyaline, thin-walled, with clamps, $3-6.4 \mu$ wide, sometimes with the wall thickening slightly.

I have examined all the specimens listed under this name by Doidge (loc. cit.), and am not quite convinced that any of them is *M. lacrymans*, since they are either sterile mycelium or, if fertile, differ in being considerably darker in colour than typical *M. lacrymans*. This may be due to the way these specimens have been preserved, and I have thought it advisable to give the above description drawn up from freshly collected English material (Nos. 35772, 35927, 36685, *P. H. B. Talbot*, Richmond, Surrey, on timber in a house).

M. lacrymans is usually confused with *M. himantioides* in South Africa. The hymenium of the latter is not rusty-coloured but has a darker, sordid colour. Its hyphae, both hyaline and coloured, are thin-walled and they often become inflated and then collapse readily.

3. *Merulius molluscus* Fries, Syst. Myc. 1 (1821) 329; Saccardo, Syll. Fung. 6 (1888) 416; Bourdot & Galzin, Hym. de Fr. (1928) 351.

Merulius fugax Fries sensu Burt in Ann. Mo. Bot. Gard. 4 (1917) 352, f. 33.

Merulius laeticolor Berk. & Br. in Ann. Nat. Hist. n. 1681; Saccardo Syll. Fung. 6 (1888) 417.

FIG. 31.

Resupinate, effused, membranous, very soft, readily separable. Hymenium tan, creamy, pinkish buff to orange tinted, gyrose-plicate. Margin byssoid, whitish to pale buff coloured. Context soft, byssoid to fibrillose, less than 300μ thick in section.

Basidia: clavate, sometimes with a basal clamp, $5-9 \times 23-35 \mu$, with four short sterigmata.

Spores: smooth, hyaline, becoming very pale yellow, oblong-ellipsoid, $5-6 \times 3-4.5 \mu$, commonly with 1-2 small guttules.

Hyphae: $3.5-7 \mu$ wide, thin-walled, with abundant clamps which are often ansiform, much branched, hyaline and smooth in the upper parts but granule-encrusted and rarely pale-tinted in the basal tissues, all loosely intertexted.

Specimens examined: No. 41054, *E. L. Stephens* (679), on fir log, Cecilia Forest Plantation, Cape; Rabenhorst Fungi Europaei (No. 3034), *E. Marchal*, Belgium.

The notes given by Burt and by Bourdot & Galzin show that there is some doubt as to the typification of *M. fugax* and *M. molluscus*. I have followed Bourdot & Galzin in adopting the name *M. molluscus* for this species since it conforms closely with the good description given by Fries, whereas Fries' description of *M. fugax* is poor and could apply to several different species.

M. molluscus is distinctive but could possibly be confused with *M. corium* on account of its bright colour. The latter is distinguished by its hyaline spores, thick-walled hyphae lacking clamps, and effused, narrowly reflexed habit. *M. molluscus* is resupinate and at least some of its spores, sometimes the majority, are coloured a pale yellow.

4. *Merulius pinastris* (Fr.) Burt in Ann. Mo. Bot. Gard. 4 (1917) 356, f. 36; Doidge in Bothalia 5 (1950) 502.

Hydnum pinastris Fries, Obs. Myc. 1 (1815) 149, Syst. Myc. 1 (1821) 417.

Doidge records No. 27559, *R. Lurie*, New Modder Mine, Johannesburg, as *Merulius pinastris*. The fructification appears somewhat deformed, probably owing to the habitat, and is not determinable to species. It is not *M. pinastris* however, from which it differs in its colour and in the characters of its mycelium and spores.

5. *Merulius rufus* Pers. ex Fr.; Recorded by Doidge in Bothalia 5 (1950) 502.

One specimen only is cited in support of this record, viz. No. 27790 (*W. G. Rump* 86). This is quite clearly effuso-reflexed and possesses the colour and spores of *Merulius corium*. According to Burt (in Ann. Mo. Bot. Gard. 4, 1917, 338), *M. rufus* is fawn to carob-brown or Natal Brown in colour, and its spores are $4\text{--}4.5 \times 1.5\text{--}2.5 \mu$, and it is truly resupinate. *M. rufus* should be omitted from South African records.

6. *Merulius serpens* Tode ex Fries, Syst. Myc. 1 (1821) 327; Kalchbrenner in Grevillea 10 (1881) 57; Doidge in Bothalia 5 (1950) 502.

Kalchbrenner published a collection of *MacOwan*, Somerset East, as this species. This collection has not been traced in any herbarium and the record cannot be confirmed.

7. *Merulius tremellosus* Schrad. ex Fr., Syst. Myc. 1 (1821) 327; Doidge in Bothalia 5 (1950) 503.

This record is based on No. 1350, *E. M. Doidge*, Garstfontein, Pretoria. The specimen is clearly *M. corium* and not *M. tremellosus*, which differs in habit, the possession of very small allantoid spores, and in having a hymenium composed of radially elongated shallow pores which become transversely ridged.

TOMENTELLA Patouillard.

1. *Tomentella punicea* (A. & S. ex Fr.) Schroet; Bourdot & Galzin, Hym. de Fr. (1928) 491.

Hypochnus puniceus (A. & S. ex Fr.) Saccardo, Syll. Fung. 6 (1888) 661; van der Byl in Ann. Univ. Stellenbosch 7 (1929) 19; Doidge in Bothalia 5 (1950) 479.

Thelephora punicea A. & S. ex Fries, Elenchus Fung. (1828) 199; Alb. & Schw. Consp. Fung. Lusatae (1805) 278; Kalchbrenner in Grevillea 10 (1881) 58; Wood in Rept. Natal Bot. Gard. (1898) 19.

This record for South Africa is based on *J. M. Wood* No. 190 which has not been traced in any herbarium. The record is therefore doubtful. The following is a translation of the description of this species given by Bourdot & Galzin, loc. cit.

Formed of powdery granules, then confluent into a soft, floccose membrane, loosely felted, slightly adherent, red-vermilion colour rarely persistent but passing into a red-brown or brick red. Margin clear, arachnoid, or absent. Hyphae hyaline, thin-walled, clamped, $3\text{--}6\text{--}(9) \mu$, the basal ones tinted bistre-yellow. Basidia $30\text{--}42\text{--}50 \times 6\text{--}7\text{--}10 \mu$, with 2-4 more or less arcuate sterigmata $6\text{--}8 \mu$ long. Spores globose or ovoid, rather regularly sinuolate and asperulate, $7\text{--}8\text{--}12 \times 5\text{--}7\text{--}5\text{--}9 \mu$, 1-guttulate, hyaline, containing, as do the basidia and subhymenial hyphae, a red material which is soluble in KOH and becomes brown.

2. In *Bothalia* 6 (1951) 63 the writer listed *Hypochnus eylesii* van der Byl (in S.A. Journ. Sci. 22, 1925, 168 and in Ann. Univ. Stellenbosch 7, 1929, 18) under *Tomentella*, without having seen material of this species.

Part of the type collection of *H. eylesii* was eventually located in Herbarium Len Verwoerd (30) at the Stellenbosch-Elsenburg College of Agriculture. On study, this proved to be *Corticium punctulatum* Cooke sensu Rogers & Jackson (in *Farlowia* 1, 1943, 320).

HYMENOCHAETE Lévêille.

My studies of *Hymenochaete* in South Africa are incomplete and must remain so pending a wider study of the genus. The collections can quite readily be arranged in taxonomic species and it is often possible to say that a particular collection does not represent the species under which it has been recorded. Its true identity is far more difficult to establish, and in many instances this has not yet been done.

1. *Hymenochaete dregeana* (Berk.) Massee in Journ. Linn. Soc. Bot. 27 (1890) 114; Doidge in *Bothalia* 5 (1950) 484.

Corticium dregeanum Berk. (!) in Hooker's Lond. Journ. Bot. 5 (1846) 3.

In *Bothalia* 6 (1954) 344, the writer showed that the type of this species, *Drège* 9451 c, should be referred to *Irpex dregeanus* (Berk.) Talbot.

2. *Hymenochaete fulva* Burt in Ann. Mo. Bot. Gard. 5 (1918) 354; Doidge in *Bothalia* 5 (1950) 484.

The record rests on Doidge's citation of Nos. 34356, 34386, and 35325 as this species. The first two of these are co-specific but neither they nor the last-mentioned specimen correspond with *H. fulva*. No. 35325 is close to *H. fulva* in structure, but lacks cystidia and has much smaller setae.

3. *Hymenochaete fusco-violascens* (Mont.) van der Byl in Ann. Univ. Stellenbosch 7 (1929) 14; Doidge in *Bothalia* 5 (1950) 484.

Thelephora fusco-violascens Mont. in Ann. Sci. Nat. ser. iii, 7 (1847) 174; Saccardo Syll. Fung. 6 (1888) 546.

This record is based on the collection of *Drège* (9429) from Durban. There does not appear to be a specimen in existence. The short description, apart from the dark violaceous colour of the hymenium, could fit many different species.

4. *Hymenochaete luteobadia* (Fr.) Höhnelt & Litsch. in K. Akad. Wiss. Wien Sitzungsber. 116 (1907) 754; Burt in Ann. Mo. Bot. Gard. 5 (1918) 323, f. 8; van der Byl in Ann. Univ. Stellenbosch 7 (1929) 13, f. 2; Doidge in *Bothalia* 5 (1950) 485.

Stereum luteobadium Fr., Epicr. Syst. Myc. (1838) 547; Saccardo, Syll. Fung. 6 (1888) 571; Kalchbrenner in *Grevillea* 10 (1881) 58; Bottomley in S.A. Journ. Sci. 13 (1916) 440.

FIG. 34.

Pileate, dimidiate; surface of pileus coloured Argus Brown to Sayal Brown (Ridgway), velutinate to tomentose. Margin entire, undulating, thin, concolorous. Hymenium coloured Buckthorn Brown to Tawny Olive (Ridgway), smooth, concentrically furrowed like the abhymenial surface. Thickness in section 300–400 μ .

Basidia & Spores: not seen.

Setae: 35–50 × 4–6 μ , scanty, in a single layer projecting above the hymenium.

Hyphae: brown, smooth, 2 μ wide.

Abhymenial hairs: similar to hyphae.

Tissue differentiation: there is a compact darker zone between the hyphae of the context and the abhymenial hairs.

Specimens examined: No. 15558, *W. Haygarth*, Ngoye (as *Stereum villosum*); 11974, *R. Dümmer*, Kyague, Uganda; 14884, *T. D. Maitland*, Gongoni, Kenya; Universiteit van Stellenbosch, Herbarium P. A. van der Byl Nrs. 146, 692, 523.

5. *Hymenochaete nigricans* (Lév.) Bresadola; Doidge in *Bothalia* 5 (1950) 485.

Stereum nigricans Léveille in *Ann. Sci. Nat. ser. iii*, 2 (1844) 212; Saccardo, *Syll. Fung.* 6 (1888) 561.

FIG. 35.

Pileate, dimidiate; surface of pileus coloured Mars Brown to Chestnut Brown (Ridgway), thickly matted with a soft, spongy, tomentum, concentrically furrowed. Margin concolorous, undulating to slightly lobate, thin. Hymenium coloured near Mummy Brown (Ridgway), smooth, somewhat furrowed. Thickness in section (excluding surface hairs) about 150 μ .

Basidia & Spores: not seen.

Setae: in a single layer, projecting from the hymenium, (20)–35–40 × (6)–8–10 μ , spaced well apart.

Hyphae: brown, smooth, 2–4.5 μ wide, arranged mostly parallel to the hymenium, running out into abhymenial hairs with no dark or compact zone in between.

Abhymenial hairs: brown, smooth, 3–5 μ wide.

Specimens examined: *MacOwan*, *Cap. b. sp.* (sub *Stereum percome* in *Herb. Kew.*).

The specimen cited by Doidge as *H. nigricans*, No. 15558, *Haygarth*, is instead *Hymenochaete luteobadia*. The latter differs from *H. nigricans* in having longer, thinner and more delicate setae, which are also sparser, in the presence of a basal seam, in colour, and in having a thinner tomentum on the surface.

The MacOwan specimen cited above corresponds in detail with *Hymenochaete spadicea* Berk. which, as indicated by Bresadola (in *Ann. Mycol.* 14, 1916, 233) is a synonym of *H. nigricans*.

6. *Hymenochaete rubiginosa* (Dicks. ex Fr.) Léveille in *Ann. Sci. Nat. ser. iii*, 5 (1846) 151; Burt in *Ann. Mo. Bot. Gard.* 5 (1918) 332, f. 11; Massee in *Journ. Linn. Soc. Bot.* 26 (1890) 97; van der Byl in *Ann. Univ. Stellenbosch* 7 (1929) 14; Doidge in *Bothalia* 5 (1950) 485.

Thelephora rubiginosa Dicks. ex Fr., *Syst. Myc.* 1 (1821) 436.

Stereum rubiginosum (Dicks. ex Fr.) Fr., *Epicr.* (1838) 550; Montagne in *Ann. Sci. Nat. ser. iii*, 7 (1847) 174.

The original South African record of this species was based on *Drège* No. 9450, which I have not been able to locate in any herbarium. No. 30260 cited by Doidge as this species is referred to *Hymenochaete ochromarginata* Talbot.

7. *Hymenochaete tabacina* (Sow. ex Fr.) Lév. in Ann. Sci. Nat. ser. iii, 5 (1846) 152; Doidge in Bothalia 5 (1950) 485.

Thelephora tabacina Sow. ex Fr., Syst. Myc. 1 (1821) 437.

Auricularia tabacina Sowerby, Brit. Fung. (1797) pl. 25.

Of the specimens cited by Doidge for South Africa, I have been unable to locate Cheesman, Groot Schuur. No. 27627, *Rump*, is a specimen of *Stereum umbrinum*. No. 28287, *Rump*, is a species of *Hymenochaete* but not *H. tabacina*.

The MacOwan specimen cited by Doidge under *H. tabacina* var *australis* has not been located. This variety is held to be a synonym of *H. tabacina*.

8. *Hymenochaete tenuissima* Berk (!) in Journ. Linn. Soc. Bot. 10 (1868) 333; Doidge in Bothalia 5 (1950) 485.

Doidge cites two specimens, of which that collected by Cheesman has not been located. No. 15596, *Haygarth*, is a polypore, *Polystictus tabacinus* Mont.

9. *Hymenochaete tristicula* (B. & Br.) Masee; Doidge in Bothalia 5 (1950) 485.
= *Duportella tristicula* (B. & Br.) Reinking. See Bothalia 6 (1951) 46.

ODONTIA Pers. ex S. F. Gray.

1. *Odontia bicolor* (Alb. & Schw. ex Fr.) Bresadola in Ann. Mycol. 1 (1903) 87; Bourdot & Galzin, Hym. de Fr. (1928) 429, f. 115; Miller in Mycologia 26 (1934) 27, Pl. 3, f. 5; Brown in Bot. Gaz. 96 (1935) 658, f. 14; Nobles in Canad. Journ. Bot. 31 (1953) 745-749, Figs. 1-7.

Hydnum bicolor Alb. & Schw. ex Fr., Syst. Myc. 1 (1821) 417.

FIG. 32.

Resupinate, widely effused, pruinose to ceraceous in parts, white, becoming creamy. Margin pruinose, white to creamy, indeterminate. Teeth variable, conical, subulate or cylindrical, up to 0.4 mm long, often divided above into several points, the apices usually fimbriate, composed of sterile hyphal ends with rounded or acute tips, projecting about 50-60 μ and each 2.5-3 μ diam. Forming a profuse mycelium and white rot within the substratum.

Basidia: clavate, 15-20 \times 4-5 μ , with 2-4 sterigmata up to 5 μ long.

Spores: (not seen in South African material) elliptic-oblong with the base obliquely attenuated, hyaline, (5.5)-7-(8) \times (2.5)-3.3-(4) μ .

Cystidia: capitate (1) composed of an axis (2)-4-6 μ wide and 15-20 μ long whose globose apex is surrounded by a smooth, thin-walled, globose envelope, sometimes with yellowish contents, easily collapsing, 10-20 μ diam. In some of these cystidia the end of the axis is blown out into the envelope and no columella-like part is seen; (2) other cystidia composed of a thinner axis, usually about 3 μ diam. whose enlarged end is surmounted by a crest of radiating acicular crystals about 8-12 μ diam.

Hyphae: subicular hyphae are hyaline, branched, septate, with clamps, thin-walled, 1.5-2 μ wide; the hyphae in the teeth are 2-3 μ wide, easily collapsing, hyaline, thin-walled, sometimes with clamps.

Crystals: radiating acicular crystals are abundant in all parts of the fructification.

Specimens examined: 36792, *N. Eaton*, on worked *Pinus* timber, Potchefstroom; 39046, *P. H. B. Talbot*, on *Eucalyptus*, Lions River, Natal.

The peculiar capitate and mineral-encrusted cystidia, the radiating groups of crystals, and the dense white rot of the substratum, are characters by which this species is easily recognised. Nobles (1953) describes this fungus in culture and the important rot of conifers and frondose trees that it produces.

GRANDINIA Fries.

1. *Grandinia rosea* P. Hennings in Engler Jahrb. 38 (1905) 108; Saccardo, Syll. Fung. 21 (1912) 379; van der Byl in Ann. Univ. Stellenbosch 12 (1934) 8.

FIG. 33.

Resupinate, widely effused, with rather soft to membranous or spongy texture, sometimes becoming crustose, coloured rosy to terra cotta or brick red. Margin fibrillose to byssoid. Hymenium covered with small (180–200 μ diam., fide Hennings) half-round tubercles or with short raduloid or more or less cylindrical teeth. The tubercles and teeth are fertile and without setoid hairs or cystidia.

Basidia: cylindric-clavate, about 19–29 \times 3–4 μ , with usually 2 very short sterigmata (14–18 \times 3.5–5 μ fide Hennings).

Spores: subglobose to ovate, or elliptical with one side flattened, hyaline, smooth, 3.2 \times 4.8 μ (4.5 \times 4 μ fide Hennings).

Hyphae: (1) layer next to substratum composed of compact horizontal adherent hyphae with firm walls, septate, colourless, tending to collapse, 3–7 μ wide; (2) middle and upper tissues of colourless, branched, septate, collapsing hyphae, 4–6.5 μ wide, arranged more or less vertically and more loosely than the basal layer. No hyphae are very clear. Airspaces common in the middle layers.

Specimens examined: Universiteit van Stellenbosch, Herbarium P. A. van der Byl Nr. 706.

This is a distinctive species on account of its colour, soft and membranous to spongy texture, and hyphae which are mostly widely spaced. *Grandinia* may not be the most suitable genus for this species, but a better one cannot yet be suggested.

SISTOTREMA Fries emend. Donk.

1. *Sistotrema muscicola* (Pers.) Lundell apud Lundell & Nannfeldt in Fung. Exsicc. Suecici Fasc. xxix–xxx (1947) 11, No. 1415 a.

Hydnum muscicola Pers., Myc. Eur. 2 (1825) 181.

Grandinia muscicola (Pers.) Bres. apud Bourd. & Galz. in Bull. Soc. Myc. Fr. 30 (1914) 252, Hym. de Fr. (1928) 411, f. 112.

Trechispora muscicola (Pers.) Rogers in Mycologia 36 (1944) 83, f. 3.

FIG. 36.

Fructifications resupinate, consisting of delicate spines up to 1 mm long borne on a separable pellicular to membranous subiculum, fragile, cream to ochraceous in colour, with a pellicular, paler, sterile margin. The fructification is occasionally poroid.

Basidia: Obovate when immature, later becoming urnigerous, with a short, subcylindrical apical protrusion, not expanded at the apex, 13–20 \times 6.4–6.8 μ , with (4)–6 short sterigmata up to 3.5 μ long.

Spores: subglobose to broad ovate or ellipsoid, shortly attenuated at the base, 2.7–3.6 \times 2.3–2.7 μ , smooth, hyaline (4.5.5 \times 3.3.5 μ , fide Rogers; 3.4.5 \times 2.5.4 μ , fide Bourdot & Galzin; 3.4.5 \times 3.5 μ fide Lundell).

Hyphae: thin-walled, smooth, hyaline, readily collapsing in parts, with large, inflated clamp connections up to 7–10 μ wide, the rest of the hyphae being only 2.5–5.5 μ wide.

Specimens examined: 40671, *Distr. Forest Officer*, on dead *Pinus pinaster* near soil level, Knysna, Woodville Plantation.

In the specimen examined, the spores are somewhat smaller than as usually described for this species, but there appears no doubt as to its identity. Rogers (Loc. cit.) separated *Trechispora* for resupinate species with urnigerous basidia, from *Sistotrema* which he limited to pileate species. This treatment is not supported by Lundell, nor by Eriksson (Svensk. Bot. Tidskr. 43, 1949, 312). I have here followed the Swedish view, since it seems in this instance that the distinction between resupinate and pileate species is too slight to be of generic significance. (See also Donk in *Fungus* 26, 1956, 4.).

2. *Sistotrema brinkmanni* (Bres.) J. Eriksson in K. fysiogr. Sällsk. Lund Forh. 18 (1948) 17.

Odonia brinkmanni Bres. in Ann. Mycol. 1 (1903) 88.

Trechispora brinkmanni (Bres.) Rogers & Jackson in Farlowia 1 (1943) 288; Rogers in Mycologia 36 (1944) 88.

Corticium coronilla Höhn. apud Höhn. & Litsch. in Ann. Mycol. 4 (1906) 291; Biggs in Mycologia 29 (1937) 686.

FIG. 38.

Fructification resupinate, very thin and delicate, pruinose to waxy or later thin membranous, drying inconspicuous, white to yellowish, the hymenium even or minutely papillate, the margin pruinose or finely fibrillose, sometimes accompanied in culture by dark sclerotia or bulbils.

Basidia: 13·5–16·5 μ long, formed in clusters, urniform, composed of a swollen base 4–5 μ wide, often with a subtending clamp connection, and a long narrower apical part 2·7–3·8 μ wide expanded somewhat below the corona of (4)–6–8 sterigmata. Sterigmata curved, about 3·5 μ long.

Basidiospores: ellipsoid to subcylindric, usually unilaterally depressed or flattened, apiculate, smooth, 4·4–5·4 \times 1·9–2·6 μ .

Hyphae: thin-walled, smooth, with abundant large clamps, (1·9)–4·5–7 μ wide becoming inflated into ampoullar hyphae at the clamps.

Bulbils: deep brown or light yellowish-brown, subspherical, 67–122 μ diam., composed of aggregated yellow-brown subspherical cells.

Other organs: Spherical cells 8–10 μ diam., hyaline, eventually detached. These are in the nature of chlamydospores and are produced in some cultures. Cylindrical, hyaline oidia are found in other cultures.

Specimens examined: 41739, V. C. Green, on imported Southern Pine beams in storage at West Rand Consolidated Mines, 22/3/57.

An extensive synonymy and description of this species is given by Rogers (1944) and Biggs (1937).

This collection was noted in the form of bulbils on timber intended for use in the mines, and the above description is drawn up from cultures made from the bulbils by Miss V. C. Green.

MISCELLANEOUS ADDENDA.

1. *Irpex dregeanus* (Berk.) Talbot and *Irpex vellereus* B. & Br.

D. A. Reid (in Kew Bull., 1955, pp. 631–648) holds *Irpex vellereus* apart from *I. dregeanus*, while acknowledging a very close relationship between the two species.

He differentiates them as follows:—

Irpex vellereus.—Spores 4·5–6 \times 2·5–3 μ ; Cystidia 3·5–5 μ wide.

Irpex dregeanus.—Spores 6·5–7 \times 4·5–5 μ ; Cystidia (5)–6–8 μ wide.

2. Synonymy of Various *Stereum* Species.

P. L. Lentz (in U.S. Dept. Agric. Agriculture Monograph No. 24, 1955, pp. 1-74) gives the following synonyms:—

Stereum diaphanum (Schw.) Cooke = *Cotilydia diaphana* (Schw.) Lentz.

Stereum bicolor (Pers. ex Fr.) Fr. = *Laxitextum bicolor* (Pers. ex Fr.) Lentz.

Stereum umbrinum B. & C. = *Laxitextum crassum* (Lév.) Lentz.

Stereum fasciatum (Schw.) Fr.

Stereum lobatum (Kunze ex Fr.) Fr. } = *Stereum ostrea* (Blume & Nees ex Fr.) Fr.

Stereum concolor (Jungh.) Mont. }

Stereum perlatum Berk. }

3. *Lopharia*.

G. H. Cunningham (in Trans. Roy. Soc. N.Z. 83, 1956, 621) has emended the genus *Lopharia* Kalchbr. & MacOwan to contain pileate species of the Thelephoraceae bearing pedicellate cystidia. He typifies the emended genus by *Thelephora cinerascens* Schw., disregarding the fact that the type species of *Lopharia* was, and must remain, *L. lirellos* Kalchbr. & MacOwan as this genus was monotypic when it was proposed. In my opinion the structure of *Lopharia* is stereoid rather than peniophoroid, despite the presence of cystidia, and I would therefore retain *Stereum cinerascens* as a *Stereum*. However, if it should be necessary to differentiate it from *Stereum* because of the presence of cystidia, *S. cinerascens* is the type species of *Lloydella* Bres. which was differentiated from *Stereum* precisely because it possessed "metuloid" cystidia. On the other hand, *Lopharia* and *Thwaitesiella* Masee were originally erected on the nature of the hymenial configuration, which is variable and unreliable, and they would be better sunk under *Stereum* or *Lloydella* depending upon the emphasis given to the presence of the cystidia. It appears that Cunningham was not justified in emending *Lopharia* when *Lloydella* stands for exactly the same generic concept. Cunningham treats two species under his emended *Lopharia*, viz., *L. cinerascens* (Schw.) G. H. Cunn. and *L. vinosa* (Berk.) G. H. Cunn. (Syn. *Stereum umbrinum* B. & C.; *Thelephora crassa* Lév.). He thus associates a monomitic, typically resupinate species lacking a basal seam, with a dimitic, typically effuso-reflexed species possessing a basal seam. It is true that *Stereum umbrinum* is ill-placed in *Stereum*, and for that reason I would rather follow Lentz (U.S.D.A. Agric. Monogr. No. 24, 1955) in placing it in *Laxitextum* Lentz, if it is not to be retained in *Stereum*.

4. *Laeticorticium* Donk.

In proposing the new genus *Laeticorticium*, Donk (in Fungus 26, 1956, 16-17) makes the combinations *L. roseum* (Pers. ex Fr.) Donk and *L. polygonioides* (Karst.) Donk. These two species were treated previously under *Aleurodiscus* (in Bothalia 6, 1956, 470), but *Laeticorticium* appears to be a well-founded genus. Donk refers to the nodular dendroid hyphae as "dendrohyphidia".

5. *Scytinostroma* Donk.

In two previous papers (Bothalia 4, 1948, 939 and Ibid. 6, 1951, 54, Pl. 38) the author erred in using the generic name *Asterostromella* Höhn. & Litsch. (1907), since this is based on the same type as the earlier genus *Vararia* Karst. (1903). Donk has now proposed (in Fungus 26, 1956, pp. 19-22) the genus *Scytinostroma* Donk, to which he refers *Asterostromella duriuscula* (B. & Br.) Talbot, *Asterostromella rumpiana* Talbot and *Corticium portentosum* B. & C., at the same time differentiating this genus from *Vararia*.

SUMMARY OF THE RECORDED SOUTH AFRICAN THELEPHORACEAE.

This paper concludes a series of studies designed to revise the chaotic records of the South African Thelephoraceae principally at the specific and generic levels. The revision, carried out over a period of ten years, was based on a study of virtually every species, and the vast majority of preserved specimens, of the Thelephoraceae recorded for South Africa. Of necessity the results have been published in a number of apparently disconnected papers, and so it seems appropriate at this stage to summarise them by means of a key to the accepted species and a species-index of all the recorded South African Thelephoraceae. This is, however, only a beginning; there must still be a great number of other Thelephoraceae in this country awaiting collection and identification.

A KEY TO THE ACCEPTED GENERA AND SPECIES OF SOUTH AFRICAN THELEPHORACEAE.

1. Homobasidiomycetae, Aphyllophorales, Thelephoraceae:

- Basidiocarp pezizaeform, patelliform, cupulate or tubular, sessile or stipitate, the interior of the basidiocarp lined by the hymenium which may be smooth or wrinkled. Basidiocarps solitary to gregarious or confluent, at times seated on or embedded in a common floccose to membranous subiculum or stroma. . . . Subfamily Cyphelloideae 2.
- Basidiocarp resupinate, effuso-reflexed or pileate. Hymenium spread over shallow veins, anastomosing ridges, or sometimes imperfectly poroid from anastomosis of the veins. Texture usually soft, fleshy or subgelatinous. . . . Subfamily Meruloideae 3.
- Basidiocarp resupinate, effuso-reflexed or pileate, sessile or stipitate. Hymenium smooth or finely rugose or somewhat tuberculate, or bearing sterile hyphal pegs. Subfamily Thelephoroideae 4.
- (Hymenium corticioid, hydroid or polyporoid. Basidia urniform, i.e. with a bulbous base and a narrower tubular prolongation with a crown of (4)–5–8 sterigmata 1. *Sistotrema*.)

2. Subfamily Cyphelloideae:

- Subiculum present as a membranous stroma in which are seated contiguous cupular basidiocarps. . . . 2. *Porotheleum*.
- Subiculum absent. Basidiocarps discoid, patelliform or effused, coriaceous to fleshy-gelatinous. Hyphae usually gelatinised. Basidia and spores usually large. Paraphysoid structures common. . . . 3. *Cytidia*.
- Subiculum sometimes absent, if present then composed of floccose interwoven hyphae. Basidiocarps usually cupulate to tubular, sometimes patelliform. . . 4. *Solenia* and *Cyphella*.
- (Compare also 16. *Aleurodiscus* and 18. *Dendrothele*.)

3. Subfamily Meruloideae:

- Hymenium covering plane to convex, discoid to elongated pulvinae separated by narrow sterile clefts containing mineral matter, and seated on a fleshy or subgelatinous stroma. Resupinate or reflexed to dimidiate. Hymenium containing brown or yellow dendrophyses and cemented by brownish granules. Tissue distribution *Stereum*-like. Gloeocystidia present or absent. One species produces abundant conidia. . . . 5. *Punctularia*.
- Hymenium covering shallow anastomosing veins or pleats, alveolar or irregularly poroid; resupinate or pileate, often rather gelatinous. . . . 6. *Merulius*.

4. Subfamily Thelephoroideae:

- Hyphae brown, spores brown, setae or pseudosetae (setoid hyphae) absent. . . . 5.
- Hyphae brown, spores hyaline, setae or pseudosetae present (guard against taking intrusive skeletal hyphae or coloured cystidia as setae or pseudosetae). . . . 6.
- Hyphae hyaline or only faintly coloured, if the latter then the spores are hyaline; setae or pseudosetae absent; other ancillary organs may be present or absent. . . . 7.

5. Spores smooth; hymenophore resupinate, more or less membranous. . . . 7. *Coniophora*.
- Spores verrucose or echinulate; hymenophore resupinate, floccose. . . . (*Hypochnus*) = 8. *Tomentella*.
- Spores verrucose to echinulate; hymenophore compact, subresupinate to usually pileate. . . . 9. *Thelephora*.

6. Setae present..... 10. *Hymenochaete*.
 Setae absent; pseudosetae present; gloeocystidia and cystidia also found at suitable stages of development, but often not seen..... 11. *Duportella*.
 Asterosetae present, see..... 17. *Asterostroma*.
7. Hymenophore effuso-reflexed to pileate, occasionally resupinate but then showing tissues differentiated into a hymenium separated from the basal mycelium by a more or less horizontal middle layer. Hyphae hyaline to faintly coloured, rarely dark. Spores hyaline, smooth, rarely stippled-punctate. Texture coriaceous to sublignous..... 8.
 Hymenophore resupinate with margin rarely free or only narrowly reflexed. Hyphae usually hyaline, loosely interwoven or if compact then more or less vertically arranged and lacking a differentiated middle layer. Spores hyaline, smooth. Texture arachnoid, pellicular, byssoid, membranous, or fleshy, not coriaceous to sublignous..... 9.
8. Hymenium smooth or irregularly rugose; Hyphae normal, capillary..... 12. *Stereum*.
 Hymenium smooth or irregularly rugose; Hyphae dendrophytic to dichophytic. Spores mostly subglobose and smooth or minutely stippled..... 14. *Asterostromella*.
 Hymenium covering radiating costate ribs and generally also coarsely papillate. Hyphae normal, capillary..... (*Cladoderris*) = 13. *Cymatoderma*.
9. Basidia not in a palisade, formed in loose botryose clusters from lateral branches of loosely interwoven repent hyphae. Texture arachnoid to pellicular, with generally wide, distinct hyphae, usually branching at right angles. Septate cystidia occasionally present..... 15. *Pellicularia*.
 Basidia forming a palisade hymenium above a more compact trama..... 10.
10. Basidia usually very large; spores usually large and often amyloid. Paraphysoid structures of various sorts (Acanthophyses, moniliform gloeocystidia, dendrophyses, pseudophyses) present..... 16. *Aleurodiscus*.
 Basidia and spores not usually large and seldom amyloid. Ancillary organs present or absent..... 11.
11. Asterosetae present..... 17. *Asterostroma*.
 Asterosetae absent..... 12.
12. Hyphal pegs present, composed of dendrophytic hyphae..... 18. *Dendrothele*.
 Hyphal pegs absent..... 13.
13. Hyphae dendrophytic to dichophytic..... 14. *Asterostromella*.
 Hyphae normal, capillary, not prolifically branched..... 14.
14. Possessing cystidia and sometimes cystidioles and/or gloeocystidia as well.... 19. *Peniophora*.
 Lacking cystidia; sometimes possessing gloeocystidia and/or cystidioles..... 20. *Corticium*.

THELEPHORACEAE (Pers.) Saccardo.

Saccardo, Syll. Fung. 11 (1895) 115.

Thelephoreae Persoon, Myc. Eur. 1 (1822) 109.

Hymenomycetes with inferior hymenium; hymenophore resupinate effuso-reflexed or pileate, sessile or stipitate. Hymenial layer smooth or rugulose or papillate, with continuous or discontinuous basidia, homobasidiate, frequently possessing various ancillary organs. Spores unicellular, smooth or sculptured, hyaline or coloured. Hyphae hyaline or coloured, with or without clamp connections, forming mono- or dimitic hyphal systems.

Genus 1. *Sistotrema* Pers. ex Fr., Syst. Myc. 1 (1821) 426, emend. Donk apud Rogers in Univ. Iowa Stud. Nat. Hist. 17 (1935) 19.

Fructification resupinate or reflexed to pileate. Hymenium smooth, granulose, toothed or poroid. Texture arachnoid, pellicular or membranous. Hyphae hyaline, with clamps. Basidia urniform, with a bulbous base and a narrower tubular prolongation bearing apically a crown of (4)–5–8 sterigmata. Spores smooth. Gloeocystidia present in some species.

The species of this genus show hymenial characters which are associated with several different Friesian families. The genus is included here because some of its species may be sought in the Thelephoraceae.

1. Resupinate, hydroid with delicate spines up to 1 mm long. Basidia not closely clustered.
Spores subglobose or ellipsoid..... *Sistotrema muscicola*.
- Resupinate, even or at most granular-papillate, lacking spines. Basidia closely clustered.
Spores ellipsoid to subcylindric. Bulbils, swollen cells (chlamydospores) or oidia
often present in culture..... *Sistotrema brinkmanni*.

Genus 2. Porotheleum (Fr. ex Fr.) Fries, Syst. Orb. Veg. (1825) 80.

Fructifications composed of sessile, closely aggregated and confluent cupules, partly immersed in a membranous stromatic subiculum. Hymenium smooth, lining the interior of the cupules. Spores hyaline. Hyphae monomitic, hyaline, with clamps.

A single South African species, *Porotheleum incanum*.

Genus 3. Cytidia Quelet, Fl. Myc. de Fr. (1888) 25.

Hymenophores cupulate, sessile, centrally attached, coriaceous to fleshy-gelatinous, discrete, gregarious or confluent, sometimes effused. Hymenium lining the interior of the cupules, smooth, sometimes becoming wrinkled or veined. Spores hyaline or lightly coloured, amyloid. Hyphae usually gelatinised, with clamps, monomitic. Paraphysoids or cystidia present or absent.

1. Spores large, ovate or broad elliptical, at first hyaline, later pale coloured with the wall thickening to 2.5μ and penetrated by peg-like projections of the lumen. Fusoid, encrusted cystidia present..... *Cytidia habgallae*.
- Spores otherwise; Cystidia absent..... 2.
2. Spores of one kind only, cylindrical to allantoid, $1.5-3 \times 7-10 \mu$. Cupular hairs long and floccose..... *Cytidia flocculenta*.
- Spores of two kinds (a) cylindrical or allantoid, $2.2-5-(3.2) \times 6.4-9.6-(11.2) \mu$,
(b) ovate to elliptic-depressed, $4.8-6.4 \times 9.6-12.8 \mu$. Cupular hairs short and scanty..... *Cytidia simulans*.

Genus 4. Solenia Pers. ex Fr., Syst. Myc. 2 (1823) 200; Persoon in Roemer Neues Mag. Bot. 1 (1794) 116, Syn. Fung. (1801) 675, Myc. Eur. 1 (1822) 334.

Cyphella Fries, Syst. Myc. 2 (1823) 201.

Pilei cupulate, tubular or discoid, discrete or gregarious, sometimes confluent, sessile or stipitate, naked or covered with hyaline or coloured hairs, seated sometimes upon a hyphal subiculum. Hymenium smooth, lining the concave interior of the cupules. Spores hyaline or coloured. Hyphae monomitic, hyaline or coloured, with clamp connections.

Cyphella is an untenable name. The old basis of separating these genera on the presence or absence of the subiculum and the discreteness of the basidiocarps cannot stand; these characters vary in a single collection. For species see the following combined key for both genera.

1. Fructifications cupular to tubular, sessile or shortly stalked..... 2.
Fructifications discoid with reflexed margin (i.e. patelliform). Encrusted villose hairs on reflexed part. Spores cylindrical, straight or curved, $3.2-4.8 \times (6.4)-8-11 \mu$ *Cyphella applanata*.
2. Fructifications villose, with long hairs on the exterior..... 3.
Fructifications pruinose with short, sparse hairs or mineral encrustations, or nude, or with hairs mostly appressed..... 4.

3. Spores smooth, broad ovate to pip-shaped, $11.2-14.4 \times 9.9-6-(11.6) \mu$. Cupules 1-3 mm diam. *Cyphella alboviolascens*.
Spores finely asperulate, ovoid, $12-15 \times 7-8 \mu$. Cupules 1 mm diam., later becoming flattened. *Cyphella cheesmani*.
4. Hairs appressed, spirally twisted in the outer half. Cupules tubular, adnate in sheaves.
Spores $3-4 \times 2.5-3.5 \mu$ *Solenia natalensis*.
Hairs, if present, not spirally twisted. 5.
5. Spores hyaline. 6.
Spores lightly coloured. 7.
6. Spores ovate to subglobose, $4.8-6.4 \mu$ diam., smooth or minutely punctate. Cupules $0.3-1.5$ mm diam., not hairy, pruinose with mineral deposits, greyish-white. *Cyphella farinacea*.
Spores ovate, smooth, somewhat flattened on one side, $3-4 \times 2.5-3.5 \mu$. Cupules up to 0.5 mm diam., creamy yellow, with solid, parallel, appressed surface hairs. . . *Solenia rhoina*.
Spores subglobose to broad ovate, smooth, $3-4 \times 2.5-3 \mu$. Cupules 130μ diam., 250μ long, yellowish when dry, lacking surface hairs. *Solenia minima*.
7. Cupules up to 1 mm high, lacking a subiculum. Hyphae thick-walled, $3.4-8-(6.4) \mu$ wide. *Cyphella pelargonii*.
Cupules up to 600μ high, commonly seated on a reddish-brown hyphal subiculum which may be scanty or absent. Hyphae thin-walled, $1.6-2.4 \mu$ wide. *Cyphella variolosa*.

Genus 5. Punctularia Patouillard apud Pat. & Lagerh. in Bull. Herb. Boiss. 3 (1895) 57, pl. 2, Figs. 1, a-g.

Hymenophore resupinate, rarely narrowly reflexed, or dimidiate, subgelatinous, drying ceraceous to corneous. Hymenium covering discoid to elongated, hemispherical pulvinae seated upon a common foundation tissue and separated by sterile fissures containing mineral matter. Basidiospores hyaline to pale coloured, smooth. Dark dendrophyses present in hymenium. Hyphae subgelatinous, hyaline, with clamps. Abhymenial hairs dark brown, with clamps. Gloeocystidia present or absent. Conidial stage often present; conidia coloured, sculptured, formed in an acropetal chain separated by narrower, clamped, portions. Hymenial tissues cemented together by brownish granular material.

1. Mostly resupinate or only narrowly reflexed, usually associated with a prolific conidial state. Hymenium containing dark dendrophyses composed of a hyaline stem and an irregularly swollen, shortly branched, coloured apical part up to 5.4μ wide. Gloeocystidia absent. *Punctularia tuberculosa*.
Resupinate-reflexed to dimidiate, lacking any known conidial state. Hymenium containing yellow, irregularly branched dendrophyses $1-2 \mu$ wide, whose ultimate branches are thread-like. Yellow gloeocystidia present, $3.5-5 \mu$ wide. *Punctularia strigosozonata*.

Genus 6. Merulius Haller ex Fries, Syst. Myc. 1 (1821) 326.

Fructifications resupinate, effuso-reflexed or pileate, fleshy-gelatinous, coriaceous or membranous. Hymenium at first plane then gyrose-plicate, porose-reticulate, or sometimes dentate or raduloid, fertile on the edges of the folds or teeth. Hyphae monomitic or dimitic, coloured or hyaline, with or without clamp connections. Spores hyaline or coloured, smooth.

1. Hymenium pale to pinkish or orange. 2.
Hymenium dark, some shade of yellow or brown. 3.
2. Spores oblong-ellipsoid, hyaline to pale yellow, $5-6 \times 3.4-5 \mu$. Hyphae abundantly clamped. *Merulius molluscus*.
Spores subcylindrical, $2.5-3.5 \times 6-7.5 \mu$, hyaline. Hyphae lacking clamps. . . *Merulius corium*.
3. All hyphae thin-walled, hyaline or coloured. 4.
Some hyphae thick-walled and coloured, lacking clamps; others hyaline with thin or slightly thickened walls, with occasional clamps. Hymenium ferruginous-yellow then darker. *Merulius lacrymans*.

4. Hymenium more or less smooth and Dresden Brown colour when dry, changing rapidly to warm russet and becoming convoluted when moistened. Basal hyphae often granule-encrusted. Young parts lacking a lilaceous tint..... *Merulius gelatinosus*.
 Hymenium convoluted when dry, umber to warm Brussels Brown or darker. No marked colour change when wetted. Young parts often with a pale lilaceous tint. Basal hyphae not granule-encrusted..... *Merulius himantioides*.

Genus 7. Coniophora DC. ex Pers., Myc. Eur. 1 (1822) 153; De Candolle Fl. Fr. 6 (1815) 34.

Coniophorella Karsten, Finl. Basidsv. (1889) 438.

Fructifications resupinate, pellicular, fleshy or membranous. Hymenium smooth or somewhat tubercular, usually some shade of yellow or brown. Spores coloured yellowish to brown, smooth. Hyphae hyaline or coloured, with or without clamp connections, forming mono- or dimitic systems. Septate cystidia sometimes present.

1. Coloured, septate, encrusted cystidia present. Spores (5)–6–7–(8) × (10)–12–(14) μ
Coniophora olivacea.
 Cystidia absent..... 2.
2. Basal hyphae not encrusted, narrow ($\pm 2\mu$), dark-coloured, the remaining hyphae lightly coloured or hyaline. Hymenium papillate, dark drab colour. Spores 4–6 × 7.5–10 μ *Coniophora papillosa*.
 Basal hyphae not dark, or if slightly so then 3–(6) μ wide, forming a soft spongy abhymental surface..... 3.
3. Basal hyphae thickly encrusted with minerals, hyaline to pale coloured, inflated then collapsing. Hymenium light brown to warm sepia or bister. Spores (5.6)–6.6–(8) × (8.8)–9.6–11 μ *Coniophora incrustedata*.
 Basal hyphae not encrusted, not inflating then collapsing..... 4.
4. Fructification fleshy-membranous, easily separable from the substratum. Hymenium tubercular..... 5.
 Fructification floccose then pellicular-membranous, arid, not readily separable. Hymenium smooth. Spores 10–13 × 6–7 μ . Hyphae pale coloured or hyaline, the marginal ones with whorled clamps..... *Coniophora arida*.
5. [Spores (5.3)–6.5–8 × 9–12–14.7 μ . Basal hyphae not specially dark... *Coniophora puteana*].
 Spores 5–6–6.6 × 6.6–7.5–8.3–10 μ . Basal hyphae dark, forming a spongy layer, the rest of the hyphae hyaline..... *Coniophora fodinarum*.

Genus 8. Tomentella Patouillard, Hym. d'Eur. (1887) 154.

Hypochnus Fries, Syst. Myc. 3 (1829) 289 emend Karsten, Rev. Myc. 3 (1881) 23.

Fructifications resupinate, soft, floccose to membranous, or adnate and crustose. Hyphae laxly intertexted, hyaline to coloured, monomitic, with clamps. Hymenium smooth or papillate. Spores coloured, verrucose, asperulate, angular.

A single species, *Tomentella punicea*, recorded from South Africa.

Genus 9. Thelephora Erhart ex Fries, Syst. Myc. 1 (1821) 428, pr. parte; Erhart, Crypt. Exsicc. No. 178 (1785).

Fructifications effuso-reflexed and encrusting to dimidiate, imbricate, confluent, sessile or shortly stipitate, sometimes the pileus divided into somewhat clavarioid branches, membranous to soft coriaceous. Hymenium inferior, or amphigenous in parts, smooth or somewhat papillate. Spores coloured, echinulate or verrucose, angular. Hyphae monomitic, with clamp connections, mostly dark coloured.

1. Fructifications effused, encrusting, resupinate then emitting oblique or suberect flabellate fascicles of penicillate branches, especially at the margin. Spores 4.8–7.2 × 6.4–9.6 μ "*Thelephora penicillata*" Lloyd.
 Fructifications effuso-reflexed, or dimidiate, imbricate, confluent, sessile or shortly stipitate. Surface usually strigose. Spores 7–8 × (7)–9–11 μ *Thelephora terrestris*.

Genus 10. Hymenochaete Léveille, Ann. Sci. Nat. ser. iii, 5 (1846) 150.

Fructifications resupinate, reflexed or pileate, usually sessile, rarely stipitate, annual or perennial, arid-crustose to coriaceous. Hymenium smooth, penetrated by setae. Hyphae coloured, darkening in colour on application of alkali, dimitic or monomitic, lacking clamp connections. Spores hyaline, smooth.

1. Setae found throughout the tissues and commonly arranged in fascicles. Fructification resupinate..... *Hymenochaete fasciculata*.
Setigerous layer(s) differentiated from hyphal layer(s). Setae not fasciculate. Fructifications resupinate or dimidiate..... 2.
2. Setae rather scanty, confined to the hymenium..... 3.
Setae abundant, forming a thick setigerous layer above the rest of the hyphal layers..... 4.
3. Setae $35-50 \times 4-6 \mu$. Hymenium Buckthorn Brown to tawny olive (Ridgway).
Tomentum thin. Compact zone differentiated at the base of the trama. Dimidiate
Hymenochaete luteobadia.
Setae (20)-35-40 \times (6)-8-10 μ . Hymenium near Mummy Brown (Ridgway). Tomentum thick. No compact basal zone differentiated. Dimidiate.... *Hymenochaete nigricans*.
4. Resupinate. Setigerous layer(s) $\pm 260 \mu$ thick, sometimes arranged in strata. Setae 45-70 \times 5.6-8.4 μ . Hyphae moniliform in parts..... *Hymenochaete semistupposa*.
Usually effuso-reflexed to dimidiate and imbricate, sometimes resupinate. Setigerous layer $\pm 160 \mu$ thick. Setae 30-45 \times 6-8 μ . Hyphae not at all moniliform. Margin conspicuous ochre colour. Abhymenial surface soft, rubbing ochraceous..... *Hymenochaete ochromarginata*.

Genus 11. Duportella Patouillard in Philippine Journ. Sci. 10 (1915) 87.

Fructifications resupinate, brown. Hymenium velutinate at first, later becoming tubercular and cracked. Pseudosetae (modified ends of skeletal hyphae) present. Gloecystidia and cystidia present at some stage of development, sometimes not seen. Hyphae dimitic, almost hyaline to brown, with clamps, not forming a notably differentiated basal layer. Spores hyaline, ellipsoid to subcylindric-curved, smooth.

A single South African species, *Duportella tristicula*. But *Stereum fulvum*, which differs in having no gloecystidia or cystidia, is possibly congeneric and should be compared.

Genus 12. Stereum Persoon ex S. F. Gray, A Natural Arrangement of British Plants 1 (1821) 652; Persoon in Roemer Neues Mag. Bot. 1 (1794) 110, Obs. Myc. 1 (1796) 35.

Fructifications coriaceous, membranous or subligneous, sessile, stipitate, effuso-reflexed or resupinate, or dimidiate, or infundibuliform, simple or branched. Stipe lateral, central or absent. Hymenium inferior, smooth, sometimes rugose or exceptionally tubercular. Context with an intermediate layer of \pm horizontally arranged hyphae. Spores hyaline, smooth. Cystidia, gloecystidia or vesicles present or absent. Annual or perennial, lignicolous or terrestrial. Hyphae monomitic or dimitic, usually hyaline, with or without clamps.

1. Pilei infundibuliform and centrally stipitate..... 2.
Pilei not infundibuliform nor centrally stipitate..... 7.
2. With gloecystidia (some may be interpreted as smooth cystidia)..... 3.
Without gloecystidia. Here may be located some rare forms of *Stereum lobatum* which are infundibuliform by fusion and thus often partially split down one side.
3. Without surface hairs. Sections do not show any well-marked, denser coloured zone beneath the abhymenial surface..... 4.
With (scanty) surface hairs. Sections show a well-marked denser coloured zone beneath the abhymenial surface. Here are located some unusual forms of *Stereum affine* which are only infundibuliform by fusion and are often split down one side.

4. Spores small, ovate, broad-elliptic or subglobose, not larger than $3\text{--}4 \times 4\text{--}5 \mu$ 5.
 Spores larger, in the range of $3\text{--}6 \times 6\text{--}9 \mu$ 6.
5. Gloeocystidia up to $12\cdot8 \times 144 \mu$ in size..... *Stereum ravenelii*.
 Gloeocystidia smaller, up to $10\cdot5 \times 80 \mu$ *Stereum nitidulum*.
6. Gloeocystidia usually rather narrow ($3\cdot2\text{--}9\cdot6 \mu$ wide) and often hyphoid. Hyphae
 of two types, some with clamp connections..... *Stereum thozetii*.
 Gloeocystidia usually wider ($8\text{--}9\cdot6\text{--}16 \mu$ wide) and clavate. Hyphae of only one
 type and without clamps..... *Stereum diaphanum*.
7. Pilei laterally stipitate, or flabellate or spatulate, or sessile and cuneate attached
 by a markedly reduced base..... 8.
 Pilei dimidiate or effuso-reflexed or resupinate..... 13.
8. Fresh pilei bleeding red when bruised. Conducting vessels present in fresh and dried
 plants, seen microscopically..... *Stereum australe*.
 Fresh pilei not bleeding. Conducting vessels absent..... 9.
9. Without gloeocystidia or cystidia..... 10.
 With gloeocystidia or cystidia, or both together..... 11.
10. Pilei small (up to 1 cm in any direction) soft, whitish, without colour zones on the surface.
 Spores pip-shaped or later distorted and angled. Hyphae monomitic.. *Stereum cyphelloides*.
 Pilei large, coriaceous or tough, surface coloured with zones of grey, brown, chestnut.
 Spores cylindrical-depressed. Hyphae dimitic..... *Stereum lobatum*.
11. With gloeocystidia but no cystidia; Pilei with a definite stipe, flabellate, spatulate
 or infundibuliform..... *Stereum affine*.
 With both gloeocystidia and cystidia..... 12.
12. Pilei usually merismatoid, i.e. a compound fructification consisting of a number of
 smaller pilei growing together in a bush. Gloeocystidia $7\text{--}10 \times 40\text{--}66 \mu$.. *Stereum involutum*.
 Pilei not merismatoid, but single or sometimes dimidiate or fused laterally. Gloeocys-
 tidia smaller, $7\text{--}12 \times (15)\text{--}25\text{--}(40) \mu$. Here is located the species represented by
Stereum bellum and *Stereum friesii* in the sense used by van der Byl.
13. Without cystidia, cystidioles, gloeocystidia, vesicles or conducting organs (distinguish
 carefully between skeletal hyphae which intrude into the hymenium and conductors
 or cystidia)..... 14.
 With any of the following organs: cystidia, cystidioles, gloeocystidia, vesicles or con-
 ducting vessels (avoid locating here species which have intrusive skeletal hyphae unless
 these are much swollen like cystidia at the apex)..... 18.
14. Mature pilei small (1 cm or less) soft, whitish, azonate. Spores pip-shaped becoming
 angularly distorted. Hyphae monomitic..... *Stereum cyphelloides*.
 Mature pilei larger, or if immature then either not whitish or possessing more than
 one type of hypha..... 15.
15. Skeletal hyphae in context brown. The skeletal hyphae which curve up into the
 hymenium are brown, rugose or encrusted. Hymenium usually dark-coloured, only
 rarely yellowish or light coloured. (Compare also *Stereum umbrinum* where the
 skeletal hyphae are much expanded and resemble cystidia in the hymenium).. *Stereum fulvum*.
 Skeletal hyphae in context not brown, but hyaline or at most only pale straw-coloured.
 Hymenium not dark, usually creamy, yellow, orange, fawn or sometimes changing
 to cinereous..... 16.
16. Pileus with multicoloured zones on the surface, usually flabellate, or if a uniform brown
 colour then the pilei are relatively large and flabellate..... *Stereum lobatum*.
 Pileus without multicoloured zones on the surface, or zoned in shades of brown; usually
 smaller than *S. lobatum* and effuso-reflexed or dimidiate, not flabellate..... 17.
17. Pileus thin, coriaceous, effuso-reflexed or dimidiate with a shortly villose or matted
 hairy surface..... *Stereum hirsutum*.
 Pileus thicker, usually more than 1 mm thick, corky or subligneous, effuso-reflexed,
 with a thick padlike tomentum of ochraceous to golden hairs..... *Stereum durbanense*.

18. Fresh pilei bleeding red when bruised. Fresh or dried specimens possessing conductors in the hymenium..... 19.
Fresh pilei not bleeding; lacking conductors..... 21.
19. Pilei generally dimidiate or cuneate with a reduced base, rarely widely effuso-reflexed. Hyphae dimitic. Hymenium cinereous, smooth..... *Stereum australe*.
Pilei mostly resupinate-reflexed, rarely dimidiate..... 20.
20. Hymenium rimose, i.e. blistered and cracking into small rough areas, yellow, tan or cinereous. Not on conifers. Hyphae dimitic. Usually more than 700 μ thick
Stereum rimosum var *africanum*.
Hymenium smooth, not rimose, cinereous to light brown. Occurring on conifers.
Hyphae monomitic. Usually less than 600 μ thick..... *Stereum sanguinolentum*.
21. Species possessing pyriform or subglobose vesicles embedded deep in the trama (some of the vesicles are sometimes elongated and must be differentiated from gloeocystidia)..... 22.
Species without vesicles..... 23.
22. Fructifications more or less resupinate, sometimes narrowly reflexed, stratose with a veined or marbled subligneous context and a glabrous black abhymenial surface showing as a black line in wholly resupinate specimens. Hymenium yellowish
Stereum murraini.
Fructifications effuso-reflexed or dimidiate, not stratose or veined, with a hairy brownish surface. Hymenium purple to purple-brown..... *Stereum purpureum*.
23. Species with cystidia but lacking gloeocystidia..... 24.
Species with gloeocystidia and sometimes cystidia as well..... 25.
24. Cystidia large (12–24 μ wide) conical or fusoid, encrusted, hyaline or only dilutely coloured. Spores averaging 6 \times 11 μ . Hymenium light coloured..... *Stereum cinerascens*.
Cystidia dark yellow-brown, subhyaline where emergent, actually only apically swollen and encrusted or rugose skeletal hyphae (rarely smooth at apex). Spores 3–4 \times 6–8 μ . Hymenium usually umber-brown or purplish, rarely a light sandy brown. (Compare *Stereum fulvum*, whose skeletal hyphae in the hymenium are less like cystidia, being not much expanded and roughly cylindrical)..... *Stereum umbrinum*.
25. Species with gloeocystidia but no cystidia..... 26.
Species with both gloeocystidia and cystidia..... 27.
26. Context pale creamy to pale yellow-brown, usually stratose. Spores subglobose, 6–7 μ diam. (Gloeocystidia sometimes seen with difficulty). Hyphae dichophytic (See under *Asterostromella duriuscula*)..... *Stereum duriusculum*.
Context brown contrasting with a hyaline hymenial layer. Spores 3–4.5 \times 2–3 μ .
Gloeocystidia abundant, sometimes fragmented and refractile like cystidia. Hyphae capillary, normal..... *Stereum bicolor*.
27. Cystidia and gloeocystidia clearly differentiated. Context pale coloured throughout. Hyphae hyaline. Here may be located the species represented by *Stereum bellum* and *Stereum friesii* in the sense of van der Byl.
Only gloeocystidia present, the older ones fragmented and highly refractile thus resembling cystidia or mineral aggregations. Context brown, contrasting with a hyaline hymenial layer. Basal hyphae mostly brown..... *Stereum bicolor*.

Genus 13. Cymatoderma Junghuhn in Tijdschr. Nat. Gesch. Phys. ed. v. d. Hoeven & De Vriese 7 (1840) 390.

Cladoderris Pers. ex Berk. in Hooker Lond. Journ. Bot. 1 (1842) 152.

Fructifications coriaceous, flabellate to infundibuliform, sessile, substipitate or stipitate. Surface radially sublamellate with scanty hairs or covered with a thick tomentum. Hymenium radially costate, frequently coarsely papillate. Context with a basal layer of horizontally arranged hyphae and a middle layer of more or less vertical ones. Hyphae dimitic, hyaline, with clamp connections. Spores hyaline, smooth. Gloeocystidia and/or cystidia present.

1. Pileus deeply dissected into narrow radiating segments. Hyphae monomitic. Cystidia and gloeocystidia absent. Basidia with 2-4 sterigmata. Spores $4.8-6.4-8 \mu$. (This is a species of *Clavulina* or *Aphelaria*)..... *Cladoderris funalis*.
Pileus entire to shortly lacinate at the margin. Hyphae dimitic. Cystidia and/or gloeocystidia present..... 2.
2. (Gloeocystidia present, cystidia absent. Spores \pm subglobose, $2 \times 4 \mu$ or $3-4 \mu$ diam..... *Cladoderris dendritica*).
Both gloeocystidia and cystidia present. Spores ellipsoid, $3-5 \times 6-10 \mu$.. *Cymatoderma elegans*.

Genus 14. Asterostromella Höhnelt & Litsch., K. Akad. Wiss. Wien. Sitzungsab. 116 (1907) 773.

Fructifications resupinate, annual or perennial (becoming stratose) coriaceous to subligneous. Hymenium smooth. Hyphae monomitic, hyaline to faintly coloured, with clamp connections, dichophytic to dendrophytic. Context with a basal layer of horizontal hyphae and a middle layer of \pm vertical hyphae. Gloeocystidia present in most species. Spores smooth or minutely stippled, hyaline or faintly coloured, often subglobose.

1. Context white or light yellowish; hyphae dendrophytic, hyaline. Sections not darkening in KOH. Spores $6-6.8 \mu$ diam., subglobose..... *Asterostromella duriuscula* (= *Scytinostroma duriusculum* fide Donk; see p. 160).

Context not light coloured; hyphae dendrophytic, hyaline or very dilutely coloured. Sections darkening slightly in KOH. Spores elliptic-oval, $5.5 \times 8.3 \mu$ *Asterostromella rumpiana*. (Referred to *Scytinostroma* by Donk: p. 160).

Genus 15. Pellicularia Cooke in Grevillea 4 (1876) 116 sensu Rogers in Farlowia 1 (1943) 96.

Botryobasidium Donk in Nederl. Myc. Ver. Med. (1931) 116.

Fructifications resupinate, arachnoid, pellicular or loosely membranous. Hymenium discontinuous. Hyphae monomitic, with or without clamp connections, hyaline or dilutely coloured, wide, short-celled, branching at right angles. Basidia in terminal botryose clusters, bearing 4-6-8 sterigmata. Spores smooth or sculptured, hyaline or pale yellowish. Cystidia or septocystidia present or absent. Saprophytic or parasitic.

1. Spores rough-walled, ellipsoid, minutely asperulate. Clamps lacking.... *Pellicularia asperula*.
Spores smooth..... 2.
2. Encrusted septocystidia present. Hyphae encrusted with wartlike granules, about 6μ wide. Spores subglobose to broad ovate-elliptical, $5-7.5 \times 4.5-6 \mu$... *Pellicularia fodinarum*.
No septocystidia present. Hyphae not encrusted. Spores otherwise..... 3.
3. Saprophytic. Spores navicular or asymmetrically fusiform, $9.6-12.8 \times 4.5-6 \mu$.
Hyphae up to 13μ wide..... *Pellicularia vaga*.
Parasitic. Spores ellipsoid, flattened on one side, with a truncate apiculus, $8-12 \times 5-7 \mu$. Hyphae $5-12-(17) \mu$ wide..... *Pellicularia filamentosa*.

Genus 16. Aleurodiscus Rabenhorst ex Schroeter, Krypt.-Fl. Schlesien 3 (1888) 429.

Fructifications resupinate, or narrowly reflexed, or pileate, discoid, pezizaeform or flabellate, coriaceous. Hymenium smooth, pulverulent. Hyphae hyaline, with or without clamp connections. Basidia usually rather large to very large. Spores hyaline, smooth or echinate. Simple paraphyses, dendrophyses, acanthophyses and gloeocystidia frequently present singly or in combination.

1. Both yellowish gloeocystidia and encrusted dendrophyses present together. Amyloid granules encrusting the dendrophyses. Spores broad elliptic to ovate, $13.5-15 \times 7.5-8 \mu$ *Aleurodiscus botryosus*.
Either gloeocystidia or dendrophyses present, or both absent. Spores otherwise..... 2.

2. Spores semilunate, biapiculate, smooth or minutely echinate, about $14 \times 23 \mu$. Acanthophyses and simple unbranched paraphysoids present. *Aleurodiscus mirabilis*.
Spores otherwise. 3.
3. Fructifications whitish or light coloured but not rosy, purplish, violet, lilac or brownish to clay-coloured. 4.
Fructifications rosy, purplish, violet, lilac or brownish to clay-coloured. 6.
4. Spores ovate-subglobose, $18-22 \times 12.5-16 \mu$. Simple cylindrical paraphysoids and gloecystidioid submoniliform paraphysoids present. *Aleurodiscus disciformis*.
Spores not more than 8μ broad. Encrusted dendrophyses and bulbous pseudophyses with a short to long apical outgrowth present. 5.
5. (Spores ovoid, $5.6-6.4 \times 8-12 \mu$, ratio length/width less than 2.0. *Aleurodiscus acerinus*.)
Spores broad elliptic to ovate, $4-8 \times 9-17.6 \mu$, ratio length/width more than 2.0
Aleurodiscus acerinus var *alliaceus*.
6. Fructifications rose-coloured, paling to a fleshy tint on storage. *Aleurodiscus roseus*.
Fructifications purplish, violet, lilac or partly changing to brown or clay-coloured
Aleurodiscus polygonioides.

Genus 17. *Asterostroma* Masee in Journ. Linn. Soc. Bot. 25 (1889) 154.

Fructifications resupinate. Hymenium somewhat pulverulent, smooth. Hyphae hyaline to pale coloured, loosely intertexted, some being modified into asterosetae which are deep brown in colour. Gloecystidia commonly present. Spores hyaline, smooth, or sculptured. Hyphal system monomitic, lacking clamp connections.

A single South African species, *Asterostroma cervicolor*.

Genus 18. *Dendrothele* Höhnelt & Litsch., in K. Akad. Wiss. Wien Sitzungsab. 116 (1907) 819.

Fructifications resupinate or narrowly reflexed, effused or discoid, membranous. Hymenium pulverulent, smooth except for emergent hyphal pegs composed of delicate dendrophytic hyphae which are also present in the hymenium. Hyphae hyaline, with clamp connections. Spores hyaline, smooth.

A single South African species, *Dendrothele duthieae*.

Genus 19. *Peniophora* Cooke in Grevillea 8 (1879) 20.

Fructifications resupinate, usually pellicular to membranous or crustose, occasionally gelatinous-mucoid. Hyphae hyaline, \pm vertically arranged, with or without clamp connections. Spores smooth or rarely minutely punctate under oil immersion, hyaline. Cystidia present, simple or septate, encrusted or smooth. Gloecystidia and/or cystidioles present or absent.

1. Context yellow-buff to isabelline colour, turning strong violet colour immediately on application of KOH solution. *Peniophora filamentosa*.
No violet colour reaction with KOH solution. 2.
2. Texture gelatinous-mucoid, drying to a very thin greyish or bluish vernicose film.
Spores smooth in KOH but minutely punctate in lactic acid under oil immersion lens. 3.
Texture otherwise; spores otherwise. 4.
3. Cystidioles simple or with a capitate apex composed of a few short lobes. Spores $5-6(7) \times 3-4 \mu$ *Peniophora pruinosa*.
Cystidioles simple or with an unbranched inflated capitate apex. Spores $(5.6)-6.4-7-(8.8) \times 8-10-(12) \mu$ *Peniophora rimicola*.
4. Cystidia septate, often with clamp connections at the septa. *Peniophora aspera*.
Cystidia not septate. 5.

5. Cystidia long cylindrical, acicular or subulate, sometimes with a bulbous base, coated with scale-like, flattened granules. Spores $2.2-3.2 \times 6.4-8 \mu$, elliptic-fusoid or somewhat allantoid..... *Peniophora longispora* var *brachyspora*.
Cystidia and spores otherwise..... 6.
6. Cystidia occupying a relatively narrow zone confined to the hymenium and subhymenium..... 7.
Cystidia basal or staged throughout the trama, or at least originating in mid-trama, but not confined to the uppermost layers in a distinct zone..... 8.
7. Cystidia in a zone 70-100 μ thick above a byssoid trama of thick-walled hyphae.
Cystidia encrusted, fairly thin-walled, $20-36-(40) \times 10-13 \mu$ *Peniophora pelliculosa*.
Cystidia thick-walled, heavily encrusted, $36-80 \times 10-11.5 \mu$; Tramal hyphae indistinct, not loose and byssoid..... *Peniophora gigantea*.
8. Cystidia smooth, thin-walled or thick-walled..... 9.
Cystidia encrusted, thick-walled..... 10.
9. Cystidia thick-walled, the lumen canalicular below but brusquely dilated at the apex.
Walls of the cystidia soluble in KOH but not in lactic acid. Spores allantoid
Peniophora gracillima.
Cystidia thin-walled, gloeocystidioid. Spores oblong or cylindrical or ellipsoid-flattened, $3-5 \times 7-10 \mu$*Peniophora tenuis*.
10. Hyphae distinct, 3-6 μ wide. Spores $2.5-3 \times 6-8 \mu$. Cystidia $6-10 \times 50-120 \mu$
Peniophora arenata.
Hyphae indistinct, agglutinated, 3 μ wide. Spores $3 \times 5.5 \mu$. Cystidia $10-16 \times 50-70 \mu$ *Peniophora roumeguerii*.

Genus 20. Corticium Persoon ex Fries, Epicr. Syst. Myc. (1838) 556; Persoon, Myc. Eur. 1 (1822) 128, *pr. parte*.

Fructifications resupinate, effused, pellicular, byssoid, membranous. Hymenium smooth. Hyphae monomitic, hyaline, with or without clamp connections, arranged more or less vertically. Spores smooth (or sculptured), hyaline (or pale coloured). Cystidia absent. Cystidioles, gloeocystidia, simple paraphysoids present or absent. Embedded vesicles or ampoule hyphae present or absent.

1. Species with gloeocystidia..... 2.
Species with cystidioles..... 6.
Species without gloeocystidia or cystidioles..... 7.
2. Gloeocystidia moniliform, originating from tortuous hyphae. Spores cylindrical to ellipsoid, $7.4-10 \times 3.4-8 \mu$ *Corticium moniliforme*.
Gloeocystidia not moniliform..... 3.
3. Spores amyloid, minutely roughened under oil immersion, $3.4 \times 4.6-7 \mu$. Gloeocystidia frequently bifurcate at the base (but not always), not turning brown in Iodine solution..... *Corticium porosum*.
Spores not amyloid; smooth or finely asperulate..... 4.
4. Spores finely asperulate, subglobose to broad elliptical, $4.8 \times 5.6 \mu$ or $4.8-6.4-8 \mu$ diam., often embedded in the context. Texture hypochneid..... *Corticium punctulatum*.
Spores smooth..... 5.
5. Gloeocystidia numerous, immersed, with bright yellow contents. Spores $4.5 \times 9-11.5 \mu$ *Corticium luteocystidiatum*.
Gloeocystidia immersed, hyaline, often capped by amber coloured resinous globules; spores $3.4 \times 7-10 \mu$ *Corticium pallidum*.
6. Cystidioles rare, immersed or slightly emergent, hyaline, sometimes with a subapical septum; spores pip-shaped, usually agglutinated, $3.4 \times 5.5-6.5 \mu$ *Corticium gloeosporum*.
7. Fungus bright blue colour throughout..... *Corticium caeruleum*.
Fungus not at all blue..... 8.

8. Basal hyphae thick-walled, very distinct, 6-11.5 μ wide. Spores 6.5-8.3 \times 10-13 μ .
Hymenium rosy, paling to flesh colour, smooth or cracked into areoles connected by
whitish subiculum..... *Corticium salmonicolor*.
Basal hyphae less than 5 μ wide, may be indistinct..... 9.
9. Spores large, in the range of 10-16 \times 6-8 μ 10.
Spores smaller, in the range of 4.5-9 \times 3-5 μ 11.
10. Hymenium waxy, smooth, apricot to cinnamon-buff colour. Spores 6-6.7 \times 10-16
 μ *Corticium armeniacum*.
Hymenium waxy, whitish, like candle grease when fresh, smooth, seldom cracked,
drying buff to light pinkish-buff. Spores oblong-subsppherical, 7-8 \times 10-11.5 μ ,
with prominent apiculi..... *Corticium confluens*.
11. Hymenium cracking into flaky areoles with whitish subiculum, dirty white to light tan
colour. Spores 5-7(9) \times 3.5-(5) μ *Corticium scutellare*.
Hymenium tuberculate, reddish-ochre with liver-brown tubercles and pale margin.
Context dingy yellow. Spores 3-4.2 \times 4.5-5.5 μ *Corticium tumulosum*.

SPECIES INDEX OF RECORDED SOUTH AFRICAN THELEPHORACEAE.

In the Index presented below, all the species of the Thelephoraceae that have been recorded for South Africa are listed alphabetically under their specific epithets, followed by the genus and author citations. Names printed in capitals are of species accepted as occurring in South Africa; those printed in small letters are rejected as not occurring here, or as synonyms, or as dubious records which can neither be confirmed nor denied.

Following each name there is a reference to the paper or papers in *Bothalia* in which the writer has described, discussed or annotated the species, each paper being cited by the volume and page number of this journal. In the case of rejected or dubious species a brief reason is given for their disposal as such.

abeuns, *Corticium* Burt: 6, p. 19; 7, p. 143.

Specimen not *C. abeuns*, but instead is *Corticium porosum*.

acerina, *Thelephora* (Pers.) Pers. ex Fr.: 6, p. 62; 7, p. 123.

= *Aleurodiscus acerinus* or its variety *alliaceus*.

acerinum, *Stereum* (Pers. ex Fr.) Fr.: 7, p. 123.

= *Aleurodiscus acerinus* or its variety *alliaceus*.

acerinus, *Aleurodiscus* (Pers. ex Fr.) Höhnel & Litsch.: 6, pp. 26, 28, 466. No material traced.

ACERINUS var ALLIACEUS, ALEURODISCUS (Quel.) Bourd. & Galz.: 6, pp. 26, 466.

acerinus var longisporus, *Aleurodiscus* Höhn. & Litsch.: 6, pp. 26, 467.

= *Aleurodiscus acerinus* var *alliaceus*.

adnatum, *Stereum* Lloyd: 6, pp. 39, 45, 304.

= *Stereum rimosum* var *africanum*.

AFFINE, STEREUM Lév.: 6, p. 304.

affinis, *Punctularia* (B. & C.) Talbot: 6, p. 25; 7, p. 140.

= *Punctularia tuberculosa*.

africana, *Sebacina* Burt: 7, p. 152.

Type is referable to *Peniophora tenuis* group.

albobadium, *Stereum* (Schw. ex Fr.) Fr.: 6, pp. 45, 305.

Material not this species.

ALBOVIOLASCENS, CYPHELLA (Alb. & Schw. ex Fr.) Karst.: 6, p. 471.

amoenum, *Stereum* Kalchbr. & MacOwan: 6, p. 305.

= *Stereum kalchbrenneri*; = *Stereum hirsutum*.

APPLANATA, CYPHELLA Talbot: 6, p. 472.

ARENATA, PENIOPHORA Talbot: 4, p. 944; 6, p. 22.

argillaceum, *Corticium* Höhnel & Litsch.: 6, p. 13.

nomen nudum; = *Corticium pallidum*.

ARIDA, CONIOPHORA (Fr.) Karst.: 7, p. 138.

- ARMENIACUM, CORTICIUM Sacc.: 6, p. 16.
- ASPERA, PENIOPHORA (Pers.) Sacc.: 6, p. 21.
- ASPERULA, PELLICULARIA Rogers: 7, pp. 137.
- atrocinerea, Coniophora (Karst.) Karst.: 7, p. 138.
= *Coniophora olivacea*.
- atrocinerea, Coniophorella Karst.: 6, p. 35.
= *Coniophora olivacea*.
- atrocinerea, Peniophora Masee: 6, pp. 43, 44.
= *Stereum fulvum*.
- atrocinereum, Corticium Kalchbr.: 6, pp. 19, 44.
nomen nudum; = *Stereum fulvum*.
- atrocinereum, Stereum (Masee) van der Byl: 6, pp. 43-45, 306.
= *Stereum fulvum*.
- AUSTRALE, STEREUM Lloyd: 6, p. 306.
- australica, Cladoderris Berk. ex Sacc.: 7, p. 121.
= *Cymatoderma elegans*.
- australis Kalchbr. f. minima Bres., Cladoderris: 7, p. 120.
The material is *Stereum thozetii*.
- bellum, Stereum (Kunze) Sacc.: 6, p. 307.
Doubtful as to species. The species is the same as van der Byl's material of "*Stereum friesii*".
- betulae, Coniophora (Schum.) Karst.: 6, p. 36; 7, p. 138.
The specimen is the type of *Coniophora incrustata*.
- BICOLOR, STEREUM (Pers. ex Fr.) Fr.: 6, pp. 39, 308.
[Syn. *Laxitextum bicolor* (Pers. ex Fr.) Lentz: 7, p. 160].
- biennis, Thelephora Fr.: 6, pp. 62, 309, 316; 7, p. 123.
MacOwan's specimens are *Stereum bicolor*.
- bombycinum, Corticium (Sommerf.) Bres.: 6, p. 19; 7, p. 143.
The specimen is *Peniophora arenata*.
- BOTRYOSUS, ALEURODISCUS Burt: 6, p. 467.
- bresadoleanum, Stereum Lloyd: 6, p. 309.
= *Stereum involutum*.
- BRINKMANNI, SISTOTREMA (Bres.) J. Eriksson: 7, p. 159.
- CAERULEUM, CORTICIUM (Schrad. ex Pers.) Fr.: 6, p. 15.
- calceum, Corticium Fr. sensu Romell & Burt: 6, pp. 19, 27.
nomen confusum.
- calceum Fr. var lacteum Fr., Corticium: 6, pp. 19, 27.
nomen confusum; MacOwan's material is the type of *Aleurodiscus acerinus* var *longisporus*.
- calix, Thelephora Kze.: 7, p. 121.
Specimen corresponds with *Cymatoderma elegans*.
- candida, Solenia Pers.: 6, p. 480.
Material is the type of *Solenia natalensis*.
- capensis, Aleurocystus Lloyd ex Stevenson & Cash: 6, p. 465.
nomen provisorium; = *Cytidia habgallae*.
- capensis, Aleurodiscus Lloyd: 6, p. 468.
= *Cytidia habgallae*.
- capensis, Gloeosoma Lloyd (as 'McGinty'): 6, p. 479.
nomen provisorium; = *Cytidia habgallae*.
- caperatum, Stereum Lloyd: 6, pp. 309, 340.
= *Stereum turgidum*; = *Stereum cinerascens*.
- carnosa, Peniophora Burt: 7, p. 147.
Material is *Peniophora roumeguerii*.
- ceraceum, Corticium Berk. & Ravenel ex Masee: 6, pp. 16, 19.
nomen nudum; = *Corticium armeniacum*.
- cerebella, Coniophora Pers.: 7, p. 139.
= *Coniophora puteana*, but the South African specimens are not that.
- cerussatus, Aleurodiscus (Bres.) Höhnelt & Litsch.: 6, pp. 28, 468.
Material is *Aleurodiscus botryosus*.

- CERVICOLOR, ASTEROSTROMA (B. & C.) Masee: 6, p. 54.
- CHEESMANNI, CYPHELLA Masee: 6, p. 472.
- CINERASCENS, STEREUM (Schw.) Masee: 6, pp. 40, 309, 339-346.
(= *Lopharia cinerascens* fide Cunningham: 7, p. 160.)
- cinerea, Peniophora (Fr.) Cooke: 6, p. 24; 7, p. 147.
Doubtful. Some specimens are *Stereum umbrinum*, some *Hymenochaete* spp., while others may be *Peniophora cinerea* in an immature condition.
- cinereum, Corticium Pers. ex Fr.: 6, p. 19.
= *Peniophora cinerea*.
- cinereum, Stereum Lév.: 6, p. 310.
Doubtful. Material not traced.
- concolor, Stereum Jungh.: 6, p. 310.
= *Stereum lobatum* (= *Stereum ostrea* fide Lentz: 7, p. 160.).
- CONFLUENS, CORTICIUM (Fr.) Fr.: 6, p. 18.
- confluens, Merulius Schw.: 6, pp. 30, 33; 7, p. 152.
Specimens not distinguished from *Merulius corium*.
- CORIUM, MERULIUS (Pers. ex Fr.) Fr.: 6, p. 30.
- cornea, Cytidia Lloyd: 6, p. 476.
= *Cytidia habgallae*.
- corneus, Aleurodiscus Lloyd: 6, p. 468.
= *Cytidia habgallae*.
- CORNUCOPIOIDES, CRATERELLUS (Linn. ex Fr.) Pers.: 7, p. 117.
- cremea, Peniophora Bres.: 6, p. 25; 7, p. 147.
Specimens are *Peniophora pelliculosa* and *Corticium gloeosporum*.
- curreyi, Cyphella B. & Br.: 6, p. 472.
= *Cyphella alboviolascens*.
- CYPHELLOIDES, STEREUM B. & C.: 6, p. 311.
- decretus, Necator Masee: 6, p. 18; 7, p. 144.
Conidial stage of *Corticium salmonicolor*.
- dendritica, Thelephora Fr.: 7, p. 121.
South African specimen corresponds with *Cymatoderma elegans*.
- DIAPHANUM, STEREUM (Schw.) Cooke ex Sacc.: 6, p. 311.
[Syn. *Cotylidia diaphana* (Schw.) Lentz: 7, p. 160.].
- DISCIFORMIS, ALEURODISCUS (DC. ex Fr.) Pat.: 6, pp. 28, 468.
- dregeana, Hymenochaete (Berk.) Masee: 6, pp. 57, 344; 7, p. 155, 159.
= *Irpex dregeanus*.
- dregeana, Lopharia (Berk.) Talbot: 6, pp. 57, 344.
= *Irpex dregeanus*.
- dregeanus, Corticium Berk.: 6, pp. 19, 57, 344.
= *Irpex dregeanus*.
- DREGEANUS, IRPEX (Berk.) Talbot: 6, p. 344; 7, p. 159.
- DURBANENSE, STEREUM van der Byl: 6, p. 312.
- DURIUSCULA, ASTEROSTROMELLA (B. & Br.) Talbot: 6, p. 51.
[Syn. *Scytinostroma duriusculum* (B. & Br.) Donk: 7, p. 160.].
- duriusculum, Stereum Berk. & Br.: 6, pp. 45, 51, 313.
= *Asterostromella duriuscula* (B. & Br.) Talbot.
- DUTHIEAE, DENDROTHELE Talbot: 6, p. 478.
- ELEGANS, CYMATODERMA Jungh.: 7, p. 120.
- elegans, Stereum Mey.: 6, pp. 45, 313.
Some material is *Stereum thozetii*, other is *Stereum nitidulum*.
- eylesii, Hypochnus van der Byl: 6, p. 63; 7, pp. 146, 155.
Isotype is *Corticium punctulatum*.
- eylesii, Tomentella (v. d. Byl): 6, p. 63; 7, pp. 155.
Isotype is *Corticium punctulatum*.
- FARINACEA, CYPHELLA Kalchbr. & Cooke: 6, p. 472.
- fasciatum, Stereum (Schw.) Fr.: 6, p. 314.
Doubtful. Most specimens appear to be *Stereum lobatum*
(= *Stereum ostrea* fide Lentz: 7, p. 160.).

- FASCICULATA, HYMENOCHAETE Talbot: 4, p. 943; 6, p. 48.
- FILAMENTOSA, PELLICULARIA (Pat.) Rogers: 7, p. 136.
[Syn. *Thanatephorus cucumeris* (Frank) Donk.: 7, p. 134.]
- FILAMENTOSA, PENIOPHORA (B. & C.) Burt.: 6, p. 23.
- FLOCCULENTA, CYTIDIA (Fr.) Höhnelt & Litsch.: 6, p. 476.
- FODINARUM, CONIOPHORA Talbot: 6, pp. 34, 36, 64.
- FODINARUM, PELLICULARIA Talbot & Green: 7, p. 135.
- friesii, Cyphella Quel.: 6, pp. 473, 476.
Material too poor for determination.
- friesii, Stereum Lév.: 6, p. 314.
Doubtful. Van der Byl's material under *Stereum bellum* is the same species.
- fulva, Hymenochaete Burt.: 7, p. 155.
No specimens correspond with this.
- fulva, Thelephora Lév.: 6, p. 315; 7, p. 124.
= *Stereum fulvum*.
- fulvodisca, Cyphella Cooke & Masee: 6, p. 473.
= *Cyphella variolosa*.
- FULVUM, STEREUM (Lév.) Saccardo: 6, p. 315.
- FUNALIS, CLADODERRIS P. Henn.: 7, p. 122.
Accepted as to species but closer to *Clavulina* or *Aphelaria* than to *Cladoderris*.
- fuscoviolascens, Hymenochaete (Mont.) v. d. Byl.: 6, p. 50; 7, p. 155.
No specimens in existence.
- fuscoviolascens, Thelephora Mont.: 6, p. 62; 7, p. 155.
= *Hymenochaete fuscoviolascens*.
- fuscum, Stereum (Schrad.) Quel.: 6, pp. 39, 40, 45, 316.
= *Stereum bicolor*.
- GELATINOSUS, MERULIUS Lloyd: 6, p. 32.
- GIGANTEA, PENIOPHORA (Fr.) Masee: 6, p. 24.
- glabrescens, Stereum Berk. & Curt.: 6, p. 316.
Material is *Stereum affine*.
- glebulosa, Peniophora (Bres.) Sacc. & Syd.: 6, p. 25; 7, p. 148.
= *Peniophora gracillima*.
- GLOEOSPORUM, CORTICIUM Talbot: 4, p. 940; 6, p. 14.
- GRACILLIMA, PENIOPHORA Ell. & Everh.: 7, p. 147.
- HABGALLAE, CYTIDIA (B. & Br.) Martin: 6, p. 477.
- HIMANTIOIDES, MERULIUS Fr.: 6, p. 31.
- hirsuta, Thelephora (Willd.) Pers. ex Fr.: 7, p. 124.
= *Stereum hirsutum*.
- HIRSUTUM, STEREUM (Willd.) Pers. ex S. F. Gray: 6, p. 316.
- hirsutum forma kalchbrenneri, Stereum Simpson & Talbot: 6, p. 317.
nomen nudum; = *Stereum hirsutum*.
- INCANUM, POROTHELEUM (Kalchbr.) Sacc.: 6, p. 479.
- incanum, Stigmatolemma Kalchbr.: 6, p. 481.
= *Porotheleum incanum*.
- incarnata, Peniophora (Pers. ex Fr.) Karst.: 7, p. 148.
Specimen is close to *P. incarnata* but lacks gloeocystidia and may be undescribed.
- INCRUSTATA, CONIOPHORA Talbot: 7, p. 139.
- infundibuliformis, Cladoderris (Klotzsch) Fr.: 7, p. 123.
= *Cymatoderma elegans*.
- intybacea, Thelephora Pers. ex Fr.: 7, p. 124.
Specimens accepted as *Thelephora terrestris*.
- INVOLUTUM, STEREUM (Klotzsch) Fr.: 6, p. 317; 7, p. 118.
- kalchbrenneri, Stereum Sacc.: 6, p. 319.
= *Stereum hirsutum*.
- laciniata, Thelephora Pers. ex Fr.: 7, p. 124.
= *Thelephora terrestris*.

- lacrymans, *Merulius* (Wulf. ex Fr.) Fr.: 6, pp. 32, 33; 7, p. 152.
Doubtful. Usually confused with *Merulius himantioides*.
- lacteam, *Corticium* Fr.: 6, p. 19; 7, p. 143.
nomen dubium; No specimens seen.
- laetum, *Corticium* (Karst.) Pers.: 7, p. 144.
Specimens are *Corticium salmonicolor*.
- laxum, *Stereum* Lloyd: 6, pp. 45, 319.
= *Stereum bicolor*.
- lirellosa, *Lopharia* Kalchbr. & MacOwan: 6, pp. 309, 340.
= *Stereum cinerascens*.
- LOBATUM, STEREUM (Kze. ex Fr.) Fr.: 6, p. 319.
(Syn. *Stereum ostrea* fide Lentz: 7, p. 160.).
- lobatum var cinereum, *Stereum* Lloyd ex Doidge: 6, p. 320.
nomen nudum; = *Stereum australe*.
- LONGISPORA (Pat.) Höhn. var BRACHYSPORA Talbot & Green, PENIOPHORA: 7, p. 148.
- LUTOBADIA, HYMENOCHAETE (Fr.) Höhnel & Litsch.: 6, p. 50; 7, p. 155.
luteobadium, *Stereum* Fr.: 6, pp. 45, 320, 323; 7, p. 155.
= *Hymenochaete luteobadia*. But some specimens seen are *Stereum lobatum*.
- LUTEOCYSTIDIATUM, CORTICIUM Talbot: 4, p. 941; 6, p. 13.
membranaceum, *Stereum* Fr.: 6, pp. 45, 320.
Material is *Stereum fulvum*.
- MINIMA, SOLENIA Cooke & Phil.: 6, p. 480.
- MIRABILIS, ALEURODISCUS (B. & C.) Höhnel: 6, p. 469.
mirabilis, *Lopharia* (B. & Br.) Pat.: 6, pp. 56, 340.
= *Stereum cinerascens*.
- MOLLUSCUS, MERULIUS Fr.: 7, p. 153.
- MONILIFORME, CORTICIUM Talbot: 7, p. 144.
- MURRAII, STEREUM (Berk. & Curt.) Burt: 6, p. 320.
murrayi, *Stereum* (B. & C.) Burt: 6, p. 320.
Orthographic variant of *Stereum murraini*.
- MUSCICOLA, SISTOTREMA (Pers.) Lundell: 7, p. 158.
natalensis, *Femsjonia* Cooke: 6, p. 476.
A species of *Cyphella*, but the material is in poor condition.
- NATALENSIS, SOLENIA W. B. Cooke: 6, p. 480.
- NIGRICANS, HYMENOCHAETE (Lév.) Bres.: 7, p. 156.
nigricans, *Stereum* Lév.: 7, p. 156.
= *Hymenochaete nigricans*.
- NITIDULUM, STEREUM Berk.: 6, p. 321.
notatum, *Stereum* B. & Br.: 6, p. 322.
Dubious. South African material is probably a young *Stereum hirsutum*.
- nuda, *Peniophora* (Fr.) Bres.: 6, p. 25; 7, p. 149.
Doubtful. No specimens traced.
- nudum, *Corticium* Fr.: 6, p. 19.
= *Peniophora nuda*.
- ochraceoflavum, *Stereum* Schw. ex Peck: 6, p. 322.
Specimen is not this species but its true identity is doubtful.
- OCHROMARGINATA, HYMENOCHAETE Talbot: 4, p. 944; 6, p. 49.
- OLIVACEA, CONIOPHORA (Fr.) Karst.: 6, p. 35.
olivacea, *Coniophorella* (Fr.) Karst.: 6, p. 35.
= *Coniophora olivacea*.
- OSTREA, STEREUM (Blume & Nees) Fr.: 6, p. 322; 7, p. 160.
No specimens available under this name.
- PALLIDUM, CORTICIUM Bres.: 6, p. 13.
palmata, *Thelephora* (Scop.) Fr.: 7, p. 124.
Material indeterminable but certainly not *T. palmata*.
- PAPILLOSA, CONIOPHORA Talbot: 4, p. 939; 6, p. 33.

- papyrina, *Peniophora* (Mont.) Cooke: 7, p. 149.
Doubtful. One specimen is *Stereum fulvum*; one other specimen not seen.
- pedicellata, *Thelephora* Schw.: 6, p. 63; 7, p. 125.
The material is a species of *Septobasidium* but not *S. schweinitzii* with which *T. pedicellata* is synonymous.
- PELARGONII, CYPHELLA Kalchbr.: 6, p. 473.
- pellicula, *Hymenochaete* B. & Br.: 6, p. 329.
MacOwan (1055) in Herb. S.A. Mus. No. 34315 is *Stereum umbrinum*.
- pelliculare, *Corticium* Karst.: 6, p. 19; 7, p. 145.
The material is *Peniophora arenata*.
- PELLICULOSA, PENIOPHORA Talbot: 6, pp. 20, 63.
- penicillata, *Thelephora* Lloyd: 7, p. 125.
Invalid as a later homonym of *T. penicillata* Fr. The specimens are possibly *Thelephora mollissima*.
- percome, *Stereum* B. & Br. 6, pp. 45, 322.
The material is *Hymenochaete nigricans*.
- perlatum, *Stereum* Berk.: 6, p. 322.
The material is *Stereum lobatum* (= *S. ostrea* fide Lentz: 7, p. 160).
- pinastri, *Merulius* (Fr.) Burt: 7, p. 154.
Specimen deformed and indeterminable but does not correspond microscopically with *M. pinastri*.
- POLYGONIOIDES, ALEURODISCUS (Karst.) Pilat: 6, p. 470.
[Syn. *Laeticorticium polygionoides* (Karst.) Donk.: 7, p. 160].
- POROSUM, CORTICIUM Berk. & Curt.: 7, p. 145.
- portentosum, *Corticium* Berk. & Curt.: 6, pp. 19, 52.
South African material is *Asterostromella duriuscula*.
- praetermissum, *Corticium* Karst.
= *Peniophora tenuis*.
- proximum, *Stereum* Lloyd: 6, p. 322.
= *Stereum involutum*.
- pruinata, *Peniophora* (B. & C.) Burt: 7, p. 150.
= *Stereum pruinatum*; but the South African material is different and indeterminable.
- pruinatum, *Stereum* B. & C.: 6, pp. 45, 322; 7, p. 150.
Indeterminable material but not this species.
- PRUINOSA, PENIOPHORA (Pat.) Jackson: 7, p. 150.
- pulverulenta, *Coniophora* (Lév.) Masee: 7, pp. 126, 139.
= *Thelephora pulverulenta* Lév., whose type is a species of *Hymenochaete*, probably *H. luteobadia*.
- pulverulentum, *Stereum* Lév.: 6, p. 323; 7, p. 139.
The type specimen is a species of *Hymenochaete*, probably *H. luteobadia*.
- punctiformis, *Cyphella* (Fr.) Karst.: 6, p. 474.
One specimen is a minute agaric. There is no material of the other which was recorded as *C. punctiformis* var *strigosa*.
- punctiformis (Fr.) Karst. var *strigosa* Kalchbr. & Cooke, *Cyphella*: 6, p. 474. Not accepted as a good variety; no specimen available.
- PUNCTULATUM, CORTICIUM Cooke: 7, pp. 146.
- punicea, *Thelephora* Alb. & Schw. ex Fr.: 6, p. 63; 7, pp. 126, 154.
= *Tomentella punicea*, but no South African collections in existence.
- puniceus, *Hypochnus* (Alb. & Schw. ex Fr.) Sacc.: 6, p. 63; 7, p. 154.
= *Tomentella punicea*.
- punicea, *Tomentella* (Alb. & Schw. ex Fr.) Schroet.: 6, p. 63; 7, p. 154.
No South African collections in existence.
- PURPUREUM, STEREUM (Pers. ex Fr.) Fr.: 6, p. 323.
- pusillum, *Stereum* Berk.: 6, p. 324.
Some of the material is *Stereum thozetii*, other is *Stereum diaphanum*.
- puteana, *Coniophora* (Schum. ex Fr.) Karst.: 6, pp. 34, 36; 7, p. 140.
Most records are *Coniophora fodinarum*, others are indeterminable. None of *C. puteana* yet seen in South Africa.

- radicans, *Stereum* (Berk.) Burt: 6, p. 324.
 Poor specimen but very doubtful if it matches *Stereum radicans*.
- RAVENELII, *STEREUM* Berk. & Curt.: 6, p. 325.
- retiruga, *Lloydella* (Cooke) Bres.: 6, p. 43.
 = *Stereum fulvum*.
- retirugum, *Stereum* Cooke: 6, p. 325.
 = *Stereum fulvum*.
- RHOINA, *SOLENIA* W. B. Cooke: 6, p. 481.
- RIMICOLA, *PENIOPHORA* (Karst.) Höhnel & Litsch.: 7, p. 151.
- rimosum, *Stereum* Berk.: 6, pp. 45, 325.
 Material is referred to *Stereum rimosum* var *africanum*.
- RIMOSUM Berk. var *AFRICANUM* Talbot, *STEREUM*: 4, p. 945; 6, pp. 38, 325.
- ROSEUS, *ALEURODISCUS* (Pers. ex Fr.) Höhnel & Litsch.: 6, p. 470.
 [Syn. *Laeticorticium roseum* (Pers. ex Fr.) Donk: 7, p. 160.]
- ROUMEGUERII, *PENIOPHORA* Bres.: 6, p. 22.
- rubiginosa, *Hymenochaete* (Dicks. ex Fr.) Lev.: 6, p. 50; 7, p. 156.
 Original specimen not seen; rest of South African specimens referred to *Hymenochaete ochromarginata*.
- rubiginosum, *Stereum* Dicks. ex Fr.: 6, pp. 45, 326; 7, p. 156.
 = *Hymenochaete rubiginosa*.
- rufus, *Merulius* Pers. ex Fr.: 7, p. 154.
 Material is *Merulius corium*.
- rugosum, *Stereum* (Pers.) Fr.: 6, p. 326.
 Material is mostly *Stereum rimosum* var *africanum*. Some specimens are *Stereum durbanense*.
- RUMPIANA, *ASTEROSTROMELLA* Talbot: 4, p. 939; 6, pp. 53, 54.
 (Associated in genus *Scytinostroma* by Donk: 7, p. 160.)
- SALMONICOLOR, *CORTICIUM* B. & Br.: 6, p. 17.
- SANGUINOLENTUM, *STEREUM* (Alb. & Schw. ex Fr.) Fr.: 6, pp. 37, 326.
- schomburgkii, *Stereum* Berk.: 6, pp. 43, 327.
 = *Stereum fulvum*.
- SCUTELLARE, *CORTICIUM* B. & C.: 6, p. 16.
- SEMISTUPPOSA, *HYMENOCHAETE* Petch: 6, p. 49.
- serpens, *Merulius* Tode ex Fr.: 6, p. 33; 7, p. 154.
 No material seen; Doubtful.
- setigera, *Peniophora* (Fr.) Bres. ex Bourd. & Galz.: 6, p. 21.
 = *Peniophora aspera*.
- SIMULANS, *CYTIDIA* Lloyd: 6, p. 478.
- sinuans, *Thelephora* Pers.: 7, p. 126.
 No specimens available. Said by Lentz to be a synonym of *Stereum frustulatum*.
- solani, *Corticium* (Prill. & Delacr.) Bourd. & Galz.: 7, pp. 136, 146.
 = *Pellicularia filamentosa*.
- spadiceum, *Stereum* Fr.: 6, p. 327.
 Some material is *Stereum australe* and some *Stereum hirsutum*.
- spongiosa, *Cladoderris* Fr.: 7, p. 120.
 = *Cymatoderma elegans*.
- spongiosa Fr. var *subsessilis* Fr., *Cladoderris*: 7, p. 121.
 = *Cymatoderma elegans*.
- squalidus, *Merulius* Fr.: 6, pp. 31-33.
 = *Merulius himantioides*.
- strigoso-zonata, *Phlebia* (Schw.) Lloyd: 6, p. 28.
 = *Punctularia strigoso-zonata*.
- STRIGOSO-ZONATA, *PUNCTULARIA* (Schw.) Talbot: 7, p. 143.
- subpileatum, *Stereum* Berk.: 6, p. 327.
 Material is *Stereum durbanense*.
- tabacina, *Cyphella* Cooke & Phill.: 6, p. 474.
 = *Cyphella variolosa*.

- tabacina, Hymenochaete (Sow. ex Fr.) Lév.: 6, p. 327; 7, p. 157.
One specimen not located. The others are *Stereum umbrinum* and a species of *Hymenochaete* which is not *H. tabacina*.
- tabacina (Sow. ex Fr.) Lév. var australis Mont., Hymenochaete: 6, p. 327; 7, p. 157.
= *Hymenochaete tabacina*.
- tabacinum Sow. ex Fr. var australis Mont., Stereum: 6, p. 327.
= *Hymenochaete tabacina*.
- tenebrosum, Stereum Lloyd: 6, p. 327.
= *Stereum australe*.
- TENUIS, PENIOPHORA (Pat.) Masee: 7, p. 151.
- tenuissima, Hymenochaete Berk.: 6, p. 50; 7, p. 151.
One specimen is *Polystictus tabacinus*; the other has not been located.
- TERRESTRIS, THELEPHORA Erhart ex Fr., 7, p. 126.
- THOZETII, STEREUM Berk.: 6, p. 327.
- thwaitesii, Cladoderris B. & Br.: 7, pp. 122, 123.
South African material included a species of *Favolus* and *Cymatoderma elegans*. True *Cladoderris thwaitesii* is a bleeding species of *Stereum*.
- tomentosum, Stereum van der Byl: 6, p. 328.
= *Stereum durbanense*.
- transvaalium, Stereum van der Byl: 6, p. 328.
To be taken either as a *nomen confusum* or as a synonym of *Stereum australe*.
- tremellosus, Merulius Schrad. ex Fr.: 7, p. 154.
The specimen is *Merulius corium*.
- TRISTICULA, DUPORTELLA (B. & Br.) Reinking: 6, pp. 45-48.
- tristicula, Hymenochaete B. & Br.: 6, p. 50; 7, p. 157.
= *Duportella tristicula*.
- TUBERCULOSA, PUNCTULARIA (Pat.) Pat.: 6, p. 25; 7, p. 140.
- TUMULOSUM, CORTICIUM Talbot: 4, p. 941; 6, p. 17.
- turgidum, Stereum Lloyd: 6, pp. 328, 340.
= *Stereum cinerascens*.
- UMBRINUM, STEREUM Berk. & Curt.: 6, pp. 41, 329.
[Syn. *Laxitextum crassum* (Lév.) Lentz: 7, p. 160. *Lopharia vinosa* (Berk.) G. H. Cunn.: 7, p. 160.]
- umbrinus, Merulius Fr.: 6, pp. 31, 33.
= *Merulius himantioides*.
- VAGA, PELLICULARIA (B. & C.) Rogers ex Linder: 7, pp. 135, 146.
- vagum, Corticium B. & C.: 6, p. 19; 7, pp. 135, 146.
= *Pellicularia vaga*.
- vagum, Corticium sensu Burt: 7, pp. 135, 136.
= *Pellicularia filamentosa*.
- vagum var solani, Corticium Burt ex Rolfs: 7, pp. 136, 146.
= *Pellicularia filamentosa*.
- VARIOLOSA, CYPHELLA Kalchbr.: 6, p. 474.
- vellereum, Stereum Berk.: 6, p. 329.
Probably only a form of *Stereum hirsutum*.
- vellereus, Irpex B. & Br.: 6, p. 324.
= *Irpex dregeanus* (Reid differentiates *I. vellereus* and *I. dregeanus*: 7, p. 159.).
- velutina, Peniophora (DC. ex Fr.) Cooke: 7, p. 152.
The specimen is *Peniophora roumeguerii*.
- versicolor, Stereum (Swartz ex Fr.) Fr.: 6, p. 330.
Dubious. The specimens seen are not *Stereum versicolor*. One of them is *Stereum lobatum*.
- villosum, Stereum Lev.: 6, p. 330.
= *Hymenochaete nigricans*.
- vitile, Stereum Fr.: 6, p. 330.
No specimen in existence. From the description not unlike *Stereum umbrinum*.
- vorticosum, Stereum Fr.: 6, p. 330.
= *Stereum purpureum*.

EXPLANATION OF THE ILLUSTRATIONS.

The following lettering has been used throughout the illustrations:—

B	= Basidia.	G	= Gloecystidia.
BB	= Bulbils.	H	= Hyphae.
C	= Cystidia.	HA	= Habit.
CO	= Conidia.	S	= Basidiospores.
CP	= Conidiophores.	SE	= Setae.
CY	= Cystidioles.		= Surface hairs.
D	= Dendrophyses.		

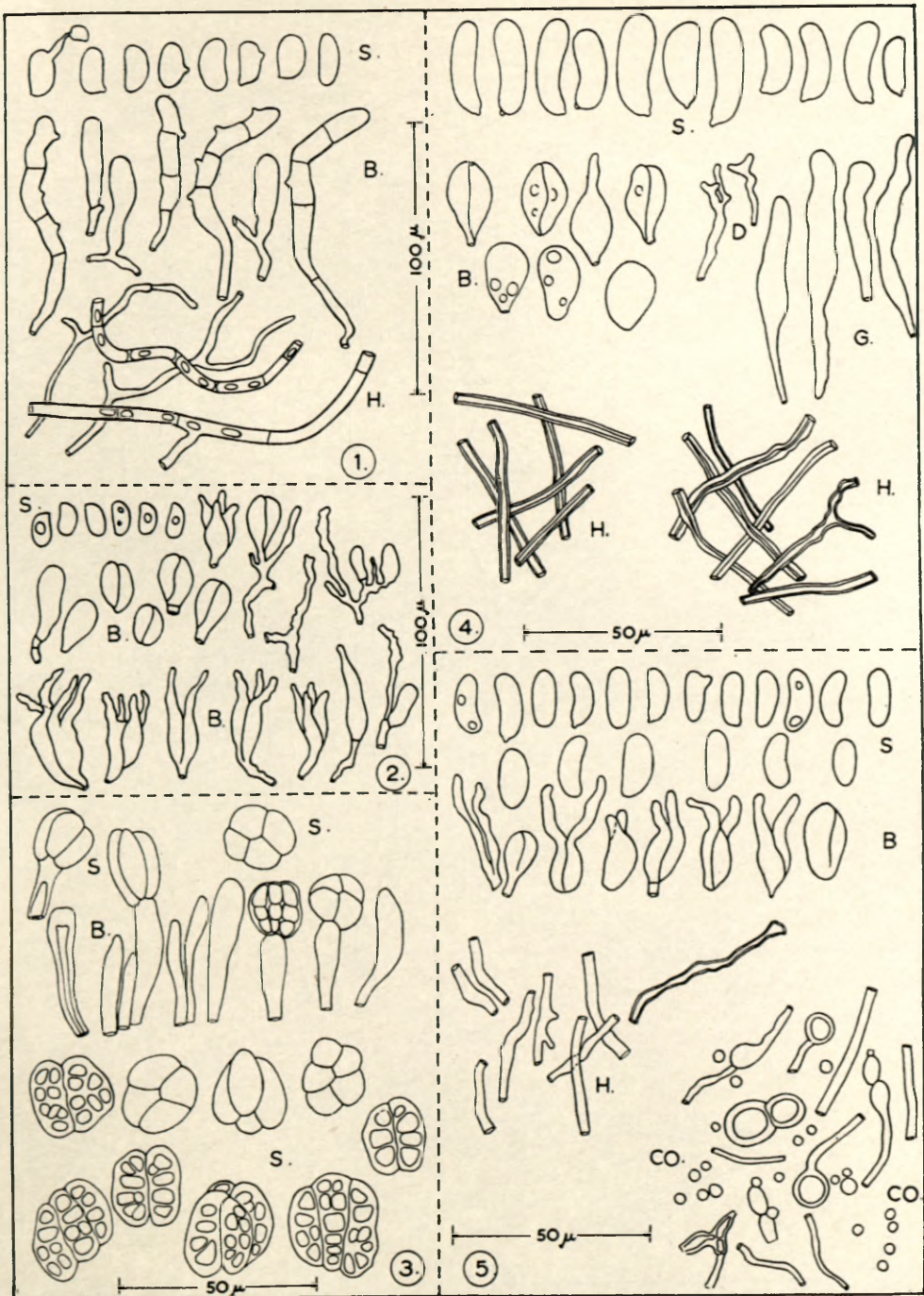


FIG. 1.—*Platygløea opalina*. FIG. 2.—*Eichleriella macrospora*. FIG. 3.—*Coniodictyum chevalieri*. FIG. 4.—*Heterochaete grandispora*. FIG. 5.—*Heterochaete byliana*.

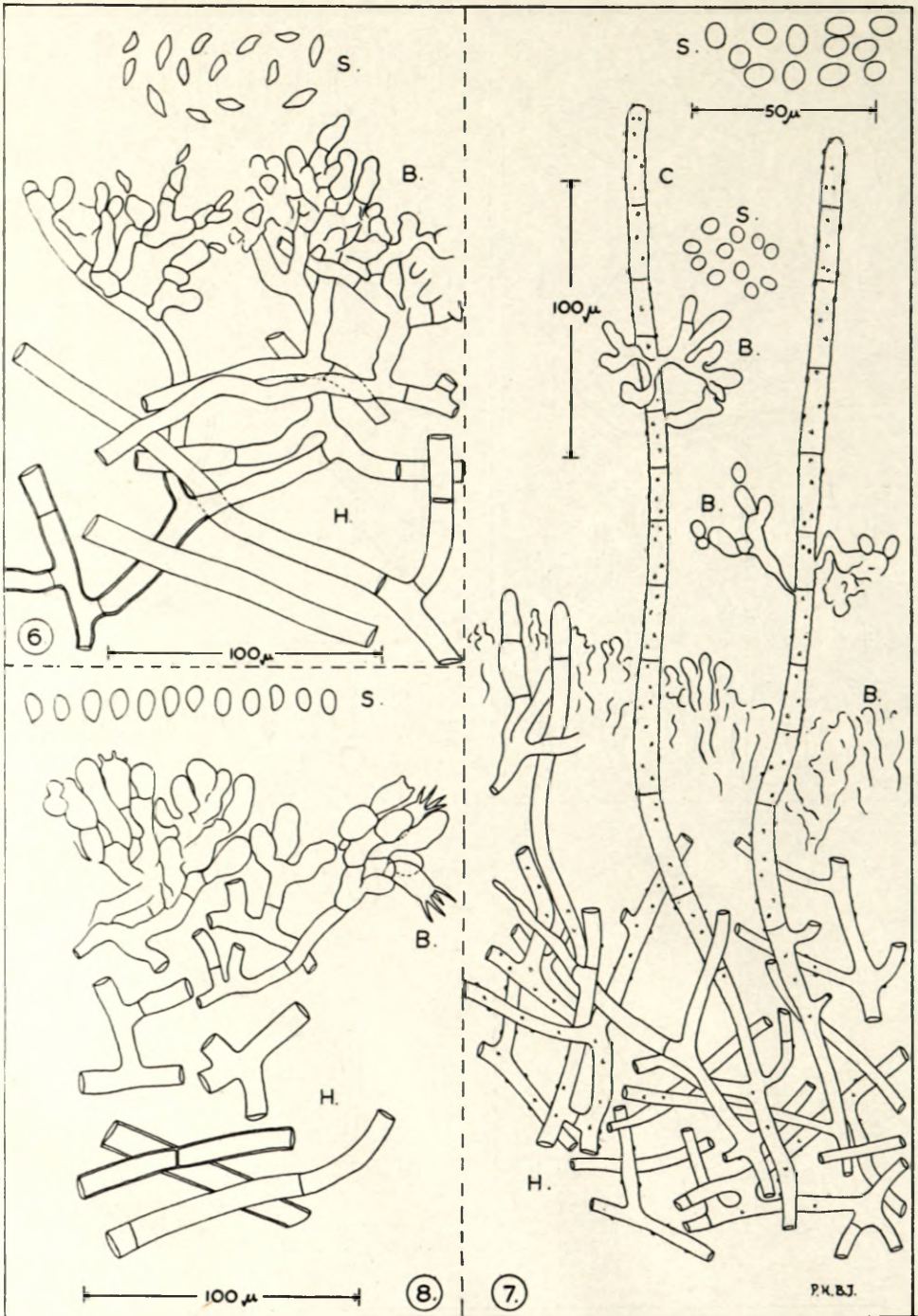


FIG. 6.—*Pellicularia vaga*. FIG. 7.—*Pellicularia fodinarum*. FIG. 8.—*Pellicularia filamentosa*.

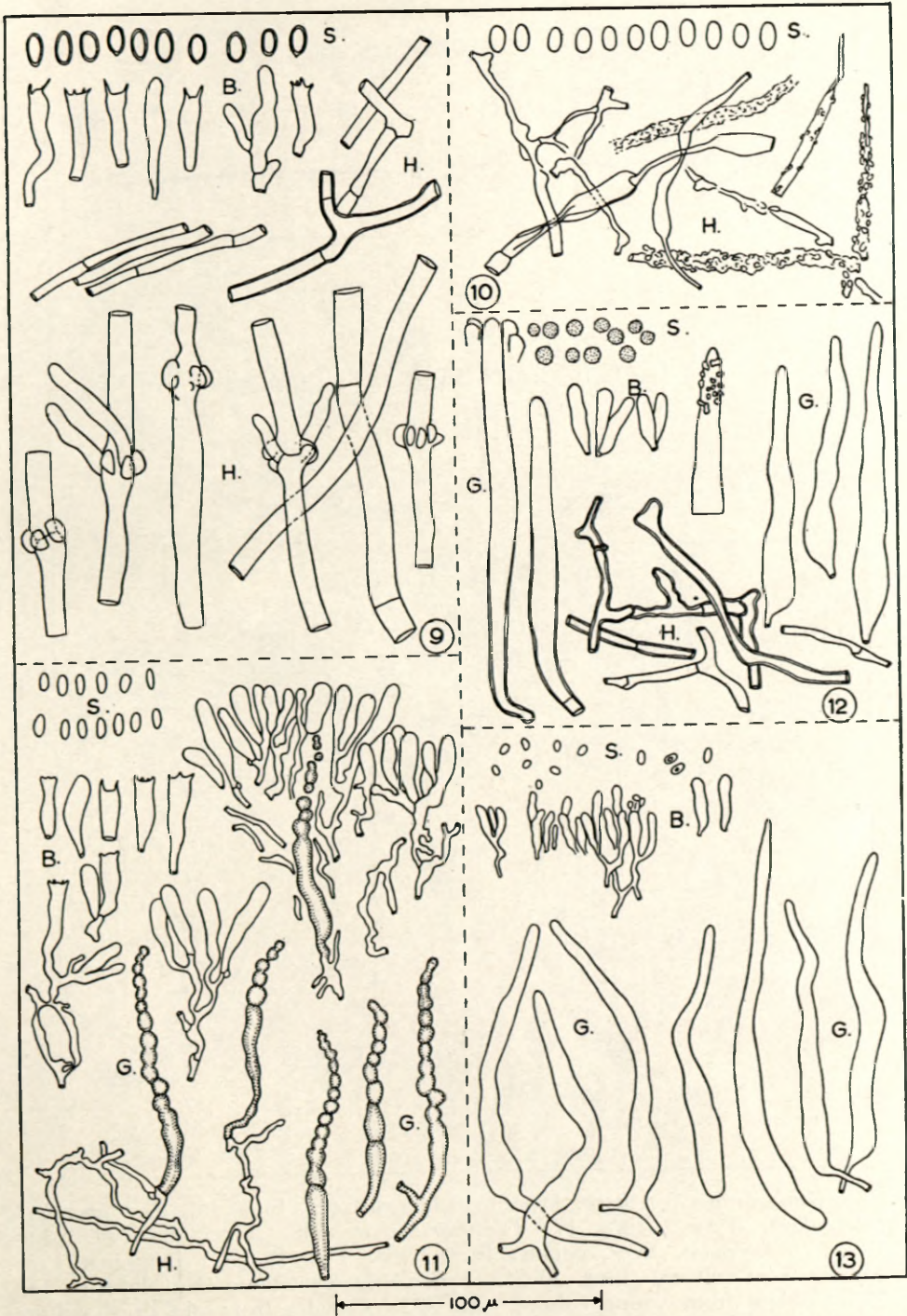


FIG. 9.—*Coniophora arida*. FIG. 10.—*Coniophora incrustata*. FIG. 11.—*Corticium moniliforme*. FIG. 12.—*Corticium punctulatum*. FIG. 13.—*Corticium porosum*.

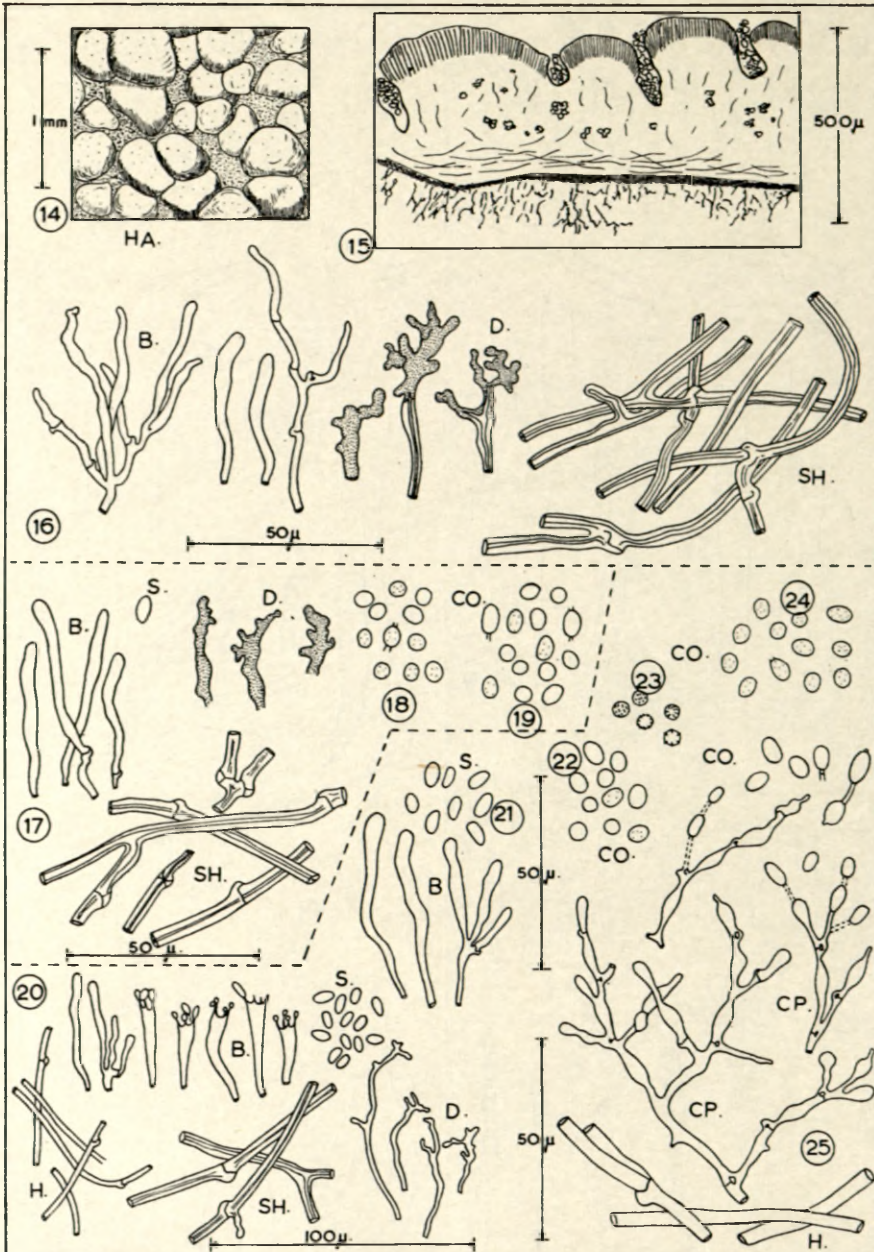


FIG. 14.—*Punctularia tuberculosa*, Type, hymenial surface. FIGS. 15, 16.—*Punctularia tuberculosa*, Type. FIG. 17.—*Corticium conigenum*, Type, basidia. FIG. 18.—*C. conigenum*, Type, conidia from bark. FIG. 19.—*C. conigenum* Type, conidia from culture. FIGS. 20–25.—*Punctularia tuberculosa* (No. 40510). FIG. 22.—Conidia from young culture. FIG. 23.—Conidia from old dried culture. FIG. 24.—Conidia from bark. FIG. 25.—Conidia and conidiophores in slide culture.

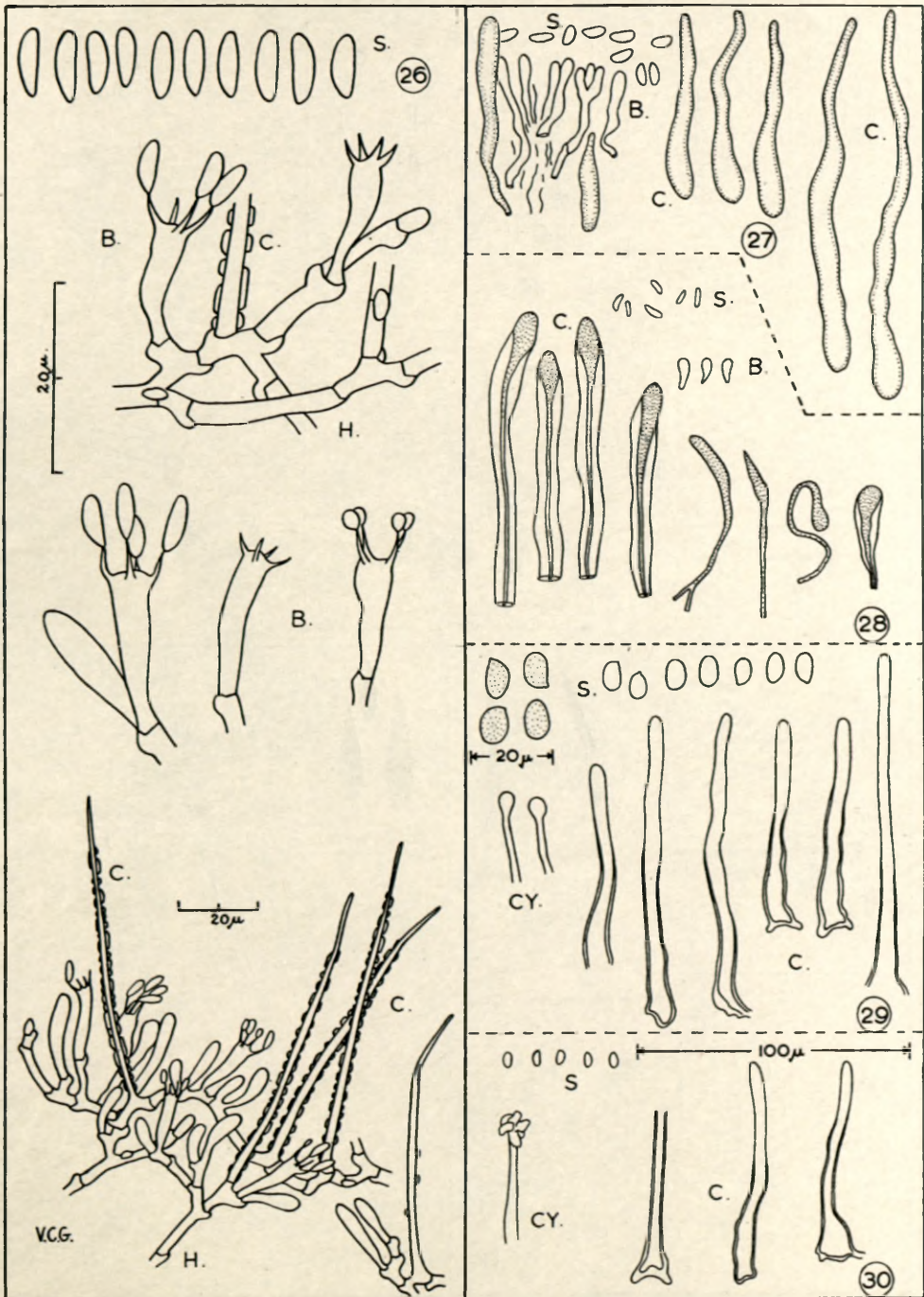


FIG. 26.—*Peniophora longispora* var *brachyspora*, Type. FIG. 27.—*Peniophora tenuis*.
 FIG. 28.—*Peniophora gracillima*. FIG. 29.—*Peniophora rimicola*. FIG. 30.—*Peniophora pruinosa*.

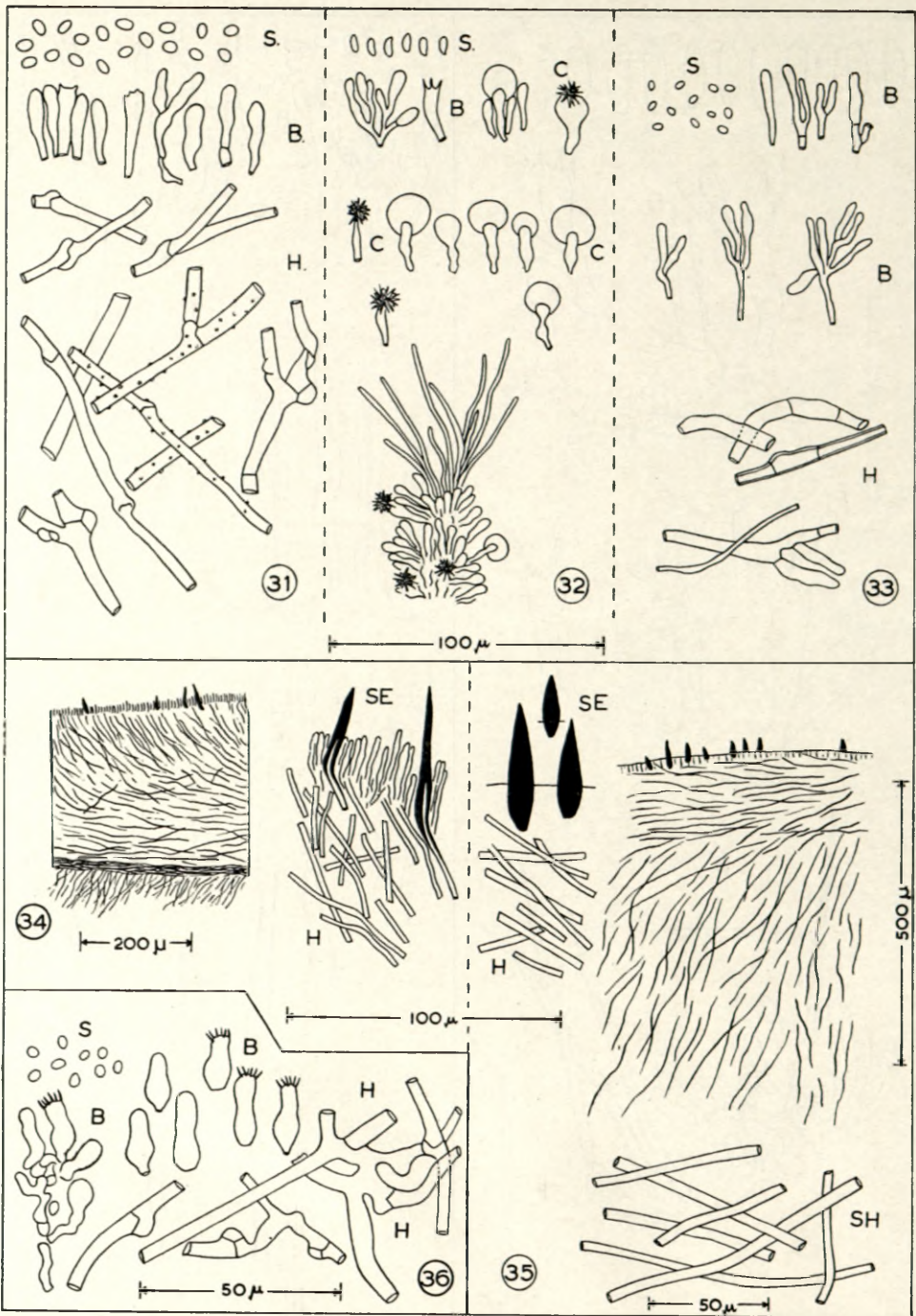


FIG. 31.—*Merulius molluscus*. FIG. 32.—*Odontia bicolor*. FIG. 33.—*Grandinia rosea*.
 FIG. 34.—*Hymenochaete luteobadia*. FIG. 35.—*Hymenochaete nigricans*. FIG.
 36.—*Sistotrema muscicola*.

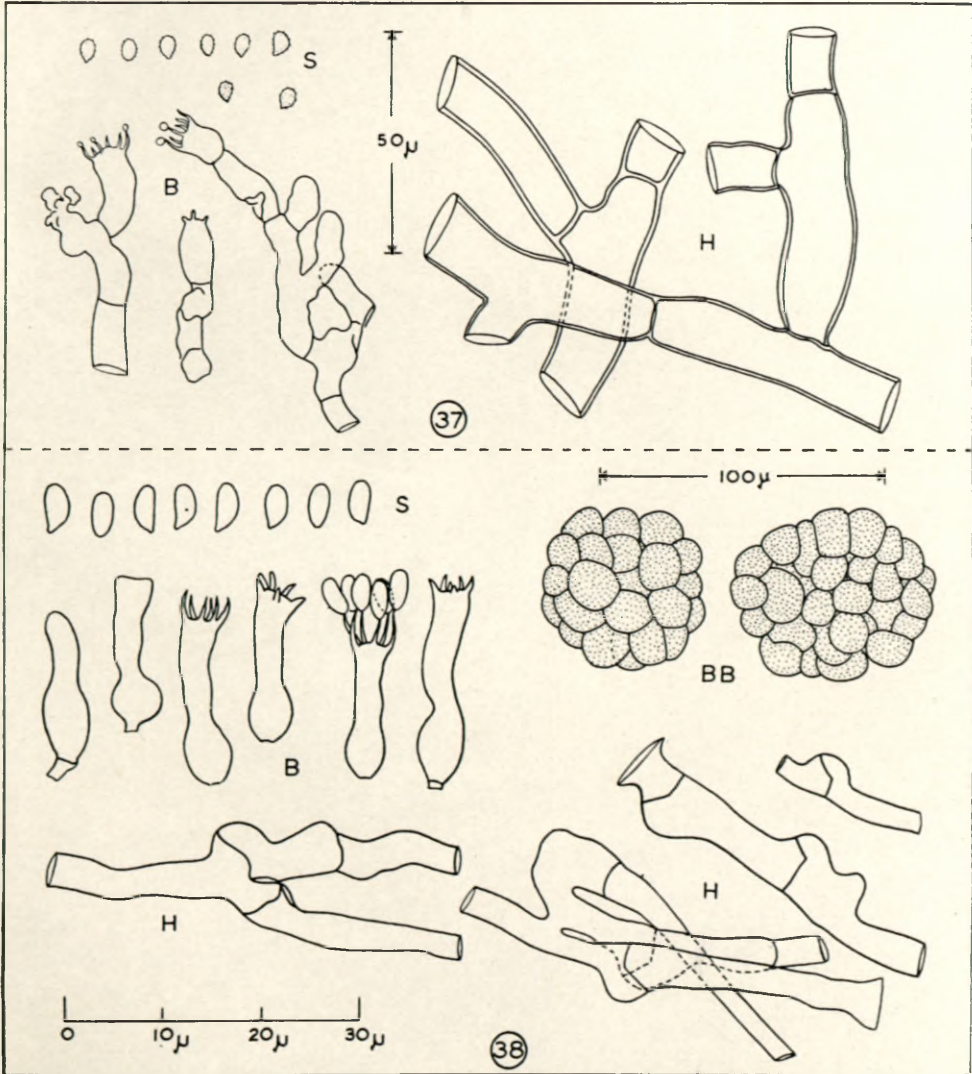


FIG. 37.—*Pellicularia asperula*. FIG. 38.—*Sistotrema brinkmanni*.