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NOTES ON FUNGI WHICH HAVE BEEN REFERRED TO THE THELEPHORACEAE SENSU LATO

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(With 59 Text-figures)

This paper deals mainly with species found to have been wrongly described in, or transferred to, such genera as *Beccariella*, *Cladoderris*, *Podoscypha*, *Polyozus*, *Stereum* and *Thelephora*. The author excludes these species from the stipitate stereoid series. Descriptions and illustrations of most of them are based on type material. Many names are reduced to synonymy. One new genus is described, *Hydnopolyporus* Reid. *Xylobolus* Karst. is given sectional rank as *Stereum* sect. *Phellina* (Endl.) Reid. New combinations are made in *Amauroderma* (1), *Clavulina* (1), *Clavulinopsis* (1), *Dacryopinax* (1), *Gomphus* (1), *Hydnopolyporus* (2), *Pleurotus* (1), *Pseudocraterellus* (7) and *Scytinopogon* (1).

During an investigation of the taxonomy of the stipitate stereoid fungi a number of species were found to have been wrongly described in, or transferred to, such genera as *Beccariella*, *Cladoderris*, *Podoscypha*, *Polyozus*, *Stereum* and *Thelephora*. It is these fungi, which the author has excluded from the stipitate stereoid series, that form the subject of this paper. In addition full accounts are also given of other species which were examined in order to confirm that they had no affinity with the stipitate fungi then under investigation. Hitherto the descriptions of the fungi falling in this latter category were so vague as to make their classification virtually impossible by modern standards.

The species described in this paper are arranged alphabetically according to the genera in which Saccardo (*1888*) placed them in volume 6 of his "Sylloge Fungorum". Species published subsequent to that volume are considered under the genera to which they were assigned by their various authors.

The following notes are based on examinations of type specimens preserved in the Kew Herbarium, unless otherwise stated. The herbaria are indicated by the abbreviations used by Lanjouw & Stafleu (*1959*). The figures are all × 1300 except where otherwise indicated.

BECCARIELLA CAESPITOSA (Cooke) Sacc. — FIG. 1

Beccaria caespitosa Cooke *in* Grevillea **9**: 100. 1881.
Beccariella caespitosa (Cooke) Sacc. *in* Syll. Fung. **6**: 551. 1888.
Type: Rio de Janeiro, Brazil, coll. Glaziou (No. 9157).

Sporophores forming rosette-like clusters up to 6 cm high and 3.5 cm wide. Some of the specimens appear to have been buried during their early development,

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and to have subsequently grown up and produced a second crop of pilei. *Pilei* becoming greatly divided into an enormous number of erect lobes which have become variously folded and fused together to form extremely dense, compact, cauliflower-like masses. Cooke's original description of the pileus as "much folded, infundibuliform, from which arise various stipitate confluent lobes" does not convey an adequate picture of the fungus. The colour of the living plant was not stated by the collector, but the herbarium material is now entirely dark chestnut brown to almost black. *Hymenial surface* covered with long, narrow, radial ridges, which frequently fork and often become interconnected by transverse partitions to form pores. The pores formed in this manner tend to retain a predominantly radial orientation. In addition to these ridges and pores there are also isolated warts and granules. *Stipe* rudimentary or absent. There is a conspicuous basal ball of earth held together by mycelium, and from this arise a multitude of very short divided branches which themselves branch repeatedly to form numerous flattened lobes. *Hyphal structure* monomitic, consisting of scantily branched, hyaline, generative hyphae, 2–8 μ in diam. These hyphae which lack clamp-connexions at the septa often develop distinctly thickened walls especially in the older portions of the fruitbody. There is no very distinct cuticle. *Hymenium* not thickening, but forming a layer 26 μ wide. *Cystidia* and *gloeocystidia* absent. *Basidia* 4-spored. *Spores* 3.5–4.5 × 2–3.5 μ, hyaline, broadly elliptical to subglobose, often with a single refractive guttule.

HABITAT: On the ground.

This species is typical *Hydnopolyporus* (*Polyporus*) *fimbriatus* (Fr.) Reid as noted by Lloyd (*1912a*; *1913a*) and Reid (*1959*), see also page 151. It is a widespread species in tropical America.

There has been some confusion over the nomenclature of this fungus for Lloyd (*1913a*) when listing this species, wrote "*caespitosa*, Brazil, Cooke (as *Beccariella*) = *Polyporus fimbriatus*." In fact Cooke described it, by error, as *Beccaria caespitosa* obviously intending to use the generic name *Beccariella* since he wrote of the fungus "referred with some hesitation to the genus instituted by Baron V. de Cesati." It was this latter author who was responsible for describing the genus *Beccariella* there being no genus bearing the name *Beccaria*. It was Saccardo (*1888*: 551) who eventually corrected the error and gave a description of the fungus under the name *Beccariella caespitosa*.

CLADODERRIS FUNALIS P. Henn. — FIGS. 2, 55

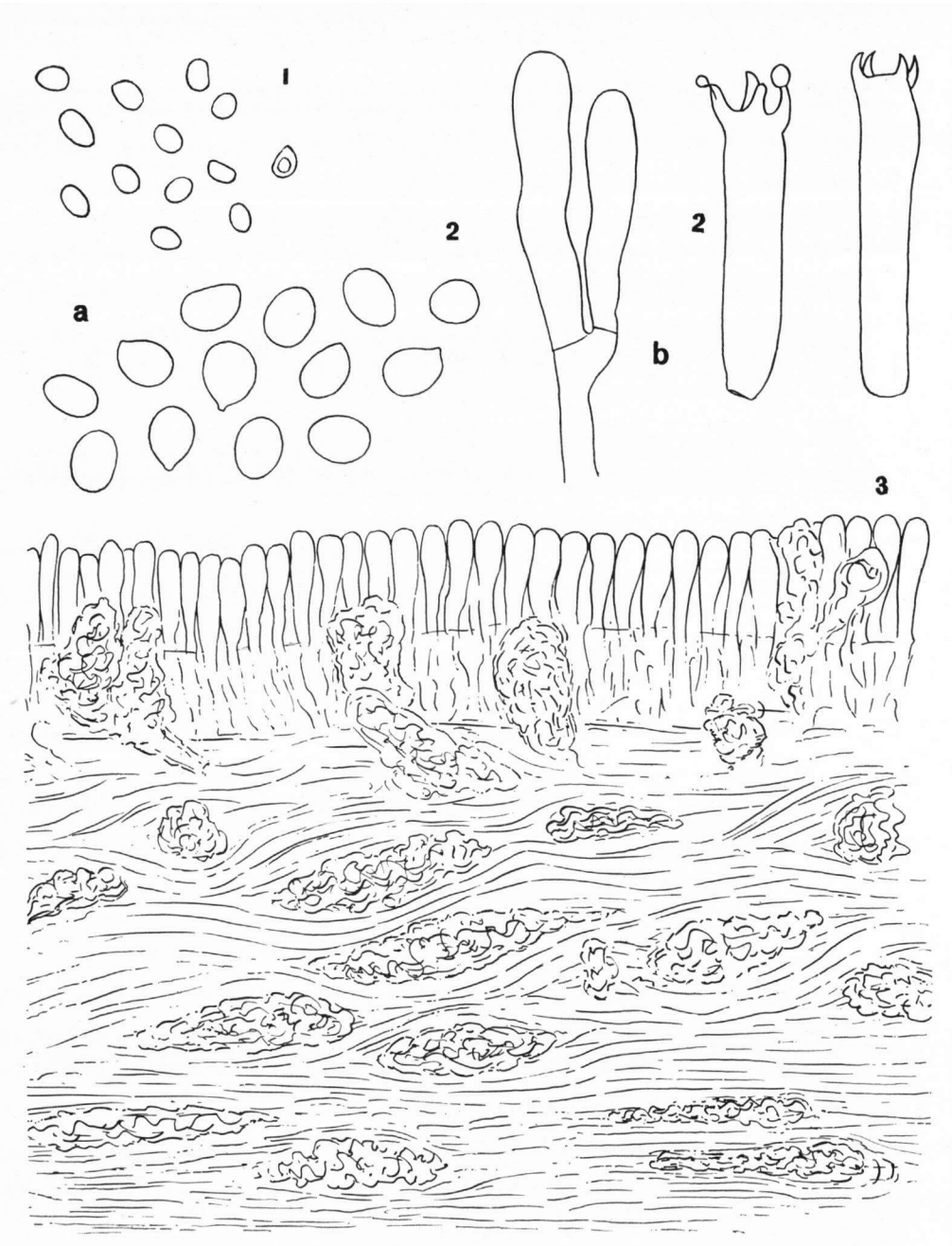
Cladoderris funalis P. Henn *in* Bot. Jb. **38**: 120. 1905.

Type: Victoria, Kamerun, coll. Winkler (No. 985), 1905 (S).

Sporophores up to 6.5 cm high, and 3–6 cm wide, appearing somewhat intermediate between a branched clavarioid fungus and members of the genus *Cymatoderma* Jungh. (*Cladoderris*). There is a main trunk up to 3.5 cm long and 1 cm thick which is somewhat compressed, rugulose and woody, and often bulbous at the base. From

EXPLANATIONS OF FIGURES 1–3

Figs. 1–3. — 1. *Beccariella caespitosa*. Spores. — 2. *Cladoderris funalis*. a. Spores. b. Basidia. — 3. *Cladoderris membranacea*. Section through the fruitbody showing yellowish oily masses in the context and hymenial tissue.



Figs. 1–3

the upper part of the trunk arise a number of main branches. These in turn, by pinnate branching, give rise to numerous crowded lateral branchlets which leave the parent branch at a very acute angle. The lateral branchlets then branch in a similar manner and this may be repeated further until the ultimate branchlets become extremely crowded and tend to fuse along their length. The fruitbody therefore tends to be formed of a series of fan-like segments formed by multipinnate branching in one plane. There is, however, a certain amount of fusion of branches wherever these come into contact and this destroys any regular pattern which might otherwise appear with the result that the fruitbodies have a rather shredded and tattered look. They nevertheless retain a distinctly feathery appearance. The branches are rather flattened and have the hymenium confined to the lower surfaces. The upper surface of the branches is fibrillose and although it was originally described as ashy-alutaceous is now pale fawn. The hymenial surface was also said to be similarly coloured but is now yellowish fawn and rather darker than the upper surface. *Hyphal structure* monomitic, consisting of thin-walled hyaline, sparsely branched, generative hyphae, 2.5–5 μ in diam., which lack clamp-connexions at the septa. The flesh in section, especially towards the upper surface of the branches appears dark and horny. The fungus is partly overgrown with a mould mycelium which produces thick-walled, terminal, clamydospores, 6–8 μ in diam., which are sometimes found embedded in the tissue of the '*Cladoderris*'. *Hymenium* thickening markedly, reaching 450 μ in width on the main branches, but not becoming distinctly layered. *Cystidia* and *gloeocystidia* absent. *Basidia* cylindrical, 33.8–44.2 × 6–8 μ, with 4 somewhat incurved sterigmata. *Spores* (6–)7–8 × 5–6.5 μ, smooth, hyaline, elliptical or ovate.

HABITAT: On the ground.

ILLUSTRATIONS: Lloyd, *1913a*: fig. 530 (photo of type material). — Van der Byl *1929*: pl. 3 fig. 18.

This fungus belongs in the Clavariaceae and was transferred to the genus *Aphelaria* by Reid (*1959*) as *A. funalis* (P. Henn.) Reid.

Van der Byl (*1929*) described a second gathering of this species from Salisbury, Southern Rhodesia and subsequently Talbot (*1958*) published an expanded account of this collection. Judging from the latter author's description the fruitbodies of this collection, although somewhat smaller than those of the type, would seem to be very similar to it in appearance. The upper surface of the branches were said to be covered by thick, tangled, sterile fibrils, resembling hydnoid spines and to vary in colour from yellow-brown to pale reddish-brown, while the hymenial surface was described as yellowish to brownish. Talbot (l.c.) also noted that the basidia in the Rhodesian material may be either 2- or 4-spored and that they may reach 50 μ in length. He also stated that the hyphae of the flesh may be inflated, reaching 9 μ in diam., whereas those forming the surface fibrils of the branches were usually uninflated and 3–5 μ wide. Apart from these details Talbot's account is essentially the same as the above description drawn up from the type gathering.

Talbot (l.c.) noted that *C. funalis* was quite distinct from other *Cladoderris* species by virtue of its monomitic hyphal construction and lack of both cystidia and gloeocystidia. He also wrote "it seems certain that the ribbed hymenium is composed basically of flattened clavarioid branches which have fused into an unusual dorsi-ventral form." Commenting on its systematic position Talbot indicated that *C. funalis*

showed some affinity with the genera *Clavulina* and *Aphelaria* in the Clavariaceae. He finally concluded that "*Cladoderris funalis* appears to have characters somewhat intermediate between those of *Clavulina* and *Aphelaria*" and proceeded to state that he was not in a position to decide to which of these genera it should be transferred.

The fungus evidentally proved to be somewhat perplexing to Lloyd (*1913a*) for when he described it in his *Cladoderris* pamphlet he wrote, "It is so different from all other species that it is a question if Hennings was correct in referring it to *Cladoderris*. I am inclined to think it should be so classed. . . . I should not be surprised, however, if it proved to have other names in other genera, such as *Lachnocladium*."

CLADODERRIS MEMBRANACEA de Vriese & Lév. — FIGS. 3, 4

Cladoderris membranacea de Vriese & Léveillé *in* Ann. Sci. nat. (Bot.) III **5**: 153. 1846. Type: Surinam (Herb. de Vriese) (PC).

Sporophores consisting of thin, membranous, orbicular, effuso-reflexed pilei, up to 2.5 cm in width, which frequently fuse one with another. *Pilei* tomentose, and of a pale fawn colour with indistinct zones. *Hymenial surface* somewhat prominently radially ridged behind, but less so nearer the margin where the ridges gradually pass into slight undulating folds. Léveillé's description of the hymenium as being traversed from back to front by veined and branched trunks, is an exaggeration in spite of his qualification that they were not very prominent. The hymenial surface of the dried material is now ochraceous-fawn, except for the folds near the margin which have become dark and discoloured. The general effect of the hymenial configuration is to suggest a *Stereum* with radial folding rather than a species of *Cymatoderma* (*Cladoderris*). *Hyphal structure* monomitic, consisting of hyaline, branched, generative hyphae, 2.5–4(–5) μ in diam. with thin or sometimes slightly thickened walls. These hyphae have abundant septa, at which points they may be somewhat constricted, but clamp-connexions are absent. There are, however, frequent lateral fusions between adjacent hyphae. Further, when the hyphae are examined in aniline blue in lactic acid there is often an intensely stained area visible near the septa, due possibly to an accumulation of the contents in this region. The tomentose covering of the pileus is formed of thick-walled hyphae in which the lumen remains distinct. These hyphae are also abundantly septate and lack clamp-connexions. A notable feature of the microstructure of this fungus is the presence of a copious orange or yellowish oily substance which forms large granular masses between the hyphae of the flesh and less commonly between the basidia. It is, as yet, impossible to be certain whether or not the presence of this substance is a constant feature of the species, but since it has been found in both portions of the type material the probability is that it will be found to be so. Another feature of the anatomy of this fungus is that the flesh consists of two zones. There is a layer of loosely woven

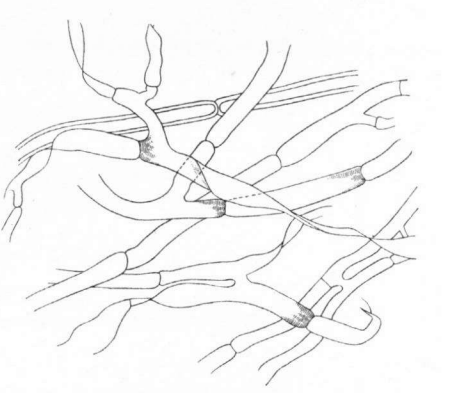


Fig. 4. *Cladoderris membranacea*. Hyphae (× 650).

hyphae above the hymenium which forms the bulk of the flesh and varies enormously in width. Above this layer is a zone in which the hyphae are densely compacted, and it is from this zone that the hairs forming the surface tomentum arise. This layer of compacted hyphae is less variable in thickness ranging from 78–91 μ in width. *Hymenium:* examination of sections through the fruitbody appear to show two zones in the hymenium, each 10 μ in width, which would suggest that thickening has occurred. If so, however, the mature basidia must be extremely small. *Cystidia* and *gloeocystidia* absent. *Basidia:* mature basidia not seen. *Spores* not seen.

HABITAT: on trunks.

This fungus has no connexion with the genus *Cymatoderma* (*Cladoderris*) on account of its monomitic hyphal structure and lack of both cystidia and gloeocystidia. It is a difficult species to place with any degree of confidence, but it does show considerable similarity to various species of *Merulius* sensu stricto and especially *M. sordidus* Berk. & Curt. This latter species is formed of hyphae which lack clamp-connexions, although admittedly they are mostly thick-walled. It also develops a brown granular substance in the hymenium, which shows similar layering to that of *C. membranacea*, and also in the trama immediately above it. The hymenium of *M. sordidus* is, however, normally poroid. Nevertheless it is possible that *C. membranacea* is a young stage of a species of *Merulius* related to *M. sordidus*, but in which the hymenium has not yet become poroid. There has been some confusion over the interpretation of this species which began when Montagne sent Berkeley a collection from Cayenne, French Guiana of what he had called *C. membranacea*, but which in fact was a thin form of *Cymatoderma dendriticum* (Pers.) Reid. This led Berkeley to write on the label of one of Wright's gatherings (No. 279) from Cuba "*Cladoderris dendritica*, P. *C. membranacea*, De Vriese & Lév." and this specimen was filed under *C. membranacea* at Kew. From Berkeley's cryptic note, however, it is not clear whether he thought that he had a mixture of two species under the same collector's number, although this in unlikely as Berkeley & Curtis published the collection without comment as *C. dendritica* in their "Fungi cubenses" (1868), or whether he thought that *C. membranacea* was a form of *C. dendritica*, or even that the two names were synonyms. However, after studying the Cayenne specimen determined by Montagne and the Cuban specimen discussed above, which was also filed at Kew under *C. membranacea*, Lloyd (*1913a*) concluded that this species was merely a thin form of *C. dendritica*. Subsequently in the same publication he added the following postscript. "*Cladoderris membranacea*. Our account on page 4 was written at Kew and we took the name in the sense of Berkeley and the other specimen at Kew. If my memory serves me right, there is a specimen at Kew supposed to be a cotype. (This presumably refers to the Montagne specimen which is certainly not a cotype. — D.A.R.) At Paris later we found an undoubted cotype. It is not the same as has been so taken at Kew and in my opinion is not a *Cladoderris*."

CLADODERRIS MINIMA Berk. & Br. — FIG. 5

Cladoderris minima Berk. & Br. *in* Ann. Mag. nat. Hist. V 1: 24. 1878.
Stereum minimum (Berk. & Br.) Lloyd *in* Mycol. Writ. 4 (Syn. stip. Ster.): 36. 1913.
Type: Scotland, Glamis, coll. Rev. J. Stevenson (No. 849).

Sporophores very minute, 4–6 mm wide (in diameter), either flabellate and somewhat pendulous from a short stem-like base or in the form of small effuso-reflexed pilei. *Pileus* white when fresh, becoming pale fawn in the herbarium, and with a fibrillose upper surface. *Hymenial surface* smooth, without trace of ribs or wrinkles when soaked up in 10 % potassium hydroxide solution. It was, however, originally described as being thrown into radiating branched ribs. Lloyd (*1913b*) also described the hymenium as "uneven with ridges". *Hyphal structure* monomitic, consisting of thin-walled, branched, generative hyphae, 2.5–5 μ in diam. with clamp-connexions at the septa, and with thin but distinct walls at least towards the upper surface of the pileus. The branching of the hyphae frequently takes place from the clamp-connexions. There is no distinct cuticle. The flesh consists of a narrow region in which the hyphae are horizontally orientated. Above this zone some of the hyphae diverge to form the fibrillose surface of the pileus, while below it there is a zone in which the hyphae gradually curve downward toward the hymenium. The latter zone forms the greater part of the context. However, all the hyphae are rather loosely arranged and there is no sharply defined zonation of the flesh. Examination of the hyphal structure also shows a number of deeply staining globose bodies up to 18 μ in diam. in the context, but these were judged to be extraneous. *Hymenium* not thickening. *Cystidia* and *gloeocystidia* absent. There are, however, scanty, fusiform, thin-walled cystidioles, with narrowed, obtuse, sterile apices. Some of these organs project slightly beyond the basidia. *Basidia* 4-spored, up to 56.6 × 6 μ. *Spores* 7–10 × 4–6 μ, smooth, hyaline, elliptic-pip-shaped, with an oblique apiculus; often adhering in groups. Bresadola, who also examined the type specimen, has noted on the herbarium sheet that he found the spores to be 8–10 × 6–8 μ.

HABITAT: on wood. Originally collected on birch trunks.

ILLUSTRATIONS: Lloyd, *1913b*: fig. 556 (a reproduction of Stevenson's illustration of the type collection). — Massee, *1892*: figs. 15–17. — Ramsbottom, *1923*: fig. 82 (a reproduction of Stevenson's illustration of the type collection). — W. G. Smith, *1908*: figs. 97 D–E (a reproduction of Stevenson's illustration of the type collection). — Stevenson, *1886*: fig. 85 (illustration of the type collection).

This is *Corticium laeve* (Pers. ex Fr.) Fr. forma *cucullata* Bourd. & Galz. as indicated by Reid (*1959*).

Cladoderris minima has long remained one of the mysteries of the British fungus flora for the genus *Cymatoderma* (*Cladoderris*) was known to consist of species with a predominantly tropical distribution. Massee (*1892*) certainly did not help towards establishing the true identity of the fungus when he erroneously described the spores as "elliptic-oblong, apiculate at base, curved, 14–15 × 4–5 μ" and added that it could be recognised by its "large, sausage-shaped, curved spores". These erroneous measurements were subsequently reproduced by Rea (*1922*). Furthermore, Bresadola (*1916*), after examination of the type material wrongly concluded that it was *Cyphella galeata* (Schum. ex Fr.) Fr.

It should be noted that in addition to the type gathering of *C. minima*, Berkeley (in Herb.) also assigned a collection from Penzance, Cornwall to this species although, evidently with some reservations, for he annotated it as "*Cladoderris minima* Berk. & Br. Var." This collection is sterile, but it is probably conspecific with the type. A much more recent gathering from Masham, Yorkshire, collected by W. N. Cheesman in September 1923, and probably the basis of the record of *C. minima*

in Mason and Grainger's (*1937*) list of Yorkshire Fungi agrees with the type and should likewise be regarded as *Corticium laeve* forma *cucullata*. On the other hand a specimen reported by Pearson (*1918*) from Wimbledon Common, collected in December, 1916 is misdetermined and in fact represents the first British collection of *Stereophyllum boreale* Karst.

CLADODERRIS PLATENSIS Speg.

Cladoderris platensis Speg. *in* An. Mus. nac. B. Aires **6**: 179. 1899.
Type: Parque de la Plata, Argentine, 12 July 1885 (LPS).

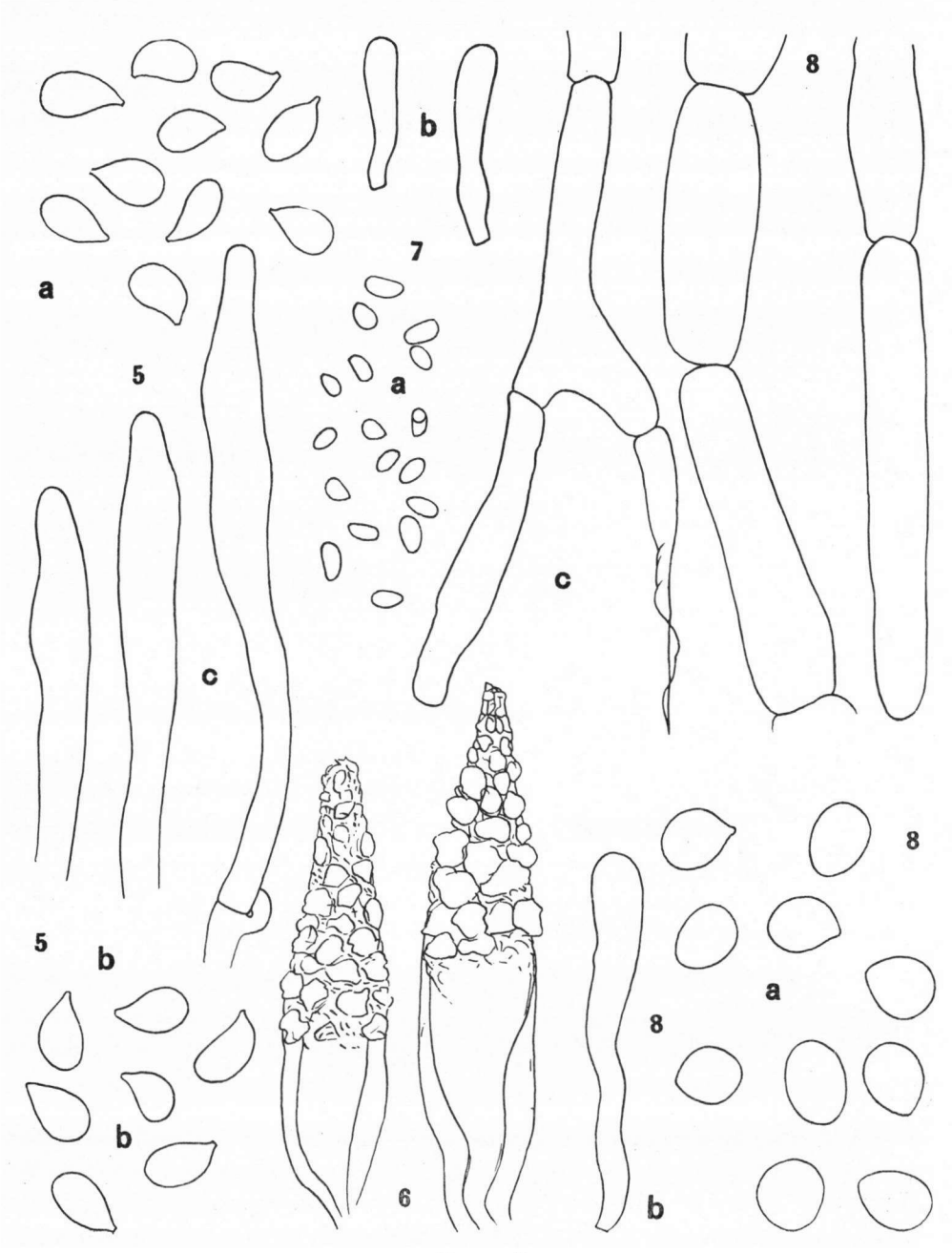
Sporophores 1–2 cm in diameter, 1–1.5 cm in radius, consisting of densely imbricate, thin, membranous, often effuso-reflexed, dimidiate or flabellate pilei, which frequently become intricately fused one with another. *Pileus* concentrically sulcate, but also radiately undulating, folded or crisped. The upper surface is tomentose and ochraceous fulvus in colour becoming tawny-brown when dried, and sometimes slightly paler behind. *Hymenial surface* greyish-white or greyish-flesh-coloured, becoming dark purplish brown in the herbarium; seemingly almost smooth to the eye but under a lens appearing distinctly 'merulioid-poroid'. The pores, however, have a tendency toward radial orientation. *Flesh* dirty white. *Hyphal structure* monomitic, consisting of branched, hyaline, generative hyphae, which lack clamp-connexions at the septa. Many of these hyphae, the main trunks of which are 5–7 μ wide, become very thick-walled. There is no distinct cuticle. The context consists of two zones (1) that nearest the hymenium in which the hyphae have rather thinner walls and are more compacted (2) that forming the upper surface of the pileus in which the hyphae have strongly thickened walls but are more loosely arranged. It should be noted that there is a dense brown granular substance present between some of the hyphae of the context, but this is much more conspicuous at the line of junction between context and hymenium. This brown substance is also present throughout the hymenium itself. It has a tendency to form droplets and does so readily when sections are heated in aniline blue in lactic acid or in 10 % potassium hydroxide solution. *Hymenium* apparently not thickening. There is, however, a deeply staining basidial layer 15.6–23.4 μ in width, beneath which is a loose subhymenial zone 15.6 μ in thickness increasing to 26 μ or more in places, and this in turn is followed by a layer 10–13 μ wide which fails to stain in aniline blue in lactic acid and in which it is almost impossible to make out individual hyphal elements. *Basidia:* mature basidia not seen. *Spores* not seen.
HABITAT: the original fruitbodies were collected on *Eucalyptus globosus*.

This is *Merulius sordidus* Berk. & Curt. as noted by Reid (*1959*).

Lloyd (*1913a*) commenting on this species wrote "unknown to me. Appears, from the description to be thin form of [*Cladoderris*] *dendritica*, viz., *membranacea*."

EXPLANATION OF FIGURES 5–8

Figs. 5–8. — 5. *Cladoderris minima*. a. Spores mounted in aniline blue in lactic acid. b. Spores mounted in 10 % potassium hydroxide solution. c. Cystidioles. — 6. *Cladoderris pritzelii*. Cystidia. — 7. *Cladoderris rickii*. a. Spores. b. Immature basidia. — 8. *Podoscypha alutacea*. a. Spores. b. Basidium. c. Hyphae.



Figs. 5–8

CLADODERRIS PRITZELII P. Henn. — FIGS. 6, 56

Cladoderris pritzelii P. Henn. *in* Hedwigia **42** (Beibl.): 74. 1903.
T y p e: Kuranda, Northern Queensland, Australia, coll. E. Pritzel (No. 130), May 1902 (S).

Sporophores consisting of thin, membranous, effuso-reflexed, dimidiate pilei up to 8 cm in diam., and 5 cm in radius. *Pileus* covered with a very pale fawn coloured tomentum (cinnamon according to Hennings), becoming brownish near the acute margin. The surface is indistinctly zoned and also concentrically and often radially sulcate. *Hymenial surface* strongly radiately plicate, with a broad marginal zone which is a bright cinnamon colour in contrast to the remainder which is pinkish-buff. There are, however, numerous, small, cinnamon, velvety, granular warts scattered over the lower surface. *Hyphal structure* dimitic. The branched generative hyphae are 2–5 μ in diam., and lack clamp-connexions at the septa. They are thin-walled near the hymenium but are distinctly thick-walled in the rest of the flesh and are then difficult to distinguish from skeletal hyphae. The latter often arise high in the context and curve down toward the hymenium, forming a palisade beneath the subhymenium which is only very rarely penetrated. These unbranched skeletal hyphae, 4.5–6 μ in diam., which often appear slightly yellowish in 10 % potassium hydroxide solution, are thick-walled with the lumen almost obliterated. They are also heavily encrusted with a fine yellowish-brown granular substance which is soluble in 10 % potassium hydroxide solution. There is no distinct cuticle. The flesh consists of a thin zone in which the hyphae are more densely compacted and horizontally orientated and below this is a region in which the skeletal hyphae diverge and curve down toward the hymenium, while above it the hyphae diverge in the opposite direction to form the surface tomentum. The hyphae of the tomentum which are 6–8 μ in diam., are thick-walled, and often unbranched. It seems that the surface tomentum of the pileus is perhaps best regarded as being formed of both modified generative hyphae and skeletal hyphae. The differentiation of the hyphae in this species is, however, not very clear-cut, and it is often difficult to distinguish between the generative and skeletal hyphae, especially in the tomentum where the former have greatly thickened walls. *Cystidia* present as large, conical structures which protrude beyond the basidia for up to 30.2 μ. They have very thickened walls, especially in the basal portion which is often somewhat brownish, and are heavily encrusted with a coarse crystalline deposit which dissolves slowly in both 10 % potassium hydroxide solution and aniline blue in lactic acid. *Basidia:* mature basidia not seen. *Spores* not seen. (Hennings described them, probably wrongly, as "subglobose, internally punctulate, hyaline, smooth, 3.5–4 μ".)
HABITAT: on wood.

This is *Lopharia papyracea* (Jungh.) Reid (*Stereum percome* Berk. & Br.), see Reid (*1959*) who has also published a detailed account of the species (Reid, *1957a*), with illustrations of the microstructure. In addition see this paper page 158.

Lloyd (*1913a*) wrote of *Cladoderris pritzelii*, "In its macroscopic characters same as *spongiosa*, but this specimen has no stem. The hymenium has large metuloids (unknown to the author) ...."

CLADODERRIS RICKII Lloyd — FIG. 7

Cladoderris rickii Lloyd *in* Mycol. Writ. **7**: 1196. 1923.
T y p e: Brazil, coll. Rev. J. Rick (BPI, Lloyd Catalogue No. 29345).

Sporophores consisting of thin, membranous, effuso-reflexed pilei forming brackets at least 6 cm in diameter and 1.5 cm in radius. *Pileus* uneven and concen-

trically sulcate in places. It is ochraceous-cream in colour and covered with a thin tomentum. *Hymenial surface* which is reddish brown with purplish tints, has a typically merulioid configuration, although the ridges and pores show a tendency toward radial orientation. *Hyphal structure* monomitic, consisting of branched, hyaline, generative hyphae which lack clamp-connexions at the septa. These hyphae mostly become very thick-walled and the lumen is often almost obliterated, but in some the walls do not thicken to the same extent and the lumen is then wide and the septa easy to distinguish. The hyphae, the trunks of which are 5–8 μ in diam. branch freely and many of the resulting branchlets are thin-walled and only 2.5–3.5 μ wide. There is no distinct cuticle, but in section the context can be seen to consist of two, more or less equal, zones. In the zone nearer the hymenium the hyphae tend to have thinner walls and stain more deeply in aniline blue in lactic acid, while in the zone forming the upper portion of the flesh the hyphae have thicker walls and do not show great affinity for the stain. The line of junction between these two zones is not usually very obvious but the hyphae in this region often lack the horizontal orientation found in the lower and to a lesser extent also in the upper zone. As a result the hyphae at this point appear to run in all directions and to be much branched. There is also a conspicuous brown granular substance distributed throughout the lower portion of the context and especially nearer the hymenium. This forms droplets when sections are mounted in 10 % potassium hydroxide solution or in aniline blue in lactic acid. *Hymenium* apparently not thickening, although there is a well developed subhymenial layer 20–40 μ in width. Sections through the fruitbody would appear to indicate that the hymenial layers become pushed up and separated in places from the overlying context during growth, leaving the intervening spaces occupied by brown oil droplets and occasional hyphae. The brown oily substance is also conspicuous in the subhymenial tissues. *Basidia* small, hyaline, clavate, 17–23 × 2.5–3.5 (–4) μ with 4 sterigmata. The basidia form a conspicuous layer extending over the apices of the hymenial ridges and pore mouths. *Spores* small, hyaline, elliptical, 3.5–4.5 × 1.75–2.5 μ.

HABITAT: on wood.

ILLUSTRATION: Lloyd, *1923*: pl. 242 fig. 2435 (photo of type collection).

This, like *C. platensis* Speg. (see page 116), is *Merulius sordidus* Berk. & Curt. as noted by Reid (*1959*).

It is remarkable that Lloyd should have described this fungus as a *Cladoderris* for it was sent to him by Rick as a species of *Merulius*.

PODOSCYPHA ALUTACEA Bres. — FIG. 8

Podoscypha alutacea Bres. *in* Bot. Jb. **54**: 251. 1916.

T y p e: Etappenberg Station, New Guinea, coll. Ledermann (No. 9356), 18 Oct. 1912 (S).

Sporophores thinly membranous, and infundibuliform with a central stipe. *Pileus* 1–2 cm wide, glabrous, appearing alutaceous in dried material; margin more or less entire. *Hymenial surface* smooth and concolorous. *Stipe* 1.5–2 cm long and 1 mm thick, cylindrical, with somewhat swollen bulbous base. It is also pruinose and rufescent in colour. *Hyphal structure* monomitic, consisting of thin-walled, hyaline, branched, generative hyphae 3–10 μ in diam. Those hyphae forming the context are mostly 5–10 μ in width while those forming the subhymenial tissue are 3–4 μ wide. In the flesh the hyphae show abundant septa at variable intervals and are often markedly constricted at these points, but clamp connexions are lacking. The hyphae in the stipe are similar to those in the pileus excepting that they have less numerous septa and are not so conspicuously constricted at points where these occur. There

is no distinct cuticle to the pileus. *Hymenium* thickening, reaching 117 μ in width at a point 3 mm in from the margin of the pileus. Beneath the thickened hymenium there is a subhymenial zone 52 μ wide composed of much branched, and very loosely arranged hyphae. *Cystidia* and *gloeocystidia* absent. *Basidia* clavate, up to 49.4 μ in length and 5–8 μ wide, with 2 or 4 sterigmata. (Bresadola gives them as 35–40 × 7–9 μ.) *Spores* smooth, hyaline, non-amyloid, varying in shape from globose to subglobose. When globose they are 6–8 μ in diam., but when subglobose 7–8(–10) × 6–7 μ. (Bresadola described them as subglobose, 8–10 × 6.5–8 μ.) Abundant spores are also present, embedded in the old hymenial layers.

HABITAT: in loamy soil.

This is not a species of *Podoscypha* Pat. because of its monomitic hyphal structure and lack of gloeocystidia. It belongs in the genus *Pseudocraterellus* Corner and is accordingly transferred to that genus as **Pseudocraterellus alutaceus** (Bres.) Reid, *comb. nov.*

PODOSCYPHA LUTEA Pat. — FIG. 9

Podoscypha lutea Pat. *in* Bull. Soc. mycol. Fr. **43**: 24. 1927.
Type: Nhatrang, Annam, coll. Poilane (No. 8329) (PC).

Sporophores centrally stipitate, 15–30 mm high. *Pileus* 4–15 mm wide, thin, membranous, pellucid, glabrous, and of a very distinctive buttercup yellow when fresh, fading to pale brown in the herbarium. It is orbicular and more or less flattened, although depressed at the centre. *Hymenial surface* smooth, bright yellow, becoming golden brown on drying. *Stipe* 1 mm wide, smooth, cylindrical and amber yellow changing to brown in dried specimens. It is slightly enlarged toward the base and also at the summit where it expands into the cap. *Hyphal structure* monomitic, consisting of thin-walled, generative hyphae 3–10 μ in diam. These hyphae which lack clamp-connexions at the septa are often slightly constricted at these points. The hyphae are formed of segments 26–41 μ in length. There is no distinct cuticle. *Hymenium* not thickening, 39 μ in width. *Cystidia* and *gloeocystidia* absent, but there are clavate bodies in the hymenium, up to 10 μ in diam., with densely granular contents and which could be mistaken for gloeocystidia. These structures, however, are probably only young developing basidia. *Basidia* up to 39 μ long and 6.5–10 μ wide, but only one was observed with sterigmata (4 in number). *Spores* (7.5)8–9(–10) × (5–)6–8 μ (Patouillard described them as 9–10 × 7 μ), smooth, hyaline or tinted yellow, varying from broadly elliptical to ovate and with a distinct lateral apiculus.

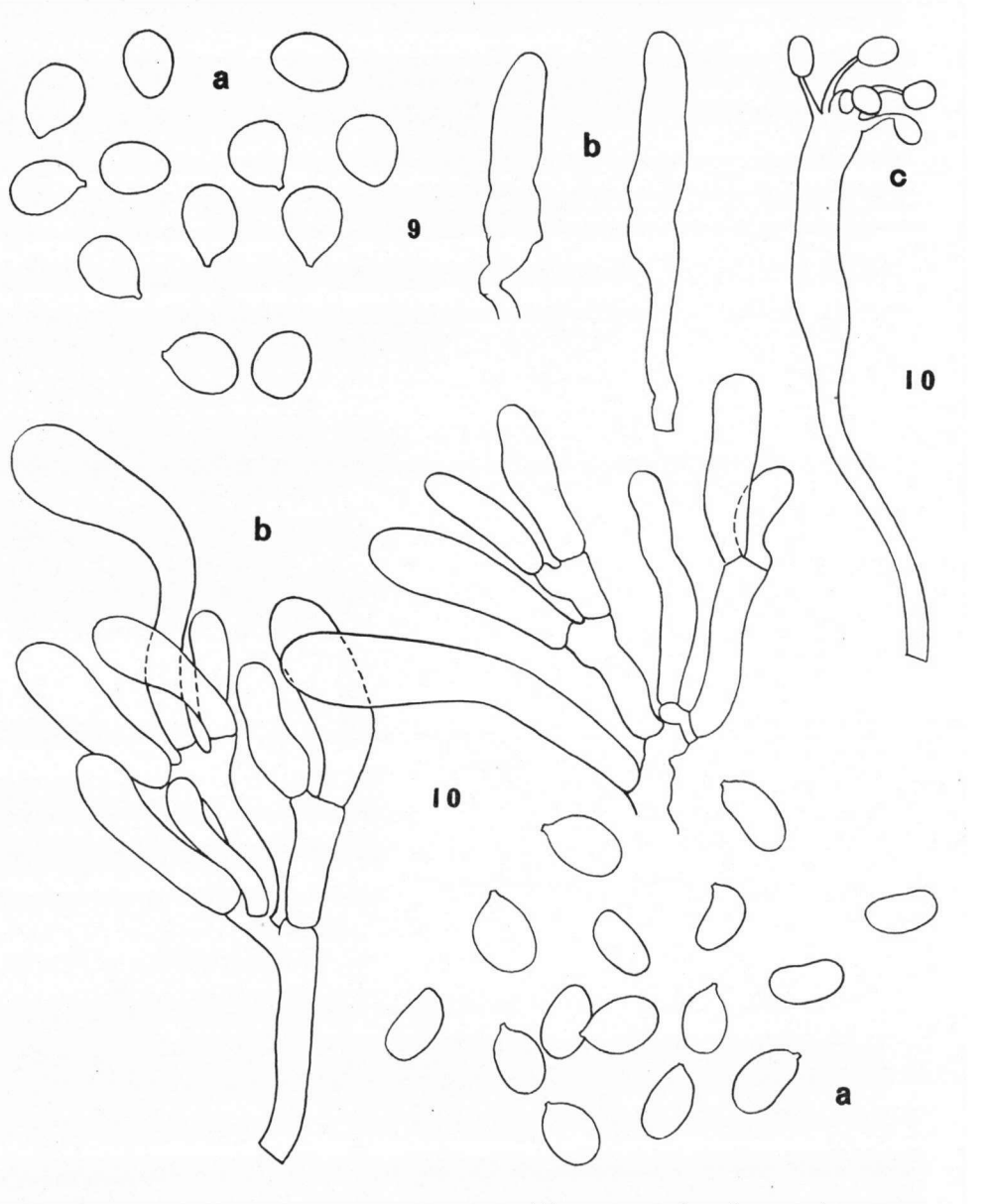
HABITAT: on the ground.

This is not a species of *Podoscypha* Pat. for the same reasons as given for the previous fungus, but like it belongs in the genus *Pseudocraterellus* Corner. It is therefore transferred to that genus as **Pseudocraterellus luteus** (Pat.) Reid, *comb. nov.*

PODOSCYPHA PERTENUIS Skovsted — FIG. 10

Podoscypha pertenuis Skovsted *in* C.R. Lab. Carlsberg (Sér. physiol.) **25**: 392. 1956.
Cotylidia pertenuis (Skovst.) Boidin *in* Rev. Mycol., Paris **24**: 202. 1959.
Type: Søllerup Indelukke, Denmark, coll. Per Skovsted, Aug. 1952 (C).

Sporophores clustered, 2–6 mm high, centrally stipitate, becoming very solid almost woody when dried. *Pileus* 1.5–6 mm in diam., shallowly umbilicate with rather conspicuous spiculose processes in the depressed portion. When fresh ochraceous



Figs. 9, 10. — 9. *Podoscypha lutea*. a. Spores. b. Basidia. — 10. *Podoscypha pertenuis*. a. Spores. b. Basidia. c. Basidium bearing five spores.

with dark brown radiating processes but becoming fawn coloured in the herbarium, except near the somewhat laciniate margin where it is now dark greyish black. *Hymenial surface* radiately ribbed, and of an ochraceous fuliginous colour changing to ochraceous on drying. *Stipe* 0.5–1.5 mm wide, wrinkled and felty, becoming ochraceous with a smoky tinge near the pileus. *Hyphal structure* monomitic, consisting of thin-walled, hyaline, branched, generative hyphae, 2.5–8(–10) μ in diam. These hyphae are septate, and there is a definite constriction at each septum, but they lack clamp-connexions. The hyphae consist of segments 15.6–70.2 μ in length (mostly about 52 μ). There is no distinct cuticle. In the flesh the hyphae are loosely interwoven but nearer the hymenium they tend to be more densely compacted and more or less horizontally orientated. *Cystidia* and *gloeocystidia* absent. *Basidia* 46.8–62.4 × 5–8 μ, at first clavate, then elongated and subcylindric with 3–5 sterigmata. (Skovsted noted that the basidia often protrude and that they are 7–10 μ in diam., with 2–6 sterigmata 5–8 μ in length.) *Spores* 7.5–9.5 × 4–5.5 μ (Skovsted gives them as 7–9 × 3.5–5 μ), smooth, hyaline to pale yellowish in 10 % potassium hydroxide solution, non-amyloid, varying in shape from broadly elliptical to elliptical and with a short lateral apiculus.

HABITAT: on the ground in beech woods.

ILLUSTRATION: Skovsted, *1956*: pl. 1 fig. 1 (photo of type collection).

This fungus does not belong in the genus *Podoscypha* Pat. owing to its monomitic hyphal structure and lack of gloeocystidia, neither can it be assigned to *Cotylidia* Karst. on account of the broad hyphae formed of short segments, its large basidia bearing 2–6 sterigmata and its lack of protruding finger-like cystidia. It is a typical member of the genus *Pseudocraterellus* Corner and is accordingly transferred to that genus as **Pseudocraterellus pertenuis** (Skovst.) Reid, *comb. nov.*

This species is evidently closely related to **Pseudocraterellus sinuosus** (Fr.) Reid, *comb. nov.* (basionym, *Cantharellus sinuosus* Fr., Syst. mycol. **1**: 319. 1821) but differs from it in its smaller size and smaller spores. Fries, however, described a *Cantharellus* (*Craterellus*) *pusillus* which would seem to be very similar in general appearance to this Danish fungus, but the Friesian species is now usually regarded as a synonym of *P. sinuosus*. However, it is obviously desirable to re-examine Friesian material of *C. pusillus* if any remains, with a view to deciding whether or not it is really identical with *P. sinuosus*.

The Danish fungus is also very like *Craterellus subundulatus* (Peck) Peck which has similar hyphae 3–10.5 μ in diam., consisting of segments 23–60 μ in length, Basidia 33.8–52 × 6–10 μ bearing up to 6 sterigmata, and spores 5.5–8 × 3.75–5 μ.

POLYOZUS HISINGERII Karst. — FIG. 11

Polyozus hisingerii Karst. *in* Medd. Soc. Fauna Fl. fenn. **16**: 2. 1888.
Thelephora hisingerii (Karst.) Sacc., Syll. Fung. **9**: 220. 1891.
Lachnocladium hisingerii (Karst.) Corner, Monogr. Clavaria & all. Gen. 425. 1950.
Type: Fagerviken, Finland, coll. E. Hisinger, 3 July 1887 (H).

Sporophores 3–4 cm high, consisting of pale alutaceous, erect, dichotomously branched, clavarioid fructifications with a simple, subfiliform, terete, pubescent or pruinose, stipe-like base. The subfastigiate branches, which are slightly flattened or terete, are covered with a dense pruina but have acute or rarely obtuse naked apices. *Hyphal structure* monomitic, consisting of branched, hyaline, generative

hyphae, 2–5 μ in diam., with clamp-connexions at the septa. These hyphae which have thin but distinct walls, occasionally inflate up to 10 μ beneath the point at which a hypha branches. There are no interweaving hyphae present in the flesh. *Cystidia* and *gloeocystidia* lacking. *Basidia* 20–30 × 5–6 μ, clavate with a basal clamp-connexion. The basidia which bear 4 sterigmata, are normally thin-walled but some become extremely thick-walled and then appear very conspicuous in squashes. The walls may be up to 2.5 μ in thickness but even so the sterigmata are still visible. *Spores* abundant, hyaline, elliptical, 3.5–5.5 × 2–3.5 μ (not subspherical, 3 × 2 μ as stated by Karsten).

HABITAT: the type material was collected in an orchid house, growing on the roots of *Cyathea medullaris*.

ILLUSTRATION: Karsten, *1889*: pl. 4 f. 70 (coloured illustration of the type material).

This fungus is a member of the Clavariaceae and belongs in *Clavulinopsis* to which genus it is now transferred as **Clavulinopsis hisingerii** (Karst.) Reid, *comb. nov.*

It is undoubtedly an earlier name for the fungus which Corner (*1950*) described as *Clavulinopsis similis* Corner. There is no question of it being a species of *Lachnocladium* Lév.—the genus to which it was referred by Corner (*1950*) on the basis of the rather brief original description—because of the clamped hyphae, the lack of dichophytic hyphae, and also the absence of gloeocystidia.

STEREUM BOMBYCINUM Lloyd — FIG 12

Stereum bombycinum Lloyd *in* Mycol. Writ. **7**: 1336. 1925.

Type: Melbourne, Australia, coll. C. C. Brittlebank (BPI, Lloyd Catalogue No. 8057).

Sporophores sessile, forming either brackets or rosette-like fruitbodies with a central point of attachment. In the original account of this species Lloyd gave the erroneous impression of a true centrally stipitate fungus when he wrote "Plant with an irregular-rooting stem-like base, . . . Pileus orbicular, depressed." *Pileus* golden brown with faint zones, and appearing distinctly sericeous. This is the result of the removal of the surface tomentum, probably by insects, and the exposure of the underlying golden brown surface of the pileus. In part of the collection, however, the remnants of a surface tomentum are still evident. *Hymenial surface* smooth, ochraceous. *Hyphal structure* dimitic, consisting of both generative and skeletal hyphae. The former, which have thin or slightly thickened walls, are branched, hyaline, 2.5–3.5 μ in diam., and without clamp-connexions at the septa. The skeletal hyphae, up to 8 μ in diam., have thickened walls, often appearing almost solid, and are unbranched. They frequently arise high in the context and curve down into the hymenium where they terminate as modified conducting organs, 4–6 μ in width, which may project slightly beyond the basidia. These conducting organs have very thickened walls with a narrow lumen, but this expands gradually towards the apex which is usually thin-walled. *Cystidia* and *gloeocystidia* absent. *Basidia:* mature basidia not seen. There are, however, numerous thin-walled 'paraphyses', 2–2.5 μ in diam., with very acute apices. *Spores* not seen.

HABITAT: the original gathering was said to have been "evidently growing in the ground". However, this observation was probably incorrect, or if accurate the fungus must have been growing from branches shallowly covered with soil or leaf-litter. It is more probable that the fungus was growing on fallen rotting wood.

ILLUSTRATION: Lloyd, *1925*: pl. 322 fig. 3092 (photo of part of the type material).

This is a typical member of the genus *Stereum* Pers. ex S. F. Gray sensu stricto. Further, it is extremely probable that *S. bombycinum* will be found to be a mere synonym of *S. hirsutum* (Willd. ex Fr.) S. F. Gray.

STEREUM CALYCULUS Berk. & Curt. — FIG. 13

Stereum calyculus Berk. & Curt. *in* Hook. J. Bot. 1: 238. 1849.
Craterellus calyculus (Berk. & Curt.) Burt *in* Ann. Mo. bot. Gdn 1: 338. 1914.
Type: Santee River, South Carolina, U.S.A., coll. H. W. Ravenel, Aug. (Curtis No. 1716).

Since this species was re-described by Burt (*1914b*) a full account of the fungus has not been repeated below, but a few additional notes are given to supplement those of Burt:

Hyphal structure monomitic, consisting of thin-walled, hyaline, branched, generative hyphae, 3.5–8 μ in diam., lacking clamp-connexions at the septa at which points they are distinctly constricted. *Basidia* up to 55 × 8 μ clavate with 4-sterigmata. *Spores* 8–10 × 6–7 μ, broadly elliptical to oval with a distinct lateral apiculus. (Burt described them as "slightly yellowish under the microscope, even, 8 × 6 μ".)

Burt transferred *Stereum calyculus* to the genus *Craterellus* Pers., but from this the genus *Pseudocraterellus* Corner has been recently segregated. It is to this latter genus that *S. calyculus* should be more correctly assigned and the combination is accordingly made as **Pseudocraterellus calyculus** (Berk. & Curt.) Reid, *comb. nov.*

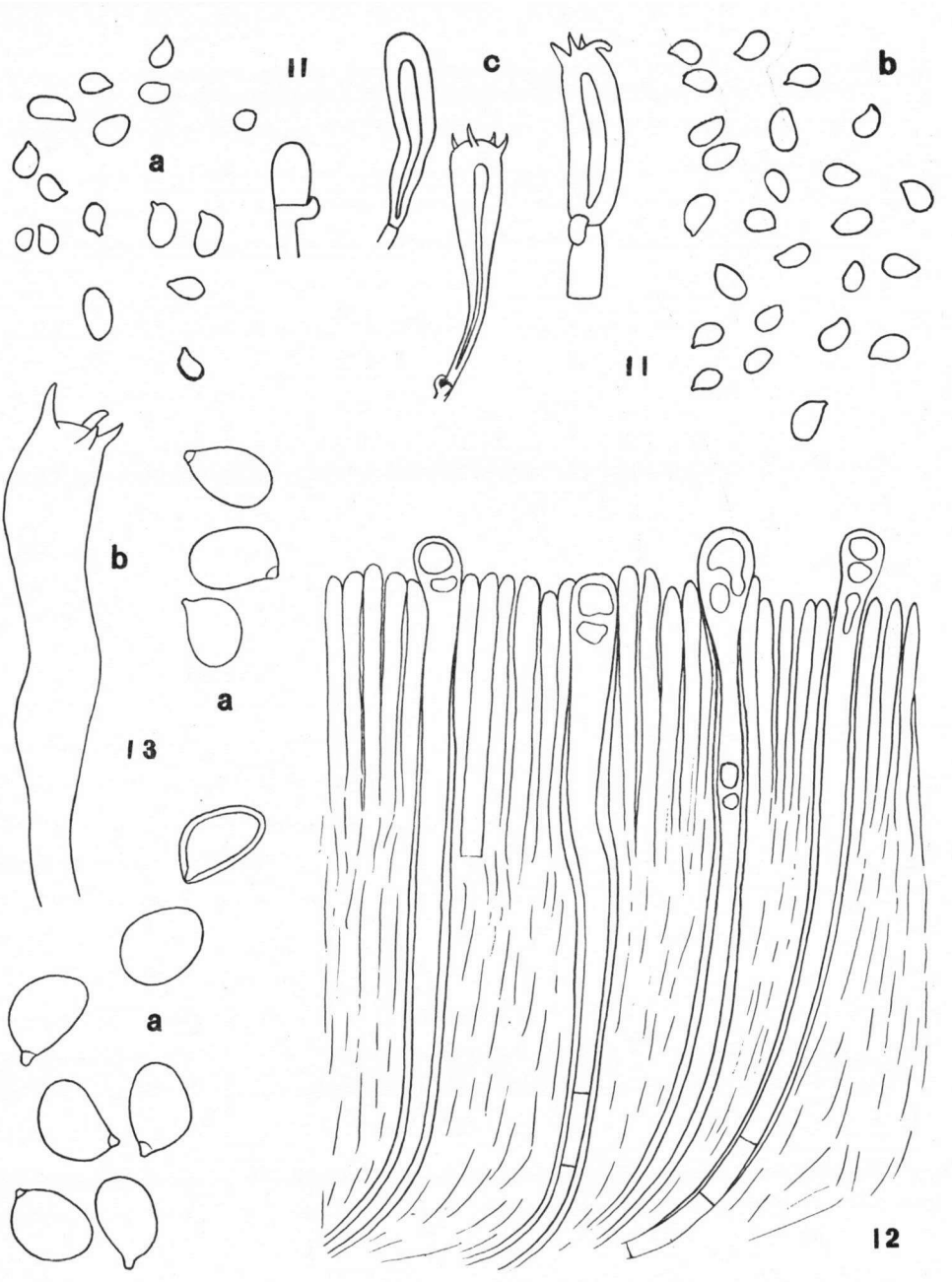
STEREUM CAROLINIENSE Cooke & Rav. — FIGS. 14, 15

Stereum caroliniense Cooke & Rav. *in* J. Mycol. 1: 130. 1885.
Type: Wilmington, North Carolina, U.S.A., coll. T. F. Wood.

Sporophores up to 15 cm high, and 10–12 cm wide, consisting of cauliflower-like masses, formed of erect, glabrous, foliose lobes arising from a thick stem-like base. These flattened lobes, which are ochraceous in colour and faintly zoned, are themselves divided into rather long, narrow, strap-like segments with rounded apices. *Hymenial surface* ochraceous-cream, unilateral, and smooth. *Flesh* soft and juicy. *Hyphal structure* probably monomitic. The flesh is formed of sparingly branched, hyaline hyphae, 8–10 μ in diam., which lack clamp-connexions at the septa, although frequently constricted at these points. Sometimes, however, there is conspicuous ampullaceous swelling of the hyphae at certain septa. These hyphae appear very thick-walled with a narrow deeply staining lumen, but whether the walls are really thickened or have become irregularly gelatinized internally is difficult to determine. The individual hyphae, however, do not become agglutinated. It should be noted that when branching occurs the branchlets are considerably narrower than the main parent hypha. In addition to these hyphae which form the bulk of the flesh there are conspicuous vascular hyphae. These are also branched, but have much thinner

EXPLANATION OF FIGURES 11–13

Figs. 11–13. — 11. *Polyozus hisingerii*. a. Spores mounted in 10 % potassium hydroxide solution. b. Spores mounted in aniline blue in lactic acid. c. Basidia which have become thick-walled. — 12. *Stereum bombycinum*. Section through the hymenium showing conducting organs and a palisade of paraphyses. — 13. *Stereum calyculus*. a. Spores. b. Basidium.



Figs. 11–13

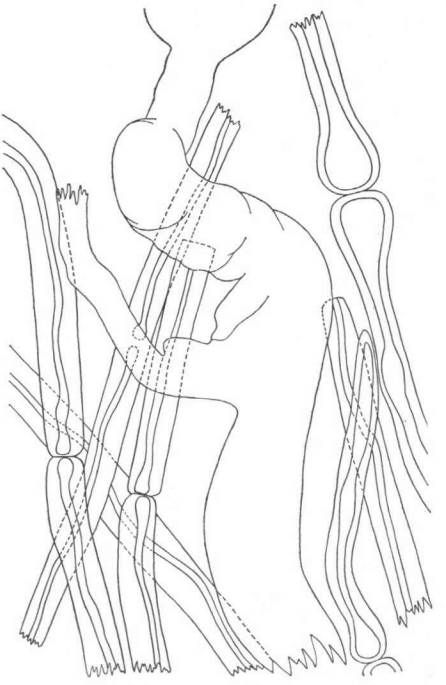


Fig. 14. *Stereum caroliniense*. Hyphae and conducting organ (× 650).

walls. They stain deeply in aniline blue in lactic acid, vary from 5–23 μ in diam., and are conspicuously swollen at each septum. There are also a few hyphae intermediate between those forming the main part of the context and those forming the vascular system. Sections through the fruitbody show that above the subhymenium there is a zone of deeply staining, densely packed, narrow hyphae which bear scanty clamp-connexions at some of the septa, but these hyphae gradually pass into those hyphae, of greater width with thicker walls, characteristic of the flesh proper. Towards the surface of the lobes, however, these broader thick-walled hyphae give way once again to densely compacted, deeply staining, narrow hyphae. *Hymenium* 130–150 μ wide, consisting of a layer of basidia up to 65 μ wide, above which is a subhymenial zone formed of densely packed, and profusely branched hyphae. The hyphae in this subhymenial layer do not show a very definite orientation but tend, nevertheless, to run at right angles to those hyphae forming the flesh. *Cystidia* and *gloeocystidia* absent. *Basidia* up to 44 × 7 μ, clavate, with 4 sterigmata and rather granular contents. They also show a basal clamp-connexion. *Spores* 5–6 × 3.5–4.2 μ, smooth, hyaline, non-amyloid, varying in shape from ovate to broadly elliptical and with a large, often irregular, guttule.

HABITAT: on the ground.

ILLUSTRATIONS: none. However the plant must have looked extremely like Murrill's figure of *Sparassis herbstii in* Mycologia **6**: pl. 128. 1914.

This fungus undoubtedly belongs in the genus *Sparassis* Fr. and has generally been regarded as a synonym of *S. spathulatus* (Schw.) Fr. by American mycologists (Burt, *1920*; Lloyd, *1913b*). However, Lloyd (*1913b*) suggested that *S. spathulatus* was itself possibly the same as a European fungus known as *S. laminosus* Fr. If this suggestion were confirmed *S. spathulatus* would become the correct name for the Friesian species on the basis of priority. However, Reid (*1958*) has already indicated that there is considerable variation within European gatherings of *S. crispa* (Wulf.) ex Fr. in regard to the thickness of the hyphal walls and in the distribution of clampconnexions, and since the spore sizes of the various *Sparassis* species are all very similar it is a difficult task to attempt to work out specific limits in this genus.

STEREUM COALESCENS Lloyd

Stereum coalescens Lloyd *in* Mycol. Writ. **7**: 1338. 1925.
Type: Almora, Himalayas, India, coll. S. D. Joshi, Sept. 1921 (BPI, Lloyd Catalogue No. 8068).

This is an abnormal state of some terrestrial, brown-fleshed polypore!

STEREUM CURREYI Sacc.

Stereum cyathiforme Currey *in* Trans. Linn. Soc. Lond. (Bot.) II **1**: 127. 1880 [nec *S. cyathiforme* (Fr.) Fr., Epicr. 545. 1838].
Stereum curreyi Sacc., Syll. Fung. **6**: 557. 1888.
Stereum crucibuliforme Massee *in* J. Linn. Soc. (Bot.) **27**: 168. 1890.
Type: Bookee Ridges, Karen Hills, Pegu, Burma, 5000–6000 ft. alt. (No. 2619).

This is *Nidularia emodensis* (Berk.) Lloyd. The type consists of empty fruitbodies which lack peridioles.

The species was originally described as *Stereum cyathiforme* by Currey but since this name was preoccupied it was changed to *S. curreyi* by Saccardo. Apparently Massee (*1890*) was unaware of this name change for he in turn renamed it *S. crucibuliforme*, (and claimed to have found spores 7 × 4 μ!!). All these names are based on the same type material and are therefore obligate synonyms.

STEREUM DUBIUM Lloyd — FIG. 16

Stereum dubium Lloyd *in* Mycol. Writ. **7**: 1335. 1925.
Type: New Zealand, coll. H. Hill (BPI, Lloyd Catalogue No. 8053).

ILLUSTRATION: Lloyd, *1925*: pl. 321 fig. 3082 (photo of type material).

This is a laterally-stipitate lignicolous agaric in which the gills have become flattened to form what Lloyd described as a smooth hymenium. According to the original account of the species it was "Pure white when young, becoming at length cinereous". Examination of the gills revealed the presence of small, pointed cystidia with somewhat swollen bases. These organs, 20–28 × 7–9 μ, have slightly thickened walls. There are abundant, hyaline spores, varying in shape from broadly elliptical or ovate to subglobose, each with a single large guttule. These spores measure 6–7 × 4–5 μ or 6–6.5 × 5.5 μ.

It seems clear that the affinities of this fungus lie with species which have been placed in the genus *Pleurotus* (Fr.) Kummer. Accordingly *Stereum dubium* is transferred to that genus as **Pleurotus dubius** (Lloyd) Reid, *comb. nov.*

STEREUM DURUM Lloyd — FIG. 17

Stereum durum Lloyd *in* Mycol. Writ. **6**: 885. 1919 (nec *S. durum* Burt *in* Ann. Mo. bot. Gdn **7**: 226. 1920).
Type: Ashanti, West Africa, coll. T. Hunter (BPI, Lloyd Catalogue No. 6402).

Sporophores consisting of compound brackets, formed by coalescence of several adjacent ligulate or flabellate pilei each of which is attached to the substrate by a broad, discrete, fan-shaped, dorsal prolongation giving an almost stipitate appearance. At first sight the fruitbodies could easily be mistaken for a thick woody

polypore. *Pileus* surface unevenly ridged and concentrically sulcate, covered with a pale fawn tomentum, up to 1 mm in thickness. In a few places where the tomentum has been weathered away the underlying, radiately wrinkled chestnut-brown cuticular layer of the pileus is exposed. *Hymenial surface* smooth, and dark grey-brown in colour, probably bleeding when bruised. The undersides of the dorsal stipe-like prolongations however, are sterile and covered with a tawny-brown tomentum. *Flesh* pale wood-coloured and extremely thick, reaching 2–6 mm in width, while the fruitbody as a whole may be up to 8 mm wide in places. The fructifications reach their greatest width just behind the obtuse margin. *Hyphal structure* dimitic, consisting of thin-walled, hyaline, branched, generative hyphae, 2.5–3.5 μ in diam., which lack clamp-connexions at the septa, and thick-walled, unbranched, skeletal hyphae. The latter may or may not have a distinct lumen, but in the region just above the hymenium many of them are faintly coloured and have brownish contents. There is a distinct cuticular layer which is visible on cut surfaces through the fruitbody as a brown horny line separating the surface tomentum from the flesh. This cuticular zone, up to 80 μ in thickness, is formed of thick-walled hyphae with brown walls and contents, bound together with much branched generative hyphae. From the upper portion of this layer arise the hairs which form the tomentose covering of the pileus. These hairs, 4–6 μ in diam., have thick-walls, are septate, and often have brown contents. The lumen may be very distinct or almost obliterated. Beneath the cuticular layer in which the hyphae are strongly coloured and entwined in all directions, the hyphae become gradually less strongly coloured and the skeletals more or less longitudinally orientated. However, in this region there is still a greater percentage of freely branched generative hyphae than in the rest of the flesh. *Hymenium* up to 117 μ in thickness, and containing scattered crystalline masses. There are also abundant conducting organs present. These are the modified endings of skeletal hyphae which curve down through the flesh and either traverse the total width of the hymenium or terminate at various levels within this zone (and then often clavate in shape). Some of these organs, however, arise from generative hyphae in the hymenium itself. All the conducting organs are basically cylindrical, although some are distinctly wider below and others narrow slightly toward their obtuse apices, and all taper toward the base, sometimes quite abruptly. They are thick-walled but have a distinct lumen which often widens out to give a thin-walled apex. Further, they lack septa, are 3–7 μ in diam., and frequently have brown contents, especially towards their tips. In microscope sections through the fruitbody some of these organs can be seen to have very dark brown contents and they stand out very clearly from the rest. The conducting organs with exceptionally dark contents tend to be those which terminate after just penetrating the hymenium. *Cystidia* and *gloeocystidia* absent. *Basidia:* mature basidia not seen. *Spores* not seen (Lloyd described the spores as "globose, hyaline, 4 mic." but these observations were almost certainly based on spores of extraneous origin).

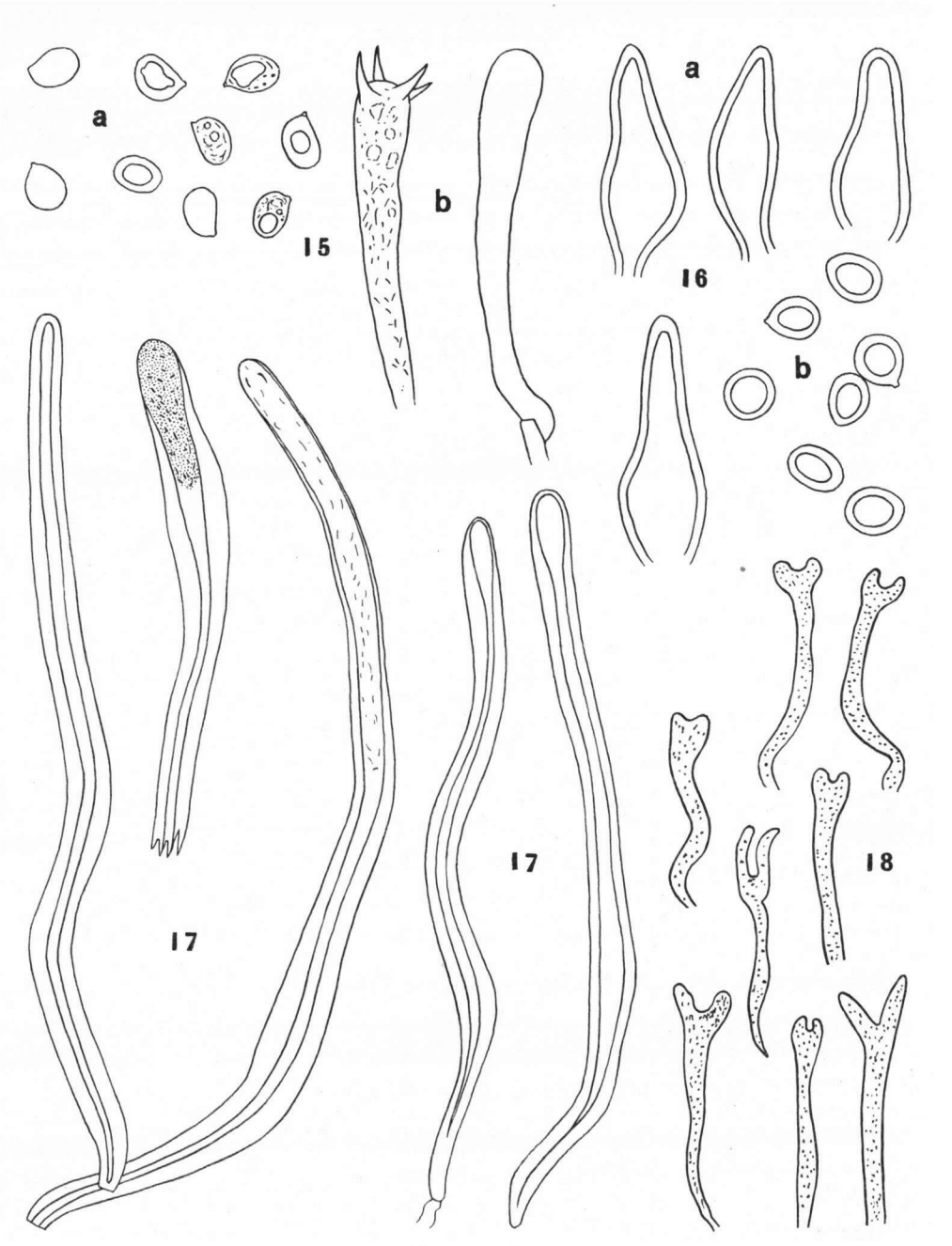
HABITAT: on wood.

ILLUSTRATION: Lloyd, *1919*: pl. 128 fig. 1526 (photo of type material).

This fungus is a member of the genus *Stereum* Pers. ex S. F. Gray sensu stricto, and is evidently a species which bleeds when wounded. It may be only an exceptionally thick form of *S. australe* Lloyd.

EXPLANATIONS OF FIGURES 15–18

Figs. 15–18. — 15. *Stereum caroliniense*. a. Spores. b. Basidia. — 16. *Stereum dubium*. a. Cystidia. b. Spores. — 17. *Stereum durum*. Conducting organs. — 18. *Stereum felloi*. Basidia.



Figs. 15–18

STEREUM ELEVATUM Berk. & Cooke

Stereum elevatum Berk. & Cooke *in* J. Linn. Soc. (Bot.) **15**: 388. 1876.
Type: Rio Jurua, Brazil, coll. Traill (No. 130).

The name *Stereum elevatum* Berk. & Cooke has to be rejected since the original description is based on a mixture of *Hymenochaete damaecornis* (Link ex Fr.) Lév. and immature specimens of an species of *Amauroderma*. The bulk of the type collection consists of the *Amauroderma* which agrees in structure with *A. miquelianum* (Mont.) Reid which is better known as *A. partitum* (Berk.) Wakef. but see page 135. This latter species is rather prone to produce tall, spathulate fruitbodies with rudimentary pores, which resemble various stipitate stereoid fungi.

STEREUM FELLOI Lloyd — FIG. 18

Stereum felloi Lloyd *in* Mycol. Writ. **6**: 1087. 1921.
Type: Mt. Maquiling, Luzon, Philippines, coll. A. Fello, 19 Sept. 1920 (BPI, Lloyd Catalogue No. 23466).

This fungus belongs in the Dacrymycetaceae in the genus *Dacryopinax* Martin. It is accordingly transferred to that genus as **Dacryopinax felloi** (Lloyd) Reid, *comb. nov.*

Because of its dark brown colour when soaked up this species greatly resembles *D. elegans* (Berk. & Curt.) Martin. Unfortunately spores were not found despite the fact that there were numerous mature basidia present. Lloyd's spore measurements (4 × 5 μ) are almost certainly incorrect. The basidia were of the narrow bifurcating kind so characteristic of the family and were 26–28 μ in length.

STEREUM FISSUM Berk. var. VELUTINUM Beeli — FIG. 19

Stereum fissum var. *velutinum* Beeli *in* Bull. Soc. Bot. Belg. **58**: 208. 1926.
Type: Eala, Belgian Congo, coll. Mme. Goossens-Fontana (No. 43), Oct. 1923 (BR).

This is typical *Dacryopinax spathularia* (Schw.) Martin. It was stated to be entirely bright orange when fresh, becoming ochraceous-grey on drying. The upper surface of the pileus and stipe is minutely velvety. The fungus has a monomitic hyphal construction, with the flesh formed of generative hyphae, 1.5–3.5(–5.5) μ in diam., which lack clamp-connexions at the septa. These hyphae have thin or slightly thickened walls especially near the surface of the pileus where they tend to be more densely compacted. The velvety tomentum covering the pileus is formed of tangled, branched, septate hyphae with strongly thickened walls. These hyphae, (3.5–)5–8 μ in diam., are distinctly wider than those forming the flesh. There is no cuticular layer. Sections through the hymenium show a layer of basidia 33.8 μ in thickness and above this a subhymenial zone up to 40 μ wide. There are no cystidia or gloeocystidia. The basidia, up to 30 μ in length are of the usual bifurcating type found in the Dacrymycetaceae and bear hyaline, subcylindrical or slightly curved spores 7.5–8 × 3–3.75(–4) μ which at length become 1-septate.

STEREUM FRIESII (Lév.) Sacc.

Thelephora friesii Lév. *apud* Zollinger, Syst. Verz. indischen Arch. 17. 1854.
Stereum friesii (Lév.) Sacc., Syll. Fung. **6**: 566. 1888.
Type: Java, coll. Zollinger (No. 1526) (PC).

Sporophores of unknown diameter, but up to 6 cm in radius, consisting of coriaceous effuso-reflexed brackets which are variously thrown into radial folds especially toward the margin. In addition the fructifications are also concentrically sulcate. It is also probable that there has been some lateral fusion of adjacent fruitbodies. *Pileus* covered by a well developed, pale brown tomentum up to 2 mm in thickness. *Hymenial surface* smooth, and of a purplish-grey colour passing into a rich brown toward the margin. *Flesh* yellowish-brown. *Hyphal structure* dimitic, consisting of generative and skeletal hyphae. The skeletal hyphae, which are 5–8 μ in diam., are thick-walled, unbranched, and encrusted with a fine yellowish-brown granular deposit which is soluble in 10 % potassium hydroxide solution. The actual walls of the skeletal hyphae are also very pale brown in colour. The generative hyphae are 2–4 μ in diam. and have thin or somewhat thickened walls. These hyphae, which are profusely branched, lack clamp-connexions at the septa. There are also abundant hyphae of an intermediate nature which are thick-walled and branched. Sections through the fruitbody show that the bulk of the flesh is formed of encrusted skeletal hyphae which curve down toward the hymenium and terminate in a palisade-like layer above the basidia. There is a dark horny line visible on broken surfaces of the fruitbody, separating the tomentum from the flesh. This appears to be formed of densely compacted and somewhat agglutinated hyphae which are horizontally orientated and without encrustation. The hyphae in this region, although thick-walled, tend to have a rather wide lumen and to be narrower on average than the skeletal hyphae of the context. From the upper portion of this 'cuticular' layer the hyphae diverge to form the tomentose covering of the pileus. The hyphae forming this tomentum are often almost solid, have brownish walls, are 4.5–6 μ in diam., and lack encrustation. *Cystidia* present, as large, conical, thick-walled bodies, which may project beyond the basidia for up to 40 μ. These organs which are strongly encrusted with crystalline material are hyaline, but if buried in the hymenium they may develop distinctly brown walls. The encrusting crystalline material dissolves rapidly in 10 % potassium hydroxide solution. *Basidia:* mature basidia not seen. *Spores* not seen.
HABITAT: on wood.

This fungus cannot be retained in the genus *Stereum* Pers. ex S. F. Gray sensu stricto since it differs widely in structure from all members of that genus. It belongs in the genus *Lopharia* Kalchbr. & McOwan and is identical with *L. papyracea* (Jungh.) Reid. Accordingly *Stereum friesii* should be added to the synonymy of *Lopharia papyracea* (see page 157) which was also described from material collected in Java. Bresadola (*1916*) erroneously stated that *Stereum vellereum* Berk. was a synonym of *S. friesii*.

STEREUM GRANTII Lloyd — FIG. 20

Stereum grantii Lloyd *in* Mycol. Writ. **7**: 1314. 1924.
Type: Langley, Washington, U.S.A., coll. J. M. Grant, Feb. 1924 (BPI, Lloyd Catalogue No. 8045).

ILLUSTRATION: Lloyd, *1924c*: pl. 307 fig. 3005 (photo of type material).

This is *Aphelaria tuberosa* (Grev.) Corner, as is a second gathering referred to *S. grantii* by Lloyd which was collected by E. B. Sterling of Trenton, New Jersey, U.S.A. (Lloyd Catalogue No. 8064).

In the original account *S. grantii* was described as "Growing in the ground about an inch high. Slender, erect, divided into lobes above. Color (dried) pale brown. ... It has the general appearance of a *Thelephora*, like *multipartita*. ... It grows in the ground with a ball of earth adhering to the dried specimens." The fruitbodies which have a monomitic hyphal construction produce a hymenium on the lower surface of the flattened branches. This hymenial layer is formed of 2- and 4-spored basidia. There are no cystidia or gloeocystidia. The spores, 13–20.8 × 5–7 μ are smooth, thin-walled and hyaline. They vary in shape from elliptical to narrowly elliptical, have a distinct lateral apiculus, and rather guttulate contents.

STEREUM GUADELUPENSE Pat. — FIGS. 21, 57

Stereum guadelupense Pat. *in* Bull. Soc. mycol. Fr. **15**: 201. 1899.
Type: Camp Jacob, Guadeloupe, coll. Duss (No. 120), Feb. 1898 (FH).

Sporophores consisting of a stout central stipe which expands into a very thick, woody pileus up to 10 cm in diam. At first sight the fruitbodies could easily be mistaken for a large woody polypore. *Pileus* suborbicular, depressed in the centre, and with a reddish-brown ochraceous, tuberculate, embossed, villose surface. The margin, which is lobed, is very obtuse and up to 1 cm in thickness. *Hymenial surface* reddish-brown, smooth, and partly decurrent down the stalk. *Stipe* 6–7 cm long, and 3 cm thick, rugulose, woody, erect, but attenuated toward the base. *Flesh* hard, brittle, friable and ochraceous in colour. *Hyphal structure* monomitic consisting of pale brown, generative hyphae, 2.5–7 μ in diam. These hyphae which tend to break up into short lengths in microscope squashes, are branched and bear clamp-connexions at the scanty septa. Furthermore, although they are thin-walled, the walls are often rather distinct. *Hymenium* thickening markedly, reaching almost 1 mm in width near the basal portion of the fruitbody. *Cystidia* and *gloeocystidia* absent. *Basidia:* mature basidia not seen. However, in the current hymenial layer there are large thin-walled bodies, up to 56 × 10 μ, which are almost certainly young basidia. These are basically cylindrical but often show a more or less pronounced median constriction. They do not form a definite palisade but appear to be interspersed among thin-walled, septate, clamped hyphae, 2.5–3.5 μ in diam. *Spores* 18–20.8 × 8–10 μ, embedded in the older layers of the hymenium, are pale brown, and distinctly warted. They vary in shape from limoniform to elongate-limoniform and taper at the base to a very prominent, curved apiculus. These embedded spores also tend to have rather thickened walls.

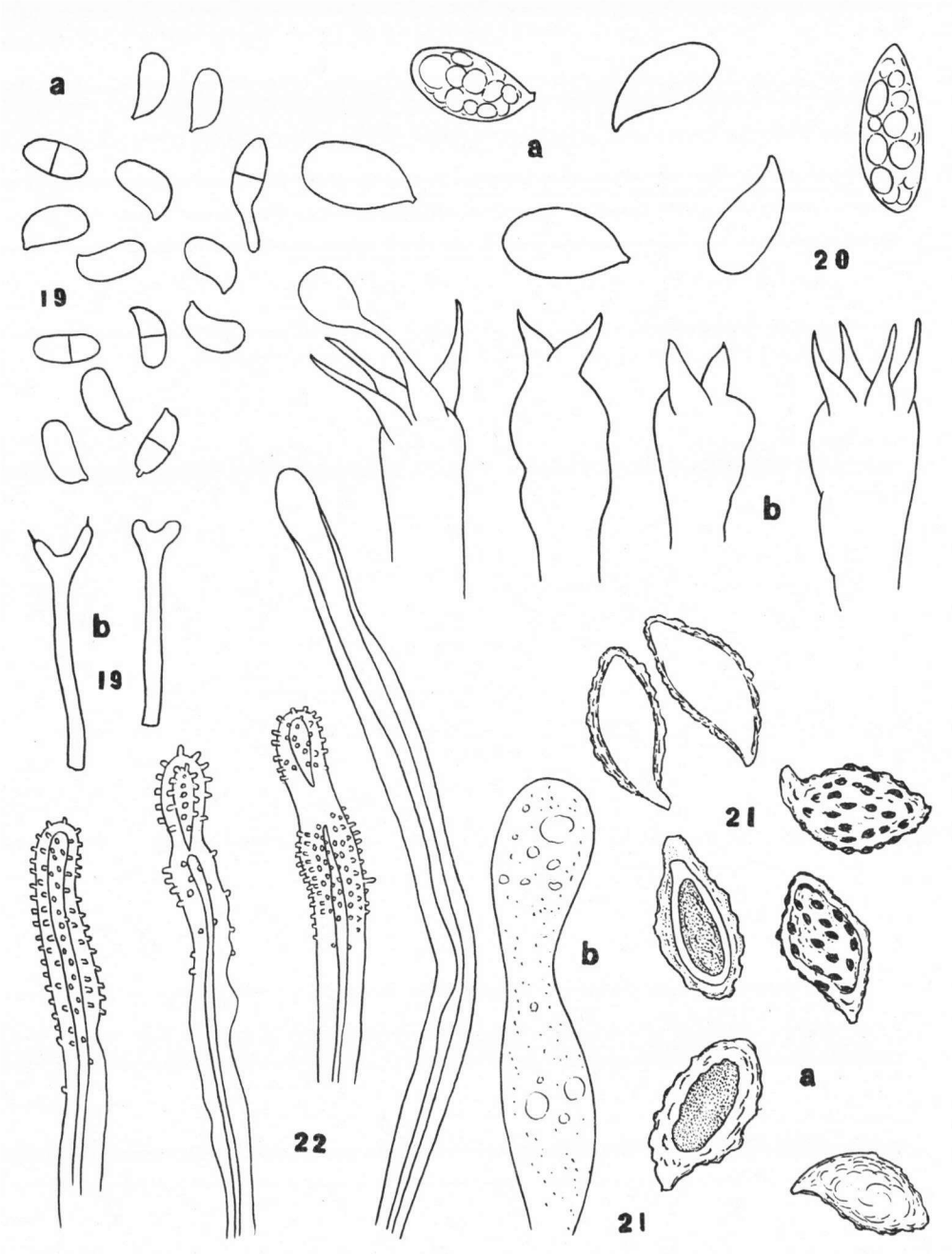
HABITAT: on trunks of *Phyllanthus nobilis*.

ILLUSTRATION: Patouillard, *1899*: pl. 10 fig. 1 (drawing of type material).

Stereum guadelupense belongs in the genus *Gomphus* Pers. ex S. F. Gray, which has recently been made the type genus of a new family—the Gomphaceae Donk

EXPLANATION OF FIGURES 19–22

Figs. 19–22. — 19. *Stereum fissum* var. *velutinum*. a. Spores. b. Basidia. — 20. *Stereum grantii*. a. Spores. b. Basidia. — 21. *Stereum guadelupense*. a. Spores. b. Basidium. — 22. *Stereum princeps*. Acanthophyses.



Figs. 19–22

(*1961*). The species is therefore transferred to that genus as **Gomphus guadelupensis** (Pat.) Reid, *comb. nov.*

It is evident from Patouillard's original account of this fungus that he too observed the spores described above. However he mistook them for cystidia since he wrote "cystidia yellow, short, fusiform, roughened, (20 × 10 μ), disposed in superimposed layers" (from the French). This view is strengthened by Patouillard's figures of these structures. Von Höhnel & Litschauer (*1907*) examined *S. guadelupense*, but they concluded that it was a *Boletus* overun by a species of *Sepedonium*. Presumably these mycologists regarded the brown, warted spores as belonging to the mould. However, against this is the fact that the spores tend to occur in groups of 2 or 4 in the various hymenial layers. Furthermore they have a distinct apiculus and when in 2's or 4's the apiculi are always directed toward the centre—i.e. the position in which they would be expected if they were borne on basidia. Judging from their occurrence in groups of 2 or 4, their shape and orientation it is virtually certain that they are basidiospores and since there is no evidence of any disruption of the hymenial layers by foreign hyphae there seems to be no obstacle in regarding them as belonging to the fungus.

STEREUM HYMENOGLEUM Speg.

Stereum hymenogleum Speg. *in* Bol. Acad. Cienc. Córdoba **25**: 26. 1921.
Type: Victoria, Mariluan, Chile, coll. J. A. Campos, 20 May 1918 (LPS).

Sporophores 15–25 mm in diam., 10–20 mm in radius, forming small dimidiate or suborbicular pilei which are either adnato-sessile or contracted behind into a subpedicellate base. These fructifications may be found growing singly or they may be imbricate and subcaespitose. *Pileus* when fresh thin and flexible, but becoming rigid when dry. The surface, which is covered by a thick, pale-buff, subsericeous, felty-hirsute or scrupose tomentum, is concentrically sulcate with the tomentum in the furrows slightly darker in colour. *Hymenial surface* smooth, almost transparent, gelatinous and of a brown or lead colour with concentric zones of a darker tint. *Hyphal structure* dimitic, consisting of thick-walled skeletal hyphae 3.5–7 μ in diam., which are septate and unbranched, and thin-walled septate generative hyphae, 2–3.5 μ in diam.; clamp-connexions are absent from both kinds of hyphae. In section the fruitbody is seen to consist of three ill-defined zones. There is a layer 50–100 μ thick just above the hymenium in which there is a high proportion of broad, thick-walled skeletal hyphae. These are rather loosely arranged and tend to curve down into the hymenium where they terminate as modified conducting organs. Above this zone is another, equally variable in thickness in which the hyphae are more densely compacted and horizontally orientated. Here there is a greater proportion of thin-walled generative hyphae and such skeletal hyphae as are present tend to be narrower and less conspicuous. From the uppermost region of this layer arise the hairs which form the shaggy scrupose covering of the pileus. These hairs are long, septate, thick-walled structures, 4–6 μ in diam. They are often united into rope-like strands so giving the scrupose appearance to the pileus. There is no distinct cuticular layer and no deep golden-brown zone as in *S. hirsutum* etc., although there is a faint brownish tint to the hyphae immediately beneath the surface hairs. *Hymenium* 40–55 μ in width. The individual elements in this zone are not gelatinized, but they are covered with a structureless substance which is no doubt responsible for the semitransparent gelatinous nature of the hymenium

as described by Spegazzini. The hymenium consists mostly of very narrow, densely packed, thin-walled 'paraphyses' together with thick-walled conducting elements 5–7 μ in diam. The lumen of these conducting organs is very narrow but it expands toward the apex which is often thin-walled. These organs, which do not stain in aniline blue in lactic acid, are more or less cylindrical, although some narrow slightly toward the apex. *Cystidia and gloeocystidia* absent. Spegazzini claimed to have found "lanceolate, pointed cystidia (30 × 8 μ) which are smooth and colourless" (from the Latin). However, it seems probable that these observations were based on the conducting organs described above, although these latter organs are nothing like so pointed as Spegazzini has drawn for his so-called cystidia on the packet in his Herbarium. *Basidia:* mature basidia not seen. Spegazzini described them as clavate, 20–22 × 8 μ, and indicated that they were obtuse and bore 1, 2, or 3, thin, short sterigmata. *Spores* not seen but described by Spegazzini as "elliptical (4–6 × 2–3 μ), smooth, and colourless" (from the Latin).

HABITAT: the original material was collected on dead branches of *Persea lingue.*

This is a member of the genus *Stereum* Pers. ex S. F. Gray sensu stricto.

STEREUM LEICHHARDTIANUM (Lév.) Sacc. — FIG. 23

Thelephora leichkardtiana Lév. *in* Ann. Sci. nat. (Bot.) III **5**: 148. 1846.
Stereum leichardtianum (Lév.) Sacc., Syll. Fung. **6**: 559. 1888.
Type: Moreton Bay, Queensland, Australia, coll. Leichhardt, 1845 (PC).

This is a member of the genus *Stereum* Pers. ex S. F. Gray sensu stricto and Cunningham (*1956*) regarded it as a synonym of *S. lobatum* (Kunze ex Fr.) Fr. which he interpreted in a rather wide sense. If he is correct in this view *S. leichhardtianum* should be grouped with the more densely and completely tomentose forms of *S. lobatum* which some mycologists may still prefer to call *S. fasciatum* (Schw.) Fr.

One of the few noteworthy features of the anatomy of this species is the way in which the skeletal hyphae grow down through the flesh towards the hymenium at an acute angle and then abruptly curve between the basidia to terminate as modified conducting organs. This is reminiscent of the structure of *S. vellereum* Berk. as figured by Boidin (*1960a*) from specimens collected in the Belgian Congo.

This fungus was initially published as *T. leichkardtiana,* but the specific epithet was subsequently altered to 'leichardtiana' by Massee (*1890*). However, since the fungus was named after the collector Leichhardt and since in the original spelling the second 'h' was replaced by a 'k' it seems clear that the epithet should be written 'leichhardtiana' and that Léveillé's spelling should be regarded as an authographic error.

There are additional records of *S. leichhardtianum* from Australia (Wakefield, *1915*; Lloyd, *1915*) and from Ecuador (Lloyd, *1918b*).

STEREUM MIQUELIANUM Mont. — FIG. 58

Stereum miquelianum Mont. *in* Tijdschr. wis- & natuurk. Wetensch. **4**: 203. 1851.
Type: Surinam, coll. Focke (No. 948) (U).

This species is a member of the Polyporaceae and belongs in the genus *Amauroderma* Murrill. It is accordingly transferred to that genus as **Amauroderma miquelianum** (Mont.) Reid, *comb. nov.*

It is significant that Montagne, when describing this species, noted that its stipe resembled that of several centrally and laterally stipitate tropical polypores. In fact the taxon represents a young state of the fungus commonly known as *A. partitum* (Berk.) Wakef. in which the pores have only just started to show as very shallow, ill-defined pits. *Amauroderma partitum* is often collected in a 'stereoid' condition presumably because the pores do not start to form until the fruitbody is already well developed.

Since the specific epithet 'miquelianum' dates from 1851 and since the name *Polyporus partitus* was not published until 1856 it follows that the correct name for the fungus is *A. miquelianum.*

Lloyd (*1913b, 1913c, 1924b, 1925*) reported *Stereum miquelianum* from Brazil, Honduras, Belgian Congo and Singapore, but it is evident from his published accounts and photographs that he had misinterpreted the fungus and that all his records refer to various members of the genus *Podoscypha* Pat.

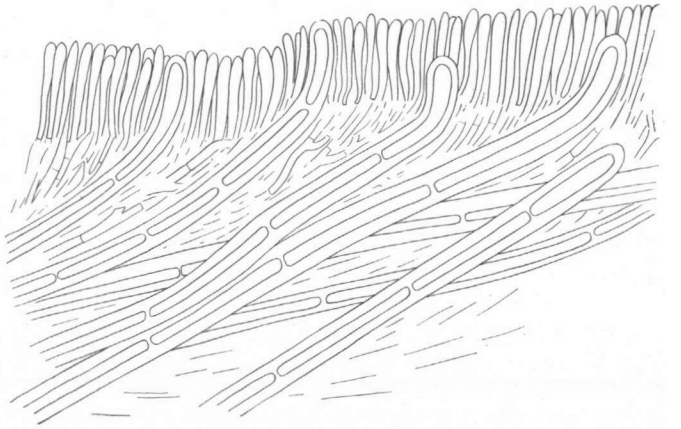
STEREUM PRINCEPS (Jungh.) Lév. — FIG. 22

Thelephora princeps Jungh., Praem. Fl. crypt. Javae Ins. *in* Verh. Bataviaasch Genoot. **17** [2]: 38. 1838.

Stereum princeps (Jungh.) Lév. *in* Ann. Sci. nat. (Bot.) III **2**: 210. 1844.

Xylobolus princeps (Jungh.) Boidin *in* Rev. Mycol., Paris **23**: 341. 1958.

T y p e: In his original description Junghuhn cited collections from Kendang and Patuha, Java, but these cannot be located in the Leiden Herbarium. It is, therefore, proposed that a specimen in that herbarium bearing the information "Ex. Herb. Junghuhn No. 186" should be taken as the lectotype.



Figs. 23. *Stereum leichhardtianum.* Section through the fruitbody showing the conducting organs penetrating the hymenium (×650).

Sporophores very large, reaching approximately 60 cm in diam., dimidiate, and either sessile or attached to the substrate by a short stipe or elongated tubercle. *Pileus* thick, coriaceous, at first dark ferrugineous but at length pale "fulvo-fuscescent", the base becoming blackish. The pileus is ornamented with distinct

concentric zones varying in colour from 'spadiceus' to yellowish and the surface although glabrous may appear longitudinally strigose owing to the presence of ridges and tubercles. *Hymenial surface* pallid alutaceous then greyish, at first smooth but becoming somewhat warted especially toward the base. *Flesh* dry, coriaceous and biscuit coloured. *Hyphal structure* dimitic, consisting of generative and skeletal hyphae. The generative hyphae 2–3 μ in diam., are thin-walled, hyaline or almost so, branched, and without clamp-connexions at the septa. The skeletal hyphae 2.5–5 μ are thick-walled with the lumena almost obliterated. They are unbranched and appear deep brown in 10 % potassium hydroxide solution. There is a very distinct cuticle which is visible as a very dark horny layer on broken surfaces of the fruitbody. This zone is formed of hyphae in which the walls have become somewhat agglutinated. *Hymenium* thickening markedly and reaching over 1 mm in width at the extreme base of the fruitbody. It appears that initially a layer (130 μ wide) of thick-walled, spiny, brown acanthophyses is formed in which the individual elements terminate at various levels. Then it would seem that production of these elements entirely ceases and thin-walled, much branched, hyaline hyphae grow out and produce a functional basidial layer. Following this a new layer of acanthophyses is formed and then a new layer of thin-walled hyphae which again give rise to a new basidial layer, etc. The thickening, therefore, occurs in such a manner that it gives rise to a very distinct layering consisting of alternating golden brown and pale coloured zones of equal width. *Acanthophyses* 2.5–5 μ in diam., with occasional slight swellings up to 6 μ. They are more or less cylindrical, obtuse, thick-walled, brown organs, densely beset with minute spines in their upper regions. Sometimes, however, the spines occur in bands separated by intervening smooth areas. The acanthophyses, or at least those in the more recently formed strata probably arise from thin-walled generative hyphae. *Conducting organs* not conspicuous, but there are thick-walled hyphae, 6 μ in diam., with a distinct lumen which are present throughout the hymenial zones whether formed of thin-walled hyphae or acanthophyses. These hyphae are more or less cylindrical, and have smooth walls which are paler than those of the acanthophyses and thin out toward the apex. These hyphae which are probably to be regarded as, or equivalent to, conducting elements are most easily seen in the zones of pale thin-walled hyphae. They appear to run through from one zone to another, but their total length is uncertain. *Cystidia* and *gloeocystidia* absent. *Basidia* not seen. *Spores* not seen.

HABITAT: on wood.

ILLUSTRATION: Junghuhn, *1838*: pl. 7.

This is a member of the genus *Stereum* Pers. ex S. F. Gray sensu stricto, belonging to a section which has recently been treated as a distinct genus, *Xylobolus* Karst., by Boidin (*1958*: 333). This subdivision may be called *Stereum* sect. **Phellina** (Endl.) Reid, *comb. nov.* [basionym, *Thelephora* sect. *Phellina* Endl., Gen. Pl. **1**: 38. 1836 ≡ *Thelephora* subtrib. *Stratosae* Fr., Elench. Fung. **1**: 170, 190. 1828 (inadmissible term denoting rank); lectotypus, *Thelephora frustulata* Fr.].

STEREUM RIOFRIOI Pat.

Stereum riofrioi Pat. *in* Bull. Soc. mycol. Fr. **8**: 117. 1892.

Hymenogloea riofrioi (Pat.) Pat., Essai taxon. Hymen. 147. 1900.

Type: Gualea, Ecuador, coll. R. Riofrio, Jan. 1892 (FH).

This fungus is generally regarded as a synonym of *Hymenogloea papyraceus* (Berk. & Curt.) Sing. Furthermore, the genus *Hymenogloea* Pat., of which *H. riofrioi* is the type species, is currently placed with the Agaricales in the Tricholomataceae by

Singer (*1951*). Patouillard (*1900*) himself recognised the agaricoid nature of *S. riofrioi* when he described the genus *Hymenogloea* to accommodate this species. He noted that it had a cellular cuticle and that in section it resembled a non-lamellate species of *Heliomyces* (i.e. *Marasmius* Fr. sensu Singer *1951*: 321). Singer (l.c.) was also of the opinion that the genus *Hymenogloea* shows greater affinity with *Marasmius* than any other genus.

The fungus has recently been fully described by Singer (*1960*) under the name *H. papyraceus*.

STEREUM SINENSE Lloyd — FIGS. 24, 25

Stereum sinense Lloyd *in* Mycol. Writ. **7**: 1115: 1922.
Type: China, coll. H. H. Hu (BPI, Lloyd Catalogue No. 24325)

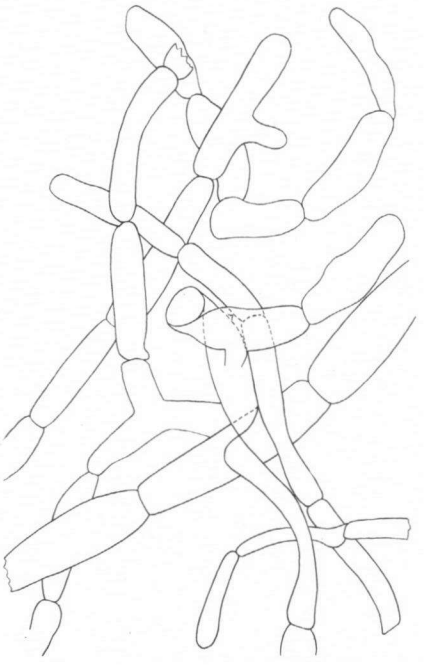


Fig. 24. *Stereum sinense*. Hyphae (× 650).

Sporophores 4 cm high, 3 cm wide, consisting of numerous erect, broad, foliose, convolute lobes arising from a swollen, tuberous, underground base, but not truly stipitate in the usually accepted sense of the term. *Pileus* white, becoming uniformly pale yellowish on drying and appearing minutely tomentose under a lens. *Hymenial surface* smooth, and of a bright yellow colour in herbarium material. *Hyphal structure* monomitic, consisting of freely branched, thin-walled, hyaline, septate, generative hyphae, 3–12 μ in diam. These hyphae, which are usually distinctly constricted at the septa, lack clamp-connexions. *Cystidia* and *gloeocystidia* absent. *Basidia* clavate, up to 40 × 8 μ, with 4 sterigmata. *Spores* hyaline, 7.5–9.5 × 4.5–5.5(–7.5) μ, varying in shape from broadly elliptical to ovate, and with a distinct apiculus.

HABITAT: on the ground.

ILLUSTRATION: Lloyd, *1922*: pl. 197 fig. 2102 (photo of the type material).

This is a species of *Pseudocraterellus* Corner and it is accordingly transferred to that genus as **Pseudocraterellus sinensis** (Lloyd) Reid, *comb. nov.*

STEREUM SPATHULATUM Berk.

Stereum spathulatum Berk. *in* Hook. J. Bot. Lond. **8**: 274. 1856 [nec *S. spathulatum* Lloyd *in* Mycol. Writ. **4** (Syn. stip. Stereums): 33. 1913].
Type: Rio Negro, Brazil, coll. Spruce (No. 175).

ILLUSTRATION: Lloyd, *1913b*: f. 558 (photo of the type of *S. spathulatum* although bearing the caption *S. glabrescens*).

This is a polypore, and it would seem to be conspecific with *Polystictus caryophyllaceus* (Berk. & Curt.) Cooke which was described from Venezuelan material. However, the epithet 'spathulatus' cannot be combined in either *Polystictus* Fr. or *Polyporus* [Mich.] Fr., since the name is preoccupied in both these genera. But should one wish to transfer the fungus known as *Polystictus caryophyllaceus* to one of the more recent genera segregated from *Polystictus* and *Polyporus* then the epithet 'spathulatus' would have to be used on the grounds of priority.

Stereum spathulatum has been reported from: Australia (Berkeley & Broome, *1883*; Cooke, *1883*, *1892*), Belgian Congo (Bresadola, *1911*, De Wildeman, *1912*); Brazil (Maia, *1960*), Ceylon (Cesati, *1879*). However, it is probable that most of these records were based on collections of various species of *Podoscypha* Pat., but Maia's record from Brazil refers to a typical gathering of *Polystictus gallinaceus* (Berk. & Cooke) Cooke.

Apart from the type material of *S. spathulatum*, there are three other collections filed under this name in the Kew Herbarium. Two of them were determined by Cooke (Brazil, coll. Glaziou, no. 18769, 1891; Isle de Mayotta) while the third bears a label, apparently written by Cesati, with the following information "*Stereum tuba* 343, Point de Galle". The latter specimen was not annotated by Berkeley, although it formed part of his herbarium. All three gatherings represent species of *Podoscypha*.

STEREUM TJIBODENSE P. Henn. — FIG. 26

Stereum tjibodense P. Henn. *in* Warb., Monsunia 1: 140. "1900" [1899].

Type: Tjibodas, Java, coll. M. Fleischer, 28 July 1898. The specimen examined is preserved in BPI, and merely bears the information Java, but someone—probably Bresadola—has marked it "orig.!"

Sporophores 2–3 cm in diameter, varying from subresupinate, orbicular, discoid patches to subcupulate or conchate fructifications which are sometimes narrowed behind to form an almost stipe-like base. *Pileus* with a yellow, tomentose, hirsute surface and a thickened, crenate margin. *Hymenial surface* glabrous, sparsely verrucose, and orange in colour. *Hyphal structure* dimitic, consisting of generative and skeletal hyphae. The branched, hyaline, generative hyphae, 2–4 μ in diam., lack clamp-connexions at the septa and are usually thin-walled although some may develop fairly thick walls. The skeletal hyphae, 4–8 μ in diam., are thick-walled, septate and unbranched. Intermediate hyphae also occur. These closely resemble narrow skeletal hyphae but differ from them in that they are somewhat branched. Sections through the fruitbody show a more or less distinct cuticular zone with a large proportion of highly modified, very thick-walled, coralloid, generative hyphae. This cuticular zone merges below with the uppermost region of the flesh. Here the thick-walled skeletal hyphae are bound together by narrow generative hyphae which are less highly modified, but still very much branched. It should also be noted that whereas the uppermost region of the flesh stains deeply in aniline blue in lactic acid the cuticular layer does not stain. Above the cuticle there is a well developed tomentum formed of thick-walled, septate hairs, 3.5–4.5(–6) μ in diam., with obtuse apices. *Hymenium* not thickening; formed of basidia, paraphyses, and conspicuous conducting organs. The latter organs are the modified endings of skeletal hyphae which curve down through the flesh and terminate in the hymenium.

They are thick-walled, cylindrical bodies, 4.5–8 μ in diam., with a narrow lumen which expands toward the tip giving a thin-walled apical portion. These organs have golden-brown oily contents which are often guttulate. Bresadola noticed these conducting organs and made a sketch of them on the type packet. *Cystidia* and *gloeocystidia* absent. *Basidia:* mature basidia not seen, although Hennings described them as "cylindraceo-clavatis 22–26 × 4–5 μ oleoso-aurantiaco guttulatis". It is possible, however, that Hennings mistook the conducting organs for basidia. *Spores* not seen. Hennings described them, probably wrongly, as "ellipsoideis flavo-brunneis vel subaurantiacis, laevibus, 6–8 × 3.5–4 μ".

HABITAT: on tree trunks.

This is a member of the genus *Stereum* Pers. ex S. F. Gray sensu stricto.

Bresadola (*1916*) considered *S. tjibodense* to be a synonym of *S. rimosum* Berk. but this is unlikely. Some years earlier von Höhnel & Litschauer (*1907*) after examining type material had maintained that this fungus belonged in the Auriculariaceae and scarcely differed from *Auricularia mesenterica* (Dicks. ex Fr.) Fr.

STEREUM TRAPLIANUM Vel.

Stereum traplianum Vel., České Houby 759. 1920.
Type: Lower Tatra, Báňská Bystrica, coll. Dr. Trapl.

ILLUSTRATION: Velenovský, *1922*: fig. 8 on p. 136.

Stereum traplianum is a member of the genus *Stereum* Pers. ex S. F. Gray sensu stricto.

It was redescribed by Pilát (*1931*) and Reid (*1957b*). The latter author, after studying part of the type material, concluded that it was a synonym of *S. subpileatum* Berk. & Curt., but this view was challenged by Boidin (*1958*) who pointed out that *S. traplianum* lacked the characteristic 'acanthophyses' of *S. subpileatum*. Re-examination of the Kew material confirms Boidin's statement. It is therefore desirable to study more material of this rather problematical species before speculating on its affinities.

STEREUM TUBA Berk. & Br.

Stereum tuba Berk. & Br. *in* J. Linn. Soc. (Bot.) **14**: 65. 1873.
Type: Ceylon (No. 625), July 1868.

ILLUSTRATION: Massee, *1890*: pl. 7 f. 4 (very poor!).

This fungus is a member of the Cyphellaceae and was transferred to the genus *Cyphella* Fr. by Lloyd, although the full citation should be *Cyphella tuba* (Berk. & Br.) Lloyd *apud* Petch *in* Ann. R. bot. Gdns, Peradeniya **9**: 262. 1925. (N.B. The combination was made again and also ascribed to Lloyd in "The fungi of Ceylon" by Petch & Bisby, *1950*.) The original transfer made by Lloyd (*1913b*) cannot be accepted as a valid combination since it was done under the nom-de-plume of McGinty which this author used when wishing to be facetious. It should, however, be noted that Bresadola (*1916*) had also suggested that *S. tuba* was really a *Cyphella*.

STEREUM UNGULIFORME Lloyd

Stereum unguliforme Lloyd *in* Mycol. Writ. **4** (Letter 48): 10. 1913 (*"unguliformis"*).
Type: Madagascar, coll. H. Perrier de la Bathie (BPI, Lloyd Catalogue No. 24328).

ILLUSTRATION: Lloyd, *1913d*: fig. 569 (photo of the type material).

This would seem to be the conidial state of a species of *Xylaria* (*Xylosphaera* Dumort.). Spore production occurs over the entire surface of the lobes of the fruitbody (i.e. there is no differentiation into an upper sterile and lower fertile surface). Sections through the spore producing regions show that there is a thickening hymenium similar to that figured (pl. 3 fig. 3) for *Ustulina vulgaris* by the Tulasnes (*1863*). This is distinctly stratose with the various strata separated one from another by a layer of embedded conidia. The conidia are 4–5 × 2–3 μ and hyaline (Lloyd described them as "2.5–3 × 6–7 μ, straight, hyaline, smooth"). Sections through the fruitbody also show a central core of hyphae which stain more deeply in aniline blue in lactic acid than the rest of the tissue. However, the individual hyphae forming the flesh are strongly agglutinated.

STEREUM UNICUM Lloyd

Stereum unicum Lloyd *in* Mycol. Writ. **4** (Syn. stip. Stereums): 35. 1913.
Type: New York (NYS).

ILLUSTRATION: Lloyd, *1913b*: fig. 555 (photo of the type material).

The type material of this species was not studied but the Dutch collection mentioned by Lloyd (*1921*) was examined and found to be an abnormal sterile condition of either *Coltricia* (*Polystictus*) *perennis* (L. ex Fr.) Murrill or *C. cinnamomeus* (Jacq. ex S. F. Gray) Murrill, as stated by Donk (*1933*). It is probable that the type is also an abnormal fructification of one of these two species or of some related polypore.

THELEPHORA AMBOINENSIS Lév.

Thelephora amboinensis Lév. *in* Ann. Sci. nat. (Bot.) III **2**: 207. 1844.
Type: Amboina (PC).

Thelephora amboinensis belongs in the Clavariaceae and was transferred to the genus *Aphelaria* Corner by Corner (*1953*) as *A. amboinensis* (Lév.) Corner.

Corner (*1950*) at first listed this fungus in synonymy under *Aphelaria dendroides* (Jungh.) Corner, but subsequently he (*1953*) recognised it as a valid species and published a full account of the taxon. He noted that it differed from *A. dendroides* in having wider hyphae, a fibrillose texture and gloeocystidial branches. The type material and all subsequent collections of this species are sterile.

THELEPHORA ANASTOMOSANS Berk. & Curt. — FIG. 27

Thelephora anastomosans Berk. & Curt. *in* J. Linn. Soc. (Bot.) **10**: 329. 1868.
Stereum anastomosans (Berk. & Curt.) Lloyd *in* Mycol. Writ. **4** (Syn. stip. Stereums): 35. 1913.
Type: Cuba, coll. C. Wright (No. 280).

Sporophores 1.5–2.2 cm high, consisting of a mass of tufted branches fused below into a common stipe. These branches have mostly become so compressed in drying that it is impossible to discern much of their shape and size. They appear to expand toward their apices into flabelliform lobes with fimbriate margins, and to have small 'lateral' spine-like processes arranged in a more or less pectinate manner along their length [some of these apparently lateral spine-like processes in fact arise from the lower surface of the branches]. When soaked up in 10 % potassium

hydroxide solution the branches have a more or less flabelliform appearance with a lobed apex, and an inferior hymenial surface which bears isolated spines and long, thin plates of tissue up to 2 mm in depth and several mm in length. In the original description the fruitbodies were said to be white becoming pallid when dry. *Hyphal structure* monomitic, consisting of freely branched generative hyphae in which the walls may reach 2 μ in thickness, and sometimes the lumen is almost obliterated. These hyphae have abundant septa but lack clamp-connexions. They are 2.5–7 μ in width, with the main trunks, which have the thickest walls, 4–7 μ in diam. The ultimate branches are thin-walled and often appear rather twisted and ribbon-like. *Hymenium* 20.8–35 μ in width, including in some sections a rather granular layer (up to 10 μ wide) of hyphae above the basidia. The hymenium does not appear to thicken. It covers the spines and plates of tissue on the lower surface of the branches as well as the intervening smooth portions. *Cystidia* and *gloeocystidia* absent. *Basidia*: mature basidia not seen. These probably collapse after spore discharge. *Spores* 4–5 × 3.5 μ smooth, hyaline (or very pale brown in 10 % potassium hydroxide solution), non-amyloid, varying in shape from ovate to very broadly elliptical.

HABITAT: on stumps.

This fungus is synonymous with *Hydnopolyporus hartmannii* (Mont.) Reid (see page 150). Burt (*1920*) attempted to distinguish between *Stereum anastomosans* and *S. hartmannii* (Mont.) Lloyd on the basis of whether specimens were merismatoid or laterally stipitate respectively but this is a quite unsatisfactory distinction.

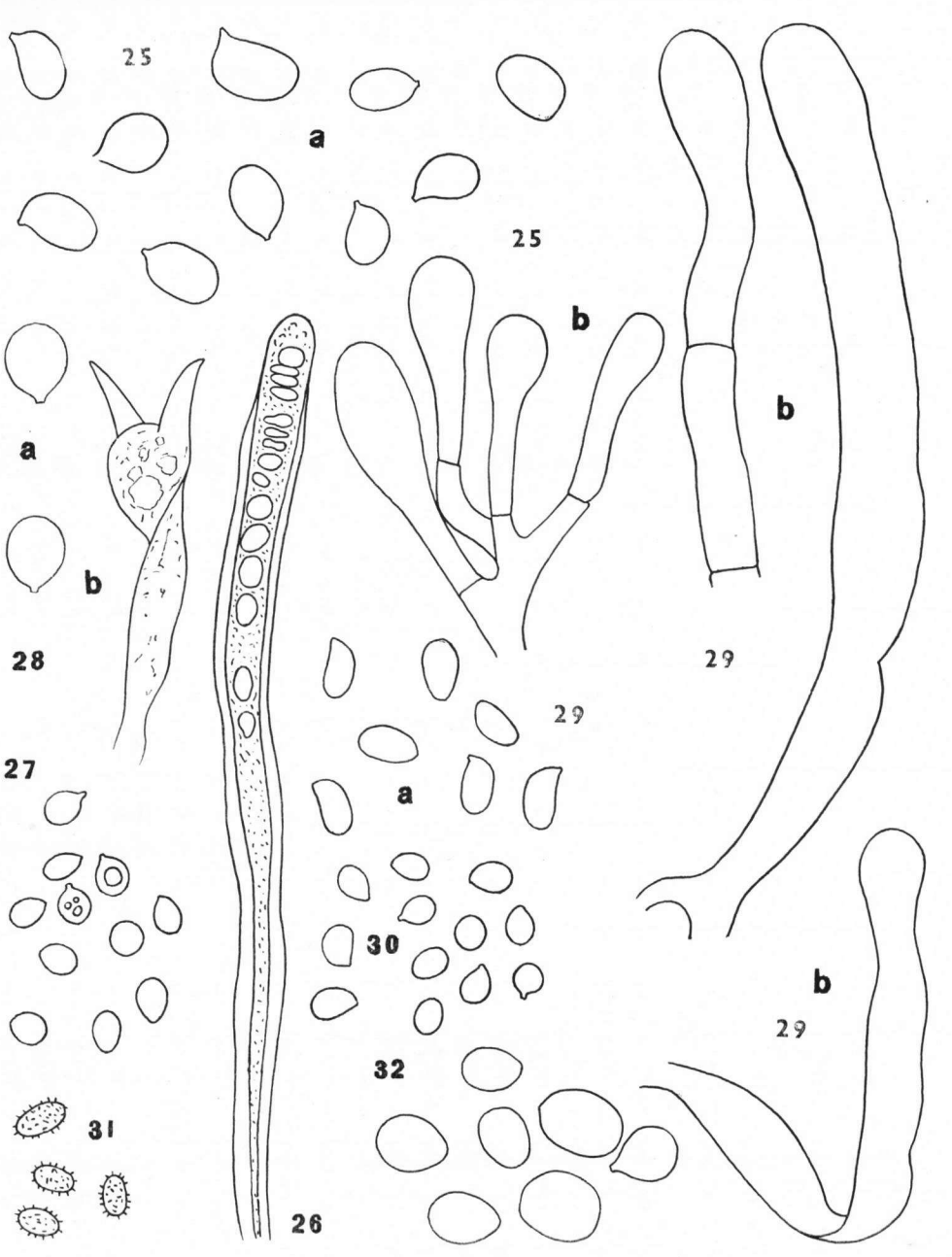
THELEPHORA BIDENTATA Pat. — FIG. 28

Thelephora bidentata Pat. *in* Ann. Jard. bot. Buitenz. (Suppl.) 1: 115. 1897.
Type: Buitenzorg, Java, coll. Massart (FH).

Sporophores branched and clavarioid, with the main branches arising either from the extreme base or from a well developed stipe. Repeated branching leads to the formation of a rather dendroid fruitbody in which the branches are distinctly flattened and in which the ultimate branchlets tend to have bifurcate tips. The branching is often polychotomous, and at each of the main points at which branching occurs there is pronounced flattening and dilation. The entire fungus is now brownish, although originally described as reddish. *Stipe* 3–4 cm high, 4 mm wide, cylindrical, with a villose base. *Flesh* white and corky. *Hyphal structure* monomitic, consisting of hyaline, scantily branched, generative hyphae, 2.5–3.5 μ in diam., which lack clamp-connexions at the septa. These hyphae have thin or slightly thickened walls. There is no distinct cuticular layer, but the upper surface of the branches may appear distinctly 'hairy' in section due to projecting hyphal ends. Transverse sections through the branches reveal a central core of loosely arranged hyphae and an outer zone in which the hyphae are more densely compacted. The branches would appear to have a radial construction with a certain degree of superimposed flattening. Hymenium confined to the lower surface of the branches (Patouillard stated that it was amphigenous). *Cystidia* and *gloeocystidia* absent. *Basidia* up to 41 μ in length (probably more) and up to 13 μ wide (Patouillard described them as 30 × 10–12 μ).

EXPLANATION OF FIGURES 25–32

Figs. 25–32. — 25. *Stereum sinense*. a. Spores. b. Basidia. — 26. *Stereum tjibodense*. Conducting organ. — 27. *Thelephora anastomosans*. Spores. — 28. *Thelephora bidentata*. a. Spores. b. Basidium. — 29, 30. *Thelephora decolotans*. 29 [No. 234]. a. Spores. b. Cystidia, one of which shows transverse septa. 30 [No. 428]. Spores. — 31. *Thelephora dewevrei*. Spores. — 32. *Thelephora diamesa*. Spores.



Figs. 25–32

Some at least of the basidia are 2-spored with sterigmata up to 8 μ in length. *Spores* scanty, thin-walled, hyaline, globose, 8 μ in diam. (9 × 8 μ including the apiculus) (according to Patouillard 6–8 μ in diam.).

HABITAT: on the ground.

ILLUSTRATION: Patouillard, *1897*: pl. 24 fig. 11.

Thelephora bidentata belongs in the Clavariaceae and is a synonym of *Aphelaria dendroides* (Jungh.) Corner, as indicated by Corner (*1950*).

THELEPHORA BRAUNII P. Henn.

Thelephora braunii P. Henn. *in* Bot. Jb. **30**: 41. 1901.
Stereum braunii (P. Henn.) Beeli *in* Bull. Soc. Bot. Belg. **58**: 208. 1926.
Type: Gr. Batanga, Kamerun, coll. J. Braun, 1888 (BPI).

Sporophores up to 4 cm high, consisting of numerous, erect, flattened branches arising from the apex of a short, stout stipe. These branches were described as "flabellatis apice palmatifidis vel cristatis" but this description does not agree very well with the material or with the drawing on the packet containing the type specimen. Examination of this specimen shows the branches to be narrow and strap-like with bidentate apices. The whole fungus was stated to be yellowish-ferruginous and pruinose, but it is now entirely ochraceous-hoary. *Stipe* up to 1.5 cm high, 5 mm wide, somewhat compressed. *Hyphal structure* monomitic, consisting of thin-walled, slightly branched generative hyphae, 1.5–4 μ (mostly 3 μ) in diam., with clamp-connexions at some of the septa. *Hymenium* poorly preserved, but apparently thickening since hyphae have grown up through the first formed hymenial layer to give rise to a new stratum in which the hyphae are loosely arranged and intertwined. *Cystidia* and *gloeocystidia* not seen. *Basidia* not seen. Spores not seen. (Hennings described them as subglobose, 3.5–5 μ and stated that they were smooth and brown. This information was probably based on *spores* of extraneous origin.)

HABITAT: on trunks.

The material of this species is too poor to enable one to make any suggestion as to its possible affinities. All that can be stated with some degree of confidence is that it is very unlikely to be a member of the genus *Thelephora* Ehrh. ex Fr. sensu stricto.

For a list of the published records of this species see Hendrickx (*1948*).

THELEPHORA DECOLORANS Berk. & Curt. — FIGS. 29, 30

Thelophora decolorans Berk. & Curt. *in* J. Linn. Soc. (Bot.) **10**: 328. 1868.
Stereum decolorans (Berk. & Curt.) Cooke, Handb. Austr. Fungi 183. 1892.
Podoscypha decolorans (Berk. & Curt.) Pat. *in* Duss, Enum. méth. Champ. 20. 1903.
Cotylidia decolorans (Berk. & Curt.) Welden *in* Lloydia **21**: 41. 1958.
Type: Cuba, coll. C. Wright (Nos. 234, 248), May.

ILLUSTRATION: Burt, *1920*: pl. 3 fig. 234 ("Type" of *Stereum decolorans*—presumably part of collection No. 234 but not a photo of the Kew material).

Recent authors (Lloyd, *1913b;* Burt, *1920;* Welden, *1958*) have recognised *Thelephora decolorans* as a distinct species which they considered to belong with the other stipitate stereoid fungi. Despite this the name *T. decolorans* has to be rejected under Art. 70 of the Code (1961) since the original description is based on two collections,

one of which (No. 248) is *Hydnopolyporus* (*Polyporus*) *fimbriatus* (Fr.) Reid and the other (No. 234) *Cotylidia aurantiaca* (Pers.) Welden. Furthermore the original account of the species is mostly drawn from the *H. fimbriatus* component, including the statement that it was white when fresh. (A note to this effect was found on the back of collection No. 248.) Burt (*1920*) appears to have completely misinterpreted the species—unless there is a mixture of three fungi under Nos. 234 and 248 in the Curtis herbarium—for he describes it as having "flexuous gloeocystidia, 45–90 × 3–6 μ, between the basidia or curving into the hymenium", indicating that he had a species of *Podoscypha* Pat. under consideration. The fact that he found the spores to be "subglobose, 4–4.5 × 3–4 μ" would be compatible with this view, although they could equally well have belonged to the *Hydnopolyporus fimbriatus* since sporophores of collection No. 248 bear very broadly elliptical or subglobose spores 4–4.5 × 3–3.5 μ. Welden (*1958*) has published a quite inexplicably confused account of *T. decolorans* (as *Cotylidia*). Firstly he lists *Stereum burtianum* Peck in synonymy under this species, despite an examination of the types of both fungi, and despite the fact that *S. burtianum* has spores 3.5–5 × 2.5–3.5 μ [as correctly noted by both Peck (*1904*) and Burt (*1920*)] and hyphae which are thin-walled and 2.5–3.5 μ in diam., whereas the spores of the *Hydnopolyporus fimbriatus* component of *T. decolorans* are shorter and broader, and the hyphae mostly about 8 μ in diam. with very thick walls, sometimes appearing almost solid. He makes no mention of cystidia in his description and his spore measurements: –6–8(–13) × 5–7 μ bear no relation to any of the fungi involved (i.e. *Cotylidia aurantiaca*, *Hydnopolyporus fimbriatus* or *Stereum burtianum*). A further extraordinary point is that Welden has only examined one other collection, apart from the type numbers of *T. decolorans* and *S. burtianum*, and that was from Japan where there is no evidence of a *Cotylidia*-like fungus with such odd spores.

Because of the confusion surrounding *T. decolorans* and because there has recently been a tendency toward misinterpretation of *Cotylidia aurantiaca* [see Welden (*1958*) and Boidin (*1960b*)] an account of both components of *T. decolorans* is given below.

(1) Collection No. 248.

Sporophores forming small rosettes 1–2 cm high and up to 3 cm in diam., consisting of numerous broad flabelliform lobes and narrow strap-like segments. *Pilei* glabrous, white when fresh, but in herbarium specimens becoming ochraceous-fawn with several obscure or rather distinct zones which vary in colour from pale brown to dark chestnut brown. *Hymenial surface* similar in appearance to that of the upper portion of the pileus, and varying from smooth to somewhat poroid when examined under a lens. The pores are mostly rather rudimentary and difficult to detect but on some of the sporophores they are easily visible. *Hyphal structure* monomitic, consisting of generative hyphae, up to 8 μ in diam., which develop very strongly thickened walls. These hyphae, which lack clamp-connexions are branched, the branches being narrower and often thin-walled. *Cystidia* and *gloeocystidia* absent. *Basidia* not seen. *Spores* thin-walled hyaline, 4–4.5 × 3–3.5 μ, varying in shape from very broadly elliptical to ovate, with a small apiculus.

HABITAT: on wood.

This is *Hydnopolyporus fimbriatus* (Fr.) Reid (see page 151).

(2) Collection No. 234.

Sporophores up to 2.5 cm high and 3.0 cm wide, flabelliform, narrowed behind into a distinct stipe. *Pileus* radiately lineato-striate and purplish brown in colour (specimens have been treated with mercuric chloride); margin fimbriate. *Hymenial surface* ochraceous, appearing somewhat veined under a lens but in fact really much split due to age. *Stipe* up to 4 mm high and 0.5 mm wide, tomentose and pale buff in colour. *Hyphal structure* monomitic, consisting of thin-walled, hyaline, generative hyphae, 3–9 μ in diam., which lack clamp-connexions at the septa. *Hymenium* thickening, reaching 91 μ in width at a point 10 mm in from the margin of the pileus. *Cystidia* present, but scanty. These organs are long cylindrical or clavate bodies and some of them have one or more transverse septa. They are thin-walled and may either arise in the trama immediately above the hymenium or at various levels within the thickened hymenium itself and they frequently project for a considerable distance beyond the basidia. *Basidia:* mature basidia not seen. *Spores* 6–7.5 × 3.5(–4) μ, thin-walled, hyaline, elliptical and non-amyloid.

HABITAT: on wood.

This is *Cotylidia aurantiaca* (Pers.) Welden.

It should be noted that the Kew collections of *T. decolorans* issued in "Fungi cubenses Wrightiana" as No. 374 are a mixture of *H. fimbriatus* and *C. aurantiaca.*

THELEPHORA DEWEVREI Bres. — FIG. 31

Thelephora dewevrei Bres. *in* Bull. Soc. Bot. Belg. **38**: 156. 1899.

Type: Congo, coll. A. Dewèvre (S).

Sporophores 4.5–5 cm high and wide, caespitose, branched and clavarioid in appearance. The branches, which are flattened, have dilated, fimbriate or rarely dentate-furcate apices and arise from a distinct or deformed, subtuberous stipe. In the original description the fungus was stated to be dark amber in colour with white tips to the branches, but this probably refers to dried material. *Stipe* often deformed, subtuberous, 7–8 mm long, 4–5 mm wide. *Hyphal structure* monomitic, consisting of generative hyphae 2.5–3.5 μ in diam., with thin but distinct walls. These hyphae bear clamp-connexions at the septa. *Hymenium* poorly developed. *Cystidia* and *gloeocystidia* absent. *Basidia:* mature basidia not seen. *Spores* elliptical, 5–6 × 2.5–3 μ, varying from hyaline to very pale ochraceous, and appearing minutely echinulate. Bresadola described the spores as globose or globose-angular, and stated that they were punctate, dark and 8–10 μ in diam. However, these observations were probably based on mould spores of which there are large numbers on certain portions of the fruitbody.

HABITAT: on the ground in woods.

This fungus belongs in the Clavariaceae and is a synonym of *Scytinopogon angulisporus* (Pat.) Corner. For a list of the known collections of *Thelephora dewevrei* see Hendrickx (*1948*).

THELEPHORA DIAMESA Ricker — FIG. 32

Thelephora diamesa Ricker *in* Philipp. J. Sci. **1** (Suppl. 4): 284. 1906.

Type: Lamao, Province of Bataan, Luzon, Philippine Islands, coll. Merrill (No. 3510), Oct. 1903 (BPI).

Sporophores 4–7 cm high, 2–4 cm wide, tubular or funnel shaped, tapering into a hollow central stipe, up to 2.5 cm in length. *Upper surface* glabrous and of

a lemon yellow colour when fresh, becoming cream coloured in the herbarium; margin lobed. *Hymenial surface* smooth, glabrous and orange-yellow when fresh becoming tawny-yellow on drying. *Hyphal structure* monomitic, consisting of branched hyaline, generative hyphae, 5–10 μ in diam., which have thin but distinct walls, and lack clamp-connexions at the septa. There is no distinct cuticle, although the hyphae which are loosely and irregularly arranged throughout the trama become more densely compacted and horizontally orientated near the surface of the fructification and just above the hymenium. However, these zones are not clearly defined. *Hymenium* thickening, reaching 156 μ in width, but this thickening does not result in a definite layering. *Cystidia* and *gloeocystidia* absent. *Basidia* 33.8–39 × 7.5 μ, clavate, with pale yellowish-brown granular contents and bearing 4-sterigmata. (Corner in a note with the type material states that the basidia have 4–5 sterigmata.) *Spores* 7–9.5 × 5–8 μ, hyaline, varying from broadly elliptical to ovate. (Ricker erroneously described them as "globose, hyaline, 2.5–3 μ, in diam." but Corner in a note with the specimen indicated that he found the spores to be 7–8.5 × 6–7.5 μ.)

HABITAT: on damp soil in forests during the rainy season.

Thelephora diamesa belongs in the genus *Craterellus* Pers. sensu stricto and was transferred to that genus by Patouillard as *Craterellus diamesus* (Ricker) Pat. *in* Ann. Cryptog. exot. **1**: 18. 1928. Corner (*1957*), however, is of the opinion that this fungus should be regarded as a synonym of *C. aureus* Berk. & Curt.

It should be noted that Patouillard (1928) described a collection of *C. diamesus* from Annam and indicated that it occurred in tufts of 6–12 sporophores, and reached a height of 5–10 cm.

THELEPHORA DISSECTA Lév. — FIGS. 33–35

Thelephora dissecta Lév. *in* Ann. Sci. nat. (Bot.) III **5**: 146. 1846.
Type: Gaudeloupe, coll. Beaupertuis, 1839 (K, PC).

Sporophores up to 3 cm high and 3 cm wide, consisting of a large number of very narrow linear branches which are united below into a short stipe. The branches which are flattened tend to be slightly incurved along their margins and often have an inrolled apex. They also bear numerous short, lateral, spinose-branchlets in a pectinate manner along their entire length. Some of these apparently lateral branchlets, however, actually arise from the lower surface of the main branches. The entire fungus is now ochraceous and hoary. *Hyphal structure* monomitic, consisting of scantily branched, hyaline, generative hyphae 4–7 μ in diam., which have walls up to 2 μ in thickness. These hyphae have abundant septa but lack clamp-connexions, and their ultimate branches may be as narrow as 2.5 μ in diam. *Hymenium* confined to the undersides of the main branches but covering the entire surface of the lateral spinose branchlets. *Cystidia* and *gloeocystidia* absent. *Basidia* present, but mostly collapsed and difficult to distinguish. *Spores* 4–4.5 × 3–3.5 μ, smooth, thin-walled, hyaline, elliptical and non-amyloid.

HABITAT: on bark.

This is synonymous with *Hydnopolyporus hartmannii* (Mont.) Reid (see page 150). It has already been regarded as a synonym of *T.* (*Stereum, Cotylidia*) *hartmannii* Mont. by Bresadola (*1926*), Lloyd (*1913b*), Burt (*1920*) and Welden (*1958*).

THELEPHORA FISSA P. Henn. — FIG. 36

Thelephora fissa P. Henn. *in* Hedwigia **36**: 193. 1897.
Type: Sta. Catharina, Brazil, coll. A. Möller (No. 538) (BPI).

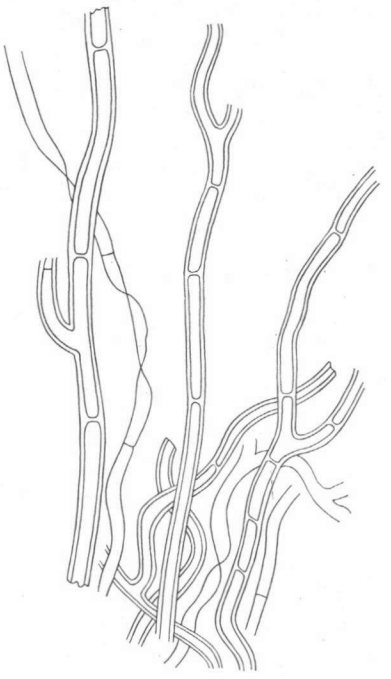


Fig. 33. *Thelephora dissecta.* Hyphae (× 650).

Sporophores up to 2 cm high, thin membranous, varying in shape from flabellate to almost infundibuliform, but becoming split into very numerous, thin, hair-like or cuneate segments with laciniate margins. The surface which is radiately striate is now pale ochraceous with a number of rather obscure darker zones, but it was originally described as pale yellowish. *Hymenial surface* similar in appearance to the upper surface but said by Hennings to be subvenose. *Stipe* up to 1.5 cm long, 1 mm wide, lateral, white, villose. *Hyphal structure* monomitic, consisting of sparingly branched, generative hyphae, 4–9 in diam., which are mostly thin-walled except toward the base of the pileus where they often develop strongly thickened walls up to 2.5 μ in width. These hyphae are septate but lack clamp-connexions. The hyphae forming the tomentum of the stipe are 2.5–5 μ in diam. *Hymenium* apparently lacking. *Cystidia* and *gloeocystidia* not seen. *Basidia* not seen. *Spores* not seen.

This is probably an immature collection of *Hydnopolyporus fimbriatus* (Fr.) Reid (see page 151). It was originally compared by Hennings with *Thelephora decolorans* and subsequently Bresadola (*1916*) and Lloyd (*1913b*) considered it to be a synonym of this species. Perhaps not surprisingly in view of the fact that *T. decolorans* is a mixtum compositum and consists in part of *H.* (*Polyporus*) *fimbriatus*.

THELEPHORA GELATINOIDEA Lloyd — FIG. 37

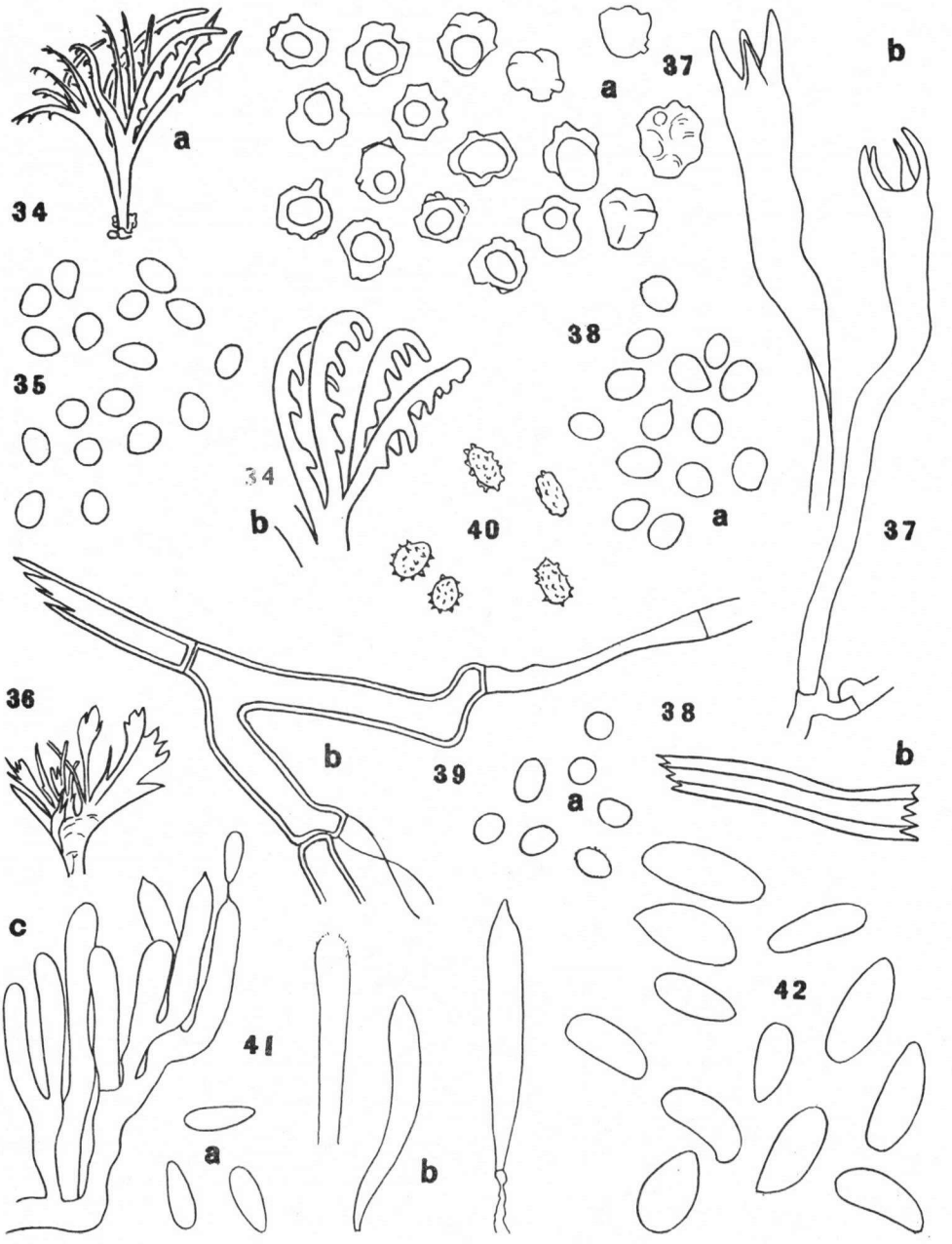
Thelephora gelatinoidea Lloyd *in* Mycol. Writ. **6**: 890. 1919.

T y p e: Darjeeling, India, coll. G. H. Cave, Oct. 1918 (BPI, Lloyd Catalogue No. 31333).

Sporophores consisting of a number of irregular, flabelliform pileate lobes, each of which may be up to 5 cm in height and 5 cm in width. These lobes may be narrowed behind to form a short, flattened, stipe-like base or merely reduced to a broad point of attachment. The general growth form of the fructification resembles that of *Thelephora terrestris* Ehrh. ex Fr. *Pileus* creamy-fawn with dark greyish-brown

EXPLANATION OF FIGURES 34–42

Figs. 34–42. — 34, 35. *Thelephora dissecta.* 34. a. Habit sketch of type material (natural size). b. Portion of fruitbody enlarged. 35. Spores. — 36. *Thelephora fissa.* Habit sketch of type material (natural size). — 37. *Thelephora gelatinoidea.* a. Spores. b. Basidia. — 38, 39. *Thelephora hartmanni.* 38. [Type]. a. Spores. b. Portion of a thick-walled hypha. 39. [St Kitts, Britton & Cowell No. 706]. a. Spores. b. Hypha. — 40. *Thelephora lactea.* Spores. — 41. *Thelephora liliputiana* Mont. a. Conidia (× 2300). b. Conidiophores (× 2300). c. Group of conidiophores. — 42. *Thelephora lilliputiana* Speg. Spores.



Figs. 34–42

concentric zones. The surface is strongly radiately ridged and wrinkled giving it a fibrillose appearance. *Hymenial surface* grey-brown (putty coloured), becoming more yellowish toward the margin. The surface is densely covered by granular warts and obtuse spines. *Flesh* soft, cottony and of a dirty white colour. In the original description the context was said to be gelatinous, but there is not the slightest evidence to support this statement. *Hyphal structure* monomitic, consisting of thin-walled, hyaline, branched, generative hyphae, 3–5 μ in diam., with clamp-connexions at most of the septa. In addition there are certain hyphae which become very thick-walled and more highly refractive than the remainder. These thick-walled hyphae are also septate, clamped and branched (although perhaps less freely branched than the thin-walled hyphae) and have contents which appear faintly brownish in 10 % potassium hydroxide solution. In the ordinary generative hyphae branching from the clamp-connexions is frequent, especially in the region of the hymenium. There is no distinct cuticular zone. *Hymenium* not thickening. *Cystidia* and *gloeocystidia* absent. *Basidia* 52–80 × 6–8 μ, clavate, tapering to a narrow clamped base and bearing 4, more or less incurved sterigmata which are 6–8 μ in length. These basidia, which have brownish contents, are mostly found on the warts and spines of the hymenial surface. They do not form a dense palisade, and are often separated by colourless sterile (?) or immature basidia. The areas of the hymenial surface between the warts are often devoid of basidia. *Spores* abundant, pale brown, irregularly angular tuberculate, 6–8(–9) μ in diam., and frequently containing a single guttule.

HABITAT: on the ground at about 6,000 ft. alt.

ILLUSTRATION: Lloyd, *1919*: pl. 132 fig. 1546 (photo of type material).

This fungus belongs in the genus *Thelephora* Ehrh. ex Fr. sensu stricto. It was said by Lloyd to have a gelatinous context formed of gelatinized hyphae and because of this supposed character Lloyd named it '*T. gelatinoidea*'. However, there is not the slightest evidence that this fungus was ever gelatinous and indeed it is difficult to imagine how a sporophore which has a soft cottony flesh could be thought to have been gelatinous. Nevertheless, Lloyd went further and suggested that it might be made the type species of a new genus because of its "peculiar gelatinous" structure. Then, assuming the nom-de-plume of McGinty which he used when wishing to be facetious or when unsure of himself, he proposed the binomial *Pseudo-thelephora gelatinosa*. He thereby created a new and invalid generic name (see Donk, *1957*) and at the same time introduced a new invalid specific epithet.

THELEPHORA HARTMANNII Mont. — FIGS. 38, 39

Thelephora hartmannii Mont. *in* Ann. Sci. nat. (Bot.) II **20**: 366. 1843.
Stereum hartmannii (Mont.) Lloyd *in* Mycol. Writ. **4** (Syn. stip. Stereums): 34. 1913.
Cotylidia hartmannii (Mont.) Welden *in* Lloydia **21**: 41. 1958.
Thelephora dissecta Lév. *in* Ann. Sci. nat. (Bot.) III **5**: 146. 1846.
Thelephora anastomosans Berk. & Curt. *in* J. Linn. Soc. (Bot.) **10**: 329. 1868.
Stereum anastomosans (Berk. & Curt.) Lloyd *in* Mycol. Writ. **4** (Syn. stip. Stereums): 35. 1913.
Thelephora sebacinoides P. Henn. *in* Hedwigia **36**: 193. 1897.
Type: Carolina, U.S.A., coll. Hartmann (K, PC).

Sporophores up to 2.5 cm high, arising from a very thin, white, mycelial film, and consisting of narrow strap-like or broad flabelliform pilei. When broad and fan-shaped the pilei are split into a large number of linear or cuneate segments. The ultimate segments which tend to have circinate apices, bear a number of short

lateral spinose branches along their length and these are arranged in a pectinate manner. The whole fungus is now pale ochraceous. *Hymenial surface* bearing a number of warts, spines, and ridges of tissue. *Stipe* rather short, rudimentary. *Hyphal structure* monomitic consisting of hyaline, branched, generative hyphae 2.5–7 μ in diam., which lack clamp-connexions at the septa. These hyphae have thin to distinctly thickened walls. *Cystidia* and *gloeocystidia* absent. *Basidia:* mature basidia not seen. *Spores* 4–4.5 × 3–3.75 μ, smooth, hyaline, non-amyloid, and varying in shape from broadly elliptical to ovate.

HABITAT: on bark.

ILLUSTRATIONS: Burt, *1920*: pl. 3 fig. 21. — Lloyd, *1913b*: fig. 553.

This fungus presents a number of difficulties when attempts are made to assign it to a natural position in any system of classification. It is certainly not possible to retain it in the genus *Thelephora* or *Stereum* and it does not show any affinity with the "stipitate stereoid" fungi. However, it is extremely closely related to *Polyporus fimbriatus* Fr. and is undoubtedly congeneric with this species, but neither *T. hartmannii* or *P. fimbriatus* would seem to have any other close allies. These two species have therefore been made the basis of a new genus—*Hydnopolyporus*.

Hydnopolyporus Reid, *gen. nov.*

Sporophora lignicola, distincta vel caespitosa. *Pileus* albus, coriaceus, irregulariter integro-flabelliformis vel ramosior, ramis complanatis, apice saepe incurvo-circinato, demum dentato-incisis pectinatisque. *Superficies hymenialis* aut verrucis, spinis, vel dentibus foliiformibus interrupte radiantibus aut dentibus obsoletis, reticulato-connexis deinde poroideis ornatis. *Hyphae* 2.5–10 μ diametro, hyalinae, ramosae, septatae, sine fibulis, tenuiter vel crasse tunicatae. *Cystidia* et *gloeocystidia* absentia. *Sporae* hyalinae, leves, haud amyloideae, late ellipsoideae vel ovoideae 4–5 × 3–3.75 μ. — Typus: *Polyporus fimbriatus* Fr.

Sporophores lignicolous, discrete or caespitose, often forming small rosettes consisting of numerous, irregular flabelliform pilei. When discrete the fruitbodies usually consist of a large number of narrow, flattened, strap-like segments united behind into a short stipe. Sometimes, however, there may be very few segments and the fructification may be reduced to a single linear branch. Alternatively there may be a flabelliform pileus divided into numerous hair-like or cuneate segments. When dissected the narrow segments bear short, lateral spinose branches along their length and these are arranged in a pectinate manner. The fruitbodies are white. *Hymenial surface* bearing isolated warts, spines or ridges or becoming tardily poroid. *Hyphal structure* monomitic, consisting of hyaline, branched, generative hyphae which tend to be rather broad (2.5–10 μ in diam.) and which lack clamp-connexions at the septa. These hyphae have thin but distinct or strongly thickened walls. *Cystidia* and *gloeocystidia* absent. *Spores* smooth, thin-walled, hyaline and non-amyloid, varying in shape from very broadly elliptical to ovate, 4–5 × 3–3.75 μ.

Accordingly both *P. fimbriatus* and *T. hartmannii* are hereby transferred to the genus *Hydnopolyporus* Reid as **Hydnopolyporus fimbriatus** (Fr.) Reid, *comb. nov.* (basionym, *Polyporus fimbriatus* Fr. *in* Linnea **5**: 520. 1830) and **Hydnopolyporus hartmannii** (Mont.) Reid, *comb. nov.* [basionym, *Thelephora hartmannii* Mont. *in* Ann. Sci. nat. (Bot.) III **20**: 366. 1843].

The systematic position of the genus *Hydnopolyporus* also presents something of a problem. It cannot be retained in the Thelephoraceae but could be placed in either the Polyporaceae or Hydnaceae on the basis of the hymenial configuration of the

two species. If a choice had to be made I would be inclined, at least temporarily, to place *Hydnopolyporus* in the Polyporaceae.

Hydnopolyporus hartmannii differs from *H. fimbriatus* in having a more highly dissected pileus in which the segments are narrow strap-like and bear short lateral spinose processes arranged in a pectinate manner along their length. The hymenial surface of *H. hartmannii* is covered with isolated warts, spines and short ridges, but unlike *H. fimbriatus* these do not seem to become united into pores. The hyphae of *H. hartmannii* are also narrower on average [mostly 4–5(–7) μ] than those of *H. fimbriatus* (8–10 μ).

Lloyd (*1913b*) grouped *H. hartmannii* with the stipitate stereoid fungi as did Burt (*1920*). Both these authors attempted to distinguish between this fungus and *Stereum anastomosans* (see page 141). Burt (l.c.) suggested that this could be done on the basis of whether the plants were laterally stemmed or merismatoid respectively, but this is quite unsatisfactory in practice. Martin (*1944*) writing of *Stereum hartmannii* stated that "There is no suitable genus to receive such a fungus . . .", but Welden (*1958*) transferred it to the genus *Cotylidia* Karst. However, this choice of genus is unfortunate since to retain *Cotylidia* as a natural genus it has to be restricted to those stipitate stereoid fungi with monomitic hyphal construction in which the hyphae lack clamp-connexions and in which there is a thickening hymenium. In addition the species of *Cotylidia* should all possess long, cylindrical, protruding cystidia and elliptical (not broadly elliptical to ovoid) spores.

Hydnopolyporus hartmannii is known from the Southern United States, the West Indies and Bolivia. *Hydnopolyporus fimbriatus* has a similar distribution and is known from the Southern United States, the West Indies, Bolivia, Venezuela, Brazil and the Argentine.

For an account of the species listed in synonymy under *H. hartmannii* see pages 141, 147, 162, and compare also *Thelephora pulvinulata* Speg. on page 158.

THELEPHORA LACTEA Pat. — FIG. 40

Thelephora lactea Pat. *in* Bull. Soc. mycol. Fr. **39**: 47. 1923.

Type: Réserve Forestière de Compong Chhnang, Cambodia, coll. M. Petelot, July 1921 (FH).

Sporophores 5–10 cm high, branched, clavarioid, consisting of a common trunk which divides several times into flattened triangular segments. The fungus was said to be entirely white and to resemble minute bushes. *Hyphal structure* monomitic, consisting of thin-walled, hyaline, generative hyphae, 2–4 μ in diam., which bear clamp-connexions at the septa. These hyphae which are scantily branched are arranged more or less longitudinally although they are also somewhat entwined. *Hymenium* confined to the lower surface of the branches and becoming distinctly thickened, reaching 80 μ in width. The thickening occurs in such a way that the hymenium is formed of a number of strata each delimited by a layer of buried spores. *Cystidia* and *gloeocystidia* absent. *Basidia:* mature basidia not seen but evidently varying from clavate to shortly cylindrical and bearing four short sterigmata; the immature basidia are up to 15.6 × 4–5 μ. Patouillard, however, stated that the basidia were 18–20 × 10 μ but these measurements would seem to be far too wide! *Spores* 4.5–6 × 2.5–3 μ (mostly 5 × 3 μ) thin-walled, hyaline or faintly yellowish, and

minutely echinulate. (Patouillard erroneously described them as colourless or faintly coloured, angular, echinulate, 8 × 6 μ.)

HABITAT: on the ground.

This fungus belongs in the Clavariaceae and is a synonym of *Scytinopogon angulisporus* (Pat.) Corner.

THELEPHORA LACTEA var. OBSCURA Pat.

Thelephora lactea var. *obscura* Pat. *in* Bull. Soc. mycol. Fr. **39**: 48. 1923.

This is also *Scytinopogon angulisporus* (Pat.) Corner.

THELEPHORA LILIPUTIANA Mont. — FIG. 41

Thelephora liliputiana Mont. *in* Ann. Sci. nat. (Bot.) II **13**: 205. 1840 (nec *T. lilliputiana* Speg. *in* Bol. Acad. Cien Córdoba **11**: 80. 1889).

Type: Cayenne, French Guiana, coll. Leprieur (No. 658), Oct. 1836 (K, PC).

Sporophores up to 6 mm high, arising from a very dark brown basal pad of mycelium and consisting of a stipe-like portion which almost immediately branches to give rise to an intricate, tufted structure formed of thin, flattened lobes with crenulate margins. The fructifications which were originally described as dirty white are now ochraceous. *Hymenium* consisting of a palisade of conidiophores with acute or obtuse apices. These organs which are 2 μ in diam., resemble basidia but they each appear to give rise to a single conidium, borne at the apex of a very fine terminal sterigma. *Conidia* thin-walled, hyaline, and narrowly tear-shaped, 3–5 × 1.5–2 μ.

HABITAT: on wood.

This is an imperfect fungus which is synonymous with *Isaria flabelliformis* (Schw.) Lloyd. It is almost certainly the conial state of some species of *Xylaria* (*Xylosphaera* Dumort.).

Ellis & Everhart (*1892*) stated that *Isaria flabelliformis* was an abortive form of *X. corniformis* Fr. but according to Lloyd, Ellis & Everhart were merely following Fries in this respect. Lloyd (*1916*) wrote, "Fries, who was no doubt only guessing from Schweinitz' figure, started the story that it is the conidial state of *Xylaria corniformis*, and while there is not the slightest possibility of that being true, it was accepted and published by Ellis in his N.A. Pyrenomycetes." However, I can find no reference to Fries having stated that *Sphaeria flabelliformis* was the conidial state of *X. corniformis*. Lloyd (*1912b*) wrote of this fungus "Ellis referred it as a conidial form of *Xylaria corniformis*, but I think without any evidence, and I do not believe it has anything whatever to do with any *Xylaria*. I have often seen it, and watched it to see if it develops into a '*Xylaria*', which is quite improbable. I have never found any perithecia." Later Lloyd (*1916*) changed his mind for he wrote "That *Isaria flabelliformis* is the conidial state of a *Xylaria* is possible, even probable, but the ascigerous form is not known. . . ." By 1918 Lloyd (*1918a*) was of the opinion that *I. flabelliformis* was in fact the conidial state of *Xylaria corniformis* but he maintained that the conidia and perithecia were borne on different stromata. Finally in *1920* he wrote, "Prof. Petch has succeeded in getting the *Xylaria* from *Isaria flabelliformis* and sends a mature specimen and those partially developed. The *Xylaria* is *Xylaria allantoidea*. Father Rick has shown that a similar *Xylaria* develops into *Xylaria*

corniformis, hence there are two species that have similar *Isaria* forms." Petch (*1924*) also published the statement that "It has now been determined that, in Ceylon, this conidial form (i.e. *Isaria flabelliformis*) belongs to *Xylaria allantoidea*, though it is possible that other species may have the same type of conidial fructification. The conidial stage does not develop into the perithecial stage but the two grow side by side from the same piece of wood."

According to Berkeley & Curtis (*1868*), who refer the fungus to the genus *Xylaria*, *Isaria flabelliformis* is pink when young.

THELEPHORA LILLIPUTIANA Speg.

Thelephora lilliputiana Speg. *in* Bol. Acad. Cienc. Córdoba **11**: 80. 1889 [nec *T. liliputiana* Mont. *in* Ann. Sci. nat. (Bot.) II **13**: 205. 1840].

Thelephora helvola Sacc. & Syd. *in* Sacc., Syll. Fung. **14**: 215. 1899.

T y p e: Apiahy, Brazil, coll. J. Puiggari (No. 2372), May 1888. — It seems as though the number (2372) cited in the original diagnosis may have been an error for 2373, for there is no trace of a specimen of *T. lilliputiana* in the La Plata herbarium bearing the number 2372 but there is a specimen with the number 2373! It is this latter collection and an additional unnumbered gathering which have been examined.

Sporophores forming dense caespitose clusters, 5–6 mm high and 10 mm wide. *Pilei* spathulate or flabellate and often lobed but sometimes forming sterile, elongated linear segments. The pilei appear to bear short lateral spines along the sides of their reduced stipe-like bases but when the fruitbodies are soaked up in 10 % potassium hydroxide solution some at least, of the spines can be seen to arise from the hymenial surface. The fruitbodies, therefore, resemble *Hydnopolyporus fimbriatus* (Fr.) Reid and *H. hartmannii* (Mont.) Reid (see page 150) in so far as the external morphology is concerned. The pilei, which are thin, papery and rigid, are either flattened or convex, and can be seen to have a glabrous but minutely fibrillose surface when examined under a strong lens. They were originally stated to have a uniformly pale reddish surface which at length becomes dirty whitish, but the herbarium material is now pale beige. *Hymenial surface* pale reddish or flesh-coloured, at first pruinose then glabrous, and bearing isolated spines. *Stipes* arising in a densely fasciculate manner from a thick, whitish, woody nodule and becoming much branched or lobed above. *Flesh* thin, compact and pale wood-coloured. *Hyphal structure* dimitic, consisting of generative and skeletal hyphae. The generative hyphae, 2–3 μ in diam., are thin-walled, hyaline and branched with clamp-connexions at the numerous septa. The skeletal hyphae, 3–5 μ in diam., have thick walls, although there is always a distinct lumen, and scanty septa mostly toward the thin-walled obtuse apices which may be slightly narrowed. These skeletal hyphae may show occasional branching. There is no distinct cuticular layer.

Hymenium poorly developed. *Cystidia* and *gloeocystidia* absent. *Basidia* not seen. *Spores* 9–16 × 3.5–5(–6) μ, thin-walled, hyaline, non-amyloid, varying in shape from subcylindrical to elliptical.

HABITAT: erumpent through cracks in the bark of fallen, rotting branches.

It has not been possible to reach a satisfactory conclusion as to which family this fungus is best assigned, neither has it been possible to suggest a suitable genus to which it might be transferred. It does not belong in the genus *Thelephora* Ehrh. ex Fr. and is not even a member of the Thelephoraceae sensu stricto. Furthermore, it does not show any relationship with the stipitate stereoid fungi.

As already indicated above it would seem probable that when Spegazzini published the collection data of this species the collector's number was inadvertently given as 2372 instead of 2373. Thus in the Spegazzini herbarium at La Plata there is no specimen of *T. lilliputiana* bearing the number 2372 but there is a collection with the number 2373. Further when Spegazzini described *T. lilliputiana* he indicated that it resembled *Hymenochaete aspera* Berk. (which, incidentally, it certainly does not!) and on each of the two packets sent on loan from La Plata, Spegazzini has himself written "*Hymenochaete aspera?*" and later "*Hym. aspera* peraff." This again suggests that they were probably the collections on which Spegazzini based his descriptions of *T. lilliputiana*.

The second problem concerning Spegazzini's publication of *T. lilliputiana*, which is a later homonym of *T. liliputiana* Mont., is whether he really intended to publish a new species or merely a new variety of *T. liliputiana* Mont. The evidence strongly suggests that he was intent on the latter course of action. Thus on the two packets of *T. lilliputiana* in his herbarium he had written, "*Thelephora liliputiana* Montgn. var. *rubescens*" and "*Thelephora liliputiana* Montgn. var." showing that he was well aware of the existence of Montagne's species. That being so it is difficult to imagine that he would deliberately duplicate the name for a fungus which he at one time regarded as so close to Montagne's own species that he assigned it to varietal rank under that very taxon. Furthermore, since he had written '*Thelephora liliputiana* var. *rubescens*' on one of his herbarium specimens and '*Thelephora liliputiana* var.' on the other, it seems logical to assume that he probably intended to publish a taxon—*T. liliputiana* var. *rubescens*, especially as his *T. lilliputiana* was described as "helvola" and "superne pallescenti-rufescentes". Spegazzini's species was later renamed *Thelephora helvola* by Saccardo & Sydow.

THELEPHORA LUTOSA Schw. — FIG. 43

Thelephora lutosa Schw. *in* Trans. Amer. phil. Soc. II **4** (8): 166. 1832.

T y p e: Burt (*1914a*) has designated as type a specimen in Herb. Schweinitz from Salem, North Carolina. The specimen sent on loan from the Herbarium of the Academy of Natural Sciences in Philadelphia (PH) bears the information "Carolina".

Sporophores consisting of several closely adpressed, erect, flabellate lobes which are narrowed behind into very short stipe-like bases. The lobes, which arise from a sheet of mycelium, have a buff-coloured tomentose surface and a darker ochraceous hymenium. *Hyphal structure* monomitic, consisting of branched, hyaline, generative hyphae, 2.5–5 μ in diam. with prominent clamp-connexions at the septa. These hyphae have thin but distinct walls. *Cystidia* and *gloeocystidia* absent. *Basidia* not seen. *Spores* found toward the extreme base of the fruitbodies. These spores are 5.5–7.5 × 4.5–5.5 μ, pale yellowish brown and angular-tuberculate. When heated in aniline blue in lactic acid they are each seen to contain a single small guttule.

HABITAT: on the ground.

This fungus is a member of the genus *Thelephora* Ehrh. ex Fr. sensu stricto.

Burt (*1914a*) in his account of the species reiterated Schweinitz's original description of the macroscopic characters but added that "the pilei were crowded together into a small buff-coloured cluster about 1.5 cm high and broad, somewhat

as in *Tremellodendron pallidum* (Schw.)". He also stated that he was unable to find stems at the base of the pilei. Burt (l.c.) noted that the hyphae were 3 μ wide, and that the spores were "olive-buff under the microscope, angular, 5–6 × 3.5–4 μ". Since Burt (*1926*), when subsequently recording a further gathering of *T. lutosa*, made by W. A. Murrill in 1914, wrote "This rare species has been known only from the type collection from Salem, North Carolina", the presumption is that the collection sent on loan from the Schweinitz Herbarium in Philadelphia represented the material designated as lectotype by Burt in 1914.

THELEPHORA OUBANGUIENSIS Pat. & Har.

Thelephora oubanguiensis Pat. & Har. *in* Bull. Mus. Hist. nat., Paris **17**: 365. 1911.
Type: Fort Sibut, Krébedgé, Haute Oubangui, Chari-Tchad, French Congo, coll. M. A. Chevalier (No. 11393), 8 Sept. 1902 (FH).

Sporophores 2–3 cm high, branched, clavarioid, consisting of a main trunk which soon becomes irregularly divided by 2 or 3 dichotomies into rigid, white, villose, rugulose, bifid branches, 1–1.5 mm in width with acute, pellucid, rufescent apices. *Stipe* cylindrical, 2–3 mm wide, with the surface broken up into fibrils. *Hyphal structure* monomitic, consisting of thin-walled hyaline, branched, generative hyphae, 2.5–4 μ in diam., which lack clamp-connexions at the septa. *Hymenium* poorly developed, but confined to the lower surface of the branches. *Cystidia* and *gloeocystidia* absent. *Basidia* not seen, but said by Patouillard to be 4-spored. *Spores* hyaline, globose, 6–8 μ in diam. (Patouillard erroneously described them as cylindrical, obtuse, hyaline, numerous, 6–7 × 2 μ.)
HABITAT: this fungus was said to have grown on wood, but the dried specimens look as if they had grown on the ground.

This fungus is a member of the Clavariaceae. It is identical with *Aphelaria dendroides* (Jungh.) Corner, and was listed in the synonymy of this species by Corner (*1950*).

THELEPHORA PADINAEFORMIS Mont.

Thelephora padinaeformis Mont. *in* Ann. Sci. nat. (Bot.) IV **1**: 138. 1854.
Type: French Guiana, coll. Leprieur (No. 914) [K, PC].

Sporophores up to 7 cm high and 6 cm wide, consisting of a stipe which divides into narrow strap-like segments. These dilate toward the apex and again branch to form short segments which expand into broad flabellate pilei with crenulate or lobed margins. The pilei, which are very dark chestnut brown above with a paler yellowish brown margin, often fuse one with another to form a thin, flattened, glabrous fan-shaped structure which appears to be torn into holes (formed during fusion of pilei and branches). In some respects it is reminiscent of the growth form of some red marine algae (*Chondrus*, *Rhodomenia*, etc.) The fungus was originally described as infundibuliform but there would seem to be little evidence of this judging from herbarium specimens. *Hymenial surface* pale creamy-ochre or brownish, appearing quite smooth to the naked eye but under a lens it is seen to be densely granular or papillose. *Flesh* possibly gelatinous. The entire fruitbody tends to have a shiny varnished appearance which suggests that it may have been gelatinous when fresh. *Hyphal structure* difficult to make out since the hyphae are thin-walled and rather agglutinated. *Cystidia* and *gloeocystidia* absent. *Basidia* not seen. *Spores* thin-

walled, aculeate, elliptical, 3.75–4.5 × 2.2–3 μ and either pallid straw-coloured or pale brown.

HABITAT: on the ground.

This fungus belongs in the Hydnaceae, and is synonymous with *Hydnodon thelephorus* (Lév.) Banker.

THELEPHORA PAPYRACEA Jungh.

Thelephora papyracea Jungh., Praem. Fl. crypt. Javae Ins. *in* Verh. Bataviaasch Genoot. **17** [2]: 36. 1838.
Lloydella papyracea (Jungh.) Bres. *in* Ann. mycol., Berlin **8**: 588. 1910.
Thelephora friesii Lév. *apud* Zollinger, Syst. Verz. indischen Arch. **17**. 1854.
Stereum friesii (Lév.) Sacc., Syll. Fung. **6**: 566. 1888.
Stereum percome Berk. & Br. *in* J. Linn. Soc. (Bot.) **14**: 65. 1873.
Cladoderris pritzelii P. Henn. *in* Hedwigia **42** (Beibl.): 74. 1903.
Type: A specimen in Herb. Leiden bearing the label "Herbarium F. Junghuhn in H.L.B. No. 98 *Thelephora papyracea* Jungh. (*Stereum*)" was selected as lectotype by Reid (*1957a*).

This fungus has been described in detail by Reid (*1957a*) who transferred it to the genus *Lopharia* Kalchbr. & McOwan as *Lopharia papyracea* (Jungh.) Reid. But see this paper pages 118, 131.

THELEPHORA PARADOXA Lév.

Thelephora paradoxa Lév. *in* Ann. Sci. nat. (Bot.) III **2**: 206. 1844; *in* Gaudichaud, Voyage autour du monde . . . sur la corvette la Bonite . . .. Botanique **1**: 190. 1844–6.
Type: Manila, Philippine Islands, coll. Gaudichaud. Unfortunately this specimen was not available in the Paris Herbarium but a collection from Java, named by Léveillé and preserved at Paris provides the basis for the following observations.

ILLUSTRATION: Léveillé, *1844–6*: pl. 139 figs. 4, 4a (drawing of the type collection).

This fungus consists of a sheet of sterile tissue with a series of deep, inverted cone-like depressions, each having steep, striated sides. It is highly probable that it is merely an immature condition of some fungus—possibly a polypore—which grew over a woody plant, such as *Caesalpinia bondicella* or *Ceiba pentandra*, with short conical spines. On being detached from one of these plants, both of which occur in Java, the specimen would have exactly the pitted appearance of *Thelephora paradoxa*.

Reference to Léveillé's figure of the type specimen shows it to be very like the material discussed above and it too, may have had a similar origin.

THELEPHORA PROLIFERA Berk. — FIG. 44

Thelephora prolifera Berk. *in* Hook. J. Bot. **8**: 272. 1856.
Stereum proliferum (Berk.) Lloyd *in* Mycol. Writ. **4** (Syn. stip. Stereums): 34. 1913.
Type: Brazil, coll. Spruce (No. 17).

Sporophores up to 5.5 cm high and 6.5 cm wide, consisting of a repeatedly branched, clavarioid fruitbody, which is white when fresh. The branches are narrow, 0.5–1.0 mm in width, and somewhat flattened especially in the region of a dichotomy where they are distinctly dilated. An extraordinary feature of several of the fructi-

fications is that many of the ultimate branchlets instead of becoming increasingly fine, in fact become broader and terminate in a fan-shaped expansion up to 1.3 cm in diam. These terminal expansions may be more or less entire with a fimbriate margin or they may be palmately divided at the margin. *Hymenial surface* confined to the lower sides of the branches. On one of the fruitbodies the hymenial surface is densely covered with very minute papillae which are only visible under a lens. *Hyphal structure* monomitic, consisting of generative hyphae, 2–3 μ in diam., bearing clamp-connexions at the septa, and having thin but distinct walls. *Cystidia* and *gloeocystidia* absent. *Basidia* not seen. *Spores* 3–3.75 × 2–3 μ, thin-walled, hyaline and minutely echinulate, varying in shape from broadly elliptical to subglobose.

HABITAT: on the ground amongst fallen leaves and vegetable debris.

ILLUSTRATION: Lloyd, *1913b*: fig. 554 (photo of type material).

This fungus is a member of the Clavariaceae and belongs in the genus *Scytinopogon* Singer. It would appear to be synonymous with *S. scaber* (Berk. & Curt.) Reid (see page 161). The type collection of *T. prolifera* differs from that of *S. scaber* only in its very slightly smaller spores and its somewhat different growth form.

When Berkeley described this fungus he was under the impression that it was of a creeping habit and that the terminal expansions represented points of anchorage to the substratum. This interpretation of the material, however, is unlikely to prove correct. There is a record of *Stereum* (*Thelephora*) *proliferum* from the Belgian Congo (Beeli, *1926*).

THELEPHORA PULVINULATA Speg. — FIG. 45

Thelephora pulvinulata Speg. *in* Ann. Mus. nac. B. Aires, **19**: 276. 1909.

Type: Rio Caramillo, Salta, Argentina, March, 1905 (LPS).

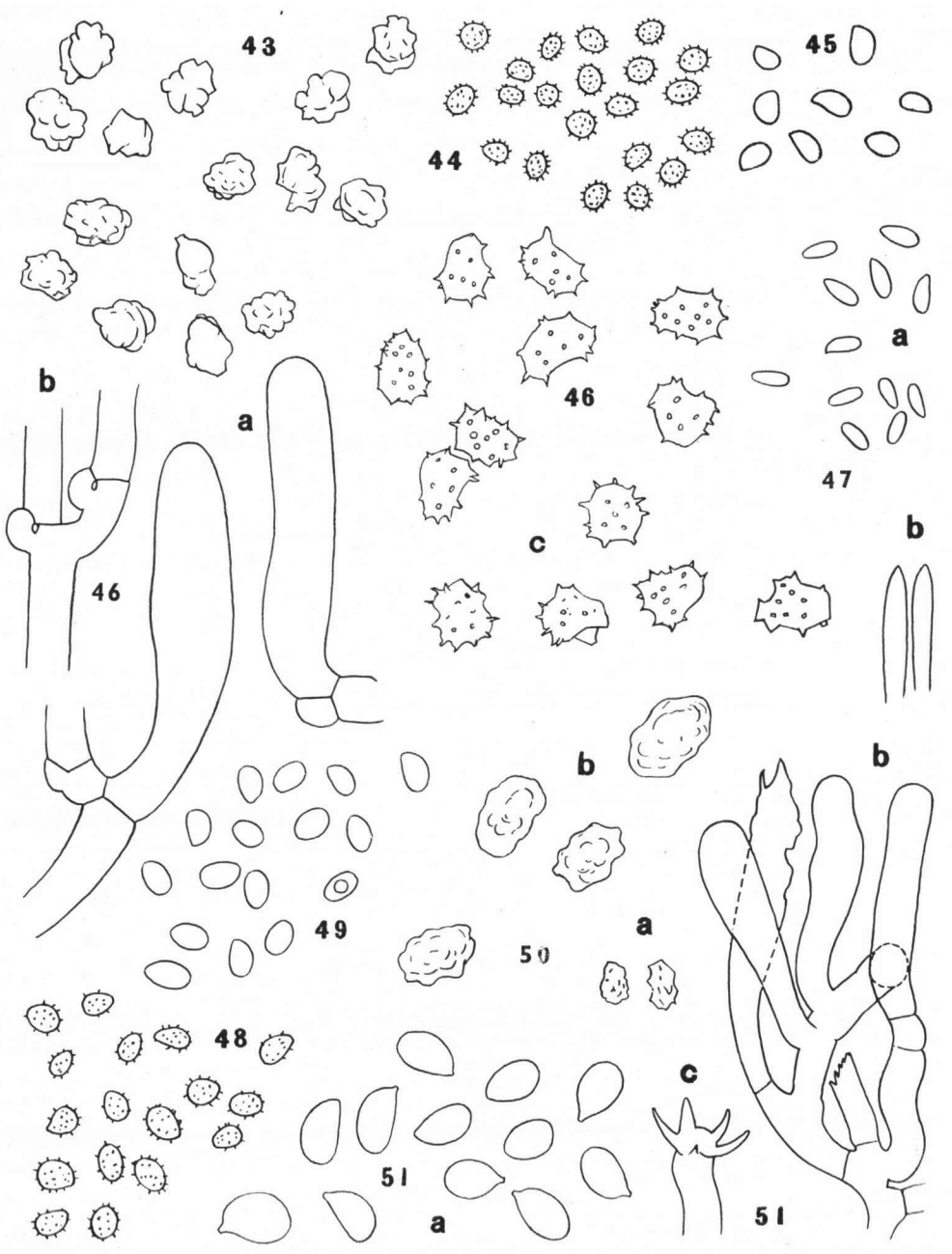
Sporophores consisting of dense caespitose clusters of white pilei, 1–5 cm in length, 1–2 cm in width and 1.5 cm in height. These clustered fructifications may be either hemispherical or more or less elongated, and are formed of thin, flabellate, crowded, anastomosing pilei with laciniate or fimbriate margins. *Hyphal structure* monomitic, consisting of thin-walled, hyaline, generative hyphae, 2–3 μ wide which, lack clamp-connexions at the septa. *Cystidia* and *gloeocystidia* presumably absent. *Basidia* not seen. *Spores* smooth, thin-walled, hyaline, elliptical, 3.5–4.2 × 2–2.75 μ (according to Spegazzini 4–5 × 2–3 μ).

HABITAT: on rotten trunks and branches.

The type material of this species is entirely covered by sand particles and is in such a poor condition that it is impossible to decide to what family it is best assigned. It is doubtful if it belongs in the Thelephoraceae sensu lato; it may possibly belong in either the Polyporaceae or the Hydnaceae. In many respects it suggests *Hydno-*

EXPLANATION OF FIGURES 43–51

Figs. 43–51. — 43. *Thelephora lutosa*. Spores. — 44. *Thelephora prolifera*. Spores. — 45. *Thelephora pulvinulata*. Spores. — 46. *Thelephora regularis*. a. Immature basidia. b. Hyphae with clamp-connexions. c. Spores. — 47. *Thelephora rosella*. a. Conidia. b. Conidiophores. — 48. *Thelephora scabra*. Spores. — 49. *Thelephora sebacinoides*. Spores. — 50. *Thelephora serrei*. a. Spores (× 1300). b. Spores (× 2300). — 51. *Thelephora subundulata* [Bronx Park]. a. Spores. b. Basidia. c. Basidium bearing five sterigmata.



Figs. 43–51

polyporus Reid (see page 151) but it differs from the two known species of this genus in its narrower hyphae and slightly smaller spores. However, since the material is so poor I have refrained from formally transferring the species to this genus.

THELEPHORA REGULARIS Schw. — FIG. 46

Thelephora regularis Schw. *in* Schr. naturf. Ges. Leipzig 1: 79. 1822.

Type: None cited in the original description but Burt (*1914a*) has selected as lectotype a specimen in the Schweinitz Herbarium from Salem, Carolina, U.S.A. What is possibly this collection was borrowed from the Herbarium of the Academy of Natural Sciences in Philadelphia (PH) and forms the basis of the following description.

Sporophores solitary, up to 2.3 cm high, and 1.1 cm wide. *Pileus* flabelliform, radiately fibrillose-striate, reddish or rusty-buff in colour, and with a slightly lobed, laciniate margin. *Hymenial surface* buff-coloured with a pinkish tinge, but brownish toward the base of the largest fruitbody, and minutely radiately grooved particularly near the margin. *Stipe* up to 1.5 cm high, covered with a dark reddish-brown, matted tomentum, especially toward the base. *Hyphal structure* monomitic, consisting of generative hyphae, 2.5–4.5 μ in diam., which bear clamp-connexions at the septa. These hyphae are branched and the branching frequently occurs from the clamp-connexions. Further the hyphae of one of the fruitbodies have very pale brown walls and appear twisted and ribbon-like while in another fructification of the same gathering they are distinctly brownish and have thicker walls, thus appearing more rigid. The tomentum of the stipe is formed of hyphae, 2.5–3 μ in diam., with thick brownish walls, and obtuse apices. These hyphae bear clamp-connexions at the primary septa but not at the abundant secondary septa. *Cystidia* and *gloeocystidia* absent. *Basidia*: mature basidia not seen, but when immature these organs are up to 57.2 μ in length, and 8–10.5 μ in width and appear cylindrical. *Spores* 7.5–8.75 × 4.5–6 μ (up to 9.5 μ in length with the spines included), brown, angular and echinulate, with a prominent apiculus visible in some planes. The shape of the spores varies from elliptical to ovate but in certain views they may appear almost trilobate or even subglobose.

HABITAT: on the ground in moss on banks of springs.

ILLUSTRATION: Burt, *1914a*: pl. 4 figs. 6, 7b (fig. 6 is a sketch of one of the sporophores of the type collection).

This fungus belongs in the genus *Thelephora* Ehrh. ex Fr. sensu stricto.

In the original account of *T. regularis* the sporophores were said to be infundibuliform or rarely subdimidiate, silky shining, testaceous and dark banded while the hymenium was described as pale and subpapillose. Furthermore the pileus was stated to vary from $\frac{1}{4}$ to $\frac{3}{4}$ of an inch in height. Fries (*1828*) supplemented this description by noting that the pileus was fuscescent when dry and that the hymenium was longitudinally striate and subcostate.

The first modern account of *T. regularis* was published by Burt (*1914a*). This was based on a collection in the Schweinitz Herbarium which Burt designated as the lectotype of the species. He stated that the type "consists of three fructifications, two of which are infundibuliform, the third and largest, flabelliform." The fungus was said to be "infundibuliform or divided to the stem into triangular divisions or flabelliform, . . . drying pallid or tawny-olive, darker at centre of the cup or at base of the divisions . . .; hymenium usually hair-brown, sometimes pallid; spores

melleus to umbrinous under the microscope, angular-tuberculate, 6–7 × 4½–5 μ."

The collections described in the current paper also consisted of three fructifications, one of which was larger than the others. However, in contrast to Burt's statement all three fruitbodies appear to be flabelliform. It is, therefore, by no means certain that the collection which forms the basis of the above description is the same as that designated as lectotype by Burt.

THELEPHORA ROSELLA Peck — FIG. 47

Thelephora rosella Peck *in* Rep. New York St. Mus. No. 35: 136. 1885.
Type: Sandlake, U.S.A. (NYS).

Sporophores consisting of small cushion-like rosettes of much divided pallid lobes arising from a black basal tubercle. These lobes, which are white or flesh coloured in the living plant have a dentate or fimbriate margin. Hymenium formed of a palisade of narrow, pointed, thin-walled, conidiophores, 2.5 μ in diam. *Conidia* apparently borne singly at the apex of the conidiophores as small, elliptical, thin-walled, hyaline bodies, 3–4.5 × 1.5–2 μ.

HABITAT: on dead branches of *Alnus incana*.

This is almost certainly the conidial state of some species of *Xylaria* (*Xylosphaera* Dumort.) and Lloyd (*1913b*) stated that it is the same as *Isaria flabelliformis* (Schw.) Lloyd. It would certainly appear to be the same fungus as that described from the United States by Montagne as *Thelephora liliputiana* which Lloyd also regarded as being synonymous with *I. flabelliformis*. For further details concerning the latter species and its possible connexion with various species of *Xylaria*, see page 154.

THELEPHORA SCABRA Berk. & Curt. — FIG. 48

Thelephora scabra Berk. & Curt. *in* Amer. J. Sci. II **11**: 94. 1851.
Thelephora prolifera Berk. *in* Hook. J. Bot. **8**: 272. 1856.
Stereum proliferum (Berk.) Lloyd *in* Mycol. Writ. **4** (Syn. stip. Stereums): 34. 1913.
Type: Ovolau, Fiji Islands (BPI).

Sporophores up to 2.7 cm high, white, clavarioid, consisting of a number of flattened branches which are dilated and incised above, with the lobes incised or furcate. Hymenial surface rough with little granular warts. *Hyphal structure* monomitic, consisting of thin-walled hyaline, branched, generative hyphae, 2.5–3 μ in diam., which bear clamp-connexions at the septa. *Basidia* not seen. *Spores* 3.5–4 × 2.5–3.5 μ, thin-walled, hyaline or subhyaline, distinctly echinulate and varying in shape from ovate to broadly elliptical.

HABITAT: on the ground.

ILLUSTRATION: Curtis & Berkeley, *1862*: fig. 6.

This fungus is a member of the Clavariaceae and evidently belongs in the genus *Scytinopogon* Singer. It is accordingly transferred to that genus as **Scytinopogon scaber** (Berk. & Curt.) Reid, *comb. nov.*

This species differs from *S. angulisporus* (Pat.) Corner in its smaller and more rounded spores and its papillose hymenium. From *S. echinosporus* (Berk. & Br.) Corner it differs not only in the above mentioned features but also in colour.

Thelephora prolifera Berk. (see page 157) would seem to be a synonym of *S. scaber*.

The type specimen of the former species has an almost identical microstructure to that of *S. scaber*, although the spores, while of similar shape, are fractionally smaller. In addition the type material of *T. prolifera* has a papillose hymenium like that of *S. scaber*. However, it must be admitted that the growth form of the two collections is somewhat different but judging from the other species of *Scytinopogon* this might be expected to vary within fairly wide limits.

It should be noted that the type material of *S. scaber* consists of a mass of fragments which are insufficient to give any clear idea of the shape of the fungus.

THELEPHORA SEBACINOIDES P. Henn. — FIG. 49

Thelephora sebacinoides P. Henn. *in* Hedwigia **36**: 193. 1897 ("*sebacioides*").
Type: Sta. Catherina, Brazil, coll. E. Ule (No. 1260) (S).

Sporophores white, consisting of caespitose, flabellate pilei which are variously and often deeply divided and lobed. The segments themselves are usually also lobed and frequently have an almost pectinate margin which is somewhat enrolled. *Hymenial surface* not smooth as stated by Hennings but covered with fertile spines and ridge-like plates of tissue. *Hyphal structure* monomitic, consisting of branched, generative hyphae, 2.5–7 μ in diam., which often become very thick-walled (–2 μ wide) especially toward the base of the fruitbody. These hyphae lack clamp-connexions at the septa. There is no distinct cuticle. *Hymenium* apparently not thickening. *Cystidia* and *gloeocystidia* absent. *Basidia* not seen. *Spores* 4–4.75 × 2.75–3.5 μ, thin-walled, hyaline, varying in shape from broadly elliptical to ovate.
HABITAT: on tree-bark.

Thelephora sebacinoides is a synonym of *Hydnopolyporus hartmannii* (Mont.) Reid (see page 150), and was listed as such by Bresadola (*1926*).

This fungus was originally published as *T. sebacioides* but it is clear that Hennings, by his choice of the epithet 'sebacioides', intended to convey the impression that his new fungus resembled members of the genus *Sebacina* for he indicated that it had a certain similarity with *Sebacina* Tul. (mis-spelled as *Sebacinia*). As a result Saccardo (*1899*) corrected the spelling of the specific epithet to 'sebacinoides'.

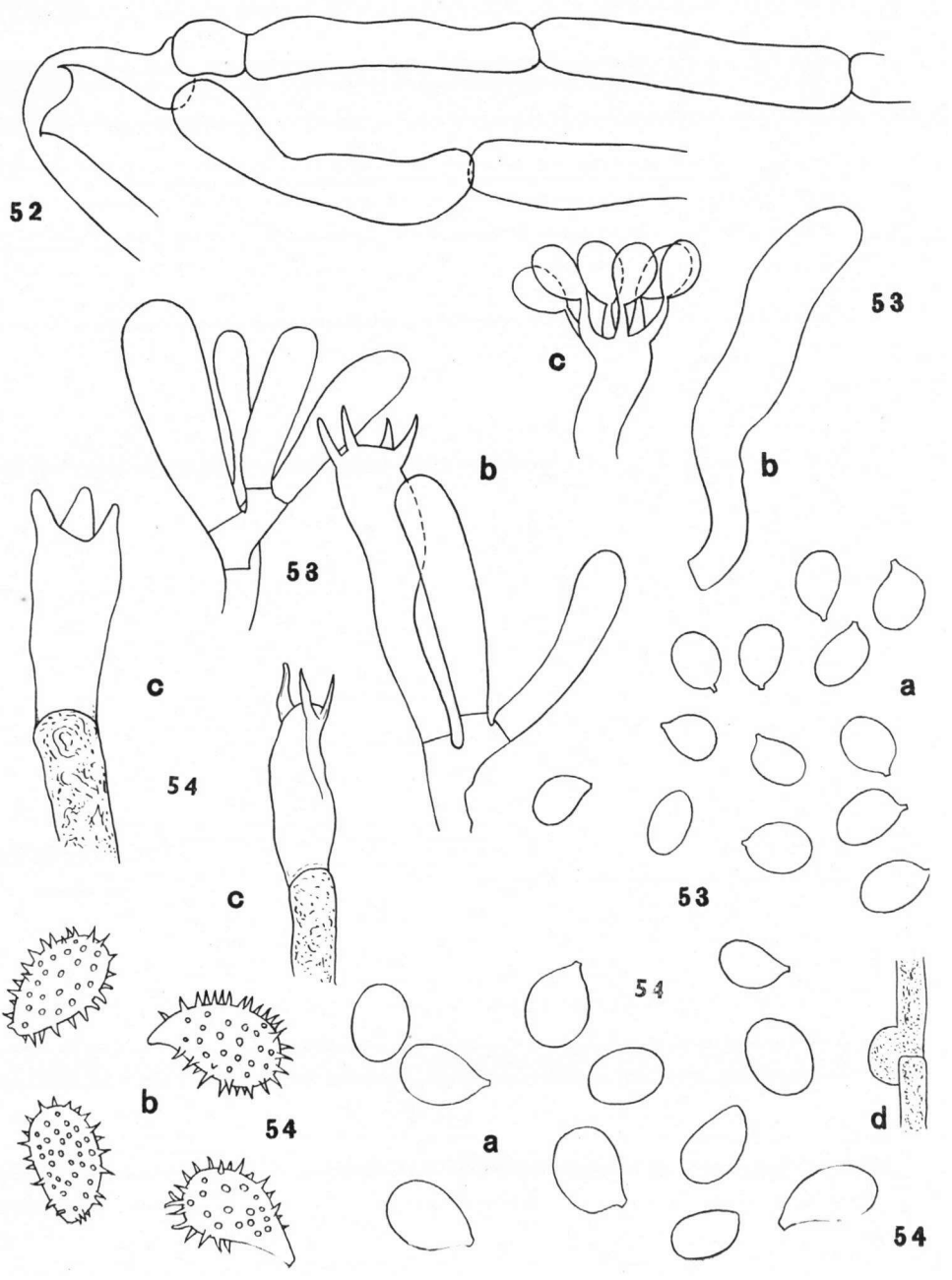
THELEPHORA SERREI Pat. & Har. — FIG. 50

Thelephora serrei Pat. & Har. *in* Bull. Soc. mycol. Fr. **22**: 116. 1916.
Type: Java, coll. P. Serre (FH).

Sporophores white, arising from a spreading sheet of mycelium as erect densely gregarious, wedge-shaped lobes or narrow branches which become variously fused together to form more or less shapeless, sponge-like masses. *Hyphal structure* monomitic, consisting of branched, hyaline, generative hyphae, 2–3 μ in diam., which have

EXPLANATION TO FIGURES 52–54

Figs. 52–54. — 52, 53. *Thelephora subundulata*. 52. [Bronx Park]. Hyphae. 53. [Delaware, coll. A. Commons]. a. Spores. b. Basidia. c. Basidium bearing six spores. — 54. *Thelephora viridula*. a Spores of the fungus. b. Extraneous spores of a species of *Ramaria*. c. Basidia which have become secondarily septate after spore discharge. d. Hypha showing a clamp-connexion,



Figs. 52–54

thin but distinct walls and bear clamp-connexions at the septa. *Hymenium* smooth, probably thickening, reaching 39–52 μ in width at a point 4 mm in from the margin of a very young lobe, and confined to the lower surface of the fruitbodies. *Cystidia* and *gloeocystidia* absent. *Basidia* not seen. *Spores* 5–5.5 × 3 μ, thin-walled, faintly yellowish in colour, distinctly verrucose-echinulate and varying in shape from elliptical to broadly elliptical.

HABITAT: on the ground.

Thelephora serrei is a member of the Clavariaceae and is synonymous with *Scytinopogon angulisporus* (Pat.) Corner.

It should be noted that the type material of *T. serrei* is in very poor condition.

THELEPHORA SUBLILACINA Ell. & Ev.

Thelephora sublilacina Ell. & Ev. *in* Bull. Labs nat. Hist. Univ. Ia No. 13: 67. 1896.

Type: Catillos el Viejo, Nicaragua, coll. B. Shimik and C. L. Smith, 1893 (NYS).

This species belongs in the genus *Septobasidium* Pat. and was transferred to that genus by Burt as *Septobasidium sublilacinum* (Ell. & Ev.) Burt *in* Ann. Mo. bot. Gdn **3**: 331. 1916. In this paper Burt published a full account of the species, but it was redescribed some years later by Couch (*1938*).

THELEPHORA SUBUNDULATA Peck — FIGS. 51–53, 59

Thelephora subundulata Peck *in* Bull. Torrey bot. Cl. **22**: 492. 1895.

Craterellus subundulatus (Peck) Peck *in* Bull. Univ. St. New York No. 286: 27. 1903; *in* Bull. New York St. Mus. No. 67: 27. 1903.

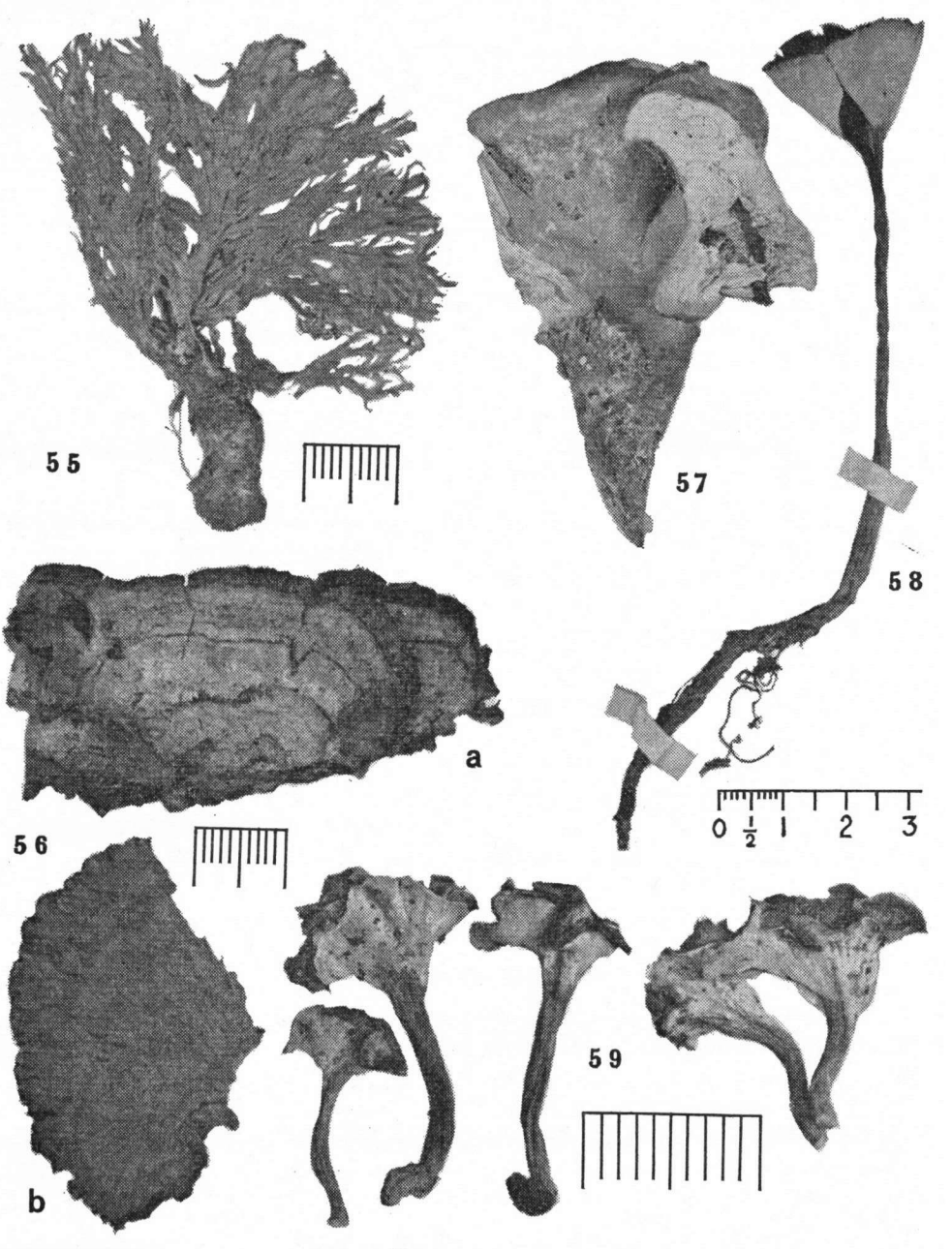
Type: Wilmington Delaware, U.S.A., coll. A. Commons (No. 2718) (NY).

Sporophores gregarious or caespitose, 1.7–2.0 cm high and 1.3 cm wide, thin, coriaceous and centrally stipitate. *Pileus* varying from somewhat depressed to almost infundibuliform and with an undulating, plicate margin in which the lobes or folds sometimes overlap. The surface of the pileus is slightly floccose-squamulose or fibrillose and varies in colour in the dried condition from "Isabella Color" to "Light Brownish Olive" of the Ridgway Colour Chart, but it was originally described as subcinereous or greyish-brown. *Hymenial surface* uneven or slightly folded at the margin, varying from "Cinnamon Buff" to "Clay Color" in dried material but originally described as being "paler than the pileus, grayish or grayish-yellow" *Stem* solid, rarely branched. *Hyphal structure* monomitic, consisting of subhyaline, thin-walled, branched, generative hyphae, 4–10.5 μ in diam. These hyphae lack clamp-connexions at the septa, at which points they are often distinctly constricted and the individual segments vary from 23.4 to 60 μ in length. *Cystidia* and *gloeocystidia* absent. *Basidia* 33.5–46.8 μ long and up to 10 μ wide, bearing up to 6 sterigmata. *Spores* 5.5–8 × 4–5.0 μ, thin-walled, hyaline or subhyaline and varying in shape from broadly elliptical to ovate with a small lateral apiculus.

HABITAT: on the ground.

EXPLANATION OF FIGURES 55–59

Figs. 55–59. — 55. *Cladoderris funalis*. Fruitbody, type. — 56. *Cladoderris pritzelii*. Fruitbody, type. a. Upper side. b. Hymenial surface. — 57. *Stereum guadelupense*. Fruitbody. — 58. *Stereum miquelianum*. Fruitbody, type. — 59. *Thelephora subundulata*. Fruitbodies from type collection.



Figs. 55–59

This fungus belongs in the genus *Pseudocraterellus* Corner and is accordingly transferred to that genus as **Pseudocraterellus subundulatus** (Peck) Reid, *comb. nov.*

Peck (*1903*) subsequently reported a second gathering of this species from the New York Botanic Garden and specimens of this collection are preserved in the Herbarium of the New York Botanic Garden and also in the Herbarium of the New York State Museum, Albany. Sporophores preserved in the latter institution were examined and these are obviously conspecific with the type material of *P. subundulatus*. They differ from the type, however, in having a slightly more felty surface when examined under a lens, since the hyphae are often united into prominent rope-like strands giving a minutely reticulate or even minutely strigose effect. The hyphal structure shows close agreement with that of the type, except that the hyphae are 3–8.5 μ wide. The hymenium does not appear to thicken but there is a very broad subhymenial zone varying in width from 40 μ near the margin to 90 μ near the base of the fruitbody. The basidia are 33.8–52 × 6–8 μ and bear 4–5 sterigmata while the spores are 6–7.75 × 3.75–4.2(–5) μ [Peck (*1903*) described them as 8 × 4.5 μ].

Burt (*1926*) published an account of this species in which he stated that the two collections of the species each consisted of about 30 fructifications. He also found the spore range to be 6–9 × 4.5–6 μ.

Initially, when Peck first described the species, he was struck by its resemblance to *Thelephora undulata* Fr. but subsequently when he realized it was more naturally placed in the genus *Craterellus* Pers., he indicated that it was closely related to *C. sinuosus* Fr., differing chiefly in its smaller size and slightly smaller spores (Peck, 1904). It should, however, be noted that *Pseudocraterellus pertenuis* (Skovst.) Reid (see page 120) is very closely related to this American fungus as is *C. pusillus* Fr.

THELEPHORA VIRIDULA Bres. — FIG. 54

Thelephora viridula Bres. *in* Ann. mycol., Berl. **5**: 240. 1907.
Type: Java, coll. E. Heinricher (S).

Sporophores up to 2 cm high and broad, consisting of a number of erect flattened branches, which are themselves branched but not markedly so. These branches, which have dilated, subfimbriate apices, become connate below, but there is no well developed stipe. *Hyphal structure* monomitic, consisting of thin-walled, branched, generative hyphae, 3–4 μ in diam., which bear clamp-connexions at the septa and have densely granular contents. *Hymenium* thickening, reaching 130 μ in width. *Cystidia* and *gloeocystidia* absent. *Basidia* more or less clavate and mostly 2-spored but some were observed to bear 3 sterigmata. The basidia which are up to 12 μ wide and of uncertain length (probably exceeding 35 μ) become secondarily septate after spore discharge. *Spores* (8–)9–10 × (4.75–)5.5–7.5 μ, thin-walled hyaline or sometimes stained yellowish brown, and varying considerably in shape from pip-shaped to very broadly elliptical or ovate and with a distinct apiculus. There are in addition extraneous spores present which would seem to belong to a species of *Ramaria*. These are 14.6–15.6 × 8–8.5 μ, echinulate, and brown in colour.

HABITAT: on the ground.

This fungus is a member of the Clavariaceae and belongs in the genus *Clavulina* Schroet. It is accordingly transferred to that genus as **Clavulina viridula** (Bres.) Reid, *comb. nov.*

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