PERSOONIA
Published by the Rijksherbarium, Leiden
Volume 2, Part 3, pp. 407–415 (1962)

NEW GENERA OF FUNGI—VIII [1]

ROLF SINGER
Universidad de Buenos Aires

The genus *Pseudohiatula*, based on hymeniform structure of epicutis with interspersed dermatocystidia or trichodermial-palisadic structure without dermatocystidia, contains species, all belonging in the same tribus (Marasmieae), but does not seem to be sufficiently homogeneous to be maintained sensu lato. It is now restricted to the type species (*P. cyatheae*), and *P. callistosporioides* is united with *Cyptotrama macrobasidium* in the genus *Cyptotrama*; *P. irrorata* and *P. panamensis* (perhaps also *P. ohshimae*) are referable to *Hydropus* (where species with projecting dermatocystidia and with muricate pleurocystidia should be admitted); *P. conigenoides*, *esculenta*, *stephanocystis*, and *tenacella* are placed in a new genus, *Strobilurus*, and *P. cinnamomea* in another new genus, *Physocystidium*.

The genus *Pseudohiatula* is characterized by a very specific structure of the epicutis which consists of a corticate hymeniform layer of rather broad elements, with larger dermatocystidia interspersed. On the basis of the species known formerly and under consideration of the characters of the type species known until recently, the species of Marasmieae (Tricholomataceae) with this particular cuticular structure appeared to form a fairly homogeneous group corresponding to an emended concept of the genus *Pseudohiatula* such as circumscribed in my book 'Agaricales in modern taxonomy', 2nd ed., C. Cramer, Weinheim/Bergstr., Germany, 1962.

A revision of the type element of the genus *Pseudohiatula* has become possible because of the discovery of the respective species in Brazil (Singer *in* Vellozia, 1962), but the corresponding readjustment in the generic taxonomy of the Tricholomataceae—Marasmieae has been postponed until more data on the affinities of the other species entering *Pseudohiatula* in the classification of 1962 became available. This is also the reason for the delayed publication of the present part VIII of 'New genera of fungi'.

However, it is now possible to discuss the affinity of these species in their relation to the type species, *Pseudohiatula cyatheae*, and in their relation to other genera of the same tribus. We are now convinced that, within *Pseudohiatula* in its conception of 1962, there are five groups or elements which are not necessarily divided from other genera of the same tribus by a hiatus more evident or sharper than the one that divides them among each other. In other words, it must be admitted that

[1] Earlier parts of this series have been published as follows: I *in* Mycologia **36**: 358–368. 1944. — II *in* Lloydia **8**: 139–144. 1945. — III *in* Mycologia **39**: 77–89. 1947. — IV *in* Mycologia **40**: 262–264. 1948. — V *in* Mycologia **43**: 598–604. 1951. — VI *in* Lilloa **23**: 255–258. 1951. — VII *in* Mycologia **48**: 719–727. 1956.

Pseudohiatula sensu lato (1962) is perhaps an example of a genus in which too much weight has been given to a single anatomical character—the structure of the cuticular layer of the pileus—whereas in reality, other characters, thus far considered as secondary, appear to show that the genus should be restricted to the only original species and the other elements be separated generically from it. This is a situation comparable to the one prevailing in the case of *Cantharellula* sensu lato, which also had to be split up into a number of related genera (see 'New genera of fungi—VII').

The principal elements of *Pseudohiatula* sensu lato are:

(1) The type, *P. cyatheae* (Sing.) Sing., with amyloid spores, bilateral trama, with irregularly occurring clamp connections, with insititious stipe, habit of a mycenoid-pluteoid agaric, with fuscous intracellular pigment and rounded-free lamellae, growing on Pteridophyta (tree ferns) in the tropics (and in hothouses).

(2) *P. callistosporioides* Sing. (in print) with vaguely pseudoamyloid spores which become slightly pigmented in age, bilateral trama, with constant clamp connections, with basal mycelial fibrils, habit collybioid, with ochraceous-melleous incrusting or membranal pigments and rounded-adnexed or subfree (to broadly adnate) lamellae, growing on dicotyledonous wood (*Alnus jorullensis*) in the (sub-)tropics.

(3) *P. conigenoides* (Ellis) Sing. with all the principal characters of the group of boreal species inhabiting conifer cones (but growing on *Magnolia* cones), with inamyloid small narrow spores which remain hyaline, regular trama of the *Clitocybe*-subtype, without clamp connections, with basal pseudorrhiza, habit collybioid, with frequent crystalline incrustations on the tips of the multinucleate cystidial elements of hymenium and covering layers, growing in the cold-temperate to warm-temperate zones of the Northern hemisphere.

(4) *P. irrorata* (Pat. apud Duss) Sing. with inamyloid spores, regular trama of the *Clitocybe*-subtype, with irregularly occurring clamp connections, without pseudorrhiza, but with sparse mycelial basal fibrils, with frequent crystalline incrustations on the hymenial cystidia, the latter pseudoamyloid, habit collybioid, growing on wood in the tropics.

(5) *P. cinnamomea* (Dennis) Sing. with aberrant epicutis, consisting of a trichodermial palisade of multiseptate elements with pigmented walls and without differentiated dermatocystidia, with regular trama, with numerous clamp connections, without pseudorrhiza, with broad non-muricate cystidia, habit collybioid, lamellae adnate, growing on wood in the tropics.

The question comes up whether these additional elements (2–5) are close enough to existing genera to be incorporated in the latter, or referable to new genera to be described for them. This question cannot be answered for all these species in the same way.

As for group 2, with *P. callistosporioides*, it appears that this is not generically separable from another genus with bilateral hymenophoral trama, viz. *Cyptotrama* Sing. (*in* Lilloa **30**: 375. 1960), with the type species *C. macrobasidium* Sing. We therefore add to it, as second species, *C. callistosporioides* Sing., ined.

Group 3 has repeatedly been compared with *Marasmius*, sect. *Alliacei*, yet does not seem to fit into the genus or section on the grounds of a number of characters, such as constant absence of clamp connections, combined and correlated with the presence of a pseudorrhiza, the presence of muricate-incrusted cystidia and dermatocystidia, etc. Since there is likewise no other genus described until now where the species of this group might reasonably enter, we are proposing the following new genus:

Strobilurus Sing., *gen. nov.*

Habitu collybioideo-submarasmioideo, epicute hymeniformi, dermatocystidiis in pileo et stipite praesentibus, cystidiis hymenialibus muricatis; sporis inamyloideis, subminutis, angustis, levibus; tramate hymenophorali regulari typi *Clitocybarum*, hyphis defibulatis; pseudorrhiza praesente, e conis *Magnoliae* et coniferarum variarum orta. Typus generis: **S. conigenoides** (Ellis) Sing., *comb. nov.* (*Agaricus conigenoides* Ellis *in* Bull. Torr. bot. Cl. **6**: 76. 1876). Aliae species sunt: **S. esculentus** (Wulf. ex Fr.) Sing., *comb. nov.* (*Agaricus esculentus* Wulf. *ex* Fr., Syst. mycol. **1**: 131. 1821); **S. stephanocystis** (Hora) Sing., *comb. nov.* (*Pseudohiatula stephanocystis* Hora *in* Trans. Brit. mycol. Soc. **43**: 455. 1960); **S. tenacellus** (Pers. ex Fr.) Sing., *comb. nov.* (*Agaricus tenacellus* Pers. ex Fr., Syst. mycol. **1**: 131. 1821).

The generic position of group 4 (*P. irrorata*) is obviously in the genus *Hydropus*, provided an emended description of this genus and the incorporation of a new section is permitted. This is so because the not truly bilateral gill trama, the fuscous intracellular pigment of the epicutis, the pseudoamyloid pleurocystidia, and the adnate lamellae and non-insititious stipe place *P. irrorata* in the group of species with inamyloid spores recently (Singer *in* Vellozia, 1962) admitted in *Hydropus* [2] as section *Mycenoides* Sing. from which *P. irrorata* differs in muricate cystidia and long dermatocystidia on the pileus; parts of the trama are gelatinized. It will be noticed that in the genus *Hydropus* in its present circumscription, a certain extension of range in the structure of the epicutis and hypodermium is permitted, and it would not seem correct to exclude *P. irrorata* on the basis of the dermatocystidia or the gelatinized hypodermial hyphae. As for the muricate cystidia, it will be noted that in most genera where these exist, species without murication (or with a strongly reduced one) are likewise admitted.

Consequently, we propose the new section:

Hydropus, sect. **Irrorati** Sing., *sect. nov.*

Sporis inamyloideis; hypodermio gelatinoso; epicute dermatocystidiis permagnis ornata; cystidiis hymenialibus laterum lamellarum nec non ad aciem crystallis muricatis; fibulis sparsis, interdum nullis(?). Typus sectionis: **H. irroratus** (Pat. apud Duss) Sing., *comb. nov.* (*Collybia irrorata* Pat. *apud* Duss, Enum. meth. Champ. Guad. Mart. 49. 1903). — It appears probable that *Marasmius ohshimae* Hongo & Matsuda [*Pseudohiatula ohshimae* (H. & M.) H. & M. ex Hongo] is another species of this section.

As for the fifth group of elements formerly attached to *Pseudohiatula* sensu lato, viz. *P. cinnamomea*, we cannot find any closely related genus or section, except, perhaps, again *Marasmius* sect. *Alliacei* with which we have compared it recently

[2] The reader is herewith asked to correct a printing error in 'Agaricales in modern taxonomy', 2nd ed., p. 389, line 4, where the spores should have been described as *amyloid*, not *inamyloid*.

(Singer *in* Sydowia **12**: 76. 1958) although we came then to the conclusion—which we maintain—that *Marasmius* is generically different. One may possibly look for affinity in genera of other families (not Tricholomataceae), for example in *Cystoderma* (Agaricaceae) or *Phaeomarasmius* (Cortinariaceae), but in *Cystoderma*, the cuticular layers are much more short-celled, in the way of an epithelium, and there is always a veil; in *Phaeomarasmius*, we know species with very pale spore print, e.g. *P. gregarius* Sing., but not white-spored species. If the complete absence of pigment in the spores were the only difference between *Phaeomarasmius* and *P. cinnamomea*, one might think of similar cases (*Hebeloma* and *Hebelomina*; *Cortinarius* and *Leucocortinarius*) in the Cortinariaceae, but the absence of pleurocystidia in all species of *Phaeomarasmius* known at present and the absence of a veil in *P. cinnamomea* seem to indicate that if there is any affinity between the two, it must be rather remote.

For these reasons, we see ourselves compelled to describe still another independent taxon for *P. cinnamomea:*

Physocystidium Sing., *gen. nov.*

Habitu collybioideo; epicute palisadica, trichodermiali, ex elementis erectis parallelis pluri-cellularibus consistente, sed cellulis elongatis nec subisodiametricis, dermatocystidiis absentibus; pigmento in epicute membranali atque intracellulari; cystidiis hymenialibus ad latera lamellarum tenui-tunicatis, ventricosis vel bulluliformibus, haud muricatis; sporis inamyloideis, ellipsoideis, subminutis, levibus; tramate hymenophorali regulari; hyphis fibulatis, inamyloideis, in hypodermio interdum leniter pigmento incrustatis; pseudorrhiza nulla; pileo cinnamomeo, velutino; stipite cavo, haud insiticio; carne concolori; velo nullo. Ad ligna tropicalia. Species typica: **P. cinnamomeum** (Dennis) Sing., *comb. nov.* (*Collybia cinnamomea* Dennis *in* Trans. Brit. mycol. Soc. **34**: 436. 1951).

This leaves without a definite place one more species of *Pseudohiatula* sensu lato, viz. *P. panamensis* Sing. Although this is a characteristic species, keying out in *Pseudohiatula* sensu lato, but certainly different from all other species, it has not been collected with sufficient macroscopical data to make it possible to arrive at a final conclusion, and some comparative studies would help in bringing about a clearer picture of the relation of this species with others discussed above, but were not obtainable on the material at hand. Nevertheless, it may be anticipated that the characters known to be found in this species refer it to *Hydropus*, probably section *Mycenoides* where it forms, perhaps, some sort of transition to section *Irrorati* because of the configuration of its epicutis.

The conclusions of the present paper are combined and condensed in the following key; this key permits the placing of all the elements which are contained in the genus *Pseudohiatula* sensu lato, and is therefore applicable to all white-spored Marasmieae with corticate and at the same time dermatocystidia-bearing epicutis and those with a trichodermial palisade:

A. Hymenophoral trama distinctly bilateral; spores amyloid, pseudoamyloid, or inamyloid, the old ones sometimes pigmented. Tropical genera . . Subtrib. PSEUDOHIATULINAE [3]

[3] Subtrib. **Pseudohiatulinae** Sing., *subtrib. nov.* (trib. Marasmiearum familiae Tricholomatacearum). Epicute hymeniformi, dermatocystidiis praedita; tramate hymenophorali manifeste bilaterali. Typus subtribus: *Pseudohiatula* Sing. Genus alterum: *Cyptotrama* Sing.

B. Stipe insititious; lamellae free or subfree; pigment of cuticular layer of pileus sepia-fuscous, intracellular; on tree ferns . . . . . *Pseudohiatula* (Sing.) Sing.
P. cyatheae (Sing.) Sing.

B. Stipe at base with mycelial fibrils, not quite insititious; lamellae rounded-subfree to squarely adnate; pigment of cuticular elements melleous to reddish fulvous, partly membranal or incrusting; on wood, rarely on foliage in tropical and subtropical forests *Cyptotrama* Sing.

C. Basidia large, 37–44 × 8.2–10 μ; hypodermium not gelatinized; spores 7–7.5 μ broad; lamellae adnate . . . . . *C. macrobasidium* Sing.

C. Basidia much smaller; hypodermium gelatinized; spores narrower; lamellae rounded-adnexed to subfree . . . . . *C. callistosporioides* Sing.

A. Hymenophoral trama regular (at times of *Clitocybe*-subtype), not distinctly bilateral or absent; spores not amyloid and not pseudoamyloid, hyaline.

D. Epicutis hymeniform, with projecting dermatocystidia interspersed, these and/or the hymenial (pleuro-)cystidia generally muricate with a crystalline (calcium oxalate) incrustation, more rarely not muricate or with resinaceous incrustation; clamp connections often scarce or absent.

E. Mature dried material with epicuticular elements pigmented by a fuscous intracellular pigment; pseudorrhiza none; lamellae adnexed with decurrent ridges or more often adnate, not free or subfree
Subtrib. MYCENINAE: *Hydropus* (Kühn.) Sing.

F. Cystidia muricate; hypodermium gelatinized and other parts of trama also tending to be gelatinized . . . . . Sect. *Irrorati* Sing.
H. irroratus (Pat. apud Duss) Sing.

F. Cystidia on sides of lamellae rather inconspicuous; trama not gelatinized, see *H. panamensis* (Sing.) Sing.

E. Mature dried material with a different pigment in the epicuticular and hypodermial layers or without pigment. . . . . Subtrib. MARASMIINAE

G. Lamellae free or subfree; clamp connections none; pseudorrhiza present *Strobilurus* Sing.

H. On conifer cones; stipe 1–3 mm thick; pileus 5–45 mm broad; lamellae more than 12; pigments in pileus ochraceous to blackish brown, abundant.

I. On pine cones; cystidia with rather thin (up to 0.8 μ) walls, either broadly rounded *or* context bitter and spores in profile subarcuate.

J. Spores in profile slightly arcuate; taste bitter; pileus generally grayish brown; cystidia mostly acute . . . *S. tenacellus* (Pers. ex Fr.) Sing.

J. Spores straight; taste mild; pileus generally ochraceous; cystidia not acute . . . . . *S. stephanocystis* (Hora) Sing.

I. On spruce cones (*Picea*); cystidia mostly thick-walled; spores in profile straight . . . . . *S. esculentus* (Wulf. in Jacq. ex Fr.) Sing.

H. On *Magnolia* cones; cystidia obtuse or acute, with walls up to 1.5 μ thick; stipe 0.5–1 mm thick; pileus 3–15 mm broad and whitish with ochraceous buff central portion; lamellae mostly up to 12 (not counting lamellulae); American species (New Jersey to Florida) . . *S. conigenoides* (Ellis) Sing.

G. Lamellae adnate or reduced; clamps present . . . . . (see *Gloiocephala*)

D. Epicutis a trichodermial palisade, without differentiated dermatocystidia; hymenial pleurocystidia not mucronate or incrusted; clamp connections numerous. Tropics
Subtrib. MARASMIINAE: *Physocystidium* Sing.
P. cinnamomeum (Dennis) Sing.

In the following paragraphs, we supplement the present scheme by full descriptions or references to descriptions and illustrations of the species entering the *Pseudohiatula* complex:

1. PSEUDOHIATULA CYATHEAE (Sing.) Sing.

See Vellozia **1**, Rio de Janeiro. 1962.

2. CYPTOTRAMA MACROBASIDIUM Sing.

See Lilloa **30**: 375. 1960.

3. CYPTOTRAMA CALLISTOSPORIOIDES Sing., ined.

See Sydowia (in print).

4. HYDROPUS IRRORATUS (Pat. apud Duss) Sing.

Collybia irrorata Pat. *apud* Duss, Enum. meth. Champ. Guad. Mart. 49. 1903. — *Pseudohiatula irrorata* (Pat. apud Duss) Sing. *in* Lloydia **9**: 118. 1946. — *Micromphale irrorata* (Pat. apud Duss) Dennis *in* Trans. Brit. mycol. Soc. **34**: 457. 1951.

Prunulus pubescens Murrill *in* N. Amer. Fl. **9**: 341. 1916. — *Mycena pubescens* (Murrill) Murrill *in* Mycologia **8**: 221. 1916.

Pileus whitish, tending to pale pinkish buff or sordid ochraceous in the center, becoming dark brown from the center outwards but often remaining pallid in a marginal zone, minutely pubescent, not hygrophanous, often striate in marginal zone, with initially incurved margin, convex, but more or less flattened or even slightly depressed in the center, 8–15 mm broad.

Lamellae pure white or whitish, moderately broad, tridymous when mature, adnate, tending to become somewhat collariate, close; spore print white.

Stipe white, at base becoming concolorous with pileus, white pubescent all over, equal with slightly enlarged base, tubular, 20–45 × 1 mm, at base up to 1.5 mm, subinsititious but with sparse basal mycelial fibrils.

Context white, rather thin, in base later concolorous with surface, otherwise unchanging, flexible, not soft-fleshy, inodorous.

Spores 4–6.2 × 3–3.5 μ, ellipsoid or short-ellipsoid, with strongly eccentric well developed hilar appendage, hyaline, inamyloid with rather thin homogenous wall.

Hymenium: Basidia "18–20 × 3–4 μ, four-spored" (A. H. Smith on type of *P. pubescens*); cystidia both on edges and sides of lamellae, on sides and edges equal but shorter on edges, 40–52 (–70) × 7–24 μ, according to Smith rarely up to 98 μ long, mostly distinctly muricate at apex with a crystalline incrustation, but on edges many non-muricate ones present, varying from almost thin-walled to thick-walled, ventricose with somewhat narrowed apex and rounded-obtuse tip, pseudoamyloid, numerous.

Hyphae: hyaline in trama, inamyloid, with very scattered clamp connections or occasionally without any clamp connections. Hymenophoral trama subregular, consisting of a gelatinized lateral stratum which consists of hyphae which, in age, run in all directions, and may show a slightly diverging tendency in some sections, and with a subregular mediostratum which is much less gelatinized; whole gill trama scarcely subbilateral, but rather thick in KOH mounts, consisting of rather slender hyphae (± 5 μ diam.).

Covering layers: Pileus with a corticated epicutis which consists of broadly vesiculose elements, some piriform, e.g. 21 × 21 μ, filled in age with a fuscous brown intracellular pigment which may appear vacuolar and locally condensed, smooth, with thin walls; dermatocystidia among these cells rather numerous but easily collapsing and in dried material often difficult to demonstrate, causing the pubescent appearance of the pileus, generally thin-walled, but sometimes many

thick-walled setoid (but hyaline) hairs present, dermatocystidia not muricate, 75–200 × 9–20 μ, with swollen base and thinner main body or tapering upwards to a rounded tip; surface of stipe with thin- and thick-walled dermatocystidia which resemble those of the pileus.

On decayed wood (type on *Guarea simplicifolia*), logs and vines, sometimes climbing up to 3 m above ground, fruiting from October until January in the lower montane rain forest of Jamaica, Guadeloupe, Trinidad, Venezuela and south to the Bolivian Yungas.

Material studied: GUADELOUPE: Typus (FH). — JAMAICA: *F. S. Earle 563*, Typus of *P. pubescens* (NY). — TRINIDAD: *Dennis* 117 (K). — VENEZUELA: *Dennis 117A* (K). — BOLIVIA: Nor-Yungas, Charobamba, *Singer B754* (LIL).

5. **Hydropus panamensis** (Sing.) Sing., *comb. nov.*

Pseudohiatula panamensis Sing. *in* Mycologia **47**: 772. 1955.

For description, see l.c.

6. STROBILURUS TENACELLUS (Pers. ex Fr.) Sing. (sensu Schroet., Kühn. & Romagn.)

Illustrated and described by Bresadola (Icon. mycol. **5**: 210. 1928, as *Collybia esculenta*); Favre (*in* Schweiz. Z. Pilzk. 166–7, fig. 3. 1939), and discussed under the name of *Pseudohiatula favrei* by Tuomikoski (*in* Karstenia **2**: 30. 1953[4]). See also Knecht (*in* Schweiz. Z. Pilzk. **39**: 156–166. 1961).

7. STROBILURUS STEPHANOCYSTIS (Hora) Sing.

This species was first distinguished as a species by Favre (as *Marasmius conigenus*, l.c., p. 646–8, fig. 2), and as a subspecies by Singer (as ssp. *pini* Sing. *in* Ann. mycol., Berl. **41**, 1943). It was correctly stated by Kühner & Romagnesi that the name *A. conigenus* cannot apply to this species, and therefore the latter was keyed out by them (Flore anal. p. 94) as *Collybia stephanocystis* Kühn. & Romagn., but without a Latin diagnosis. This same epitheton was later taken up by Hora to describe validly a new species under *Pseudohiatula*. This is a common species in Europe which I have restudied as to its macro- and microscopical characters, ecology and phaenology, and which is well illustrated and described by various authors, particularly by Bresadola [Icon. mycol. **5**: pl. 210(1). 1928, as *Collybia esculenta*] and Favre (l.c.). Moser has it as *Pseudohiatula conigena*.

What the true *Agaricus conigenus* of Fries really is, is very difficult to state. Kühner & Romagnesi (l.c., p. 96) come to the conclusion (which is also that of Lange) that this is the same as *Baeospora myosurus* (Fr.) Sing., and this is apparently also the conclusion of Tuomikoski. Imazeki & Hongo describe and illustrate a fungus under the name *Pseudohiatula esculenta* ssp. *pini* [*Marasmius conigenus* (Fr. sensu Favre) Favre] (Col. Ill. Fung. Japan, no. 77. 1957) which at first glance may be considered the 'true' *A. conigenus* Fr., and it probably is, only it appears that the small spores

[4] Like most spring agarics, *S. tenacellus*, more rarely, re-appears in late fall. The fruiting period alone can therefore be no argument against this interpretation of the classical species, as given by Schroeter, Favre, and Kühner & Romagnesi.

would make this a *Baeospora*, and most probably the same as *B. myosurus*, unless the cystidia are actually as illustrated by Favre (and Imazeki & Hongo) for *M. conigenus*.

8. STROBILURUS ESCULENTUS (Wulf. in Jacq. ex Fr.) Sing.

Excellently described and anatomically illustrated by Favre (*in* Schweiz. Z. Pilzk 668, fig. 4. 1939) as *Marasmius conigenus* ssp. *esculentus* and by Lange (Fl. agar. dan **2**: 13, pl. 44 F. 1936).

9. STROBILURUS CONIGENOIDES (Ellis) Sing.

Agaricus conigenoides Ellis *in* Bull. Torr. bot. Cl. **6**: 76. 1876. — *Collybia conigenoides* (Ellis) Sacc., Syll. Fung. **5**: 223. 1887. — *Pseudohiatula conigenoides* (Ellis) Sing. *in* Lilloa **22**: 320. 1951 ('1949').

Marasmius bombycirrhizus Berk. & Cooke *in* Grevillea **6**: 129. 1878.

Agaricus conigenus var. *pubescens* Ellis *in* herb. (no. 410). 1874.

Pileus white to yellowish, generally whitish with ochraceous buff central portion, minutely pubescent, with transparently striate margin, convex to almost applanate, not viscid, 2–15 mm broad.

Lamellae white, tending to become pale buffish yellow, moderately close or subdistant (mostly about 12 through-lamellae or fewer), subfree to free, inserted, moderately broad.

Stipe white, becoming ochraceous yellowish from the base upwards, or remaining whitish, finely pubescent, glabrescent, hollow, 15–40 × 0.5–1 mm; veil none; pseudorrhiza distinct, up to as long as the free portion of the stipe, whitish, silky-fibrillose.

Context white or whitish, unchanging; odor none.

Spores 5–7 × 2.3–2.7 μ, fusoid when seen frontally, slightly arcuate with applanate to convex inner side and oblique hilar portion when seen in profile (like those of *S. tenacellus*), smooth, thin-walled, inamyloid.

Hymenium: Basidia 19.5–22 × 4–4.5 μ, 4-spored; cystidia on edges and sides of lamellae, somewhat metuloid, at first thin-walled, but tending to become rather evenly thick-walled (wall up to 1.5 μ in diameter), hyaline, ampullaceous with gradually attenuate, cylindric or subcapitate apex, with rounded to acute tip, the latter with a hood of crystalline material, 25–42 × 8.5–11 μ.

Hyphae without clamp connections, inamyloid, filamentous; hymenophoral trama regular, slightly of the *Clitocybe*-type when young (with a small outer portion vaguely diverging towards the subhymenium, but trama not divided into mediostratum and lateral stratum), not gelatinized.

Cortical layer: Epicutis of pileus corticating the trama of the pileus by a hymeniform layer of vesiculose to almost subisodiametric cells which are hyaline and pedicellate, 25 × 10–17.5 μ, interspersed with ampullaceous dermatocystidia, the latter likewise hyaline, 40–50 × 7.2–15.5 μ, with a long or short ($^2/_3$ of total length to $^1/_4$ of total length of cell) 'neck', the latter with obtuse or subacute tip and not or indistinctly incrusted. Dermatocystidia numerous also on surface of stipe, gradually transformed into unicellular radiciform fibrils on the pseudorrhiza.

On buried cones of *Magnolia* (inflorescences or fruits), also on superficial fragments of the same, especially *M. glauca*, *M. fraseri*, and *M. grandiflora*, fruiting mainly in August.

Material studied: USA.: New Jersey, Newfield, August 1876, *Ellis* (Typus, FH); 1874, *Ellis* (as *A. conigenus* var. *pubescens*, FH). — West Virginia, *Ellis & Everhart*,

NAF second series *3503* (FH). — Tennessee, Great Smoky Mountains Nat. Park, 10 Nov. 1936, *Hesler & Class* (FH). — Cades Cove, 20 Aug. 1940, *D. H. Linder* (FH). — North Carolina, *Coker* (FH). — Florida, Gainesville, Typus of *M. bombycirrhizus* (K).

10. PHYSOCYSTIDIUM CINNAMOMEUM (Dennis) Sing.

See descriptions and illustrations by Dennis (*in* Trans. Brit. mycol. Soc. **34**: 436. text-fig. 13 (p. 432) and pl. 23, fig. 13. 1951) and Singer (*in* Sydowia **12**: 76, fig. 4. 1958 (as *Collybia* and *Pseudohiatula cinnamomea*).