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NOVA HEDWIGIA

HEFT 50

**A MONOGRAPH
OF
FAVOLASCHIA**

BY

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1974

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Summary: The genus *Favolaschia* (Favolaschiaceae) is monographed. The data obtained confirm the conclusion arrived at in earlier papers by the present author that *Favolaschia* is homobasidial, autobasidial, and most closely related to *Aleurodiscus* and *Gloeosoma*, genera now considered Aphyllophorales in spite of certain similarities with some genera of the Agaricales (Pannelleae). 51 species and several subspecies and varieties are recognized and described. 28 species are not known sufficiently but may well belong in the genus *Favolaschia* (for these an artificial separate key is given.)

History and position of the genus

The basic characteristics and the circumscription and scope of *Favolaschia* were first indicated in my paper on the 'Laschia-Complex' (Singer 1945), where several species were revised. A few additional species were added later (Singer 1950; Dennis 1952; Kobayasi 1952 and Singer & Fidalgo 1965). The earlier history of the genus *Favolaschia* was traced in Singer (1945). Most classical species were described by Junghuhn, Montagne, Berkeley & Curtis, Patouillard, Bresadola and Hennings, mostly as '*Laschia*', excepting those of Patouillard and Hennings. The types of the species described by Hennings are mostly lost but authentic or type material of a few could be obtained recently by the present author. Lloyd (1919) made a study of some older types and of some new species of his own but his data, except for the photographs taken of type material, are unreliable and his conclusions regarding synonymy can, in many cases, not be accepted.

The position of *Favolaschia* in the 'Holo-Basidiomycetes' is definitely settled. There is no relationship or similarity between *Favolaschia* and the type species of *Laschia* which is an *Auricularia* (or *Hirneola* in Donk's nomenclature). However, whether the affinities of *Favolaschia* are rather

with the Aphyllophorales or the Agaricales is a question which is still answered differently by different authors. The present study was undertaken specifically to obtain further data which might have a bearing on this problem.

Singer (1945) assumed that *Favolaschia* belongs in the Cyphellineae and inserted this genus in Maire's family Leptotaceae. This was a temporary solution which, as it turned out, did not reveal the correct position of *Favolaschia* inasmuch as many 'Cyphellineae' show agaricoid affinities as has been described by Singer (1951) and Donk (1966) while others show definitely more affinity with certain groups of Aphyllophorales (Donk 1964). The Cyphellineae are thus not a natural grouping - a fact not known in 1945. Furthermore, it was shown by Singer (1962) that *Campanella*, also introduced into the Leptotaceae as well as *Leptoglossum* (the valid name of the type genus of Leptotaceae) are closely related to *Marasmiellus* and *Omphalina* respectively, both belonging undoubtedly in the Agaricales (Tricholomataceae). What then about the remaining genus - *Favolaschia*?

Singer (1945) has first indicated that *Favolaschia* is closely related to *Aleurodiscus*. Both genera have the gelatinizing trama, the amyloid spores and the occurrence of acanthocysts in common; the presence or absence of pore dissepiments i.e. whether we have a permanently simple or a composite cup and the asperulate versus smooth spores are the only differences between these two genera. Singer (1969) has therefore proposed a family Favolaschiaceae which contains *Favolaschia*, *Aleurodiscus* and *Gloeosoma*.

Aleurodiscus has been treated by Donk (1964) in his family concept of Corticiaceae together with such genera as *Galzinia*, *Dendrothele*, *Laeticorticium*, etc. whereas *Favolaschia* was transferred to the Agaricales, following Patouillard, Dennis and others. I have already (1945) enumerated the reasons why it is tempting to insert *Favolaschia* in the Tricholomataceae (Agaricales), particularly in view of *Dictyopanus copelandii* Pat. (see l.c. p. 222). It may now be added that both *Favolaschia pezizaeformis* (Kobayasi 1952) and several forms of *Dictyopanus* (Corner 1947) are luminescent.

The development of the carpophores in *Favolaschia* is quite different from that of *Dictyopanus* and *Panellus*, and recently discovered species of *Favolaschia* which form their 'hymenophore' by merely aggregating cup-shaped 'pilei' and show a young hymenium which corresponds to the type called catahymenium by Donk (1964) reveal that the affinity between *Favolaschia* and *Aleurodiscus* is much closer than the one assumed between *Favolaschia* and *Dictyopanus*. The pores of *Dictyopanus* are merely anastomosing lamellae. The acanthophysoid bodies in *Dictyopanus* are indeed similar to those of *Favolaschia* but acanthophysoid bodies or acanthocysts can be observed in

many genera of Aphyllophorales including *Aleurodiscus* as well as other Agaricales (*Mycena* et al.) and Gasteromycetes (*Amparoina*). Finely setulose hairs of an appearance very similar to acanthocysts or acanthophyses are even found in many Discomycetes; similar setulae in the Aphyllophorales, e.gr. in the genus *Acanthobasidium* Oberwinkler, on the basidia; it is not too far-fetched to speculate on the origin of the acanthocysts of the Favolaschiaceae, postulating that these sterile bodies are transformed basidioles of the *Acanthobasidium* type. As for amyloid spores and luminescence, these are phenomena of taxonomically scattered occurrence and not restricted to *Mycena*, *Panellus* and *Favolaschia*.

One might perhaps postulate that the Favolaschiaceae are merely the product of a cyphellization process starting off from Pannelleae-like reduced agarics - parallel to other cyphelloid reduced lines branching off from certain other Agaricales, e.gr. Tricholomataceae and Crepidotaceae. But, if so, this cyphellization process has here led to a surprising evolution including new features - a catahymenium, a modification of the spore ornamentation and a development of the vascular system otherwise not known in Agaricales. This derivation of the Favolaschiaceae, if indeed it reflects an evolutionary reality, goes therefore far beyond the cyphellization observed in agaricoid 'Cyphellineae' and far beyond the present delimitation of the order Agaricales and appears probable only if Kreisel's (1969) hypothesis, admitting the possibility of a derivation of the Aphyllophorales from the Agaricales, is accepted.

My present work provides data which underscore the affinity of *Favolaschia*, *Aleurodiscus* and *Gloeosoma* while no new indications of closer relationship with the Pannelleae have been discovered. Therefore it would appear that the position of *Favolaschia* depends on the one assigned to *Aleurodiscus*. The present consensus is that *Aleurodiscus* belongs to one of the groups united in the (super-) family Corticiaceae sensu lato (Donk 1964); consequently, I consider the family Favolaschiaceae as a split group from Corticiaceae sensu lato and place it in the Aphyllophorales.

Descriptive Data

Favolaschia is macroscopically so characteristic that in most cases it is possible to determine the genus, even in dried condition, by a look under the dissecting microscope. The 'stipe' is a lateral, eccentric or central (attached to the sterile surface of the pileus) pseudostipe of often extremely variable size depending on the position of the carpophores on the substratum: If the carpophores develop on the lower surface of the substratum, no pseudostipe is formed and the pileus is sessile or else a central or eccentric pseudostipe is

formed; if, on the other hand, the carpophores are formed on the upper or lateral surfaces, a lateral pseudostipe is favored and this may become curved so as to turn the pileus to a position which permits the spores to develop with downward exposition. The pseudostipe is insititious or more rarely shows a small basal mycelium and its structure is generally a replica of the anatomical features of the pileus, except that it is often less gelatinized than the pileus. The pseudostipe is therefore by no means comparable to the true stipe which corresponds to the stipe-columella (Singer & Smith 1959) of the secotiaceous fungi.

The 'hymenophore' should perhaps not be called so in a strict sense since in many or all species the development of the carpophore starts from a single cup with or without a pseudostipe and apparently always gymnocarpously. During further development further cups are added by radial growth. In young carpophores the dissepiments between the originally round pores are mostly still thick in relation to the pore diameter, but the tube-walls become relatively thinner as the fungus matures. The structure of the pore edges is in most species the same as the structure of the sterile surfaces. The outermost peripheral pores are the youngest and often the smallest.

The dermatocystidia are of two basic kinds:

1. The dermatopseudocystidia which consist of unaltered projections of the gloeo-vessels to the pore edge or the sterile surfaces or of individualized and characteristically shaped pseudocystidia characterized - as the gloeo-vessels - by their granular (finely or coarsely, sometimes with rod-like bodies) contents which partly or entirely turn blue in cresyl blue mounts. This type of pseudocystidia has been called gloecystidia in the narrower sense by both Heim and myself - notwithstanding the extension of the definition of gloecystidia by other authors who use the word pseudo- and gloecystidia interchangeably and have no special term for the gloecystidia of the *Favolaschia*-type. This type of pseudocystidia is not restricted to the Favolaschiaceae, but occurs likewise in other Aphyllophorales (e.gr. *Gloeocantharellus*), Agaricales (e.gr. *Macrocystidia*) and Gasteromycetes. In some Favolaschias the continuation of the gloecystidia into the trama proper is very conspicuous: long (often several hundred micromillimeters) cylindrical or fusiform to clavate gloeo-vessels which are chemically identical with the gloecystidia. Where they are particularly conspicuous by the density of their contents and their diameter (more than 10μ) and color (yellowish) they are referred to as belonging to the 'longicellulis-type' (as first observed by Lloyd when describing *F. longicellulis* Lloyd). In some species the gloeo-

cystidial type of cell is represented, not only by pseudocystidia and dermatopseudocystidia but by endocystidia which may replace the longer gloeovessels.

2. The acanthocysts which arise from the terminal hyphae of the trama of the pore dissepiments and the sterile surfaces of the carpophore are either elongated (cylindric or fusoid to ellipsoid) or, more commonly, sub-vesiculose or vesiculose with or without a pedicel. The pedicel is mostly smooth, more rarely beset with the same thin, short, spinose-narrowly-conical or rod-shaped thin diverticula or setulae as the main body of the acanthocysts. These are usually rather thin-walled, with the wall usually turning more or less pinkish to pale violet in cresyl blue mounts (metachromasy) and their contents are either homogeneously dissolved (cell therefore optically empty in most media) or filled with an accumulation of internal bodies mostly in form of plaques in slate-like arrangement and lilac, blue or red in cresyl blue mounts, amyloid or inamyloid in Melzer's reagent. But even in this case, there are usually a few 'empty' bodies present to indicate their homology with the acanthocysts. Frequently, these become free cells forming a sugary powder on the surface of the pileus and pseudostipe. The amyloid reaction of the interior of acanthocysts - first discovered in *F. echinata* by the present author (1950) - is something unknown in other groups of Aphyllophorales and Agaricales.

A variant of the normal acanthocysts are optically empty, usually vesiculose bodies, functioning as dermato- or cheilocystidia either accompanied by or entirely substituting for the normally echinate-diverticulate acanthocysts, but differing from these by being completely smooth. This variant is of rare occurrence in the genus, its most characteristic development being found in *F. auriscalpium*.

The pileus-trama of the Favolaschias is more or less gelatinized, mostly with the exception of a ramose-filamentose subhymenium and an interwoven intraepicuticular zone. This may be a true gelatinization i.e. the hyphae are thin-walled and filamentous, distant from each other and imbedded in a gelatinous mass. In other cases, the glassy appearing hyphae are rather dense with slightly to locally strongly thickened walls and these gelatinizing in age if sufficient moisture is available. These two types of gelatinization may characterize the trama of a given species or else coexist in individual carpophores either in form of mixed hyphae of both types, or the first type being restricted to the upper portion of the pileus trama or the whole pileus trama while the lower part of the pileus trama and the trama of the pseudostipe correspond to the second type. The hyphae are mainly filamentous, in some species all; in others there is a variable number of intercalated or terminal

inflated hyphae of greater or lesser length (diameter reaching sometimes more than 10, sometimes 20 μ). This structure then is comparable to the sarcodimitic structure of Corner (1966) but there is no sharp distinction between the simply monomitic and the sarcodimitic structure. Moreover, the voluminous, long hyphae are sometimes shortened and excessively broad, or thick-walled and might then be called endocystidia - a term of doubtful application in this case, justifiable only because in a few species these bodies break through the hymenium forming some sort of cystidium. The hyphae are running subparallel or in all directions, from the pseudostipe, then towards the margin of the pileus and form a regular or subregular trama in the pore dissepiments; they are always inamyloid, generally clamped, and more often colorless than pigmented. Intraparietal pigment is found in *F. dumontii* Sing. and incrusting pigment in *F. torrendii* (Lloyd) Sing.

Otherwise the pigments are either dissolved and inconspicuous in KOH or ammonia mounts (subhyaline) or else wanting. In the acanthocysts, however, we often find strong pigmentation which gives the carpophore its characteristic color (e.g. *F. cinnabarina*), or else the pigment is concentrated in the gloeocystidia which were therefore referred to as 'color glands' by Lloyd.

The spores rise from 1-, 2-, 3- or 4-spored basidia which are normal holobasidia and obviously neither stichobasidial nor apobasidial. The basidioles are originally cylindric to narrowly clavate-subventricose, rarely somewhat fusoid, thus not of the *Marasmiellus-Marasmius*-type. They are formed either in an 'inflating' 'eu-hymenium' even in the earliest stages observed or else break through a layer of hyphidia in a primordial catahymenium but become so numerous that in the mature hymenium only occasional hyphous elements are seen. The basidia are (all or at least many of them in any given hymenium) provided with a basal clamp. This is so even in those few species where there are no clamp connections in the trama or at the base of the acanthocysts. All basidia are always smooth but often rather variable in size and shape, although the diameter of the basidia - as in other Basidiomycetes - mostly corresponds to the length of the spores as long as these are ellipsoid. In those species where numerous gloeocystidia and/or gloeo-vessels occur, the gloeo-content is also often present in some basidia and/or spores. Occasionally a few basidia arise without septum from a horizontal subhymenial element, being geniculate at the base and similar to pleurobasidia.

The spores are more or less thin-walled, one-celled (very rarely eventually with a cross septum), amyloid and tending to collapse, acyanophilous, always smooth but with occasional irregularities in shape (excrescencies etc. sometimes observed) and are forcefully discharged from the half-sickle-shaped sterigma so that a spore print can rather easily be obtained. The color of the

spore print has not been observed in all species but wherever a spore print has been obtained it was pure white, pale vinaceous buff (in *F. tonkinensis*), rarely orange cream (as in *Gloeosoma*). The spore shape varies, often in a single species or carpophore between ellipsoid, ovoid and cylindrical, and an inconstant depression in the middle of the inner side of the spore can be observed frequently, so that in lateral view the spore may appear reniform or phaseoliform. In other species the spores are generally subglobose or globose. Their size varies from 4.5 to 15 μ .

The Favolaschias grow typically on dead plant material, wood, herbaceous stems, fallen leaf petioles or central nerves, on the culms of Gramineae, and occasionally on woody roots or fruits. Their host range includes Pteridophyta, conifers, Mono- and Dicotyledones. They are thermophilous, occurring exclusively in the warm-temperate (Central Chile, Japan) to subtropical and tropical zone with the exception of a small number of species found in the montane zone and the páramo of the tropical belt and in the cool-temperate zone of the Southern Hemisphere in Chile and the Northern Hemisphere to Sakhalin.

Present knowledge of the taxonomy of Favolaschia

The present knowledge of the taxonomy of the genus rests on an intensive study of the neotropical and other American collections of the genus and additional material coming from other parts of the world. It is obvious that the *Favolaschia*-flora of the Americas is better and, hopefully, rather thoroughly known, especially from those regions personally visited by the author and those visited by other mycologists who paid special attention to the representatives of the 'Laschia-complex'. The African species have also been studied by Hennings (but unfortunately many of his types are not any more available), by Pegler et al., by Heim and others. Asiatic material, at least as far as it was available to me, has been relatively scanty and Australian material even more so. A visit to the type localities of described species and more intensive collecting in these regions might produce additional good species. In the meantime, it is hoped that the key to the incompletely known species (p. 98) will be helpful.

At present 51 species and several subspecies and varieties are accepted in the genus, 38 of these are from the Western Hemisphere. It is unlikely that such a large percentage of the world flora should be concentrated in the Western Hemisphere; therefore it is assumed that other regions will contribute additional species, even beyond the species incompletely known but formally described until now.

Nevertheless, detailed descriptive data on the species now fully known are considered sufficient to indicate the scope and limits as well as the position of the genus.

The subdivision of the genus in sections has not been altered since Singer (1950) but both sections have now been subdivided into a number of subsections, mainly according to the distribution of gloeocystidia and gloeovessels on one hand, and the pigments on the other.

Acknowledgements

The present study has been carried out as part of a program supported by a National Science Foundation grant. The author wants to express his gratitude and also wishes to extend his thanks to Dr. Dennis (Kew Herbarium) and Dr. Dumont (New York Botanical Garden) who have put their collections at his disposal.

FAVOLASCHIA

(Pat.) Pat. & Lagerheim, Bull. Herb. Boiss. 3:54. January 1895;
Hennings, Engler's Bot. Jahrb. 22:93. November 1895*

Basionym:

Laschia section Favolaschia Pat., Journal de Botanique 1:231. 1887.

Synonyms:

Porolaschia Pat., Essai Tax. p. 63, 1900.

Mycomedusa Heim, Rev. d. Mycol. 10:58. 1945 (publ. 1946) ex Heim, Rev. d. Mycol. 30:232. 1966.

Type species (lectotype): *Favolaschia gaillardii* (Pat.) Pat.

**Favolaschia* is treated as a genus a few months earlier by Patouillard & Lagerheim than by Hennings.

Key to the sections and subsections*

- A. Acanthocysts poorly developed or absent, either replaced by diverticulate hyphae (narrow inconspicuous acanthocysts, or diverticulate hyphae similar to those occurring in *Mycena*) or by dendrophysoid** terminal cells or cystidia, or completely wanting. Section ANECHINUS p. 10
- B. Acanthocyst-like but smooth dermatocystidia absent or very scarce
 - C. Gloeocystidia absent or rare; gloeo-vessels absent or inconspicuous 1. Subsection *Rubrinae* p. 10
 - C. Gloeocystidia present and conspicuous; gloeo-vessels present 2. Subsection *Depauperatae* p. 19
- B. Acanthocyst-like but smooth dermatocystidia numerous
 - D. Large white species on dicotyledonous wood (see 'C' above)
 - D. Pileus much smaller than 10 mm on palm (see 'G' below)
- A. Acanthocysts or broadened conspicuous acanthophyses numerous and ± conspicuous. Section FAVOLASCHIA p. 22
- E. Acanthocysts, at least their majority, filled with optically well visible (in KOH hyaline) flake- or plaque- or bulbil-like bodies often in slate-like accumulations and either amyloid or colorable with cresyl blue (lilac, red or blue), tending to become free and then forming a sugar-like or furfuraceous pulverulence on the sterile surfaces and the pore edges; basidia often less than 4-spored 4. Subsection *Intermediae* p. 80
- E. Acanthocysts rarely with any contents at all (and then contents consisting of sparse minute internal bodies), most acanthocysts in any carpophore optically empty or with at least partially dissolved pigment; the acanthocyst-covering mostly only forming a fine bloom visible under the dissecting microscope or not at all; acanthocyst rarely becoming free
 - F. Gloeo-cystidia and gloeo-vessels inconspicuous and rare; pigment rarely yellow and never red or orange. 3. Subsection *Pantherinae* p. 72
 - F. Gloeocystidia and gloeo-vessels conspicuous
 - G. Carpophores pigment-less, or pigments neither yellow nor red nor pink nor lateritious, but brownish, grey, fuscous, beige, cinnamon or amethyst 2. Subsection *Dealbatae* p. 52
 - G. Carpophores always pigmented, pigment yellow, orange, salmon orange, pink or lateritious. 1. Subsection *Auriscalpium* p. 22

*See also the key (p. 98) to the species incompletely known or not known to the author which cannot be inserted in the sections and subsections as outlined here.

**The term dendrophyses is here not applied in the sense of earlier authors including Singer (1945) whereby the acanthocysts and acanthophyses (the former broad and cystidiform) corresponding to the echinids of Romagnesi, are included; dendrophyses are here restricted to those defined and illustrated by Snell & Dick (1971), pl. XII fig. 12.

Section ANECHINUS Sing.

Lloydia 13:253. 1950

Characters: see Key above

Type species: *Favolaschia rubra* (Bres.) Pat.

Subsection Rubrinae Sing. subsect. nov.

Gloeocystidiis et gloeo-vasculis raris vel inconspicuis vel absentibus.

Typus subsectionis: *Favolaschia rubra* (Bres.) Pat.

Key to the Species

- A. Carpophore red 1. *F. rubra* p. 11
- A. Carpophore not red
 - B. Carpophore containing hyphae with amethyst colored pigment incrustations (KOH) 2. *F. torrendii* p. 12
 - B. Carpophore without hyphae incrustated with amethyst colored pigment
 - C. Species occurring in temperate South America; pileus radially sulcate ...
..... 3. *F. aulaxina* p. 13
 - C. Species occurring in Africa, Asia and Oceania, New Zealand, Australia; pileus tessellate-pustulate or smooth
 - D. Surface of the pileus characterized by the presence of a poorly or well developed layer of dichophysoid hyphae or branched hyphae or by irregular hyphae with dendrophysoid hyphal ends; spores 5 μ broad or broader; fresh pileus reaching more than 10 mm in diameter.
 - E. Cystidioid dendrophysoid hyphal ends forming a dense hymeniform layer at the margin of the pileus; spores not longer than 10 μ and not broader than 7 μ . On dead wood 4. *F. pustulosa* p. 13
 - E. Dendrophysoid hyphal endings scarce or none; spores 8.8-12.5 \times 7-9.5 μ . On Bambuseae . . . 5. *F. tonkinensis* p. 14
 - D. Surface of the pileus characterized by acanthophysoid or in the manner of *Marasmiellus* sect. *Rameales* strongly diverticulate hyphae which are often diverticulate only on the outer side (like the epicutis hyphae of most *Mycenas*); spores up to 6 μ broad; pileus fresh reaching a diameter up to 10 mm.
 - F. Pileus not smooth, more often sessile than with a very short pseudostipe, white, often tending to become yellowish in the herbarium; on Palmae and on tree ferns in the Pacific Islands and Japan as well as in New Zealand
..... 6. *F. pezizaeformis* p. 15

- F. Pileus smooth, more often with a rather short pseudostipe than without it, often tending to become pinkish, vinaceous or gray in the herbarium. On Monocotyledones in general, Java to New Zealand 7. *F. minima* p. 17

1. *Favolaschia rubra* (Bres.) Pat., Essai Hymenom. p. 141. 1900.

Laschia rubra Bres. Hedwigia 35:285. 1896.

Pileus red in fresh and dried condition (between 'brick red' and 'pecan brown' Ridgway, dried) transparently tessellate and subsmooth, subreniform to suborbicular and distinctly laterally pseudostipitate, glabrous or subglabrous, 1-2 mm broad. — Pores somewhat paler than the pileus, at first appearing as small pits, later widened and polygonal and deeper, with thick dissepiments, up to 35. — Spore print white. — Pseudostipe concolorous, subpruinose, eccentrically or laterally, later laterally attached and usually bent over at right angles, equal or slightly broadened towards the base which is insititious, 1-3 × 0.2-0.3 mm.

Spores 6-7.5 × 4.5-6 μ, but reaching 7.7-10 × 6.3-7.7 μ in the bisporous form (type form), short ellipsoid without suprahilar depression, hyaline, smooth, amyloid. — Hymenium: Basidia 20-31 × 5.3-7.8 μ, either 2- or 4-spored. Gloeocystidia none. — Hyphae: Trama of the pileus consisting of entirely or partially gelatinized hyphae which are moderately loosely arranged and filamentous, in the stipe scarcely gelatinized and subparallel to parallel, with (often scarce in bisporous forms) clamp connections: in places much intercellular granular chrome-orange or yellow (KOH) pigment present. — Cortical layers: (Pore edges and sterile surfaces) with a palisade of dendrophysoid dermatocystidia (cheilocystidia) which are numerous, often wavy, branched or nodulose and yellowish to subhyaline, versiform, 19.3-25 × 6.3-9 μ, sometimes reduced (especially on the pseudostipe) to branching appressed hypha-like bodies.

On the bark of dead dictotyledonous trees in the tropical zone; in the Neotropics from Brazil to British Guiana and Panama.

Material studied: PANAMA: Rio Sardinilla, 10-VII-1952, Martin & Welden 7528 (IA). — BRITISH GUIANA: Bartica, Essiquibo R., Linder (FH). — BRAZIL: Santa Catarina: Blumenau (FH), TYPUS. — ECUADOR: Napo, Shushufindi, 13-V-1973, Singer B 7402 A (F). — BOLIVIA: Pando, Manuripi, Conquista, 25-III-1956, Singer B 2215 (F).

Illustration: Fig. 1.

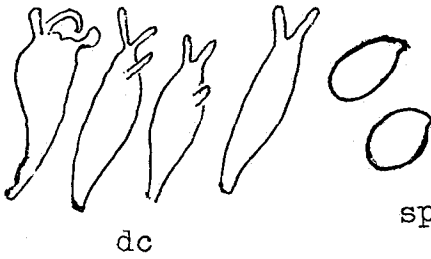


Fig. 1. *F. rubra*: dc = dermatocystidia X 1000; sp = spores X 1000.

2. *Favolaschia torrendii* (Lloyd) Sing. comb. nov.

Laschia torrendii Lloyd, Mycol. Notes 58:838. 1919.

Pileus 'dark brown, 1-2 mm broad. — Pores minute. — Pseudostipe lateral, 1 mm', also reaching 2 mm, with fibrillose basal mycelium.

Spores $6-7.5 \times 3.8-5 \mu$, smooth, amyloid. — Hymenium: Basidia $18.5-25 \times 5.5-6.5 \mu$. Cystidia none. — Hyphae hyaline but with incrusting lilac pink to amethyst pigment, many with somewhat thickened wall (KOH) and no truly gelatinous zones present. — Covering layers of sterile surfaces with almost setiform, hyaline, filamentous elements, 4.3μ broad and now covered by an amorphous yellowish mass (KOH); no gloeo- or acanthocysts seen.

On logs in Brazil.

Material studied: BRAZIL (no exact indication of locality*), Torrend 418 (BPI), TYPUS.

Illustration: Fig. 2.

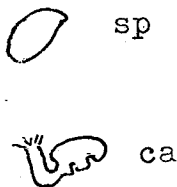


Fig. 2. *F. torrendii*: sp = spores X 1200; ca = carpophore X 4.

*According to Rick (1924) it was sent to Lloyd from Northern Brazil.

3. *Favolaschia aulaxina* (Mont.) Sing. comb. nov.

Agaricus aulaxinus Mont. in Gay, Hist. Chile 7:337. 1850.

Pileus 'dried ochraceous, reniform to almost circular, radially sulcate, resupinate-reflexed, hygrophanous'. — Pores 'forming radiant distant lamellae with connecting veins (at least) in the frontal portion with obtuse edges'. — Stipe [pseudostipe] very short, badius, curved.

Spores 9.7-6.3 μ , smooth, ellipsoid, amyloid. — Hyphae only subgelatinous not with distant imbedded hyphae. — Sterile surfaces and pore edges: No acanthocysts and no gloeocystidia observed.

On fallen small branches, Juan Fernandez Island.

Material studied: CHILE: Juan Fernandez, Bertero (K), fragment of typus.

4. *Favolaschia pustulosa* (Jungh.) Sing., Lloydia 8:198. 1945.

Favolus pustulosus Jungh. Praem Flor. Crypt. Jav. p. 73. 1838.

? *Favolaschia holtermannii* Henn. apud Holtermann, Mykol. Unters. Trop. p. 106. 1898.

? *Laschia holtermannii* (Henn. ap. Holt.) Sacc. & Trott., Syll. Fung. 21:358. 1912.

Pileus pure white but discoloring in age or on drying, tessellate-pustulate, somewhat transparent, glabrous, resupinate-reflexed and conchoid or conchoid to subreniform or suborbicular and attached with a pseudostipe, 5-85 mm broad. — Pores polygonal when mature, wider (3-6 mm) in the middle than along the margin. — Pseudostipe absent or (according to the position of the carpophore on the substratum) present and then variable in size (up to 4.5 \times 0.8 mm dried).

Spores 6.3-8.8-(10) \times 5-5.8-(7) μ , short ellipsoid, hyaline, smooth, amyloid. — Hymenium: Basidia 23-38 \times 6-8 μ , 4-spored; sterigmata 6.3-7 μ long; in young hymenia many versiform hyphids often cystidiform and dendrophysoid, thin-walled, often branched at least above or simply appendiculate, 33-53 \times 3-12.5 μ ; gloeocystidia none. — Hyphae of the trama gelatinized, inamyloid, with clamp connections, loosely arranged in a mucilaginous mass. — Cortical layers including edges of the pores with more densely arranged hyphae, these interwoven, many of the hyphal ends like the pseudophysies or dendrophyses of the hymenium and often branched or nodulose, occasionally with a slight tendency to form an asterostromelloid or Rameales-structure; some hyphae forming conidia but not constantly so.

On dead wood, gregarious, fruiting mostly from July to December in South Eastern Asia and Oceania, south to New Zealand. Known host: *Beilschmiedia*.

Material studied: BORNEO: North Borneo, M. Ramos, 'Flora of British North Borneo' no. 2191 (FH). — PHILLIPINES: C.G. Baker, July 1916 no. 4334 (FH. - Pat. Herb.). — NEW ZEALAND: Moumoukai Valley, 28-III-54, Dingley POD 31489 (F). — North Auckland, 14-IV-1972, Dingley POD 29895 (F).

Illustration: Singer (1945), plate 3, figs. 5-7.

5. *Favolaschia tonkinensis* (Pat.) Sing., *Lloydia* 8:197. 1945.

Laschia tonkinensis Pat., *Journ. de Bot.* 5:313. 1891.

Porolaschia tonkinensis Pat., *Essai* p. 138. 1900.

Favolaschia frieseana Henn., *Engler's Bot. Jahrb.* 22:94. 1895.

Laschia frieseana (Henn.) Sacc., *Syll. Fung.* 14:197. 1899.

Mycomedusa guineensis Heim, *Rev. Mycol.* 10:55. 1945 (publ. 1946) ex Heim, *Rev. Mycol.* 30:232. 1966.

Pileus whitish or white, then grayish ('pale mouse gray' to 'smoke gray' Ridgway according to Pegler and Rayner), turning a very pale and somewhat dirty brownish in drying, transparently reticulate and tessellate-pustulate, convex to somewhat appanate, conchoid, orbicular or reniform, (2)-6-24 mm broad. — Pores pallid, between 30 and 65, at first round with very thick dissepiments, later angular with thinner dissepiment, up to 1.7 mm wide or slightly elongated (to 2.3 mm), tuber interior concolorous with the pileus, 1-2.3 mm deep. — Spore print very pale vinaceous buff according to Pegler & Rayner. — Pseudostipe present, more rarely absent (and then pileus attached laterally), if present concolorous with the pileus to which it is attached at the rear sinus, mostly at an obtuse angle with the pileus, but more often equal, solid, 0-10 × 1.5-3 mm; a finely fibrillose white basal mycelium ± developed and subgelatinous. — Context hyaline (wet or revived).

Spores 8-12.5 × 7-10.5 μ, sometimes with small irregular sinuosities or spurs, short ellipsoid to subglobose, few ellipsoid, smooth, hyaline, amyloid. — Hymenium: Basidia 35-37 × 7.8-12 μ, 4-spored with often very large sterigmata. Cystidia of any kind - absent. — Hyphae of the trama of the pileus thin-walled, filamentous and strongly gelatinized, imbedded in a gelatinous mass, hyaline, inamyloid, with clamp connections, those of the stipe core not gelatinized, some ± thick-walled, here and in the dissepiments parallel respectively loosely subparallel, rarely somewhat inflated. — Cortical layers: Gloeocystidia and acanthocysts none; the epicutis of the pileus is often obsolete whereby the gelatinized hyphae of the trama pass through to the surfaces, but often almost continuous, less or not gelatinized, consisting of

smooth to knotty-diverticulate hyphae forming a weak Rameales-structure and in places interwoven and moniloid, in places terminal cells cystidioid and often forked.

On dead parts of Bambuseae, mostly *Bambusa*, gregarious. South Eastern Asia and tropical Africa (West Africa and Uganda to Kenya).

Material studied: VIETNAM: Tonkin (FH), TYPUS; also additional material (det. Patouillard) (FH). — PHILIPPINES: Luzon, Mt. Maquiling 10-I-1917, leg. Reyes (FH). — CAMEROONS: Dusen (FH), TYPUS of *F. frieseana*. — ZAIRE: Camp Ruero, Mt. Mikeno, 9,000 ft. alt. leg. Linder (FH). —

Illustration: Heim (l.c.); Pegler & Rayner (1969), fig. 9. Singer (1945) plate 1, fig. 2.

This is one of the commonest species in the paleotropics.

6. *Favolaschia pezizaeformis* (Berk. & Curt.) Sing., Lloydia 8:199. 1945.

Laschia pezizaeformis Berk. & Curt., Proc. Amer. Acad. 4:123. 1858.

Hologloea pezizaeformis (Berk. & Curt.) Pat., Essai p. 86. 1900.

'Pileus minute, white, resupinate, shaped like a *Peziza* with incurved margin'. — Pores 'round', later becoming rather wide. — Pseudostipe none or minute and inconspicuous.

Spores $7.7-8.5 \times 4.5-5.5 \mu$, ellipsoid but more convex on outer than inner side, smooth, hyaline, amyloid. — Hymenium: Basidia about $27 \times 8.7 \mu$. Cystidia and dendrophyses not observed in the hymenium; gloecystidia none seen. — Hyphae gelatinized, hyaline. — Cortical layers less or not gelatinized consisting of repent hyphae which at least in places are distinctly diverticulate by echinate warts recalling the epicuticular hyphae of some *Mycenas*, hyaline. Acanthocysts and dermatocystidia or dermatogloecystidia not observed.

On palms (according to Japanese mycologists *Livistonia boninensis*), dead petioles rachis and fronds, Bonin Island.

Material studied: BONIN ISLANDS: TYPUS (part) (FH, Curtis Herbarium, syntype General Herbarium).

The macroscopical description is given according to the type specimens seen and described by Berkeley & Curtis; the microscopical description is given according to type analysis. Kobayasi (1952) redescribed *Favolaschia pezizaeformis* as also occurring in Japan on *Livistonia chinensis* and gives the following data:

'Fructifications sessile, attached to the substratum by the central part of the dorsal surface, discoid to hemispherical, 1-3 mm in diam., white, dorsal sur-

face convex, glabrous, ventral surface almost flat, consisting of 6-23 (normally 8-15) pores which are oval or polygonal with rather thick dissepiments', but he observed 'gland cells of the edges of pores capitate or short clavate with stalk. Basidia 2-4-spored, 23-35 × 6-8 μ; spores oval to elliptical, smooth, hyaline, short pedicellate, inequilateral 7-8 × 4.5-5 μ'. He indicates that this fungus is 'luminescent with a light blue to white light'. The spores and the macroscopical data fit the type specimens very well, so well indeed, that I assume that his observation of 'gland cells' (gloeocystidia or projections of gloeo-vessels) means that these were simply obliterated in the FH type and therefore overlooked by me (1945). While I have not seen these Japanese specimens I am not certain whether this is so and maintain this species in subsection *Rubrinae* but shall key it out in the following subsection also.

The species has been indicated also as occurring in Venezuela (actually Colombia) by Berkeley & Curtis as well as by Itô & Imai. As I have shown (1945, p. 200), the American collections by Fendler and others, originally misdetermined *L. pezizaeformis* by Berkeley and Farlow (FH) are not this species. Fendler's specimen, according to the microscopical data then published by me, is obviously a species of section *Favolaschia* closely related to *F. auriscalpium* viz. *F. fendleri* (p. 32).

Itô & Imai (1940) indicate a second host: *Alsophila mertensiana*. Although all other specimens were found on palms and the indication of a tree fern appeared to be in need of confirmation, a collection sent to me from New Zealand seems to confirm the observations of the Japanese authors. A description of the New Zealand material follows below:

Pileus white, strongly pulverulent, in dried material a brown lower surface appearing where the pulverulence is detersile, rugose-pustulate, convex, at first with straight, rather thick margin, later the margin often thin and incurved, disc-like to somewhat elongated and eventually becoming somewhat irregular, up to 10 mm broad when fresh. — Pores white, remaining so on the strongly pulverulent pore edges, dried becoming brownish in the interior of the tubes, these rather long, at first pores round and small, eventually wider, 12-20 about 3-5 per mm. in dried condition, more rarely becoming irregular and somewhat elongated and the thick dissepiments rather thin. — Pseudostipe either completely absent and carpophores sessile, or with a very short pseudostipe which is concolorous with the pileus, also pulverulent, widened at the level of the surface of the substratum into a mostly distinct socle-like widened base, always very short and strictly lateral to eccentrically attached (if present). — Context concolorous, browning on drying, gelatinous.

Spores 6.5-8.5 × 4.5-6 μ, ellipsoid, smooth, hyaline, granular inside in most, amyloid. — Hymenium: Basidia 24-31 × 7-9 μ, 4-spored; gloeocystidia scarce and rather inconspicuous, 25 × 3.5-8.5 μ, filamentous-cylindric to clavate. — Hyphae hyaline, filamentous, some slightly inflated and up to 8 μ broad, with clamp connections, strongly gelatinized both in the trama of the pileus and in the regular hymenophoral trama; gloeo-vessels sparse, often relatively short, 2-7.5 μ broad. — Cortical layers as well as the pore-edges without acanthocysts or diverticulate elements and without distinct gloeocystidia, the pulverulence consisting of a trichodermium or a limited palisade of versiform elements, the terminal members cystidioid, without visible contents, inamyloid, hyaline, 12-32 × 4-11 μ, thin-walled and smooth, often with irregular outline or flexuous, often with constrictions, rarely branched but at apex not rarely bifurcate, often with lateral or apical appendage, but the main body and the appendages broadly rounded at the tip.

On *Cyathea dealbata*, gregarious. New Zealand: Waitemata Co., Titirangi, Clark's Bush, 13-III-1972, V. Spencer & J.M. Dingley PDD 29758 (F). — Waitemata Co., Waitahare, 10-VI-1965, Dingley PDD 28845 (F).

I cannot decide whether this and some of the Japanese collections represent a special race or closely related taxon and, if so, whether the tree-fern-species is identical with insufficiently known species such as *L. philippinensis* Graff (see p. 98). The New Zealand material was macroscopically glabrous but under a lens strongly pulverulent, a feature not mentioned in the descriptions of Japanese material.

7. *Favolaschia minima* (Jungh.) Sing., Lloydia 8:200. 1945.

Polyporus minimus Jungh. Praem. Crypt. Jav. p. 64. 1838.

Laschia minima (Jungh.) Sacc., Sylloge Fungorum 6:409. 1888.

? *Polyporus semipellucidus* Zoll. Natur. Geneesk. Arch. Neerl. India 2:201 (?) 1844; Flora 30:304. 1847.

? *Favolus semipellucidus* (Zoll.) Saccardo, Sylloge Fungorum 9:203. 1891.

? *Favolaschia calamicola* Henn. & Nym., Monsunia 1:13. 1899.

? *Laschia calamicola* (Henn. & Nym.) Saccardo & Sydow, Sylloge Fungorum 16:171. 1902.

Pileus gilvovous-pallid or white when fresh, often in part assuming a somewhat pink to vinaceous ('light vinaceous fawn', 'vinaceous fawn', sometimes 'Pecan brown' Ridgway) or pale gray tinge in the herbarium, elliptic to reniform, subglabrous or glabrous, smooth, convex to nearly flat, subsessile or with a short pseudostipe, 1-3.5 mm broad. — Pores concolorous and in dried condition often discolored as the sterile surfaces, 10-15, at first round

and small, later somewhat polygonal, at first 6-7 per mm, later ± 3 per mm (dried). — Pseudostipe more often present than absent, attached to the upper surface of the pileus or the margin, often at the base of a sinus, forming a right angle with the substratum and variable angles with the pileus depending on the position of the carpophore on the substratum, sometimes very short or absent but up to 1×0.3 mm, basal mycelium more often present than absent, finely villous and white.

Spores $7.5-9 \times 4.2-5 \mu$, ellipsoid, hyaline, smooth, amyloid. — Hymenium: Basidia $20-29 \times 7.5-9.8 \mu$, 4-spored; cystidioles mostly at pore edges, fusoid or basidiomorphous, relatively large, cheilocystidia filamentous ($2-3 \mu$), few with slight swellings, thin-walled, often branched, irregularly beset with mostly obtuse diverticula $2-4 \times 1-2 \mu$ and much like a Rameales structure, hyaline, thin-walled, inamyloid. Gloeocystidia and acanthocysts none. — Hyphae inamyloid, hyaline, filamentous, some somewhat inflated, with clamp connections, weakly or scarcely gelatinized, interwoven, inamyloid, occasionally some vaguely pseudoamyloid. — Cortical layers consisting of little differentiated hyphal ends, some of which are inflated and some beset with diverticula $1-3.7 \mu$ high, thus occasionally approaching a Rameales structure but true acanthocysts and gloeocystidia not seen.

On dead parts of various kinds of Monocotyledones e.gr. Scitamineae (Jung-huhn) and palms, bamboo, Juncaceae etc. Gregarious, Indonesia, south to New Zealand.

Material studied: INDONESIA: JAVA: Buitenzorg, Höhnel 1907-1908 (FH). — NEW ZEALAND: Bays of Islands, 22-II-1972, J.H. Dingley PDD 29784 (F).

Since Höhnel's interpretation of *F. minima* is the only one still available for study and since his material came from Java as did the type, his interpretation is here accepted. It is likewise very probably that *Polyporus semipellucidus* and *Favolaschia calamicola*, both also from Java, belong here as was suggested by Höhnel who has seen the specimens at Berlin.

Graff's indication of this species from the Phillipines may be erroneous since his specimens were slightly larger and might have belonged to *F. pustulosa*.

Subsection Depauperatae Sing. subsect. nov.

Gloeocystidiis et gloeo-vasculis conspicuis.

Typus subsectionis: *Favolaschia puiggarii* (Speg.) Sing.

Key to the species

- A. On Monocotyledones
 - B. Spores up to 7 μ long. Neotropical species (see section *Favolaschia*, below).
 - B. Spores longer or Asiatic species.
 - C. On Palmae and tree ferns; pileus sessile and up to 10 mm broad; spores up to 8.5 \times 6 μ ; pores 6-23 (see no. 6: *F. pezizaeformis*).
 - C. On Gramineae; not combining all the characters indicated above.
 - D. Spores 7.5-9.5 \times 4.5-6.3 μ ; pileus sessile; pores about 20-40 7a. *F. sachalinensis*, p. 19
 - D. Spores different or pileus not sessile or pores less numerous (see key to species incompletely known, p. 00)
- A. On Dicotyledones (if on Actinidiaceae see 'D' above)
 - E. Spores 10.5-14.5 \times 7-9.7 μ ; pileus over 10 mm broad 8. *F. sprucei*, p. 20
 - E. Spores 8-9-(10) \times 4-5-(5.8) μ ; pileus only up to 10 mm broad 9. *F. puiggarii* p. 21

7a. *Favolaschia sachalinensis* Parmasto, *Folia Cryptogamica Estonica* 4. 1973.

Pileus white, tending in dried condition to be partially grayish or fuscous, finely reticulate, subsmooth, macroscopically glabrous, with round, later often elliptical outline, attached with a broad area of the sterile surface or laterally attached without pseudostipe, dried 2-4 mm broad. — Pores white, about 20-40, mostly round, few oval or somewhat angular at maturity, with thin to rather thick dissepiments 2.5-4 per mm in dried condition and small to medium (up to 0.5 mm wide when dried).

Spores 7.5-9.5 \times 4.5-6.3 μ , ellipsoid, smooth, hyaline, amyloid. — Hymenium: Basidia 25-28 \times 7.5-9 μ , 4-spored; cystidia and pseudocystidia in hymenium none seen. — Hyphae of the pileus-trama hyaline, filamentous, running in many directions, strongly gelatinized and distant from each other, with clamp connections, thin-walled. Among them rather numerous gloeovessels and endogloeocystidia, the former very long and 3-4.5 μ broad, the latter clavate, 24-36 \times 5.5-8.5 μ , both with finely granular contents and hyaline to light melleous. — Cortical layers: On both epicutis and pore edges

some to many gloeo-vessels and gloeocystidia (these like the gloeo-vessels and endocystidia of the trama) reaching the surface; epicutis a non-gelatinized to poorly gelatinized but very thin cutis-layer, consisting of hyphae whose terminal members are often dendrophysoid, flexuous or with irregular or very small diverticula, e.gr. $12-24 \times 4-5 \mu$; acanthocysts and acanthophyses absent.

On culms of *Sasa* spec. (Bambuseae) in *Abies*-woods, gregarious.

Material studied: USSR: Sackalin Island, district Aniva, Pereval, 20-VIII-1971, E. Parmasto, ex TAA-55259 (F), ISOTYPUS.

The description given above was made up from notes on the isotypus. This species differs from other species described from Bambuseae in East Asia (see key to incompletely known species) in having somewhat larger spores, numerous gloeocystidia and endocystidia and gloeo-vessels or habitat, or else by lacking a pseudostipe. *F. phyllostachydis* Imazeki & Kobayasi has much smaller spores; *F. nipponica* is said to have smaller polygonal pores and smaller spores. The former is mostly 'stipitate'. *F. fujianensis* Kobayasi has minute carpophores 1-1.5 mm in diameter, irregularly lacunose hymenophore and smaller spores. *F. pezizaeformis* grows on Palmae. If the glandiform cells observed by Kawamura are indeed gloeocystidia, this may be the species most closely related to *F. sachalinensis*, but it would still differ in somewhat smaller carpophores and spores, more farinaceous surfaces and especially the habitat.

8. *Favolaschia sprucei* (Berk.) Sing., Lloydia 8:202. 1945.

Favolaschia sprucei Berk., Hooker's Journ. Bot. & Kew Misc. 8:237. 1856.

Porolaschia sprucei (Berk.) Pat. Essai p. 138. 1900.

Laschia sprucei (Berk.) Bres., Ann. Mycol. 9:270. 1911.

Laschia decurrens (Berk. & Cooke) ex Cooke, Grevillea 19:105. 1891.

Pileus white, often becoming pale yellow in the herbarium, flabelliform to orbicular with a more or less conspicuous depression on the side where the pseudostipe is inserted, convex, subtesselate-rugose, 10-50 mm broad. — Pores white, 10-40, angular and reminding one of *Hexagonia* or *Favolus*, always wide (0.5-2 mm diam.) rather shallow in comparison with their width, broadly adnate to decurrent on the apex of the stipe. — Pseudostipe strictly laterally attached and consistently well developed, concolorous, subequal or slightly broadened towards the base, forming a more or less right angle with the pileus, $2-25 \times 0.5-3$ mm.

Spores $10.5-14.5 \times 7-9 \mu$, short ellipsoid or rarely ellipsoid-suboblong, with-

out suprahilar depression, hyaline, smooth amyloid, with guttulate contents. — Hymenium: Gloeocystidia few or none in the hymenium. — Hyphae: trama of the pileus moderately to distinctly gelatinous, consisting of hyphae which are hyaline, mostly filamentous, some somewhat inflated. Hymenophoral trama (trama of the dissepiments) subregular. — Cortical layers consisting of hyphae which are often beset with diverticula, projecting 1-2 μ but in other places covered by spherocysts which are short ellipsoid to subglobose (e.gr. 30 \times 22 μ), smooth, hyaline, loose, forming minute flocculi when seen under a good lens, sometimes containing some amorphous contents which, however, do not distinctly turn blue in cresyl blue mounts; easily collapsing and possibly 'empty' ends of gloeovessels or dermatogloeocystidia which are also found on the sterile surfaces and the pore edges, e.gr. 45 \times 26.5 μ , collapsing. Acanthocysts none.

On dead wood, (probably always dicotyledonous) in the neotropics.

Material studied: COLOMBIA ('Venezuela'), Fendler (FH), TYPUS of *L. decurrens*. — BRAZIL: San Carlos, Rio Negro; Spruce 117 (FH, Curtis Herbarium and Patouillard Herbarium) TYPUS of *F. sprucei*. — PANAMA: Chiriquí, 1600-1800 m alt., July 3, 1935, Martin 2408 (IA). — July-2-1935, Martin 2309 (IA).

The final position of this conspicuous species, the largest of the neotropical Favolaschias, cannot be determined with all confidence as long as the origin of the 'empty' cells found on the surface of well preserved specimens cannot be determined. If they were smooth 'acanthocysts' of the type found in *F. auriscalpium* rather than 'empty' dermatogloeocystidia, the affinity of *F. sprucei* would be with *F. auriscalpium* rather than with *F. puiggarii*.

Lloyd (1919) who gives a good illustration of *F. sprucei*, carpophores (fig. 1391), indicates that *F. moelleri* is the same as *F. sprucei* but the type of *F. moelleri* has been lost and material collected likewise in Southern Brazil and agreeing with Bresadola's diagnosis much more closely than with *F. sprucei* has distinct acanthocysts and is therefore quite different from *F. sprucei* from which it also differs in the size of the carpophores and the spores.

9. *Favolaschia puiggarii* (Speg.) Sing., Lloydia 13:253. 1950.

Favolus puiggarii Speg., Bol. Acad. Nac. Cienc. Cordoba 11:452. 1889.

Pileus fuscous-rufescent (but possibly originally sordid whitish) orbicular, slightly convex, abruptly depressed behind and heart-shaped-incised, tasse-late-pustulate, subglabrous or glabrous, 5-10 mm broad. — Pores rhombic, 0.5-1 mm wide and deep, with membranous-thin-fleshy dissepiments. —

Pseudostipe strictly lateral and horizontal, white, pallescent, finely pubescent, terete.

Spores 8.2-9-(10) × 4-5-(5.8) μ , occasionally some smaller (but perhaps immature), cylindric to short cylindric, smooth, amyloid. – Hymenium: Gloeocystidia present, often continued into gloeo-vessels. – Hyphae of the trama distinctly gelatinous, with clamp connections, inamyloid, many gloeo-vessels in the trama, some 'empty'. – Cortical layers including the pore edges with numerous gloeocystidia and ends of gloeo-vessels reaching the surface, fusoid or clavate or cylindric, on the stipe often particularly voluminous. Acanthocysts none.

On rotten, woody parts of dicotyledonous plants in Southern Brazil.

Material studied: BRAZIL: São Paulo: Apiaí, April 1881, Puiggari 1443 (NY, LPS).

Section FAVOLASCHIA

Favolaschia sect. *Polyechinus* Sing., Lloydia 13:253. 1950 (Type: *F. cinna-barina* Berk. & Curt.) Pat.

Type species: *Favolaschia gaillardii* (Pat.) Pat.

Subsection Auriscalpium Sing. subsect. nov.

Gloeocystidia and/or gloeo-vessels conspicuous; pigment orange, yellow, red, lateritious or pink.

Type of subsection: *Favolaschia auriscalpium* (Mont.) Henn.

Gloeocystidiis et/aut gloeo-vasculis conspicuis; pigmento aurantiaco vel flavo vel rubro vel lateritio vel roseo. Typus subsectionis: *F. auriscalpium* (Mont.) Henn.

Key to the species

- A. On Monocotyledones, conifers or Pteridophyta. Neotropical species
- B. Pores at first one, later 2-8; pileus red, then pallescent; spores subglobose to globose $8.5-10 \times 8-9 \mu$. On palm 10. *F. oligopora* p. 25
- B. Pores eventually more than 8; pileus not red and pallescent; spores as above or different (if pileus purple and growing on Pteridophyta see subsection *Dealbatae*)
- C. Pileus pink then pallescent when fresh; typically on *Podocarpus*, but occasionally passing over onto other substrata . 11. *F. amoenerosea* p. 27
- C. Pileus not pink but yellow, orange or orange-red, salmon-orange, rarely varying between white and yellowish-orange; not on conifers
- D. Basidia 2-4-spored or all 4-spored
- E. Pileus fresh 'Spanish y'; spores $(7)-8-8.8 \times (4)-(4.3-5.3 \mu$; on various hosts in Bolivia and Brazil 12. *F. flava* p. 29
- E. Pileus more orange or salmon (e.gr. 'bittersweet pink' R.) even reddish orange or pallid; spores often broader than 5.3μ ; Northern South and Central America (on Marantaceae or more often on Palmae), in Brazil, Argentina and Bolivia (on Bambuseae)
- F. On palm in the northern part of the neotropics, rarely on Marantaceae; south to the Amazonas region
- G. Spores reaching larger size than 7.5μ in length
- H. Gloeocystidia scattered or almost none; acanthocysts few (often difficult to encounter) and mostly elongated; many smooth or low (to 0.5μ) echinulate, optically 'empty' elements in the epicutis, these hyaline . . . 13. *F. auriscalpium* p. 30
- H. Gloeocystidia conspicuous, rather numerous; acanthocysts mostly vesiculose, fewer elongated, hyaline, fewer with yellow pigment in KOH, ['empty elements numerous but mostly underneath the acanthocysts and only a few breaking through to form part of the epicutis] 14. *F. fendleri* p. 32
- G. Spores $4.5-7.5 \times 3.3-5 \mu$; acanthocysts often inconspicuous; epicutical hyphae with a more or less distinct Rameales-structure or astrostromeloid structure 26. *F. varariotecta* p. 50
- F. On Bambuseae in Southern South America and Amazonas. Gloeocystidia conspicuous and swollen smooth elements near epicutis only occasionally breaking through the acanthocysts which are vesiculose 15. *F. aurantiaca* p. 33

- D. Basidia 2-spored. On Palmae, Gulf region, Florida, south to the Amazonas region 16. *F. sabalensis*, p. 35
- A. On Dicotyledones, either on wood or on herbaceous stems
- I. Carpophores 0.5-5 mm broad, either sessile or with a very inconspicuous short, laterally, eccentrically or centrally (to the sterile surface) attached pseudostipe; all well known species neotropical, and orange to red
- J. Either orange-red to orange or coccineous when dried or not on herbaceous stems; gloecystidia conspicuous; basidia 2- or 4-spored, or 2-4-spored mixed; acanthocysts mostly filled with a deep yellow to dull orange dissolved pigment
- K. Spores 5.5-8(11) μ broad; gloecystidia hyaline to bright lemon yellow; carpophores 0.5-4.5 mm broad. Common neotropical species 25. *F. cinnabarina*, p. 48
- K. Spores 4.5-6(6.5) μ broad; gloecystidia with yellow granular contents; carpophores 2.8-5 mm broad. Orinoco region to South Brazil 24. *F. gaillardii*, p. 48
- J. Not red in fresh or dried condition; basidia 4-spored; spores 7.7-10 X 6.3-7.7 μ , gloecystidia not conspicuous, basidiomorphous or narrow; acanthocysts yellowish to subhyaline; on herbaceous stems and small twigs 23. *F. pezizoidea*, p. 47
- I. Carpophores often broader, with well developed lateral pseudostipe which is often relatively long (may be sometimes longer than the diameter of the pileus); palaeotropical as well as neotropical and temperate species (if the pileus is sessile, pores < 25 or white)
- L. Pileus fresh pink; pores white 11. *F. amoenerosea*, p. 27
- L. Pileus fresh lateritious, red, orange, golden yellow or lemon yellow; pores not white
- M. Pores 0.3-0.4 mm wide and almost circular; acanthocysts relatively moderately numerous; gloecystidia numerous, pileus orange to orange-red, up to 9 mm in diameter; pseudostipe may be even longer than 9 mm. Asiatic species 22. *F. thwaitesii*, p. 46
- M. Pores wider, at least away from the marginal zone or color not orange to orange-red or pileus smaller. African and American species
- N. Pileus brick red; gloecystidia subhyaline to melleous; pores wide in the marginal zone (1-1.5 mm), less wide behind (0.5 mm). African species 21. *F. lateritia*, p. 45
- N. Pileus orange, salmon-orange, golden yellow, lemon yellow; gloecystidia usually yellowish or yellow in KOH; pores all equal in diameter or smaller in the marginal zone
- O. Basidia 2-spored, or few 4-spored ones intermixed, also sometimes some 1- or 3-spored ones
..... 17. *F. calocera*, p. 37
- O. Basidia 2-4-spored, or all 4-spored

- P. Spores 3-5 μ broad. Neotropical species
 20. *F. selloana*, p. 43
- P. Spores broader than 5 μ , at least many of them.
 African species (no 19 also in neotropics)
- Q. Spores reaching 12.5 μ in length and
 often subglobose but more frequently el-
 lipsoid; pores constantly smaller in the
 marginal region; gloeovessels scanty and
 not conspicuous but mostly present and
 reaching 7-8 μ in diameter; acanthocysts
 well developed, numerous; pileus and
 pores often pale orangy when dried; inner
 pores often radially elongated and sub-
 lamellar, acanthocysts often with longer
 appendages (5 μ) and setulae 1-2.5 μ
 19. *F. dybowskyana*, p. 41
- Q. Spores reaching no more than maximally
 10.2 μ in length, and more often sub-
 globose or short ellipsoid than ellipsoid;
 pores rarely sublamellate, mostly angular-
 subisodiametrical and only occasionally
 in part of a pileus noticeably smaller on
 margin than behind; color usually rather
 deep when dried; gloeovessels scanty and
 not broader than the tramal hyphae;
 acanthocysts generally rather scanty or in
 scattered bunches; setulae \pm 1 μ , some-
 times catenulate . 18. *F. zenkeriana*, p. 40

10. *Favolaschia oligopora* Sing. spec. nov.

Pileus at first red, drying to pale buffish or white, finely pruinat (under a lens) at first cupuliform and sessile then developing a pseudostipe which is eccentrically to centrally attached to the pileus which at maturity extends radially so that additional cupuliform pores result, convex, not circular but of irregular outline when mature, about 1.5 mm broad. — Pores eventually 2-5, concolorous, more or less roundish (under a lens), much less than 1 mm in diameter. — Pseudostipe concolorous, finely pruinat (lens), subequal or widened at the base or the apex, with scanty basal mycelium of radiating hyphae, up to 2 mm high.

Spores 8.5-10 \times 8-9 μ , subglobose or globose, heterotropic with eccentric oblique, very small hilar appendage, hyaline, weakly but undoubtedly amyloid, smooth. — Hymenium: Basidia 29-35 \times 8.5-9 μ , often with oily

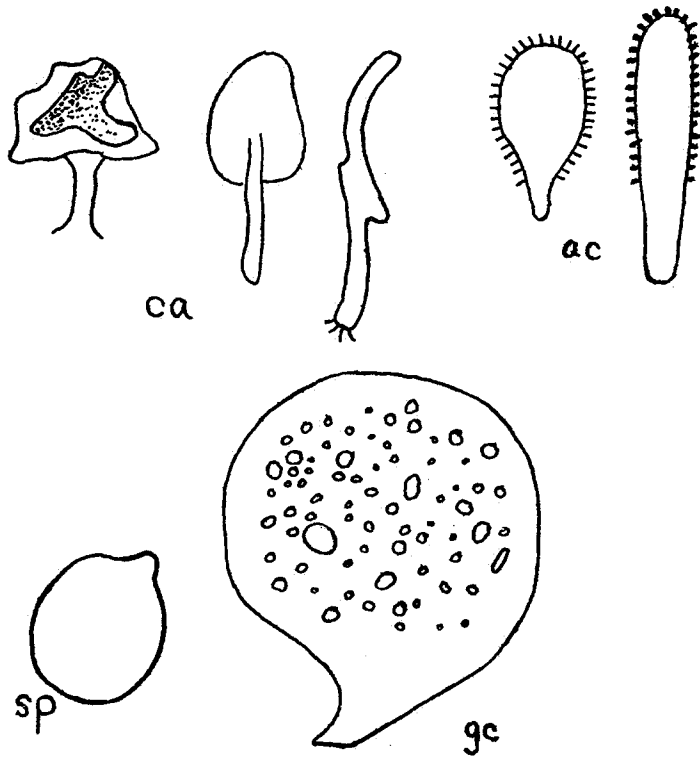


Fig. 3. *F. oligopora*: ca = carpophores, left, young carpophore seen from the fertile side X 20, middle, seen from the sterile side X 20, right section through carpophore, X 20; ac = acanthocysts X 1000; sp = spore X 2000; gc = gloeocystidium X 1000.

yellow enclosures, otherwise hyaline, clavate, 4-spored, formed in a layer of hyphids which are very weakly pseudoamyloid (pinkish, vinaceous pinkish). Gloeocystidia in the hymenium rare. — Hyphae: Trama of the pileus of two clearly differentiated layers, the lower one (near the hymenium) composed of intricately and irregularly interwoven, thick-walled ($1-1.5\mu$ thick) hyaline, refringent hyphae, the wall weakly pseudoamyloid, perhaps slightly gelatinizing but not imbedded in a gelatinous mass, the upper layer (near the sterile surface) truly gelatinized, the thin (2.6μ) thin-walled hyphae imbedded in a gelatinous mass completely inamyloid, sometimes with lateral ramifications or short prongs, with clamp connections; in the stipe trama elements of both layers of the pileus trama mixed.

Sterile surfaces covered by a layer of dermatogloeocystidia (which may also appear as endocystidia near the surface of the trama), and acanthocysts. The former numerous, $33-50 \times 25-42 \mu$, globose or subglobose, conspicuous because of the bright yellow oily contents which makes them appear granular, smooth, thin-walled or more rarely with an up to 1.5μ thick wall; very few without any contents and appearing like spherocysts. Acanthocysts $16-38 \times 6.5-11 \mu$, sometimes in chains with the outermost cell $9-15 \times 10-25 \mu$ and subsodiametric or short vesiculose, the others elongated, cylindric-subclavate or narrowly ventricose, much more rarely like the terminal cells of the catenulate ones, the short acanthocysts rarely becoming free, setulae regular and rod-shaped, $1-1.3(1.5) \mu$ long, all hyaline, acanthocysts rather numerous on all sterile surfaces and along the edges of the pores, those of the surface of the pileus (the vesiculose ones) exceptionally smooth and about $15 \times 11 \mu$.

On dead palm leaf in tropical rain forest of the Pacific Coast of South America, gregarious.

Material studied: COLOMBIA: Valle: Buenaventura: San Joaquin, 22-IV-1968, Singer B 6279 (F), TYPUS.

This is an extraordinary species because of the slow development of the pores and their small number, the typical catahymenium of the young cups, the duplex trama of the pileus and the voluminous broad gloecystidia.

Illustration: Fig. 3.

11. *Favolaschia amoenerosea* Henn., Hedwigia 43:202. 1904.

Laschia amoenerosea (Henn.) Sacc., Syll. Fung. 17:144. 1905.

Pileus beautifully pink ('blush' to 'Mindoro', 'Nude' to 'French nude', or 'rose blush' to 'flesh, blonde' M & P), soon bleaching to whitish or brown, subpustulate, glabrous, reniform, convex, sessile or indistinctly pseudostipitate, the pileus with a short pseudostipe or directly attached to the substratum either laterally or eccentrically, mature 2-9 mm broad. — Pores white, 7-24 and at first fewer and the round, angular at maturity, 0.7-1 mm in diam. often elongated, other subsodiametric. — Pseudostipe, if present, very short (up to 2×1 mm).

Spores $6.8-10.5 \times 5-8.5 \mu$, ellipsoid, ovate or short ellipsoid, hyaline, often deep blue inside in cresyl blue mounts, smooth, amyloid. — Basidia about $20-31 \times 7-10 (12.5) \mu$, 4-spored; gloecystidia in hymenium usually present (see below). — Hyphae hyaline, with (often scarce) clamp connections, poorly to slightly gelatinized in pileus trama; gloeo-vessels rather numerous and long, pale citrine to yellow, $2.5-10 \mu$ broad, bluing in cresyl blue

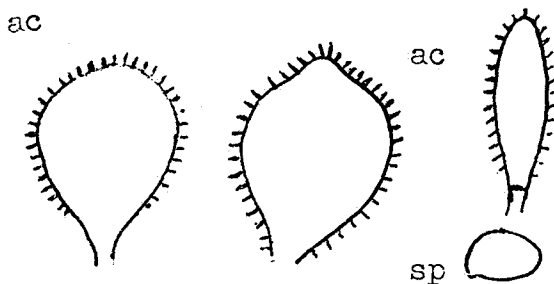


Fig. 4. *F. amoenerosea*: ac = acanthocysts $\times 1000$; sp = spore $\times 1000$.

mounts. — Covering layer of the pileus formed by numerous acanthocysts, these mostly $16-30 \times 9-21 \mu$ and vesiculose, with a short pedicel or without one, hyaline or pale pinkish, few elongate (e.g. $22 \times 7 \mu$) with hyaline setulae $1-2.2 \mu$ projecting, with thin to 0.8μ thick wall, rising from the non-gelatinized hyphae of the surface of the trama and some of these hyphae also somewhat diverticulate at places and occasionally ascendant among the acanthocysts, with or without basal clamp; gloeocystidia also present, but often only as end-members of the gloeo-vessels and then mostly club-shaped to ventricose, apiculate but versiform, about $21-30 \times 8-10-(19) \mu$, with coarsely granose, pale citrine to yellow contents.

On dead fallen branches of trees, e.g. on dead dicotyledonous branches or vines or on wood of *Podocarpus* (*P. parlatoresi*) but then often passing over to nearby dead plant material (dicotyledonous as well as Pteridophyta), apparently not very selective. Fruiting from January to March, in Argentina, in August in Brazil.

Material studied: BOLIVIA: La Paz: Nor-Yungas, Coroico, 1600 m alt. 18-II-1956 Singer B 1254 (F). — ARGENTINA: Tucumán: Taficillo, 1950 m alt., 6-I-1950 Singer T 814 (LIL). — San Javier, Ciudad Universitaria, 1060 m alt., 24-III-1960 Singer T 3589 (F). Typus (not seen) from Brazil: São Paulo: Alto da Serra, August 1892.

The identification of this species, unique in the neotropics because of its beautifully pink pileus may be doubted because Hennings describes a much smaller carpophore (half a millimeter wide) with spores $4 \times 3 \mu$. But such small spores do not ordinarily occur in the genus; the basidia indicated by Hennings are obviously immature, and it can only be concluded that the type specimens - now lost - consisted of very immature carpophores of the same species, not containing spores.

It may well be that *Laschia reticulata* Berk. & Cooke is, as Lloyd (1909) suggests, the same fungus but there is no color indicated and I cannot identify *L. reticulata* with certainty.

Illustration: Fig. 4.

12. *Favolaschia flava* (Bres.) Sing. Lloyd 13:257. 1950.

Laschia flava Bres., Hedwigia 35:285. 1896.

Pileus 'Spanish yellow' when fresh, becoming dull orange when dried, glabrous, under a strong lens finely pruinose, smooth, then slightly pustulate, fresh transparently reticulate, circular to slightly subreniform in outline, with a laterally to subcentrally attached pseudostipe rising from the substratum, 2.2-3.5 mm broad. — Pores concolorous or paler than the pileus, dry white to dull orange, about 0.5 mm wide, dried 4-6 per mm, subisodiametric and with rounded angular outline, about 0.3 mm deep. — Pseudostipe concolorous with the pores, 1.7-3 × 0.2-0.4 mm equal, at the base often with a glassy looking disc.

Spores (7)-8-8.8 × (4)-4.3-5.3 μ, ellipsoid, smooth, hyaline, inamyloid. — Hymenium: Basidia 18-24 × 6.5-9 μ, 4-spored, sometimes some 2-spored. Gloeocystidia rather scattered in the hymenium, 11-35 × 7-18 μ, with pale yellowish to yellow coarsely granular contents, subvesiculose or obpiriform. — Hyphae hyaline to yellowish, without intraparietal or incrusting pigment, not gelatinized in the stipe, and there subparallel to parallel and hyaline, with clamp connections, inamyloid. Gloeo-vessels few or inconspicuous but some gloeocystidia somewhat imbedded (endocystidia). — Covering layers: Gloeocystidia numerous on sterile surfaces and pore edges, as above. Acanthocysts and acanthophysoid hyphae present but in places scarce, of two types (1) elongated and narrowly ventricose or with subcapitate or claviculate apex, rarely fusoid, 9.5-30 × 3-6.5 μ, (2) ventricose-subvesiculose and mostly pedicellate, 15-25 × 9-11 μ, in either case hyaline, inamyloid, with setulae 0.5-1 μ high. Hyphae of the surface-layer of the stipe sometimes with short erect side-branches.

On woody and leafy material, probably always monocotyledonous, known to occur on musaceous plants.

Material studied: BOLIVIA: Beni: Vaca Diez: Guayaramerin, 8-III-1956, Singer B 1702 (F). — The typus was in Berlin but has been destroyed. However, spore size and shape as well as the color of the carpophores fit our collection very well so that the occurrence of this species in Brazil (Blumenau, Santa Catarina, leg. Möller) can be accepted as certain.

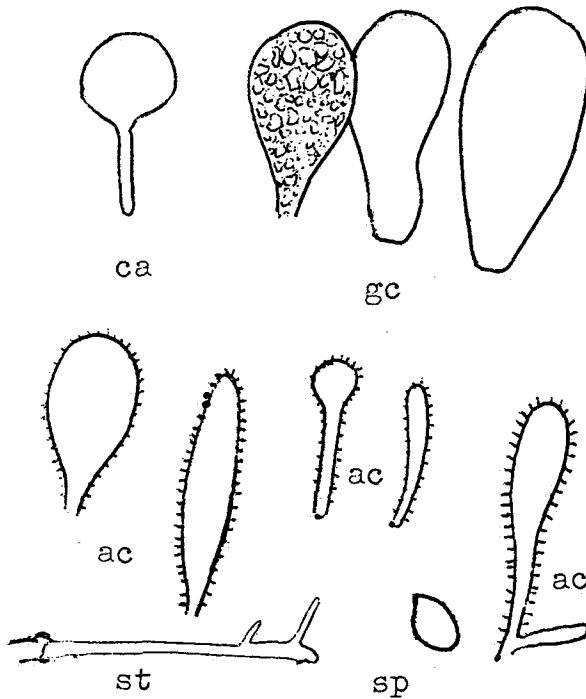


Fig. 5. *F. flava*: ca = carphophore from sterile side X 4; gc = gloecystidia X 1000; ac = acanthocysts X 1000; st = hyphal ends from the surface layer of the pseudostipe X 1000; sp = spore X 1000.

Singer (1950) described this species in much too wide a concept. The description includes also *F. aurantiaca* Sing. and *F. fendleri* Sing. and possibly *F. gaillardii*.

Illustration: Fig. 5.

13. *Favolaschia auriscalpium* (Mont.) Henn., Engler's Bot. Jahrb. 22:93. 1895.

Laschia auriscalpium Mont., Ann. Sc. Nat. IV. 1:137. 1854.

Pileus orange, becoming cadmium yellow and eventually often bleaching to a dirty pallid when dry, orbicular in outline, convex, glabrous, about 1.5 mm

when dried. — Pores concolorous or yellowish, 10-13, some slightly irregularly elongated, dried 0.25-0.35 mm wide, often hexagonal. — Pseudostipe concolorous with the pileus, subvelutinous, insititious, up to 1.75 × 0.25 mm, laterally attached to the pileus.

Spores 8.5-10.2 × 5-6.5 μ , ellipsoid, sometimes slightly constricted in the middle or reniform, smooth, amyloid. — Hymenium: Basidia 23.5-25.5 × 7.2-7.6 μ , 4-spored, sometimes a few 2-spored ones intermixed, clavate or with a constriction in the middle, mostly clavate. Gloeocystidia in the hymenium scarce or none. — Hyphae filamentous and truly gelatinized and thin-walled in parts of the trama, non-gelatinized and often broader and somewhat thick-walled in other parts, particularly in the pseudostipe, all hyphae inamyloid, with clamp connections, hyaline. — Covering layers and pore edges with scattered gloeocystidia, acanthocysts, and numerous erect broadly clavate, broadly cylindrical or vesiculose smooth, optically empty cells (dermatocystidia), gloeocystidia 22-35 × 9-21 μ , mostly clavate or ventricose to subvesiculose, more rarely cylindrical, hyaline to yellowish, bluing to a vivid bright blue in cresyl blue mounts, but some not bluing; acanthocysts from moderately numerous to scattered on pore edges and scattered to none on epicutis of pileus and stipe surface, elongated and narrow, cylindrical, narrowly clavate or ventricose, with or without a slight constriction underneath the apical clavulate portion, not or exceptionally subvesiculose, entirely beset with setulae (1-1.5 μ projecting) except at the very base, without colorable contents and all hyaline, deep purplish-pink in cresyl blue mounts; smooth dermatocystidia 19-28 × 6-13 μ or broader, subvesiculose or broadly ventricose, hyaline, deep purplish pink in cresyl blue mounts, obtuse or rarely somewhat mucronate, thin-walled, erect, crowded at the epicutis, otherwise scarce.

On dead wood, inflorescences, leaf sheaths or petioles of Palmae. Gulf Coast of South America.

Material studied: FRENCH GUYANA: Leprieur 961 (PC) TYPUS. — VENEZUELA: Sucre: El Rincón, 15-VII-1972, Dumont et al. VE 7328 (NY).

Lloyd claims that the fungus is not orange but this observation is based on the fact that the type is discolored and its elements hyaline to subhyaline, yet it is described as orange and the Venezuelan material proves that this is correct. However, there are similar fungi which are not orange but they are macro- and microscopically different.

Hennings, who first published the combination *F. auriscalpium* did so while indicating the existence of the species in the Cameròons. This material is certainly not conspecific with Montagne's fungus since it is described as carmin red. I tend to think that Henning's fungus (Zenker & Staudt no. 283)

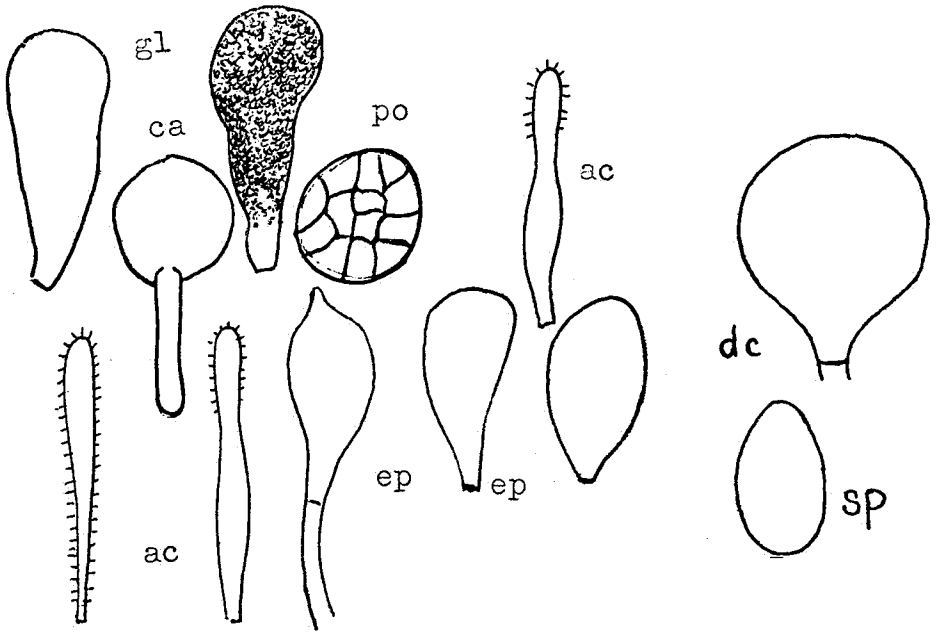


Fig. 6. *F. auriscalpium*: gl = gloecystidia $\times 1000$; ca = carpophore from sterile side $\times 10$; po = pores $\times 10$; ac = acanthocysts $\times 1000$; ep = epicuticular elements (smooth dermatocystidia) $\times 1000$; dc = epicuticular elements (smooth dermatocystidia) from the type $\times 1000$; sp = spore from the type $\times 2000$.

is either *F. lateritia* Henn. (coming originally from the same locality: 'Jaundestation auf faulenden Zweigen') or *F. dybowskyana* or even *F. sanguinea* (see p. 100), the latter incompletely known.

Illustration: Fig. 6.

14. *Favolaschia fendleri* Sing. spec. nov.

Pileus 'bittersweet pink' when fresh, fading to dirty orange or pale stramineous in the herbarium, attached (according to position on substratum) by a short to rather long pseudostipe or almost sessile laterally, up to 3 mm broad when dried, surface subpustulate or subsmooth, convex, glabrous, but under a strong lens very finely pruinose, glabrescent. — Pores 9-20, paler or pallescent, 3-3.5 per mm in dried material but up to 0.7 mm wide, angular. — Pseudostipe sometimes almost nil or else lateral and up to 3 mm long, equal, also finely pruinose under a lens, eventually glabrescent, insititious.

Spores (6)-7.5-10.5(11) \times (4)-4.5-6.5-(7) μ , ellipsoid, few ovate or subglobose, smooth, amyloid. — Hymenium: Basidia 21-25.5 \times 7.5-8.5 μ , 4-spored. Gloeocystidia rather numerous and conspicuous because of a pale golden yellow to yellow coarsely granular to finely granular contents, 18-50 \times 5-19 μ , versiform and often continued into gloeo-vessels. — Hyphae of the pileus-trama moderately gelatinized, filamentous but in places many inflated to 10 μ and more, hyaline, with clamp connections. Gloeo-vessels present but often broad only where they continue into gloeocystidia, or else narrow (e.gr. 1.5 μ diam.). — Cortical layers: Acanthocysts very numerous on pore edges and epicutis as well as on the surface of the pseudostipe, in places almost hymeniformly arranged, but here and there interrupted by the broad smooth hyphal ends originating in the subepicuticular zone of the trama of the pileus (which resemble acanthocysts but are smooth), 18-40 \times (1.5)4.5-21 μ , many vesiculose or subvesiculose and 18-26 \times 10.5-21 μ , fewer elongated, often cylindrical or subcapitate, even hyphous and 15-40 \times 1.5-14 μ , all entirely or in upper half to quarter echinulate with setulae rod-like or conical, 1-2.5 μ projecting, hyaline or with (more rarely) pale yellowish wall which is more often thin than apically thick-walled, rarely one or another seen with internal yellow pigment-body; gloeocystidia present but of variable density, sometimes very scarce on epicutis, like the hymenial ones; smooth cells underneath or with the acanthocysts 17-36 \times 10-25 μ subvesiculose, hyaline or yellowish.

On dead parts of Palmae, from the Gulf region to Southern Brazil.

Material studied: BRITISH HONDURAS: El Cayo; Valentin, 5-VII-1936 E.B. Mains 3738 (MICH). — COLOMBIA: ('Venezuela'): Fendler (Curtis Herbarium as *L. pezizaeformis*) (FH). — BRAZIL: São Paulo: Reserva Florestal do Horto Florestal, Serra de Cantareira, 17-XII-1964, Singer & Furtado B 4118 (F) TYPUS.

Formerly this species has been confused with *F. flava*, *F. auriscalpium* and *F. aurantiaca* and even now I have some doubts as to whether the material of the north-neotropical zone belongs to the same taxon as the Brazilian material. In the latter the color appears slightly deeper and all surface elements slightly more pigmented, the smooth cells reaching the surface layer more rarely, and the basidia are more constantly 4-spored. However, these differences are too insignificant to separate the elements properly.

15. *Favolaschia aurantiaca* Sing. spec. nov.

Pileus orange to rufous ('Totem', 'Brazil r.', 'Moroccan' M&P) when fresh but soon bleaching to light lateritious ('pheasant, testaceous' M&P) or a pale,

dirty orange in the depressions between the pustules, reticulate-pustulate to smooth, reticulated by transparence, most appearing glabrous but under a strong lens when dried finely subpruinata, glabrescent, circular, reniform or elliptical in outline, convex, 1-4.5 mm broad. — Pores whitish, interior of tubes orangy, (paler than the pileus), 20-50, roundish, about 5 per mm in dried material, smaller in the marginal zone and the inner pores sometimes slightly oval-elongated, fewer eventually rounded-subangular, with thick dissepiments. — Pseudostipe (according to position of carpophore on the substratum) variable from almost nil or up to 4 mm (fresh), mostly about 1.3 mm when dried, concolorous either only in the lower portion or entirely, the apex sometimes pallid, lateral, filiform, more rarely tapering slightly toward the apex, finely subpruinata, glabrescent.

Spores (7)7.5-9.5 × (4.3)-5.5-7.5 μ, hyaline to pale golden hyaline, ellipsoid to more rarely subglobose, smooth, amyloid, occasionally with slight irregularities such as small depressions or hooks, generally without suprahilar depression or applanation. — Hymenium: Basidia 23-33 × (7.5)-8-8.8 μ, 4-spored, with basal clamp. Gloeocystidia 17-38 × 9-26 μ, versiform, in cresyl blue mounts fresh not showing the bright blue contents readily but in dried material distinctly. — Hyphae strongly gelatinized and filamentous, imbedded in a gelatinous mass, less or not gelatinized in the trama of the stipe, but cortical layer of the stipe and even the subepicuticular layer of the pileus distinctly gelatinized, few inflated (e.g. 8 μ diam.), otherwise about 1.5 μ broad with thin, more rarely thickish (to 0.5 μ) wall, hyaline, in-amyloid, with clamp connections, not showing a Rameales- or asterostromeloid structure on the surface, but there often moniliform. — Cortical layers: Gloeocystidia present on the epicutis of the pileus, the pore edges and the surface of the pseudostipe, some with bright yellow internal pigment bodies. Acanthocysts numerous, 7.5-25 × 8.5-19 μ and vesiculose, hyaline or yellowish or rarely with bright yellow dissolved pigment, some minutely rough or smooth (these originate in the subepicuticular layer of more or less swollen elements, sometimes breaking through into the acanthocyst layer of the epicutis, 16-45 × 9-20 μ), normally echinulate with setulae projecting, 0.5-2.5 μ, some with one sterigmatoid excrescency.

On Bambuseae, mostly *Chusquea* in Northeastern Argentina, Brazil and Bolivia.

Material studied: BOLIVIA: Pando: Manuripi, Conquista, 25-III-1956, Singer B 2199 (F) TYPUS. — ARGENTINA: Misiones: Cataratas del Iguazú, Nov. 26, 1949, Singer M 78 (LIL). — Refugio 'El Yaguareté' Singer & Digilio M 1001 (F).

This species was originally described by me (1960) as *F. flava* and was then

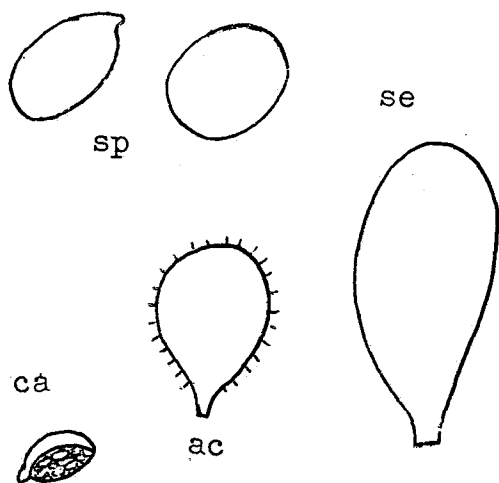


Fig. 7. *F. aurantiaca*: sp = spores X 2000; ac = acanthocysts X 1000; se = cell of the subepicuticular layer (smooth acanthocyst) X 1000; ca = carpophore X 3.

combined with a species I distinguish now as *F. fendleri*. It appears though that all collections on Bambuseae are, as far as this subsection is concerned, referable to *F. aurantiaca*.

Illustration: Fig. 7.

16. *Favolaschia sabalensis* (Charles) Sing. Lloydia 8:207. 1945.

Laschia sabalensis Charles, Mycologia 34: 239. 1942.

Var. *sabalensis*.

Pileus 'carnelian red' becoming 'rufous', 'apricot orange' (Ridgway), pale yellow or yellowish white when dried, glabrous (slightly pruinose under a lens), reticulate by transparence, conchoid to suborbicular or reniform in outline, sessile or attached to the substratum by a pseudostipe, attachment of the sessile carpophores by an eccentric or sublateral point of the sterile surface of the pileus, 1-4 mm broad. — Pores 3-8-(20), concolorous or paler, triangular to hexangular and not or little elongated, 2-4 mm when fresh. Spore print white. — Pseudostipe (according to the position of the carpophores on the substratum) either absent or very short or else - more commonly - up to 2-(5) mm long and 1 mm broad, concolorous with the pileus.

Spores 9-15.5 X 4.2-11 μ , ellipsoid and often somewhat subangular with rounded angles or somewhat sausage-shaped, pear-shaped or with small irreg-

ularities such as small depressions and hooks, especially near or at the apex, usually with an oil drop, with smooth, thin, amyloid wall. — Hymenium: Basidia 33-36 × 8.5-8.8 μ, clavate, (1)-2-(3)-spored, with long and relatively straight sterigmata. Gloeocystidia scanty, often immersed or in continuation of gloeo-vessels, large but of variable size, versiform, often subcylindric or vesiculose to broadly ventricose or clavate, smooth, rarely one or another with occasional low, warty bulges, with hyaline to (more often) yellow granular contents which become deep and bright blue in cresyl blue mounts. Pseudophysoid. Pseudophysoid sterile bodies sometimes seen scattered in the hymenium, smooth or rarely spinose or warty at the apex, hyaline. — Hyphae irregularly arranged, interwoven in the subregular trama of the pore dissepiments, gelatinized and imbedded in a gelatinous mass and thin-walled, in the stipe less or not gelatinized, generally filamentous, few inflated, with clamp connections, inamyloid, thin-walled. Gloeo-vessels usually short and continued into gloeocystidia, or very thin. — Sterile surfaces (including pseudostipe surface and pore edges) with numerous gloeocystidia (as above) and acanthocysts, these 12-56 × 7-15 μ, the elongated ones 7-11 μ broad, cylindric or subcylindric, the short ones vesiculose or more rarely ampullaceous and about 15 μ across, densely and regularly echinulate all over or in their upper thirds or halves, setulae rod- or thorn-shaped, about 2 μ projecting, all hyaline to (more rarely) pale yellowish and without colorable contents, walls purplish pink in cresyl blue mounts; some of the epicuticular cells resemble 'empty' gloeocystidia or smooth acanthocysts.

On dead leaves, petioles and inflorescences of palms, e.gr. *Sabal palmetto* in the Gulf region from Florida, U.S.A. to Trinidad.

Material studied: U.S.A.: Florida: Highlands Co., Highlands Hammock State Park, 30-VIII-1942, Singer F 440 (FH). — CUBA: (as *L. auriscalpium*) Curtis Herb. (FH). — TRINIDAD: Aripo, Thaxter, April 1913 (FH). — PANAMA: Barro Colorado Island, Martin & Welden 7583 (IA).

The Panama-collection may conceivably be a 2-spored form of *F. aurantiaca* since the host (certainly monocotyledonous) is not identified.

Illustration: Charles, Mycologia 34, fig. 1A, p. 239, 1942.

Var. *geonematis* Singer

Pileus at first bright pink-red ('brigand' M&P), dried deep orange in places, but often pallescent to whitish over most of the surface, circular or with irregular outline, pruinose-subpubescent when young, reticulate-pustulate, convex, 2-4 mm broad. — Pores white, roundish, 0.3-0.6 mm wide (dried), 6-16 in mature specimens. — Pseudostipe present or absent, if present con-

colorous with the pileus and very minute, 0.5-0.1 mm, insititious or sub-insititious. — Context thin, inodorous.

Spores 9-12.5 × 8-11 μ, subglobose, smooth, hyaline, amyloid. — Hymenium: Basidia 27-40 × 13-14 μ, 2-spored; sterigmata 10-11 μ long, stout gloeocystidia in hymenium present, but scattered, 28-30 × 8.5-11.5 μ, cylindric, clavate or piriform, with yellowish, coarse contents-bodies. Cheilocystidia like the acanthocysts of the epicutis. — Hyphae strongly gelatinized and running in many directions, filiform, hyaline, with clamp connections, inamyloid; in a zone just below the hymenium and in the stipe less gelatinized. Gloeo-vessels few and inconspicuous excepting as basal continuation of the gloeocystidia. Gloeocystidia very numerous, 20-60 × 11-26 μ, vesiculose, with golden-hyaline to lemon- or chrome-yellow (NH₄OH) coarse contents, smooth, some separating from the basal cell, acanthocysts rather numerous, 19-37 × 5.5-10 μ, mostly elongated, cylindric to oblong, hyaline, some rising from a spherocyst-like basal cell such as often seen in the layer immediately underneath the epicuticular elements, diverticula dense, 1-2 μ high, rod-shaped or spinulose, hyaline, without contents and inamyloid. Stipe surface with similar elements.

On the stipes of palms, mainly *Geonema* sp. in hylaea.

Material studied: ECUADOR: Napo, Shushufindi, 15-V-1973, Singer B 7441 (F), TYPUS of the variety.

This variety may well be a geographical race or a mycoecotype since it occurs well south of the area of the type variety and on other hosts. It differs mainly in subglobose spores.

17. *Favolaschia calocera* Heim, Rev. Mycol. 10:50. 1945 (publ. 1946) ex Heim Rev. Mycol. 31:154. 1966.

Var. *calocera*.

Pileus orange (K. 111, K. 116), reticulated by transparence, reniform in outline, lobed on both sides of pseudostipe insertion, glabrous, up to 11 × 9 mm. — Pores concolorous, 40-70, hexagonal, subisodiametric or (up to 2 mm extended radially) elongate, the subisodiametric ones up to 1 mm in diam. with rather thick dissepiments, radial dissepiments sometimes somewhat higher than the others but not lamellar, the marginal pores often incomplete. — Pseudostipe laterally attached, concolorous, reaching 7-9 × 1-1.3 mm, straight, cylindric, very finely tomentose under a lens, solid. — Context concolorous.

Spores (10)-12-12.5 × (8)-8.2-9 μ , obovate frontally, internally granular and indistinctly amyloid. — Hymenium: Basidia much like these of *Calocera*, 33-36 × 7-10 μ , 2-sporous, sterigmata 10-12 × 4.5 μ . Gloeocystidia 55-76 × 11-25 μ , rounded at apex, short pedicellate, with refringent, rather thick wall with densely granular colored inclusion. — Hyphae with walls thinner than 1 μ , thin or broad (gloeovessels?) and then thin-walled and 12-18 μ diam., in the stipe likewise both broad and narrow hyphae, in the subepicuticular zone of the pileus trama gelatinized of thin hyphae. Subhymenium filamentous, of thin (2-3 μ) elements, somewhat interwoven, granular inside, distinct. — Covering layers: Gloeocystidia as above, here often ovate, piriform or subglobose, smooth, 30-50 × 22-28 μ , with 2 μ thick wall, here and there with thickenings reaching 5 μ , granular inside. Acanthocysts 30-40 × 14-20 μ , with rather thick wall, densely granular inside, on pore edge more normal, piriform-elongated with inequal setulae, narrower than the gloeocystidia.

On tree trunks (apparently dicotyledonous), in Madagascar.

Material studied: none. The description given above is adapted from Heim's original description. The two-spored basidia and the thick-walled gloeo- and acanthocysts are remarkable. This species appears to be close to *F. sabalensis* and *F. zenkeriana*.

Illustration: Heim (1945), fig. 30; plate 4, figs. 3-6, 13-14; fig. 31.

Var. claudopus Sing. var. nov.

Pileus coral color, dried salmon orange, strongly pruinose under a lens, pustulate when mature, conchate and convex, with a sinus or incision in the rear portion and lobed on both sides of this, 4-6 mm broad. — Pores salmon orange, the edges under a lens white pruinose, the dissepiments thin in the marginal, thick (0.2-0.4 mm) in the rear portion, the pores numerous (33-95), either all about equally wide or those of the marginal row smaller, mostly about 2-3 per mm., often but not always, particularly in the rear portion, seriate with radial disposition and the cross dissepiments much lower than the radial ones, often more roundish in the marginal and more angular in the rear portion. — Pseudostipe concolorous, pruinose, often scarcely developed, but mostly present but short and curved, solid, insititious, up to 1.5 × 0.8 mm. — Context gelatinous.

Spores 10-12.2 × 6.5-8.5-(9) μ , mostly ellipsoid or ovoid, rarely short-ellipsoid to subglobose, often with a central depression on the inner side or with a slight median constriction, without suprahilar depression, smooth, amyloid. — Hymenium: Basidia 22-58 × 5.5-11 μ , most bisporous, some-

times some 1-, 3-, or 4-spored ones present but these exceptional. Gloeocystidia in the interior of the pores rather numerous, striking because of the chrome yellow oily or oily and granular contents, $38-54 \times 9-17 \mu$, rarely up to $60 \times 23 \mu$, ventricose or clavate-ventricose, with broadly rounded tip, with thin hyaline wall (which is sometimes seemingly thickened either because there is a hyaline band between the wall proper and the contents or because the contents are agglutinated and condensed along the inner side of the wall proper), mostly deep rooting and sometimes not reaching the level of the sterigmata but occasionally projecting. – Hyphae of the pileus-trama hyaline, strongly gelatinized and imbedded in a gelatinous mass, filamentous, $0.5-4.5 \mu$ broad, with both clamped and non-clamped septa; those of the regular hymenophoral trama and the trama of the pseudostipe much less gelatinized, all thin-walled in the pileus, all inamyloid; there are no broad gloeo-vessels but there are occasional endocystidia which are like the gloeocystidia. – Cortical layers: Gloeocystidia and acanthocysts numerous in the sterile surface of the pileus and the pore edges; gloeocystidia here shorter than the hymenial ones, $28-47 \times 18-26 \mu$, chrome-orange to lemon yellow from an oily-granular contents, smooth, with thin to firm wall. Acanthocysts $(20)-30-81 \times 6-11 \mu$, varying from narrowly ventricose (with or without a median constriction) to cylindrical or claviculate-pedicellate or fusoid, rarely clavate-subvesiculose (e.g. $25 \times 11 \mu$), all hyaline, with or without an inconspicuous minutely granular contents, with thin to slightly thickened (0.5μ) wall, beset with diverticula, these $1-2.7 \mu$ long (mostly $1.5-2.2 \mu$), spinulose. On the epicutis, there are also some fusoid, thick-walled dermatocystidia usually occurring in peg-like bunches and intermixed with thin-walled hyphal ends, these dermatocystidia $40-60 \times 8-9.5 \mu$, with the wall hyaline and up to 3μ thick, with obtuse apex, without noticeable contents. Underneath the epicuticular acanthocysts, and generally not reaching the surface, there are also many smooth elements which are otherwise like the acanthocysts of the ventricose-subvesiculose type or like dermatogloeocystidia but without or with very little contents, e.g. $26 \times 14 \mu$. Covering of the pseudostipe much like the covering of the sterile surface of the pileus.

On branches of dicotyledonous trees, gregarious. Known host: *Elaeagnus pungens*.

Material studied: NEW ZEALAND: Waitemata County, Waitatarua, Waitakere Ranges, VII-1973, R. Beaver (HERBARIUM OF THE PLANT DISEASES DIVISION NEW ZEALAND; F); TYPUS (the F collection is the holotype) of the variety. PDD 31006

This fungus has appeared in large quantities in the Auckland region during the last three or four years (according to a letter from Dr. Joan M. Dingley

who sent a specimen to me) and is therefore believed to be adventitious inasmuch as it occurs on both indigenous and introduced vegetation. It differs from the type variety by its much shorter pseudostipe and slightly smaller size. Heim's figures (pl. 4, fig. 3-6, 13-14, especially 5, 6) are very similar to the New Zealand form, and it cannot be fully demonstrated that the variety is not within the range of variation of the type collection inasmuch as only one collection of each are known.

18. *Favolaschia zenkeriana* (Sing.) Sing. st. nov.

Favolaschia thwaitesii ssp. *zenkeriana* Sing., *Lloydia* 8:211. 1945.

Pileus orange (e.gr. 'salmon pink' Ridgway), later deep orange around the sordid pinkish-pallid pustules, so that adult specimens are often more pinkish than orange, glabrous, 9-19 mm broad. — Pores up to about 120, concolorous or paler, very wide (more than 1 mm in dried material) or lamellary extended in some carpophores, 1.5-2 per mm, adnate. — Pseudostipe laterally attached to the pileus, pruinose, 14-25 × 1-2.2 mm. — Context inodorous.

Spores (6)-7-10-(10.2) × 4.5-8 μ, mostly 6-7 μ broad, short ellipsoid or ellipsoid, often subglobose, smooth, hyaline, with a central oil drop or with coarse oily contents, amyloid. — Hymenium: Basidia 20-35-(55) × 6-10.5 μ, 4-spored, appearing pale orange in superposition. Gloeocystidia numerous, 20-33-(77) × 5.5-31 μ, smooth, varying from subhyaline to yellow or deep cadmium orange from a finely or coarsely granular content. — Hyphae of the pileus trama filamentous and imbedded in a gelatinous mass, less or not gelatinized in the pseudostipe, there with slightly thickened inamyloid wall (0.5-0.7 μ). Gloeo-vessels present, 7-8 μ broad, often replaced by numerous endo-gloeocystidia. — Cortical layers: Gloeocystidia and acanthocysts present, the former numerous, the latter scattered or in bunches but often very scanty on pore edges, and/or epicutis and pseudostipe surfaces, erect or prostrate, vesiculose and more elongated ones observed, the former e.gr. 12 × 11 μ, setulae rod-like and 0.5-1.2 μ projecting, sometimes seriate-catenuate and less dense than usual, the latter also with setulae, elongate-clavate, narrowly fusoid, or subcylindric to almost hyphous, hyaline. Hyphae reaching the sterile surfaces wavy and often branched or nodulose but normal, entire hyphae predominating.

On rotting wood of dicotyledonous trees in the Amazonas region and in tropical West Africa.

Material studied: BOLIVIA: Pando: Manuripi, Conquista, 25-III-1956. Singer B 2223 (F). — LIBERIA: Uolah, 22-VIII-1926, Linder 340 (FH),

TYPUS. — Firestone No 3, Du River, August 1926, Linder 293 (FH), paratype.

19. *Favolaschia dybowskyana* (Sing.) Sing. st. nov.

Favolaschia thwaitesii ssp. *dybowskyana* Sing., Lloydia 8:211. 1945.

Pileus 'orange' (Ridgway), at first 'deep chrome', eventually 'orange rufous' (Ridgway) according to Pegler & Rayner, on drying orange to pale cinnamon orange; conchate, orbicular or reniform, convex, tessellate-pustulose, dry white pruinose under a lens, 3-15 mm broad. — Pores concolorous with the pileus, up to about one hundred, wider and more angular towards the center than in the marginal rows, 1-3 per mm (fresh), round at first, then becoming angular and sometimes strongly radially elongated behind, concolorous and up to 0.5 mm deep, edges of dissepiments pruinose. — Pseudostipe laterally attached, concolorous with the pileus, forming an angle with the pileus, equal, solid, finely pruinose, not insititious, 2-15 × 0.5-2 mm, basal mycelium white. — Context hyaline or subhyaline.

Spores 8.5-12.5 × 4.2-8 μ, ellipsoid or broadly ellipsoid (not subglobose) to short cylindrical, hyaline, smooth, amyloid, often with refringent yellow or hyaline contents. — Hymenium: Basidia 30-40 × 8.5-9.5 μ, 4-spored. — Gloeocystidia 22-53 × 7-23 μ, some strongly projecting, versiform, mostly vesiculose-clavate, but also subcylindric, some broadly mucronate with coarse yellow or light golden orange oily granular contents, often incompletely blue in cresyl blue mounts or at first appearing green, smooth. — Hyphae in the trama of the pileus widely spaced in a gelatinous mass, thin-walled, filamentous, 1-4 μ broad, inamyloid, with clamp connections; those of the regular hymenophoral trama and especially the subhymenium less gelatinized, those of the pseudostipe likewise less gelatinized and some slightly thick-walled, subparallel with each other. Gloeovessels and endogloeocystidia present but mostly few or inconspicuous. — Covering layers: Epicutis of the pileus and edges of the pores with gloeocystidia (see above) and acanthocysts, the latter 22-47 × 3.3-22 μ, mostly about 35 × 9 μ, ventricose to almost ampullaceous, cylindric or vesiculose (very variable in shape), most frequently clavate to vesiculose-clavate, often long (to 20 μ) pedicellate, hyaline, often in subhymeniform fascicles, thin-walled, few somewhat thick-walled, inamyloid, densely echinulate mostly all over, more rarely only in the upper portion with setulae projecting, mostly 1-2 μ but some coarser broader apical appendages among the setulae reaching up to 5.5 μ; at the pore edges and especially on the surface of the stipe also some completely smooth cells observed which are otherwise similar, usually vesi-

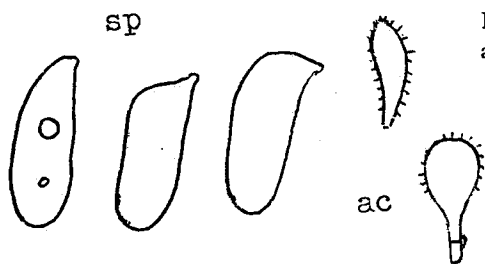


Fig. 8. *F. selloana*: sp = spores $\times 2000$; ac = acanthocysts $\times 1000$.

culose or clavate cells completely smooth, thin- to thick-walled, mostly with optically 'empty', very few with some amorphous hyaline content. Surface of the pseudostipe with acanthocysts similar to those of the epicutis but some reaching up to $55\ \mu$ in length; gloeocystidia often slightly more elongated than those of the hymenium.

On dead (dicotyledonous) wood in the tropical forest, gregarious. Tropical Africa (East and West Africa), also in Mexico.

Material studied: REP. DU CONGO: Leg. Dybowsky (FH), TYPUS. — UGANDA: Tropical Institut Mulange, 4000 ft. alt., March 1920. Leg. R.A. Dummer (FH). — MEXICO: Chiapas, between Finca Sospiro and El Pozo, 4-VIII-1969: Singer M 8981 (F).

Illustration: Pegler & Rayner (1969) fig. 8.

The Mexican material fits the original description so well that I have no doubt that it is conspecific with the type. The only difference I can see is that the pores are often somewhat radially elongated and sublamellar in the Mexican material, but this has never been a dependable specific character inasmuch as wherever it occurs, it is not consistently present in all mature carpophores of a population. Thus, *F. dybowskyana* appears to be one of the few species occurring both in tropical Africa and tropical America.

When I first attempted (1945) to define some of the taxa entering *Favolaschia* I subordinated three subspecies to *F. thwaitesii* and indeed, these three are very closely related. My treatment was due not so much to a wider species concept as to the fact that the scanty material and lack of data on fresh material in combination with the inavailability of the type conserved in Europe at that time would have provoked misapplication of earlier names. These have now been revised as far as possible and it turns out that none of the older names can be applied with confidence to the form described above and that this form - when all characters are taken into consideration - should be distinguished on the specific level. Therefore, I have no other choice but to elevate ssp. *dybowskyana* to specific rank. Since then, additional material

from Uganda, Zambia and Kenya has been described and illustrated by Pegler & Rayner (1969).

It might well be that *Favolaschia valparaisensis* Henn. and *F. zenkeri* Henn. are identical with *F. dybowskyana*. The types of the first two have been lost and no authentic material is in existence nor have data on the types been published aside from the type descriptions. In both cases the color of the fruiting bodies is indicated in such a way as to cast doubts on the identity of the two species, but since these may have been taken from herbarium material and since the rest of the description fits rather well, it is possible that they are specifically identical with *F. dybowskyana*. If so, the area of this species should include the Cameroons as well as Central Chile.

As for *F. congolensis*, this species is certainly identical in the sense of Patouillard (by definition) but in the original sense of *Favolus congolensis* DeSeynes, Rech. Champ. Congo Fr. p. 28. 1897, there remain grave doubts. I have not been able to locate DeSeynes's types but his illustrations (l.c. pl. 1, figs. 27-31) permit no doubt that his is a *Favolaschia* of the same subsection as *F. dybowskyana*. On the other hand, the specimens are apparently immature or sterile and therefore hard to place, also some data do not fully agree with the type of *F. dybowskyana*, particularly the color (which is more yellow) and the trama which is said to be non-gelatinous. On the other hand, slight variations in color are possible and the non-gelatinous trama may have referred to the pseudostipe; the type locality cannot be far from the one of *F. dybowskyana*.

F. valparaisensis Henn., Ofvers. K. Vet. Akad. Förhandl. 1900, p. 320, is likewise described as golden yellow rather than orange and the pseudostipe may be wanting.

Both *F. congolensis* and *F. valparaisensis* should therefore, unless authentic material can be found in the future, be considered doubtful species, obviously related to *F. dybowskyana* and possibly identical.

20. *Favolaschia selloana* Henn., Hedwigia 36:203. 1897.

Laschia selloana (Henn.) Sacc. & Syd., Syll. Fung. 14:199. 1899.

Favolaschia thwaitesii ssp. *selloana* (Henn.) Sing., Lloydia 8:212. 1945.

Pileus reddish orange to chrome yellow (e.g. 1-I-12 M&P), somewhat reniform in outline, sometimes lobed, pustulate-reticulate when fresh, glabrous or subglabrous, (5)-8-26 mm broad. — Pores light salmon pink to brick pink (2/3 A 10/11 M&P) with paler pinkish tube interior, much smaller along the margin than further inward where they are angular and 1-1.7 mm wide rarely

(in carpophores which have ceased to extend laterally) all of equal size, not or little elongated, adnate. — Pseudostipe constantly present, concolorous with the pileus or the pores, strictly lateral, finely pubescent-pruinose, equal or slightly tapering upwards, 20-33 × 1-2 mm. — Context inodorous or with a slight odor of tamarind fruit juice.

Spores 7-11 × 3-5.2 μ, characteristically narrow and often like bolete spores (Q > 2) cylindric, cylindric-fusoid, fusoid-oblong, often applanate on the inner or on both sides when seen in profile but rarely with a slight suprahilar depression or applanation, hyaline, smooth, amyloid. — Hymenium: Basidia 20-33 × 6.5-7 μ, 4-spored. Gloeocystidia 31-55 × 9-15 μ, rather numerous in the hymenium, yellowish or yellow from coarsely granose contents, versiform, often clavate, fusoid-vesiculose or subglobose), smooth. — Hyphae of the pileus-trama gelatinized and loosely arranged, imbedded in a gelatinous mass, mostly strictly filamentous, hyaline or subhyaline, inamyloid. Gloeovessels not numerous, about 10 μ in diameter, yellow. — Cortical layers: Gloeocystidia and acanthocysts present, the former as above, the latter moderately numerous to fairly numerous (but sometimes conglutinated and difficult to observe), either elongated (e.gr. 18 × 5 μ) or vesiculose (15-18 × 6.5-7.5 μ), relatively small, with dense setulae 1-2.5 μ projecting and rod-shaped to conical, the main body varying sometimes to subcylindric or ventricose-subcapitate or fusoid, hyaline or pale yellowish, in some cells the lower half smooth, without inclusion and inamyloid. Preparation often exuding a yellow pigment solution into the medium (NH₄OH).

On wood of dicotyledonous trees, rotten logs and cut firewood, also on fallen branches in the neotropics.

Material studied: COLOMBIA: Valle: Hoya del Río Cali, Pichindé, Alto de las Brisas, 2050-2100 m alt. 29-X-1944, Cuatrecasas 18349 (F). — BRAZIL: Amazonas: Rio Juruá: Juruá-Miri, Ule (Herb. Brasiliense no. 2704) Sept. 1901 (FH). AUTHENTIC (proposed neotype). — BOLIVIA. Beni: Vaca Díez: El Prado (10 km from Riberalta) 7-IV-1956 Singer B 2568 (F).

This is based on Ule's collection which is authentic since it was determined by Hennings (Hedwigia 44:59. 1904); since the holotype (Sello no. 5433, also from Brazil) has been lost Ule's 2704 is here considered to be a neotype. Lloyd (1919) thinks that *F. brasiliensis* Henn. is the same species - a smaller specimen. This may be so but without spore measurements it remains uncertain whether it does not rather refer to another species of this subsection.

This species was consistently called *Laschia papulata* Mont. by Lloyd (1919) but this comes from Central Chile and was described as pallid becoming fusco-badius. The type is not preserved as far as I know and it is highly

improbable that this temperate species without orange pigment should be identical with *F. selloana*.

Illustration: Fig. 8.

21. *Favolaschia lateritia* Henn., Engler's Bot. Jahrb. 22:93. 1895.

Pileus brick red with crenate or entire margin, sometimes umbonate above the attachment of the pseudostipe or stipe, smooth to pustulate and transparently reticulate, finely pruinose (3)-6-11 mm broad. — Pores wider inside than along the margin (0.5 mm inside the marginal zone, 1-1.5 mm along the margin) angular and subsisdiametric. — Stipe (probably a pseudostipe with some occasional overgrowth of the pileus in the rear apical zone) sublateral-eccentric to strictly lateral, concolorous, equal or tapering upwards, more frequently the latter (or at least with narrowed apex or widened base), slightly hispid below, pruinose above, 5-13 × 0.6-2 mm, apex 0.5-1 mm wide).

Spores (6.7)-8.7-12.8 × (4.3)-5.8-7.7 μ, ellipsoid, smooth, amyloid. — Hymenium: Basidia '18-30 × 10-14 μ' (Hennings). Gloeocystidia numerous, mostly basidiomorphous, about 47 × 6-12 μ, fusoid-ventricose or clavate, subhyaline to melleous, coarsely granose or finely granulose inside, smooth. — Hyphae (except in the core of the stipe and the subepicuticular layer and the subhymenium) filamentous, loosely arranged and imbedded in a gelatinous mass, hyaline, inamyloid. — Cortical layers: Gloeocystidia numerous on the pore edges and the sterile surface of pileus and pseudostipe, 22-60 × 11-28 μ, subhyaline to melleous and granular to coarsely granose inside, Acanthocysts on the epicutis of the pileus and stipe rather scanty among the gloeocystidia, on the pore edges more numerous, 36-49 × 7.2-12.3 μ, on the pileus mostly fusoid-ventricose but narrow (8-9 μ), on the pore edges more versiform, subclavate or so with a constriction, but hardly ever subglobose, with rod-like setulae densely echinulate, setulae projecting 1.2-2 μ.

On dicotyledonous wood, rotting branches. West Africa.

Material studied: CAMEROONS: Jaundestation, 25-III-1894, Zenker & Staudt 283 (alcohol material of this collection preserved at B), TYPUS.

The material seen by me was bleached by the alcohol so that the color data were probably provided by the collectors and should be correct. This color is apparently characteristic for the species since the related African species could hardly be called 'brick red'. The characteristics of the pores and the acanthocysts are also distinctive.

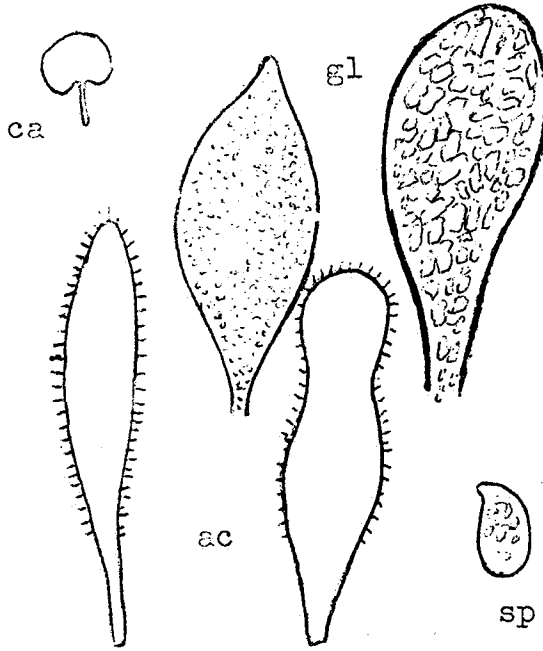


Fig. 9. *F. lateritia*: ca = carpophore seen from sterile side, X 1; gl = gloecystidia X 1000; ac = acanthocysts X 1000; sp = spore X 1000.

Illustration: Fig. 9.

22. *Favolaschia thwaitesii* (Berk. & Br.) Sing., *Lloydia* 8:201. 1945.

Laschia thwaitesii Berk. & Br., *Journ. Linn. Soc., Bot.* 14:58. 1875.

Pileus orange-red or orange, margin sometimes paler, tessellated, finely pruinose, often crenulate on the margin, slightly convex or flattened, reniform in outline, up to 9 X 6 mm. — Pores concolorous, round, with thick dissepiments, 0.3-0.4 mm wide. — Pseudostipe lateral or seemingly eccentric, concolorous and pulverulent, sometimes paler than the center of the pileus, bent at right angle with the pileus above, or in the same plane as the pileus, solid, attenuated upwards, up to 15 mm long and 1 mm broad. — Context concolorous or somewhat paler, subgelatinous; inodorous.

Spores 8.8-11 X 6.3-8 μ , according to Petch sometimes up to 13 μ long, short ellipsoid, often also short cylindrical or ellipsoid, smooth, amyloid, white according to Petch (in mass?). — Hymenium: Basidia 4-spored. Gloeo-

cystidia present, with coarsely granose, yellow, conspicuous contents, bluing in cresyl blue mounts. — Hyphae of the pileus-trama thin-filamentous, gelatinized, inamyloid. — Cortical layer: Acanthocysts moderately numerous on edges and sterile surfaces, clavate to vesiculose with setulae mostly about $2.5\ \mu$ projecting, accompanied by some dendrophyses and numerous gloeocystidia (so both on pileus- and pseudostipe-surface).

On dead (dicotyledonous) wood, cespitose or scattered. Ceylon.

Material studied: CEYLON: Leg. Petch (F), leg. Thwaites (K), TYPUS.

The description given above is partly drawn from Petch's data (1910) and partly from my own observations on the type and topotypical material.

23. *Favolaschia pezizoidea* (Berk. & Curt.) Pat. ex Sing., Lloydia 8:206. 1945.

Laschia pezizoidea Berk. & Curt., Journ. Linn. Soc., Bot. 10:322. 1869.

Pileus probably orange when fresh, becoming sordid gray or grayish yellow in the herbarium, orbicular, attached with the center of the pileus (or a minute pseudostipe), about 2 mm broad. — Pores almost round, small (0.4 mm wide in dried specimen) with thick, at the edges pruinose dissepiments.

Spores $7.7-10 \times 6.3-7.7\ \mu$, short ellipsoid, smooth, amyloid. — Hymenium: Basidia about $28-31 \times 7\ \mu$, 4-spored. Gloeocystidia basidiomorphous, covering most of the hymenial layer or at least numerous, $36-58 \times 4-10.5\ \mu$, yellowish, smooth, with granular contents which turns bright blue in cresyl blue mounts, often connected at the base with gloeo-vessels. — Hyphae strongly gelatinized, some inflated and thick-walled, strongly ventricose or fusoid, appearing pseudophysis-like and ending in finger-like appendages which may reach the surface in the marginal region. — Cortical layers: Gloeocystidia (as above); acanthocysts $14-35 \times 11-21.5\ \mu$, with rod-shaped diverticula (lilac in cresyl blue) all over except in the short pedicel, inamyloid and optically 'empty'. Pseudophysoid bodies see above.

On herbaceous stems and thin woody sticks in Cuba.

Material studied: CUBA: Wright, Curtis Herbarium and Patouillard Herbarium (FH), TYPUS (parts).

Illustration: Singer (1945), plate 3, figs 8-9.

24. *Favolaschia gaillardii* (Pat.) Pat., Essai p. 141. 1900.

Laschia gaillardii Pat., Journ. Bot. 1:228. 1887.

Pileus golden yellow to bright red, occasionally showing some tendency to bleach, not or little folded above the pore walls or somewhat pustulate, glabrous, either sessile or with an extremely short extension of the sterile surface (pseudostipe) in smaller specimen, 3-5 mm broad when fresh, 1.5-2.5 mm broad when dried. — Pores up to 12, paler orange, relatively large, at first roundish, later angular. — Pseudostipe none or inconspicuous.

Spores 7-12 × 4.5-6.5 μ, mostly 8.5-10 × 5.5-6 μ, ellipsoid, smooth, hyaline, amyloid. — Hymenium: Basidia 18.5-33.5 × 6.5-7.6 μ, 4-spored, few 2-spored. Gloeocystidia rather numerous 20-40 × 6.5-18 μ, broadly clavate, with yellow to yellow orange coarsely granose contents becoming greenish in cresyl blue mounts, smooth. — Hyphae only partly gelatinized, some hyphal strands containing non-gelatinized hyphae in KOH, thin-walled, hyaline. — Cortical layers: Gloeocystidia (as above). Acanthocysts on pore edges and epicutis of pileus numerous, crowded, 13-30 × 9-22 μ, vesiculose, few sub-cylindrical, some hyaline but many containing a dull orange to yellow sap, which tends to become discolored (hyaline) after prolonged presence in alkaline media (exuding an orange yellow pigment solution) with dense echinulation all over (excepting pedicel which may be absent, or else short to long, setulae rod-shaped, 1.2-2.2 μ projecting, few acanthocyst-like bodies smooth.

On trunks, fallen branches and pieces of rotting wood, always from dicotyledonous trees. Neotropics.

Material studied: VENEZUELA: Puerto Perico, 8-V-1887, Gaillard (FH), TYPUS. — BRAZIL: São Paulo: Ubatuba, Horto Florestal do Instituto Agrônômico de Campinas, 24-IV-1966, Furtado (Herb. No. 95.411). (F).

This species is often difficult to distinguish from the very similar *F. cinnabarina*. I have recognized it because of the narrower spores. It may be merely a narrow-spored variety of the common *F. cinnabarina* as was anticipated by Rick (1938). From the original accounts one might suppose that there is also a difference in color, but some specimens of *F. cinnabarina* are more bright orange than most and our Brazilian collection of *F. gaillardii* is basically bright red.

25. *Favolaschia cinnabarina* (Berk. & Curt.) Pat., Essai p. 141. 1900.

Laschia cinnabarina Berk. & Curt., Journ. Linn. Soc., Botany 10:322. 1869.

Pileus bright cinnabarinous to reddish orange or so reticulated on much paler orange yellow ground (pustules) later fading to orange ('flame scarlet'.

'cadmium orange', 'capucin yellow' Ridgway; 'golden poppy', 'midnight sun', 'sungold' M&P) maintaining its bright colors on drying or becoming even deeper red ('Nopal red', 'English red' Ridgway), orbicular or conchoid, laterally attached and sessile or rarely attached to a pseudostipe at an eccentric point of the sterile surface, pustulate or slightly pustulate, transparently tessellate-reticulate when fresh, macroscopically glabrous, fresh 0.5-6 mm broad. — Pores concolorous with the surface of the pileus, much paler inside the tubes, three to twentytwo of them, relatively wide, at first round later angular, 0.3-9 mm wide when fresh. — Pseudostipe mostly absent, if present only up to 1.5 mm long and concolorous.

Spores 7.5-9.5 × 5.5-7.5 μ from 4-spored, 8.5-12.8 × 6.7-11 μ from 2-spored basidia, ellipsoid to more frequently short ellipsoid or subglobose, sometimes irregularly rounded-angular or with irregular depressions or excrescencies (especially those from 2-spored basidia), smooth otherwise, hyaline, amyloid. — Hymenium: Basidia 23-28.5 × 7.5-8.5 μ , either all 4-spored or all 2-spored, or 2-4-spored in a single hymenium. Gloeocystidia 20-56 × 8-32 μ , globose-short-pedicellate to broadly clavate, most filled with a coarsely granose mass of refringent internal bodies which vary from hyaline to yellowish or bright lemon yellow (NH₄OH). — Hyphae in places distinctly loose and imbedded in a gelatinous mass but in some places dense and poorly gelatinizing, hyaline, with clamp connections (including the bisporous forms) inamyloid, interwoven. Gloeocystidia present (see above); acanthocysts numerous on pore edges and epicutis of pileus, 14-29 × 10-24 μ , piriform or vesiculose-clavate, very few cylindrical-elongated, some hyaline from the beginning but most filled with a dull to deep orange or more rarely yellow pigment solution, in older herbarium material sometimes hyaline inside and with yellow wall instead, entirely (with the exception of the pedicel - if this is present) - covered by rod-like or slightly conical setulae of medium size (1.2-2.2 μ).

On dicotyledonous plant rests such as fallen twigs, dead bark, dead lianas, herbaceous stems, etc. Known host: *Nectandra coriacea*. From South Florida to Brazil.

Material studied: CUBA: Wright Plantae Cubenses (no number) (FH) — (K) TYPUS — (FH, Patouillard Herbarium). — PANAMA: Chiriquí, 1600-1800 m alt. 2-VII-1935, G.W. Martin 2324 (IA). — Martin 2699 (IA). — Martin 2705 (IA). — COLOMBIA: Valle: El Saladito 15-IV-1968, Singer B 6167 (F). — VENEZUELA: D.F.: Parque Nac. El Avila 24-VII-1972 Dumont et al. VE 5822 (NY). — VE 7356 (NY). — El Junquito, Sierra de la Costa, 10-VI-1948, Dennis 1029 (K). — El Papelón August 1971, Morillo 1519 (NY). — Miranda: Parque Nacional El Avila, 1-VII-1972 Dumont et al.

VE 3776 (NY). — VE 3744 (NY). — Near El Arado, 12 km SW of Macarao, 28-VII-1972 Dumont et al. VE 7360 (NY). — Sucre: NW of Irapa, 8-VII-1972, Dumont et al. VE 4224 (NY). — 11-VII-1972, VE 4748 (NY). — VE 7319 (NY). — 12-VII-1972, VE 4795 (NY). — BRITISH GUYANA: Bartica (Essequibo), 4-XII-1923, Linder (FH). — BOLIVIA: Pando: Manuripi: Conquista 25-III-1956, Singer B 2209 (F). — Beni: Vaca Diez: Riberalta 1-IV-1956, Singer B 2420 (F). — La Paz: Nor-Yungas: San Jerónimo 1900-2000 m alt. 7-II-1956 Singer B 988 (F). — Carmen Pampa, 2000 m alt. 17-II-1956, Singer B 1244 (F). — BRAZIL: Araraquara. October 1896 Noack 33 (FH). — ECUADOR: Napo, Lago Agrio, 8-V-1973, Singer B 7264 (F).

Some collections (Linder's, at least part of Wright's, Dennis 1029) are predominantly or entirely 2-spored while others (e.g. Dumont VE 4224 and Singer B 2209) are predominantly or entirely 4-spored; Dumont VE 7353 has both 4-spored and 2-spored basidia in appreciable quantity in a single preparation.

F. cinnabarina is one of the most striking and most common neotropical species. It is easily recognized and could only be confused macroscopically with its closest relatives, *F. gaillardii* and *F. pezizoidea*, both considerably rarer and possibly not constantly different from *F. cinnabarina*, the former because of somewhat overlapping spore measurements, the latter because of the absence of good, recent annotated collections.

Illustration: Singer (1945), plate 2.

26. *Favolaschia varariotecta* Sing., *Lloydia* 8:201. 1945.

Pileus orangy to white when fresh, in age tending to become yellowish ocher, dried whitish to dirty ochraceous and sometimes, when remoistened, not reviving orange after drying, orbicular, sessile or laterally pseudostipitate, if sessile attached by an eccentric or lateral point of the sterile surface, pustulate to smooth, transparently tessellate-reticulate when fresh and mature, glabrous or very minutely pruinose under a lens but glabrescent in age, 1-3 mm broad. — Pores 10 to somewhat over 40, white, the tube interior eventually ocher (dried often dirty gray), at first round with thick dissepiments, later relatively wide and angular, 0.2-0.4 mm in diameter, the marginal ones usually much smaller in diameter, the edges not pulverulent, only fugaciously finely pruinose under a lens. Spore print white. — Pseudostipe either absent or (more rarely) present and then concolorous, up to 3.5 mm long, lateral, glabrous, subglabrous, equal or with widened base, about 0.3-0.6 mm wide.

Spores 4.5-7.5 × 3.5-5.5 μ, ellipsoid or few short ellipsoid to subglobose, smooth, amyloid. — Hymenium: Basidia 15-29 × 5-8 μ, 4-spored, rarely a few 2-spored ones intermixed, basal septum clamped. Gloeocystidia numerous or scarce, 16-33 × 4.5-12 μ, fewer reaching up to 57 μ long and up to 13 μ broad (if they are numerous), versiform, often ventricose-clavate and basidiomorphous, yellow or subhyaline, yellow-granular or yellow-guttulate, many but not all turning fully deep blue in cresyl blue mounts. — Hyphae filamentous, thin-walled and distant in a gelatinous mass, in the trama of the pileus (less so and some slightly thick-walled in the pseudostipe) 0.5-3.5 μ broad, the lower layer of the trama with mainly horizontal, the upper with ascendant to vertical hyphae, all hyphae hyaline, inamyloid, with clamp connections. Gloeovessels turning blue in cresyl blue mounts (but not all, and these that don't - turning lilac and sometimes minutely granular on the outside); oleiferous hyphae or inflated hyphae scanty to moderately numerous in the trama of the pileus, the dissepiments and the pseudostipe, inconspicuous and hyaline to pale yellowish, 1.5-5 μ broad, sometimes partially replaced by endogloeocystidia (like the hymenial gloeocystidia). — Cortical layers: on a layer of frequently branched or diverticulate hyphae in places forming weak to strong asterostromelloid or Rameales-structure (diverticula up to 6 × 1 μ) with the terminal members sometimes acanthophysoid but hyphous, non-gelatinized and hyaline; an external but usually scanty, interrupted and rarely even in stretches continuous layer consisting of gloeocystidia (like those of the hymenium) and acanthocysts present, the latter often very scarce, in other carpophores moderately numerous, usually more numerous on the pore edges, varying from vesiculose to narrowly clavate and more or less elongated, 7-27 × 5-9.5 μ, hyaline, thin-walled, echinulate with rod-shaped to spinulose rarely somewhat inflated setulae projecting 1-1.8 μ and lilac in cresyl blue mounts while the wall proper is purplish-pink metachromatic, entirely inamyloid.

On dead parts of Monocotyledones, most frequently palm (e.gr. *Euterpe*) but also on other families, e.gr. Marantaceae (e.gr. *Calathea* spec.) West Indies, Panama, Colombia and Venezuela, Trinidad, south to the Amazonas region.

Material studied: GRENADA: Grand Etang, Nov. 1912, Thaxter, three collections (FH), one HOLOTYPUS. — PANAMA: Barro Colorado Island, Martin & Welden 7280, 29-VI-1952 (IA) and six other collections in June, July and August, all on palm. — TRINIDAD: Naranja at 700 m alt., 2-X-1949, Dennis 95 A. — COLOMBIA: Valle: Buenaventura: Calima 20-IV-1968, Singer B 2659 (F). — VENEZUELA: Sucre: NW of Irapa, 12-VII-1972, Dumont et al. VE 4757 (NY). — 13-VII-1972, Dumont et al. VE 4915 (NY). — Trail from Pocitos to Rio Grande Arriba, 13-VII-1972,

Dumont et al. VE 5018 (NY). – ECUADOR: Napo, Lago Agrio, 8-V-1973, Singer B 7271 (F).

G.W. Martin & Welden definitely annotated one fresh collection as being orange, another identical one as white. I myself have seen white carpophores which may, in the herbarium, assume a faint yellow tinge. For this reason, *F. varariotecta*, otherwise well defined because of its epicuticular structure, the small spores and the habitat, is somewhat intermediate between subsection *Auriscalpium* and *Dealbatae*.

Illustration: Fig. 10: see also Dennis (1952), fig. 3.

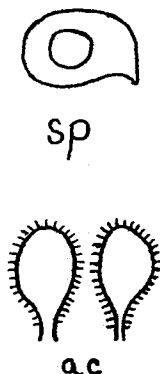


Fig. 10. *F. varariotecta*: sp = spore \times 2000; ac = acanthocysts \times 1000.

Subsection *Dealbatae* Sing., subsect. nov.

Much like subsection *Auriscalpium* but there is no pink, lateritious, yellow, orange or red pigment present and the carpophores are either white (frequently so when young) or from the beginning or in age becoming brownish, fumosous, even fuliginous or cinnamon to ochraceous-tan. It is important for the determination of the subsection and species to be certain that the fresh carpophores lack bright pigments since herbarium specimens of subsection *Auriscalpium* may easily pass for representatives of subsection *Dealbatae*. It is even possible that some of the species described below based exclusively on herbarium material may have been too poorly annotated and might be found to be differently colored when fresh. At any rate, the keys for both subsections should be used in order to avoid confusion.

Type species: *F. subceracea* (Henn.) Donk.

A subsectione *Auriscalpio* differt absentia pigmentorum aurantiacorum, flavorum, rubrorum, lateritiorum, rosaceorum. Typus subsectionis: *F. subceracea* (Henn.) Donk.

Key to the species

- A. On Pteridophyta; pileus brownish (e.gr. 'terrapin' when fresh) or purple, more rarely white 27. *F. pterigena*, p. 55
- A. On Angiosperm host
 - B. On Monocotyledones
 - C. Pores usually not more than 20. Northern North- and Central America
 - D. Spores not more than 7.5μ long; acanthocysts not more than 10μ broad; subepicuticular hyphae ending in asterostromelloid or Rameales-structure. On palm (see subsection *Auriscalpium*: *F. varariotecta*)
 - D. Either spores reaching up to 8.8μ long or acanthocysts reaching more than 10μ in breadth
 - E. Pseudostipe generally present; pores more than 12, small; spores $3.5-4.7 \mu$ broad. Typically on *Heliconia* (Musaceae) 28. *F. heliconiae*, p. 58
 - E. Pseudostipe generally absent; pores fewer than 12, wide; spores $4.7-5.5 \mu$ broad; all acanthocysts elongated; typically on palms 29. *F. mainsii*, p. 60
 - C. Pores usually about 30. On Bambuseae (if it grows on palm and has spores only up to 7.5μ long; see 'D' above)
 - F. Pileus less than 3 mm broad; gloeocystidia numerous. Panama. 30. *F. dealbata*, p. 60
 - F. Pileus more than 3 mm broad; gloeocystidia very few. Central and Southern South America (Brazil, Bolivia, Peru) see subsection *Pantherinae*
 - B. On Dicotyledones
 - F. Intraparietal pigment present in a zone near the hymenium and underneath the epicutis (fuscous); pseudostipe none; pores small. On *Rubus* 31. *F. dumontii*, p. 61
 - F. Intraparietal pigment generally absent or else scanty and then pseudostipe distinct and/or pores larger than 3-4 per mm
 - G. Subalpine (Sub-Paramo) and extratropical zone of Southern South America; pseudostipe 5-12 mm long; spores $9.5-11.8 \times 6.8-9 \mu$ 32. *F. antarctica*, p. 62
 - G. Species of the lowland forests and the tropical montane zone; or else pseudostipe, if present, either not reaching 5 mm in length and spores not reaching more than 7μ in breadth
 - H. Pseudostipe well developed, about 5-30 mm long; pileus 4-25 mm broad and ochraceous to pale cinnamon, dried tending to fumous; spores $7.5-11(12) \times 3.5-6-(7) \mu$ 33. *F. filopes*, p. 63
 - H. Pseudostipe, if well developed, not reaching 5 mm in length; pileus usually smaller and mostly white to dirty brownish

- I. Spores small: up to 7.5 μ long and up to 5.5 μ broad; pseudostipe if present not conspicuously pubescent from dichophysoid long hairs. . . . 34. *F. teapae*, p. 64
- I. Spores reaching more than 7.5 μ in length unless pseudostipe pubescent from long, thin, hyaline dichophysoid hairs
 - J. Pores 1-17; gloeo-vessels always numerous and conspicuous and some reaching more than 10 μ in diameter 35. *F. subceracea*, p. 66
 - J. Pores generally more than 17 in mature specimens
 - K. Pseudostipe, if present, finely pruinose, not pubescent
 - L. Pileus 5-10 mm broad; pores more than 30; gloeo-vessels and endogloeocystidia 8-10.5 μ broad, rather numerous and conspicuous; pseudostipe none, pileus sessile, gilvous-tan, dried pale grayish fuscous; pores to 1 mm wide when fresh and distinctly smaller in the marginal region; spores 6.5-10 \times 5.5-8.3 μ ; on woody stems of low shrubs in the alpine (Paramo) zone
. 36. *F. andina*, p. 68
 - L. Pileus 1-5 mm broad, rarely broader and then either pores fewer than 30 or gloeo-vessels either not conspicuous and thin or conspicuous; pseudostipe present or absent; pores as above or different; pileus fresh white or pallid to pale avel-laneous-argillaceous. On wood in subparamo forested region down to montane Alnetum or tropical-montane forest, rarely in tropical low-land forest
 - M. Pseudostipe none or reduced to an inconspicuous extension of the rear portion of the pileus not longer than 0.5 mm; pores often laterally elongated to irregularly sub-lamelliform; spores often larger than 9 \times 6 μ . In montane-subtropical forest and subtropical forest e.gr. on

Boehmeria
. 37. *F. pygmaea*, p. 69
(If in lowland forest and
spores $> 9 \times 5 \mu$, see sub-
section *Pantherinae*!)

M. Pseudostipe mostly distinct
and (1) $2.2-2.5 \times 0.6-0.7$ mm
long lateral; pores \pm isodiamet-
ric but wide inside, narrow
at the margin, spores not
larger than $9 \times 6 \mu$. In montane
Alneta
. 38. *F. montana*, p. 70

K. Pseudostipe present, finely pubescent
from dichophysoid hyphal ends, spores
 $7-8.5 \times 4-5-(6.5) \mu$; clamp connections
often sparse; pileus small (dried ± 2 mm)
. 39. *F. puberula*, p. 71

27. *Favolaschia pterigena* Sing., *Lloydia* 13: 255. 1950.

Var. *pterigena*

Pileus fuscidulous ('terrapin' M&P when fresh), pustulate (pustules above the pores), glabrous, with lobed margin, subreniform, more or less convex, with a vertical lateral pseudostipe attached to the substratum, 1.5-2 mm broad. — Pores white, with the tube interior concolorous with the sterile surface of the pileus, few (4-9) more or less roundish, ± 0.5 mm in diameter when fresh. — Pseudostipe at an angle with the horizontal pileus, brown ('burnt umber' M&P), $0.5-1 \times 0.5$ mm. — Context thin, moderately gelatinous, inodorous.

Spores $8.8-11 \times 4-6 \mu$, mostly $9 \times 4.8 \mu$, hyaline, ellipsoid, amyloid. — Hymenium: Basidia $31-34 \times 9.5-9.7 \mu$, one- to five-spored, clavate or fusoid-ventricose, often much like the basidioles but in cresyl blue mounts bluing, granular inside. — Hyphae of the trama of the pileus moderately gelatinizing, clamp connections scarce or none. — Cortical layers: Epicutis of the pileus of some diverticulate hyphae and scattered or numerous acanthocysts, these also present on surface of pseudostipe and the pore edges, $27-58 \times 11-22 \mu$, without visible contents, versiform but often vesiculose-saccate obpiriform, with setulae $1.2-2.5 \mu$ projecting, hyaline to more or less melleous (intra-parietal pigment) on the sterile surfaces, hyaline on the pore edges.

On various species of Pteridophyta, on dead fronds and stems in the subtropical anectotrophic as well as in the montane forest (with *Alnus*), fruiting in summer (December-January).

Material studied: ARGENTINA: Tucumán: Cerro Muñoz, 13-I-1950 Singer T 862 (LIL), TYPUS.

Var. *boliviana* Sing. var. nov.

Pileus white to brownish when fresh, brown when dried, opaque, not or distinctly reticulate-pustulate, broader than long or subcircular, pruinose to subvelutinous, glabrescent, 1-1.8 mm broad (dried). — Pores white, then brown, 24-33, at first fewer and roundish, later frequently irregularly protracted or isodiametric and then 0.2-0.4 mm wide (dried), about 3-4 per mm, smaller but also somewhat laterally protracted in the marginal row, all becoming more or less angular when quite mature. — Pseudostipe attached laterally or somewhat eccentrically on the sterile surface of the pileus, white or whitish, then brown, subequal, insititious or with a narrow halo of pallid to sordid glassy-looking radiating hyphae at the base, $1.5-3 \times 0.2-0.8$ mm.

Spores $6-9 \times 5-6.8-(7.5) \mu$, ellipsoid, fewer ovate to short ellipsoid, smooth, hyaline, but in KOH some with pale yellowish contents, amyloid. — Hymenium: Basidia $24-28 \times 7.5-9 \mu$, 4-spored. Gloeocystidia not numerous, about $5-7 \mu$ broad, yellow-granular inside, often connected with the gloeo-vessels. — Hyphae either filamentous or somewhat broadened, either thin-walled or somewhat thick-walled ($0.2-2 \mu$), hyaline, with clamp connections, moderately to (in pseudostipe) not gelatinized but walls apparently gelatinizing, subparallel in the pseudostipe otherwise varying from subparallel to strongly interwoven, inamyloid. Gloeo-vessels moderately numerous but conspicuous because of the yellowish to yellowish hyaline granular contents, bluing in cresyl. blue mounts, the diameter some of them reaching $3.5-12 \mu$. — Cortical layers: gloeocystidia not numerous (see above). Acanthocysts very numerous on sterile surfaces and pore edges but not becoming free, $17-32 \times 5.8-17 \mu$, ventricose; vesiculose, with thin to somewhat thickened (and/or yellowish) wall, entirely echinulate except on the up to 6μ long pedicel and with or mostly without a single up to 3μ long appendage, setulae $1-1.8 \mu$ long, without visible contents in any medium, inamyloid.

On tree ferns, dead petioles, a Helotium-like Ascomycete and the *Favolaschia* occupying an entire petiole exclusively. Fruiting in February.

Material studied: BOLIVIA: La Paz: Nor-Yungas, Carmen Pampa, 2000 m alt., 1-II-1956 Singer B 817 (F), TYPUS of variety. — VENEZUELA: Mérida, 30-VII-1971, Dumont VE 3416 (NY).

Illustration: Fig. 11.

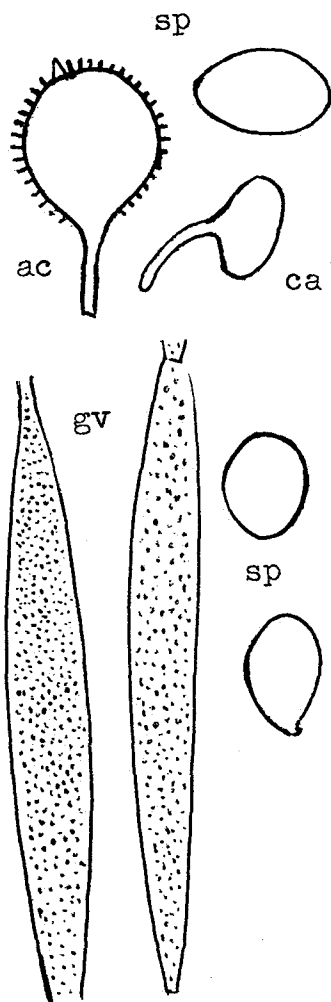


Fig. 11. *F. pterigena*: Above (from collection B 817): ac = acanthocyst $\times 1000$; sp = spore $\times 2000$; ca = carpophore, seen from sterile side, $\times 9$. Below (from collection VE 3416): gv = gloeo-vessels $\times 1000$; sp = spores $\times 2000$.

Var. purpurea Sing. var. nov.

Pileus 'roan' M&P (purple), dried pale sordid ocher, buff or brownish, with or (according to position on substratum) rarely practically non-stipitate, and then laterally to eccentrically attached, fresh up to 2 mm broad. — Pores pale purplish or white when fresh, 8-15, round or roundish, up to 0.35 mm wide when revived. — Pseudostipe concolorous with the pileus, dried brownish, attached to the substratum with a glassy-looking pallid disc, a fraction of a mm to 5 mm long.

Spores $7.9 \times 4.7-7.5 \mu$, ellipsoid to short ellipsoid, smooth, amyloid. — Hymenium: Basidia $18-23 \times 6.5-9 \mu$, 4-spored. Gloeocystidia e.g. $31 \times 6-8 \mu$, yellowish, versiform. — Hyphae hyaline, in some pockets of the trama all thin-walled, distant, and imbedded in gelatinous mass, in other places thick-walled, and some somewhat inflated (e.g. 10μ broad) and only the wall somewhat gelatinizing, with clamp connections, inamyloid, hyaline in KOH. — Cortical layers: Gloeocystidia (as above) rather scattered or even rare. Acanthocysts numerous on sterile surfaces and the pore dissepiments, $13-25 \times 9-13.5 \mu$, hyaline or some slightly yellowish (dried in KOH) in wall and setulae, the latter rod-shaped or narrowly conical, $1.5-2 \mu$ projecting, thin- to firm-walled, in places very crowded, mostly vesiculose to sub-vesiculose-ventricose, inamyloid, in some places accompanied by 2.5μ broad hyphous acanthophysoid elements with the same kind of echinulation, these prostrate or erect.

On dead parts of *Dicksonia* and other tree ferns in tropical-montane forest, fruiting in January.

Material studied: BOLIVIA: La Paz: Nor-Yungas, Cataratas de San Juan, 2400 m alt., 28-I-1956, Singer B 603 (F), TYPUS of variety.

This variety is unique among the species of this subsection because of the purple color of the fresh carpophores, but otherwise corresponds closely to var. *boliviana*. Both these varieties differ from the type variety because they all have normal 4-spored basidia and grow on tree fern, whereas the type variety grows on non-arborescent Pteridophyta and has scattered or no clamp connections on the hyphae and acanthocysts, with abnormal basidia with one to five sterigmata and spores.

28. *Favolaschia heliconiae* Sing. spec. nov.

Pileus white when fresh, beige-brownish all over when dried, under a strong lens slightly pruinose (pallid) but eventually glabrescent, paler pustulate over the pores when mature, oval to circular in outline, $1.5 \times 0.7-2$ mm. — Pores pallid but tube interior concolorous with the pileus in dried condition, 12-20, 0.25-0.5 mm wide and (4)-5-7 per mm when dried, mostly subisodiametric, edges pruinose. — Pseudostipe strictly lateral and curved, more rarely straight and then at an angle with the horizontal pileus, somewhat pubescent when fresh or pruinose, subinsititious, $0.3-1.5 \times 0.1-0.8$ mm.

Spores $5.5-8.5 \times 3.5-6 \mu$, ellipsoid, fewer short ellipsoid, smooth, amyloid. — Hymenium: Basidia $17-27.5 \times 6.5-8.5 \mu$, 4-spored. Gloeocystidia moderately numerous, $16-30 \times 8-9 \mu$, some merely as ends of gloeo-vessels, golden melleous to pale yellowish, with coarsely granose or guttulate to slated contents which become bright and deep blue in cresyl blue mounts. Hyphae

subparallel with each other, poorly gelatinized, 1.5-7.5 μ wide, few inflated to 14 μ diam, the others filamentous, with clamp connections, hyaline. Gloeo-vessels numerous, 3.5-12 μ broad, with contents like the gloeocystidia, thin-walled and long. – Cortical layers: Gloeocystidia not very numerous (as above). Acanthocysts numerous on pore edges and rather numerous on epicutis of pileus and surface of pseudostipe, 10.5-40 \times 4.5-25 μ , especially in epicutis often rising from a long pedicel which is often prostrate, versiform (in some sections elongated ones - 12.5-30 \times 4.5-10 μ - in others the vesiculose ones dominating), hyaline or with yellowish wall, echinulate (except on pedicel) with setulae projecting 1-2.7 μ , contents dissolved, inamyloid. Pubescence of the stipe made up by hyphal hairs 30-40 \times 1.7-2.5 μ . Where the hyphae of the trama reach the surface, they are sometimes forking with short outgrowths and more or less gelatinized, but no true Rameales- or Asterostromella-structure observed.

On dead leaves and stems of Monocotyledones, mostly *Heliconia* sp.

Material studied: VENEZUELA: Sucre, Trail from Los Pocitos to Río Grande Arriba 13-VII-1972, Dumont et al. VE 5029 (NY), TYPUS. – Boundary of the states Miranda and Guarico, Parque Nacional Guatopo 30-VI-1971, Dumont et al. VE 1007 (NY). – Yuracuy: Mountains N of Nigua 7-VII-1971 Dumont et al. VE 1548 (NY). – ECUADOR: Napo, Lago Agrio, 8-V-1973, Singer B 7279 (F).

Illustration: Fig. 12.

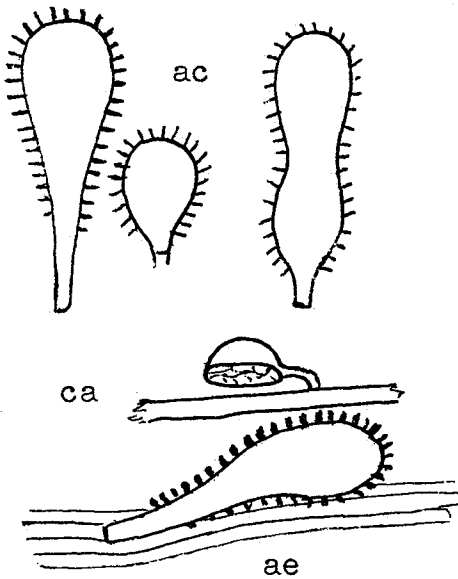


Fig. 12. *F. heliconiae*: ac = acanthocysts from pore edge \times 1000; ca = carpophore on substratum \times 5; ae = acanthocysts on epicutis \times 1000.

29. *Favolaschia mainsii* Sing. spec. nov.

Pileus sordid (probably white when fresh) attached eccentrically with the sterile surface without a pseudostipe, subcircular, dried 1-2.5 mm broad. — Pores dried to 0.5 mm wide, 5-6 pores per mm, angular.

Spores 7-8.8 × 4.7-5.5 μ, ellipsoid, smooth, amyloid. — Hymenium: Basidia 30 × 8.8 μ, 4-spored. Gloeocystidia numerous, e.gr. 36 × 13-13.5 μ, yellow. — Hyphae filamentous, few inflated, inamyloid. — Cortical layers: Gloeocystidia numerous on the epicutis of the pileus (as above). Acanthocysts numerous, long-clavate-elongated, hyaline, setulae 1-1.2 μ long.

On palm, rotten petioles.

Material studied: BELICE (British Honduras): El Cayo: Valentin, 25-VI-1936 E.B. Mains (BPI), TYPUS.

This species is known from a single collection; it is close to the preceding species but differs in exclusively elongated acanthocysts and absence of a pseudostipe as well as the habitat. It may be the same as the species described by Lloyd (1919) as 'sessile form of *F. auriscalpium*' (from Brazil) but I have not studied Lloyd's material.

30. *Favolaschia dealbata* Sing. spec. nov.

Pileus dried white, revived in water melleous to cinnamon buff, subflocculose-pruinose, smooth or slightly pustulate, 2-2.5 mm broad. — Pores pallid, about 30, varying from 0.1-0.5 mm in diam., not radially elongated but also not round. Spore print white. — Pseudostipe attached to an eccentric point of the pileus, concolorous, about 1 mm long and up to 0.5 mm broad.

Spores 7.5-9-(11.2) × 5.7-7.2(8.5) μ, ellipsoid to subglobose, smooth, amyloid. — Hymenium: Basidia 25 × 7.8 μ, 4-spored. Gloeocystidia numerous, 25-32 × 8.5-13.5 μ, clavate, golden melleous in KOH but bleaching slightly in that medium. — Hyphae hyaline, thin, imbedded in a gelatinous mass in the trama of the pileus, with clamp connections, not gelatinized or slightly so in the pseudostipe, inamyloid. Gloeo-vessels very scattered, thin, present in pseudostipe, none in pore dissepiments. — Cortical layers: Gloeocystidia numerous (as above). Acanthocysts numerous on epicutis of pileus, surface of pseudostipe and pore edges, 18-31 × 14-19.2 μ, fewer broadly cylindrical than ellipsoid to vesiculose, with or without a short pedicel, hyaline, rarely a few pale melleous, echinulate with rod-shaped setulae, these about 1 μ projecting, on the sterile surface setulae up to 2.5 μ

projecting and some exceptional ones up to 3.5μ high without visible contents and inamyloid, some cells becoming free.

On Bambuseae ('spring bamboo') in Panama.

Material studied: PANAMA: Casita Alta 31-VII-1952. Martin & Welden 8070 (LIL, IA) TYPUS.

The color of the fresh carpophores was not indicated by the collectors. If they were pink or orangy, they would still be different from *F. aurantiaca* and *F. flava* by several macroscopical characters (see no. 12, 14). It differs from *F. varariotecta* in larger spores and larger and more numerous acanthocysts.

31. *Favolaschia dumontii* Sing. spec. nov.

Pileus fumosous (dried), pendulous from a very short pseudostipe, smooth, 2-3 mm broad (dried). — Pores white 25-35, 3-4 per mm (dried). — Pseudostipe sordid-pallid (dried), very short.

Spores $7-8.5 \times 5-6.5 \mu$, short ellipsoid, fewer ellipsoid, smooth, amyloid. — Hymenium: Basidia $20-28 \times 7-11 \mu$, 4-spored. Gloeocystidia $19-46 \times 6-12.5 \mu$, scarce in the hymenium, mostly clavate but versiform, with stramineous contents, bright blue in cresyl blue mounts. — Hyphae near and in subhymenium and the infra-epicuticular zone filamentous, dense (poorly gelatinized) and with intraparietal fuscous pigment (dried material, in KOH) further inwards in the pileus trama often broader and not or less pigmented, often thick-walled (walls gelatinizing) and opaque-glassy, somewhat interwoven. Gloeo-vessels present, but neither conspicuously granular (although bluing in cresyl blue mounts) nor particularly long, stramineous to subhyaline, not of the 'longicellulis-type'. — Cortical layers: Gloeocystidia rather numerous on the surface of the pileus but irregularly arranged and intermixed with irregular minute hyphal ends, crystals and acanthocysts. Acanthocysts numerous on the pore edges, less numerous on the sterile surfaces, varying from cylindrical to vesiculose, or clavate, often very short or articulate-catenulate, densely echinulate, without visible content bodies and inamyloid, setulae $1-1.5-(2) \mu$ projecting.

On dead stems of *Rubus* sp. in Venezuela.

Material studied: VENEZUELA: Mérida: 'El Pino' 16 km E of Apartaderos, 19-VII-1971, Dumont et al. VE 2480 (NY) TYPUS. — 19-VII-1971, VE 2432 (NY).

This species differs from others in the intraparietal fuscous pigment when

studied in dried condition in KOH mounts and possibly in the host specialization.

32. *Favolaschia antarctica* (Speg.) Sing., Sydowia 9:368. 1955.

Laschia antarctica Speg., Bol. Acad. Nac. Córdoba 11:160. 1887.

Pileus white but becoming sordid brown to rufescent when dried, glabrous, smooth, fresh transparently reticulate over the pore dissepiments in most, nearly circular or reniform in outline, attached to a lateral pseudostipe, 3-13 mm broad. — Pores white or whitish, sometimes also brownish in the herbarium, about 30, angular and subsisdiametrical to slightly radially extended, (0.3)0.8-1-(1.5) mm wide (fresh), with rather thick dissepiments, tubes rather deep. — Pseudostipe attached to the pileus at an angle, and usually horizontal, lateral, concolorous, equal or subequal, subtomentose or glabrous, at the apex not or scarcely compressed, insititious or subinsititious, 4-6 × 1-1.5 mm.

Spores 9.5-11.8 × 6.8-9 μ, ellipsoid to short ellipsoid, often reniform in lateral view, fewer subglobose, smooth, amyloid. — Hymenium: Basidia 24-30 × 8-11 μ, (2)-4-spored. Gloeocystidia about 45 μ long, 8-14.5 μ broad, clavate to vesiculose or obpiriform, with amorphous contents, deep bright blue in cresyl blue mounts. — Hyphae of the upper zone of the pileus-trama moderately strongly gelatinized (with imbedded filamentous hyphae 1-4 μ broad), inamyloid, less gelatinized in other parts of the trama, hyaline, inamyloid, with clamp connections. Hymenophoral trama regular with somewhat interwoven elements, gelatinized in the pore-near region. Gloeo-vessels present, 2.5-8.5 μ broad, with amorphous contents. — Cortical layers: Gloeocystidia distinctly bluing in cresyl blue mounts, not numerous in the epicutis. Acanthocysts 40-70 × 8-15 μ, either cylindrical to cylindrical-subclavate or vesiculose with or without a pedicel, often crowded on the epicutis and always so at the pore edges, hyaline, in dried material often fuscous inside but without visible interior bodies in KOH and inamyloid, echinulate, setulae often longer near the tip and shorter near the base of the cell, or else all equally long, projecting 1-3.5 μ, mostly 1.3-3 μ long.

On dicotyledonous wood, known host: *Berberis ilicifolia*. Southern frigid zone and above 3000 m alt. in the Andes of South America.

Material studied: ARGENTINA: Isla de los Estados, Spegazzini (LSP), TYPUS. — VENEZUELA: Mérida: Sierra de Santo Domingo, between Laguna Negra and Laguna de los Patos, 3700 m alt., 31-VII-1958, Dennis 1763 A (K).

Illustrations: Dennis, Fungus Flora of Venezuela, London 1970, pl. 15, fig. 16; Fig. 8 Q.

33. *Favolaschia filopes* Sing. & O. Fid., *Rickia* 2:11. 1965.

Pileus sordid buff to pale buff when fresh (11 C/D 7, 11 E 5, 11 C 5 M&P) variable in color when dried (between whitish and fuliginous umber, paler on the pustules), glabrous, pustulate and reticulate, convex, eventually irregularly flattened, on one side sinuate and in the deepest (lateral) point attached to a pseudostipe, not orbicular in outline, 5-30-(35) mm broad. — Pores much like the pileus in color (11 D 4, 11 E 5, 11 C 7 M&P), 1-1.5 mm wide, fresh (3)-3.5-6.5 per 10 mm, almost subisodiametric (not or not much radially elongated), tubes (1)-2-4.5 mm deep, adnate or decurrent with tooth. — Pseudostipe pallid, entirely pubescent, laterally attached, slightly pruinose (under a lens) above, often slightly hispid below, equal, 5-30-(35) × 0.5-3 mm.

Spores 7.5-11-(12) × 3.5-6-(7) μ , ellipsoid or oblong, some reniform to allantoid, smooth, with amorphous oily bodies inside, hyaline, amyloid. — Hymenium: Basidia 23-32 × 7.2-8.2 μ , 2-4-spored. Gloeocystidia 26-55 × 8-20.5 μ , with oily contents, deep blue in cresyl blue mounts, subhyaline or yellowish in KOH, well differentiated in the tubes. — Hyphae hyaline, strongly gelatinized, inamyloid. — Cortical layers: Gloeocystidia as above on pore edges and epicutis, also on surface of pseudostipe, often deeper yellow, e.g. 23-32 × 16-24 μ , often almost vesiculose, smooth. Acanthocysts present on all surfaces but extremely variable in shape, size and ornamentation, without distinguishable contents, not amyloid, varying from cylindrical-claviform to piriform (30-35 × 5-11 μ), and vesiculose-subglobose (27-28 × 16-18.5 μ), the latter often without echinulation but mostly echinulate in the upper portion but often less so or absent in the lower portion of the cell, setulae longest in the elongated cells (2-3 μ) otherwise mostly shorter (1-2 μ), all hyaline, but in darkened dried material often (in KOH) with pale fumous cell sap, thin-walled.

On rotten trunks in anectotrophic forest in Southern Brazil and Venezuela, obviously on Dicotyledones.

Material studied: BRAZIL: São Paulo, Parque do Estado, 13-XI-1961, Furtado et al. Herb. no. SP 60965, TYPUS. — VENEZUELA: Parque Nacional Henry Pittier, Rancho Grande 3-VII-1971, Dumont et al. VE 1187 (NY).

The large size and the relatively narrow spores are characteristic.

Illustration: Singer & Fidalgo (1965), fig. 1-2.

34. *Favolaschia teapae* Sing. spec. nov.

Pileus white to pale beige ocher when fresh, white to light beige brownish ('toast' M&P or more sordid) when dried, usually more colored when old or when dried, at first finely white woolly or pruinose under a lens, oval to circular in outline, at first smooth, later low-pustulate or somewhat rugulose and somewhat reticulate over pore dissepiments, attached with a lateral or eccentric point or zone and sessile, or (according to the position of the carpophore on the substratum) to a lateral to eccentric pseudostipe, 3-4.5 mm broad when fresh, 0.8-3.8 mm broad when dried. — Pores white with the tube interior becoming concolorous with the pileus, dried e.g. between 'butterscotch' and 'stroller tan' M&P, 5 to 34, 0.25-0.65 mm wide, 3-10 pores per mm when dried, subsdiametric and roundish at first, later becoming angular, in some collections some pores elongated and in age slightly lacerated or seriate, even daedaleoid to irpicoid, in others all remaining subsdiametric, tubes up to 0.5 mm deep (dried). — Pseudostipe, if present, white and discoloring as the pileus, subtomentose to finely pruinose, insititious or with an indistinct basal disc, usually very short but at times reaching up to 1.2 mm (fresh), about 0.3-0.4 mm broad, lateral or dorsally attached. — Context white, eventually often concolorous with the surfaces, thin, inodorous.

Spores (4.5)-5.5-7.5 × (2.8)3.5-5.5 μ, ellipsoid, sometimes some short-ellipsoid or somewhat reniform in lateral view but without suprahilar depression or applanation, smooth, amyloid. — Hymenium: Basidia 16-27 × 5.2-7.5-(9) μ, 4-spored, rarely a few 2-spored, with basal clamp. Gloeocystidia scanty to numerous, 20-41 × 4.5-9 μ, vesiculose-clavate to cylindrical-clavate or broadly ventricose, sometimes obpiriform or fusoid, with melleous to pale melleous or yellowish to golden melleous granular or coarsely granose contents which become bright blue in cresyl blue mounts (wall dull pinkish there). — Hyphae 1-3.5 μ broad and imbedded in a gelatinous mass or at least moderately gelatinized in parts of the pileustrama, non-gelatinous in the pseudostipe, regularly arranged and ± interwoven in the hymenophoral trama, with numerous clamp connections but sometimes many secondary (clampless) septa observed, inamyloid, some inflated hyphae here and there present and sometimes reaching as much as 19 μ in diameter, hyaline, in older herbarium material often palest fuscidulous but never with incrusting or intraparietal pigment, generally thin-walled but in some places some thick-walled (0.5-2 μ) ones present, in the pseudostipe the latter often like skeletal but with clamp connections. Gloeovessels rather numerous and conspicuous, long, with the same contents as the gloeocystidia, pale yellowish to dull or golden yellow, the

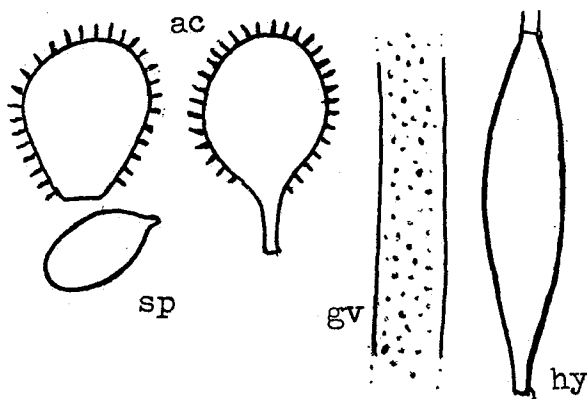


Fig. 13. *F. teapae*: ac = acanthocysts $\times 1000$; sp = spore $\times 2000$; gv = gloeo-vessel (fragment) $\times 1000$; hy = inflated hypha $\times 1000$.

contents sometimes compact, sometimes intermittent, sometimes transformed into coscinoids, deep blue in cresyl blue mounts, diameter 3-7, sometimes up to 12μ . — Cortical layers: Gloeocystidia very scarce to moderately numerous on the pore edges, very scarce to nil on the sterile surface of pileus and pseudostipe, often merely in continuation of gloeo-vessels reaching the surface layer, the latter formed either (in woolly surfaces) by non-gelatinized but rather loosely arranged, smooth, hyaline hyphae with clamp connections, in pruinose ones almost exclusively of numerous acanthocysts which are densest in the marginal region. Acanthocysts on pore edges and sterile surfaces of two types, some elongated, fusoid to clavate (e.g. $16 \times 3.5-8.5 \mu$) scarce, these often entirely absent, others vesiculose, with or without an often rather long (up to 12μ) pedicel, $8-48 \times 8-24 \mu$, inamyloid, without noticeable contents, rarely a few with a small internal body deep lilac in cresyl blue mounts, the wall pink to subhyaline in cresyl blue mounts, and thin to firm setulae covering all but the pedicel (and sometimes the apex in elongated acanthocysts) projecting $1-3.5 \mu$, sometimes all no longer than 1.8μ , hyaline, lilac in cresyl blue mounts. Dendrophysoid or paraphysoid hyphae on the surfaces not observed.

On dead twigs, herbaceous stems, always on Dicotyledones, gregarious. From Mexico south to the Amazonas.

Material studied: MEXICO: Río Teapa between Ixtacomitán and Solusuchia-pa, 1-VIII-1969 Singer M 8798 (F), TYPUS. — VENEZUELA: D.F.: Vicinity of Macarao 21-VI-1971, Dumont et al. VE 372 (NY). — VE 329 (NY), — Miranda: Parque Nacional Guatopo 29-VI-1971, Dumont et al. VE 864 (NY) — VE 943 (NY) — Aragua: 6 km above Maracay, Parque Nacional Henry

Pittier, 12-VII-1971, Dumont et al. VE 1909 (NY) – 6-VII-1971, VE 1491 (NY), – VE 1496 (NY). – BOLIVIA: Madre de Diós, Las Piedras, 5-IV-1956, Singer B 2505 (F).

Illustration: Fig. 13.

35. *Favolaschia subceracea* (Henn.) Donk, *Persoonia* 1:62. 1959.

Cyphella subceracea Henn., *Hedwigia* 36:194. 1897.

Laschia longicellulis Lloyd, *Mycological Notes* 5:837. 1919.

Pileus white or whitish, later becoming pale melleous to yellow-brown or dirty avellaneous when the pruinose cover wears off or the older carpophores are dried, with lighter or pallid pustules and transparently reticulated when glabrescent and mature, convex, either directly laterally, sublaterally or eccentrically attached to the substratum (sessile) or with an extremely short pseudostipe (lateral or extended from the vertex (subcircular to conchate, 0.8-3.5 mm broad. – Pores white, with the tube interior soon becoming concolorous with the surface of the pileus, few, 1-17, mostly 3-12 of them when mature, mealy-farinaceous at the edges, 0.18-1.5 mm wide, rarely one or another up to 1.5 mm, or near margin somewhat lamellarly extended, mostly angular and subisodiametrical, tubes shallow. – Pseudostipe none or extremely short, rarely up to 1 mm long, concolorous and mealy-farinaceous, glabrescent, laterally attached or centrally attached to the sterile surface of the pileus.

Spores 6-12 × 4.5-10 μ, mostly 7-9 × 5-6 μ in 4-spored, larger in mixed 2-3-4-spored specimens, ellipsoid, often may short-ellipsoid to more rarely subglobose ones present, smooth, amyloid. – Hymenium: Basidia 20-32 × 6-9.8 μ, either all 4-spored or with some 2- and/or 3-spored ones intermixed, with basal clamp. Among the basidia of the young hymenium some hyphidia which are hyaline, entire and filamentous or with forks or nodose excrescencies (pseudophyses). Gloeocystidia 25-62 × 5-13 μ, versiform, often vesiculose, ventricose, clavate, cylindric, utriform or obpiriform, with coarse guttula or granose (in cresyl blue bright and deep blue) contents. – Hyphae of the pileus-trama hyaline, weakly to strongly gelatinized, with thin to thickish (0.3-0.8 μ) wall, mostly more truly gelatinized towards the epicutis of the pileus, with sparse to numerous clamp connections, inamyloid, 1.5-2.5 μ broad, but some inflated. Gloeo-vessels numerous and conspicuous, with the same kind of contents as the gloeocystidia, pale yellowish to yellow, in mature specimens more numerous than in young ones, 2-13.5 μ broad and very long. – Cortical layers: Gloeocystidia scarce on epicutis, scarce or numerous on pore edges and on the sterile surface of pileus and

pseudostipe, mostly crowded and sometimes forming several strata, of two types, elongated (rarer) or vesiculose, the former e.g. $17-49 \times 3-11 \mu$, the latter $13-35.5 \times 9-27 \mu$, echinulate with setulae projecting $1-2.5 \mu$ (mostly $1.3-2 \mu$) and lilac in cresyl blue mounts, in some specimens also thick-walled (and then opaque) which is lilac-pink metachromatic in cresyl blue mounts, mostly without any visible contents, rarely with some minute scattered internal bodies, with or without a short to rarely long pedicel, some becoming free and detersile, hyaline. Among the acanthocysts one encounters occasionally pseudophysoid or hyphidia-like hyphal ends as also often seen in young hymenia.

On dicotyledonous woody material (dead twigs, fallen branches, chips of wood, vines, herbaceous stems), gregarious. Venezuela to Northern Argentina and Southern Brazil.

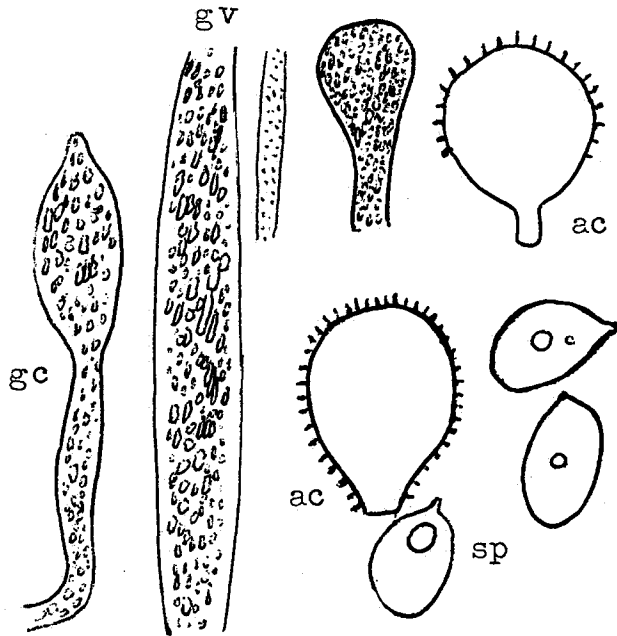


Fig. 14. *F. subceracea*: gc = gloecystidium $\times 1000$; gv = gloeo-vessels $\times 1000$; ac = acanthocysts $\times 1000$; sp = spores $\times 2000$.

Material studied: VENEZUELA: Aragua: 40-45 miles from Caracas on Caracas-Colonia Tovar-road, 22-VI-1971, Dumont et al. VE 445 (NY). —

VE 439 (NY). — Rancho Grande 3-VII-1971 Dumont et al. VE 1177 (NY). — Lara: Parque Nacional Yacambu 9-VII-1971 Dumont et al. VE 1785 (NY). — Sucre: NW of Irapa, 11-II-1972, Dumont et al. VE 4724 (NY). — BOLIVIA: La Paz: Nor-Yungas, Coroico, 6-II-1956 Singer B 936 (F). — Charobamba 30-I-1956, Singer B 741 (F). — BRAZIL: Santa Catarina, Ule 570 (BRSL), TYPUS. — Bahia, Torrend 019 (BPI), TYPUS of *L. longicellulis*. — São Paulo, Puiggari (NY). — ARGENTINA: Tucumán: Quebrada de Lules, 18-II-1951, Singer T 1252 (LIL).

This, together with *F. teapae*, is the most common species of this subsection in the neotropics. Part of the material sent to Spegazzini from Southern Brazil and determined as *F. pygmaea* appears to belong here; it does not agree with the holotype of *F. pygmaea* (see below).

Illustration: Fig. 14.

36. *Favolaschia andina* Sing. spec. nov.

Pileus tan-gilvous, dried pale grayish fuscous, suborbicular to reniform in outline, pustulate, glabrous, sessile, 5-10 mm broad. — Pores white, roundish-hexagonal, fresh to 1 mm, dried to 0.7 mm wide, but smaller (dried 3 per mm) in the marginal portion, more than 30 of them. — Pseudostipe none.

Spores 6.5-10 × 5.5-8.3 μ, ellipsoid to subglobose, smooth, amyloid. — Hymenium: Basidia 25-34 × 9-10.5 μ, clavate, with firm wall, 4-spored. Gloeocystidia in hymenium extremely scarce or none. — Hyphae thin-filamentous, hyaline, inamyloid, strongly dissociated by a gelatinous mass, but above this layer (forming an infraepicuticular layer) there are less or not gelatinized broader (5-9 μ in diam.) hyphae which are fuscidulous-hyaline and interwoven; also above the hymenial layer there is a less gelatinized layer of filamentous hyphae. Gloeo-vessels present, not numerous but conspicuous, long, narrowed on one or both sides, with granular (in cresyl blue mounts) contents, 8-10.5 μ wide. There are also some shorter similar bodies, endogloeocystidia, likewise about 8.5-10 μ wide. — Cortical layers: Gloeocystidia none; acanthocysts numerous on pore edges and some also on the marginal portion of the epicutis of the pileus, some rather elongated but the vast majority vesiculose with a 3-20 μ long pedicel, 24-50 × 14-32 μ, echinulate all over excepting the pedicel, setulae 1-2 μ projecting, these occasionally accompanied by hyphae which are beset by the same kind of setulae, these acanthophysoid hyphae 1-2 μ broad. Epicutis over most of the pileus consisting of sometimes ramified and uneven (but no Rameales-structure) hyphae which are interwoven, filamentous, somewhat gelatinous, not erect.

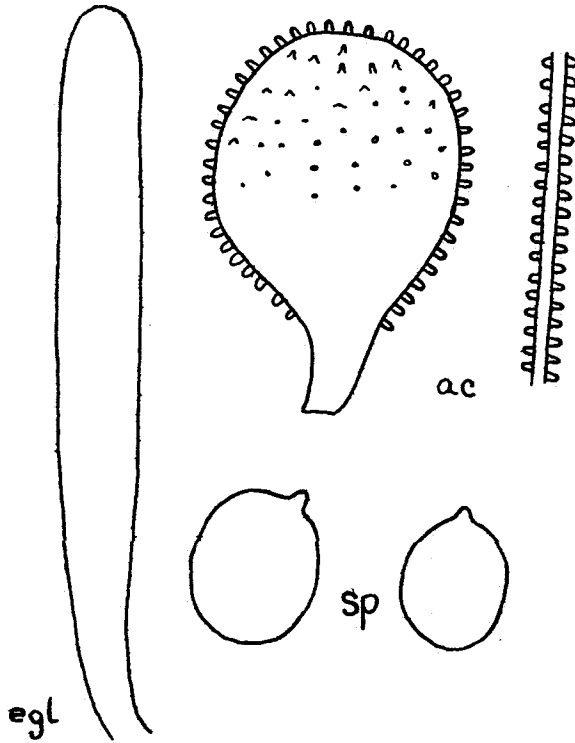


Fig. 15. *F. andina*: egl = endogloeocystidium X 1000; ac = acanthocyst and acanthophysoid hypha X 1000; sp = spores X 2000.

On dead wood of shrubs and stems of dicotyledonous plants in the Páramo (alpine) region of the Colombian Andes.

Material studied: COLOMBIA: Cundinamarca: Páramo Chisaca-Sumapas, 8-V-1968, Singer B 7022 (F), TYPUS.

Illustration: Fig. 15.

37. *Favolaschia pygmaea* (Speg.) Sing., *Lloydia* 13:254. 1950.

Favolus pygmaeus Speg., *Bol. Acad. Nac. Cienc. Córdoba* 11:453. 1889.

Pileus whitish pale argillaceous-avellaneous, scrobiculate-pustulate, reticulate, glabrous, but dried subpulverulent-pruinose under a lens, convex, circular, laterally attached to the substratum (sessile) or with an extremely short, lateral pseudostipe. — Pores concolorous with the pileus with pallid

pulverulent edges, about 30 when mature, roundish, then angular or even somewhat irregular, 0.5-1.2 mm in diameter but somewhat smaller on the average in the marginal region than behind, tending to become lacerated in many specimens showing sublammellar radial ridges and anastomoses, tubes moderately deep, adnate. — Pseudostipe absent or extremely short, lateral, up to 0.5 mm long and poorly individualized.

Spores 7-11 × 3.8-7 μ, mostly 8.8-10.3 × 4.5-7 μ, ellipsoid or short ellipsoid, smooth, amyloid. — Hymenium: Basidia 22.5-31 × 6-9 μ, 4-spored or with very few 2-spored ones intermixed, and then sterigmata very long (up to 13.7 μ) with firm wall, some basidioles transformed into thick-double-walled cystidioles without contents, with purplish lilac wall in cresyl blue, clavate 27-36 × 8.5-10 μ, wall 1-1.5 μ thick (these observed in 2-4-spored carpophores). Gloeocystidia present but often inconspicuous, although turning bright deep blue in cresyl blue mounts, few, 30-70 × 7-11 μ, thin-walled, rarely slightly thickish-walled, versiform with some granular contents. — Hyphae filamentous, gelatinized, but in parts of the trama only subgelatinous and intermixed with thicker-walled elements, the others thin-filamentous and imbedded in a gelatinous mass, all hyaline and inamyloid, 1.7-2.7 μ broad, some somewhat inflated. — Cortical layers: Gloeocystidia few on pore edges and sterile surfaces like those of the hymenium. Acanthocysts numerous on the sterile surfaces and the pore edges, mostly vesiculose 15-31.5 × 13.7-26 μ, mostly with pedicel (0-9 μ long), more rarely slightly elongated, clavate to ventricose and then 19-45 × 12-16 μ, generally without visible contents in KOH and ammonia, but sometimes a few with a small amorphous interior body when seen in the Melzer reagent (there yellow), inamyloid, hyaline, purplish-vinous to lilac-pink in cresyl blue mounts, echinulate all over (excepting the pedicel) with setulae which are rod-shaped, rarely more conical and project 0.8-1.5-(2) μ, some of the acanthocysts becoming free.

On dead, fallen dicotyledonous twigs and branches in subtropical and sub-Paramo forests, Colombia to South Brazil and Northern Argentina.

Material studied: COLOMBIA: Above Tutorá, region of Gabriel Lopez, localidad San Pedro, 5-V-1968, Singer B 6975. — BRAZIL: São Paulo; Apiaí, Puiggari (LPS), TYPUS. — ARGENTINA: Tucumán: Anta Muerta, 1050-1100 m alt. 19-XII-1949, Singer T 787 (LIL).

38. *Favolaschia montana* Sing. spec. nov.

Pileus white, finely white fuzzy on dirty pallid ground when seen in dried condition under a lens, glabrescent, pustulose, convex, 2.5-4 mm broad. —

Pores white, 20-22, edges white-pruinose, relatively wide (0.3-0.4 mm, somewhat wider in inner than in marginal zone), not round, somewhat angular. — Pseudostipe lateral, white, 2-2.5 × 0.6-0.7 mm.

Spores 7.5-9 × 4.5-6 μ , ellipsoid to broadly ellipsoid, smooth, amyloid. — Hymenium: Basidia 4-spored, with basal clamp, clavate, fewer ventricose. Gloeocystidia rather numerous but not conspicuous, 14-41 × 2.5-7 μ , blue in cresyl blue mounts, pale yellowish in KOH. — The infraepicuticular zone consisting of filamentous, thin-walled hyphae which are dissociated by a gelatinous mass, thin but some inflated to 6-8 μ ; below that upper zone of the pileus-trama there is a lower non-gelatinous zone, in both layers hyphae running basically radially, all hyaline, inamyloid, with clamp connections. Hymenophoral trama regular. Gloeo-vessels numerous, also bright blue in cresyl blue mounts, with granular contents, pale yellowish, long and straight, to 8 μ wide. — Cortical layers: Gloeocystidia few or none. Acanthocysts numerous on the pore edges and the margin of the sterile surface of the pileus, growing out of the epicuticular hyphae; acanthocysts 11.5-25 × 9-25 μ , and vesiculose, few cylindric or clavate and somewhat elongate, these 14-20 × 6.5-9.5 μ , without visible contents bodies and inamyloid, echinulate by 1-2.5 μ long setulae, the acanthocysts rather scattered on the sterile surface of the pileus away from the margin and there replaced by the surface hyphae which are non-gelatinized, 4-5 μ broad, occasionally somewhat branched and with irregular nodulose unevenness but neither a distinct Rameales-structure nor asterostromelloid.

On dead dicotyledonous wood in the Alnetum of the tropical-montane zone of Northern Argentina.

Material studied: ARGENTINA: Jujuy: Laguna de Yala, 11-II-1966 Singer T 5056 (F), TYPUS.

39. *Favolaschia puberula* Sing. spec. nov.

Pileus at first white, later, as the ground color becomes more and more visible, becoming very pale beige-melleous or beige-ocher in dried material, oval to subcircular in outline, smooth, later pustulate, covered at first entirely, later more sparsely; with white, sugary particles and thus coarsely mealy-farinaceous, convex, 1-2 mm in diam. or 2 × 1 mm (dried). — Pores white, the tube interior becoming concolorous with the discolored pileus, over 30 pores about 6 per mm (dried), primordium with a single pore-cup. — Pseudostipe laterally attached or attached to an eccentric or central point of the sterile surface of the pileus, concolorous, pubescent, up to 0.8 × 0.3 mm (dried).

Spores 7-8 × 4-5 μ (from 4-spored basidia) and up to 8.5 × 6.5 μ (from 2-spored basidia), ellipsoid, fewer short ellipsoid or reniform, smooth, amyloid. — Hymenium: Basidia 21-24 × 6-7.5 μ, (2)-4-spored, some with, some without basal clamp. Gloecystidia few or none. — Hyphae hyaline, weakly gelatinized, often (especially in the pseudostipe) inflated to 16 μ diam., otherwise 1-4 μ broad and filamentous, not gelatinized in the pseudostipe, no clamp connections seen. Hymenophoral trama regular. Gloeovessels numerous but not crowded, present in the pileus trama, hymenophoral trama and pseudostipe, light golden melleous, with granular contents blue in cresyl blue mounts, 3-5 μ broad in the pseudostipe, 3-6(8) μ broad otherwise. — Cortical layers: Gloecystidia present in the epicutis of the pileus and on the pore edges but few and often overgrown by acanthocysts, usually merely ends of gloeovessels. Acanthocysts very numerous on epicutis of pileus and the pore edges, mostly about 14-15 × 11-12.5 μ, vesiculose, echinulate, setulae 1-2 μ projecting, contents not visible in any medium, inamyloid, those of the surface of the pseudostipe vesiculose to ventricose, 8-24 × 4.5-11 μ, all hyaline but interrupted by numerous long pseudophysoid hyphal ends, about 1 μ broad, with a swollen base (± 3 μ across) or without it, with nodulose or forked apex, thin-walled and hyaline, causing the pubescence of the pseudostipe but also present among the acanthocysts of the pore edge.

On a thorny, apparently dicotyledonous woody twig, fallen to the ground. Venezuela.

Material studied: VENEZUELA: D.F.: Mt. La Naiguata, 25-VI-1971, Dumont et al. VE 710 (NY), TYPUS.

Subsection *Pantherinae* Sing. subsect. nov.

Differs from the preceding subsections in the inconspicuous or wanting gloecystidia and the absence of broad gloeovessels.

Type species: *F. pantherina* Sing.

A subsectionibus *Dealbatarum* et *Auriscalpii* differt gloecystidiis et gloeovascularibus absentibus aut inconspicuis. Typus subsectionis: *F. pantherina* Sing.

Key to the species

- A. Growing on tree ferns in the neotropics, Northern South America. Pores few
..... 40. *F. alsophilae*, p. 73
- A. Growing on angiosperms. Pores > 10
 - B. Pileus white to fumosous or fuscous brown. Neotropics (Asiatic species see section *Anechinus*)
 - C. On Dicotyledones; pileus 1-5 mm broad; pseudostipe none or inconspicuous (cf. subsection *Dealhatae* and no. 42. *F. moelleri*)
 - C. On Monocotyledones; pileus 4-8 mm broad; pseudostipe present or absent
 - D. Acanthocysts 40-73 × 4-11 μ, narrowly clavate or subcapitate; spores 8.2-10.2-(11) × 7.5-9 × 6.5-7.5-(8) μ; pseudostipe none . . .
..... 41. *F. pantherina*, p. 74
 - D. Acanthocysts much shorter: 11-21 × 4-11 μ; spores 6.5-9 × 3.5-7.5 μ
 - E. Pileus 2-12 mm broad when dried; trama strongly gelatinous 42. *F. moelleri*, p. 76
 - E. Pileus fresh 2-3 mm broad; trama scarcely gelatinous
..... 43. *F. oligogloea*, p. 78
 - B. Pileus citrine. African tropics 44. *F. volkensis*, p. 79

40. *Favolaschia alsophilae* Sing. spec. nov.

Pileus pallid, pustulate, attached to a pseudostipe or sessile (according to relative position on the host), 2-4 mm broad. — Pores pallid, at first a single pore-cup present, later several but few, in mature carpophores mostly 4-5, rather round, 0.4-1.1 mm broad. — Pseudostipe absent or more often present, attached to the margin (lateral) or to some portion of the sterile surface of the pileus, pallid, up to 1 × 0.2 mm.

Spores 7.2-9 × 5.3-6.7 μ, short ellipsoid, some almost subglobose, smooth, amyloid. — Hymenium: Basidia relatively long: 42-44 × 8.5-9.5 μ; sterigmata (2)-4, 4.5-5 μ high and at base 2-2.3 μ broad. Among the basidia some simple or pseudoamyloid hyphidia, the latter forked. Gloeocystidia none. Hymenium with a slight pinkish tinge in Melzer. — Hyphae in the pileus-trama with more or less thickened wall, interwoven, not imbedded in a gelatinous mass but with slightly gelatinizing wall, hyaline, with clamp connections, inamyloid. Gloeo-vessels none. — Cortical layers: Epicutis of the pileus and pore-edges with rather numerous acanthocysts and the former also with the same pseudophysoid hyphal ends as found in the hymenium. Acanthocysts 16-27 × 12.5-18 μ, vesiculose, mostly short pedicellate, without optically visible

contents and inamyloid, echinulate with dense setulae which project 0.3-0.9 μ .

On dead fronds and stems of tree fern (*Alsophila spec.*) in tropical-montane forest of the Cordillera Occidental (Colombia).

Material studied: COLOMBIA: Valle: Dagua road near km 25, walking up to 1900 m alt., 28-IV-1968, Singer B 6443 (F), TYPUS.

Illustration: Fig. 16.

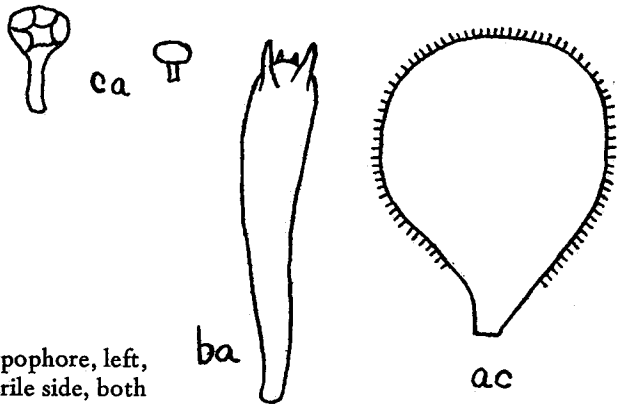


Fig. 16. *F. alsophilae*: ca = carpophore, left, from fertile side, right from sterile side, both $\times 2$.

41. *Favolaschia pantherina* Sing. spec. nov.

Pileus pale brown reticulated on pallid ground (the distinct pustules pallid), dried becoming almost spadiceous or color of *Amanita pantherina*, transparently reticulate, the lines of the reticulum corresponding to the pore dissepiments, almost circular to laterally broadened and oval, glabrous, sessile, laterally attached or attached with an eccentric point, more or less convex, 4-6 mm broad (fresh), dried 2.5-3 mm broad. — Pores (including the tube interior) white, 16-24, 0.4-0.6 mm wide, sometimes some lamellarly extended but mostly most and often all subisodiametric, tubes (dried) relatively deep (0.8 mm). — Pseudostipe none. — Context pallid, thin, inodorous.

Spores 8.2-10.2-(11) \times 7.5-9 \times 6.5-7.5-(8) μ , short to subglobose, in lateral view 0-1 μ narrower than in frontal view, with thin to firm wall (wall 0.2-0.4 μ thick), smooth, hyaline, strongly amyloid. — Hymenium: Basidia 20-26 \times 5-13 μ , with four strong (7 \times 3.5 μ) sterigmata, with basal clamp.

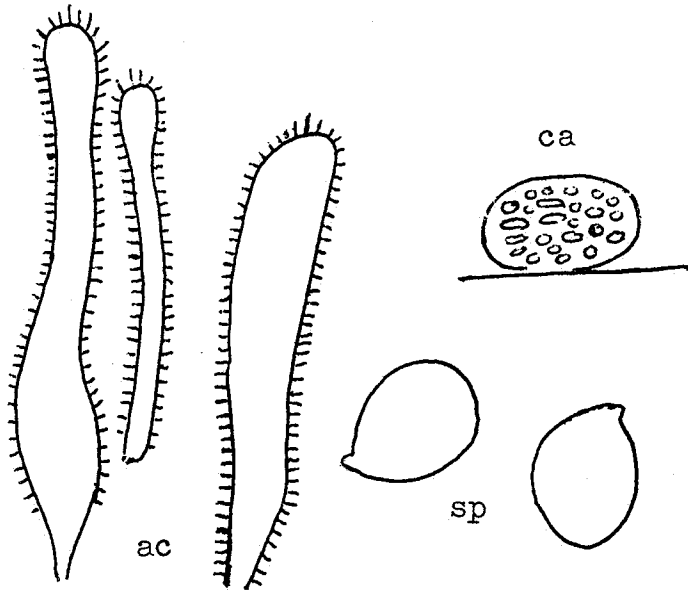


Fig. 17. *F. pantherina*: ac = acanthocysts $\times 1000$; ca = carpophore from fertile side, $\times 5$; sp = spores $\times 2000$.

Gloeocystidia none. — Hyphae interwoven, hyaline to subhyaline, without any (incrusting or intraparietal) pigment, mostly filamentous and rather distinctly gelatinized, $0.7-2.7 \mu$ broad, but some inflated to up to 7.5μ , with clamp connections, inamyloid. Gloeovessels none. — Cortical layers: Gloeocystidia none. Acanthocysts numerous on the epicutis of the pileus and the pore edges (10) $40-73 \times 4-11 \mu$, almost exclusively elongated and either narrowly clavate or narrowly cylindrical or ventricose below, the narrowly cylindrical and the ventricose ones often with a subcapitulate apex ($4-7.5 \mu$ across), and then constricted underneath the apex (there $2-4 \mu$ across), all inamyloid and hyaline, some slightly opaque, without visible contents in all media, entirely beset with setulae which are $1-2 \mu$ long, at the apex of the cells often $1.5-3 \mu$ long, lilac in cresyl blue mounts but the wall proper metachromatic purplish pink in cresyl blue; among the acanthocysts some erect to prostrate echinulate acanthophysoid hyphae, also hyaline and with the same kind of setulae, diameter of these hyphae $1-18 \mu$.

On Bambuseae, small dead debris of culms and petioles. Subtropical zone. Selva Misionera (Southern South America). Gregarious.

Material studied: ARGENTINA: Misiones: Iguazú, Refugio Yaguareté, 15-IV-1957, Singer M 1003 (F), TYPUS.

Illustration: Fig. 17.

42. *Favolaschia moelleri* (Bres.) Sing. comb. nov.

Laschia moelleri Bres., Hedwigia 35:285. 1896.

Pileus white, hyaline when fresh, tending to become grayish, gray in age and/or fumous grayish fuscous when dried, transparently hyaline reticulate when fresh and dark-reticulate when dried, glabrous to minutely white pruinose under a lens, but glabrescent, reniform or conchate, or suborbicular, convex, 4-12 mm broad when fresh. — Pores white, eventually and on drying becoming sordid grayish or gray in the tube interior, all equal or the marginal ones smaller, at first round, later angular and isodiametric to slightly elongated and hexagonal, $0.5-0.8 \mu$ (in elongated ones up to 1.5 mm) wide (fresh), the cross-dissepiments sometimes slightly lower than the radial ones, but rarely lamellarly elongated. — Pseudostipe present or absent, mostly present and laterally or eccentrically attached to the sterile surface of the pileus, usually very short, concolorous, 1-2, more rarely up to 4 mm long, up to 1 mm broad.

Spores $6.5-9 \times (3.5)-4.5-7 \mu$, most frequently short ellipsoid or ellipsoid, fewer ovoid or subglobose, smooth, hyaline, amyloid. — Hymenium: Basidia $17-28 \times 6-8.5 \mu$, 4-spored. Gloeocystidia near edge extremely scarce, inconstant, $21-24 \times 3-10 \mu$, or none. — Hyphae in the pileus and the regular (with somewhat interwoven hyphae) hymenophoral trama filamentous, $0.5-5 \mu$, mostly $2-3 \mu$ broad, but some inflated hyphal cells present mostly in the less or not gelatinous infra-epicuticular zone, the others imbedded in a gelatinous mass and running in all directions in the pileus-trama proper, thin-walled, but in the less gelatinized ones often slightly thick-walled (0.4μ) all with clamp connections and inamyloid, some with pink walls or with black-blue interior bodies in cresyl blue, true gloeo-vessels few and inconspicuous, narrow: $1-2.5-(6) \mu$, with a finely granular subhyaline to yellowish contents slightly bluing in cresyl blue; endogloeocystidia also sometimes seen but inconstant, versiform, up to 7μ broad. — Cortical layers: Gloeocystidia extremely scarce, inconstant, if occurring usually as continuation of gloeo-vessels and then usually filamentous and inconspicuous, bluing in cresyl blue mounts and $15-24 \times 3-8 \mu$. Acanthocysts on sterile surfaces varying from rather numerous (near margin) to very scarce, somewhat denser at the pore edges, of three types, either (rarely) vesiculose and pedicellate ($16.5-21 \times 8-10 \mu$) or intermediate, clavate to ventricose ($11-19 \times 6.5-8.5 \mu$) or strictly elongated, narrowly clavate, narrowly ventricose, cylindrical, even (in epicutis) fusoid ($9-20 \times 4-6.5 \mu$), accompanied by equally echinulate acanthophysoid hyphae which may or may not end in acanthocyst-cells all with setulae (lilac in cresyl blue) $1-1.6 \mu$ projecting; wide stretches of the inner-rear portion of the epicutis formed by the uppermost tier of the non-

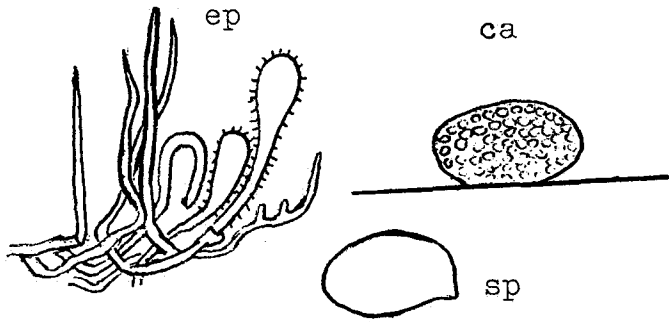


Fig. 18. *F. moelleri*: ep = epicutis $\times 1000$; ca = carpophore from fertile side on substratum $\times 4$; sp = spore $\times 2000$.

gelatinized infra-epicuticular hyphae whose terminal cell may be widened and like acanthocysts but smooth or, if filamentous, may occasionally show some nodules or ramifications as in a weak Rameales-structure, some moniliform; some single hyphae ascendant, e.gr. $22 \times 1.5 \mu$ and often with acute tip or strands of hyphae with often thickened wall, but both eventually disappearing, all elements in the epicutis hyaline, inamyloid.

On dead culms of Bambuseae in subtropical, tropical and tropical-montane forests, gregarious, from Peru south to Southern Brazil.

Material studied: PERU: Loreto: Nanay, 28-X-1958, B. Lowy 372 (F). — BOLIVIA: La Paz: Nor-Yungas, Carmen Pampa, 2000 m alt. 26-II-1956, Singer B 1533 (F). — BRAZIL: São Paulo, Salto Grande. Leg. G. v. Wettstein, (det. Höhnel), June 1901 (FH).

The type (Brazil: Santa Catarina: Blumenau, leg. Moeller) was at B but was destroyed. However, the characteristics of the other collections which were determined *F. moelleri* by Höhnel and myself are so similar to those given in the type diagnosis that there is little doubt but that they are identical. On the other hand, the only two collections where the host has been determined are Wettstein's and my own. It remains doubtful in the type collection and in Lowy's collection since no host was specifically indicated in either of these. It is conceivable, therefore, that this species has a wider host range than here assumed.

The erratic occurrence of gloeocystidia and gloeo-vessels makes this species somewhat intermediate between subsection *Dealbatae* and subsection *Pantherinae*.

Illustration: Fig. 18.

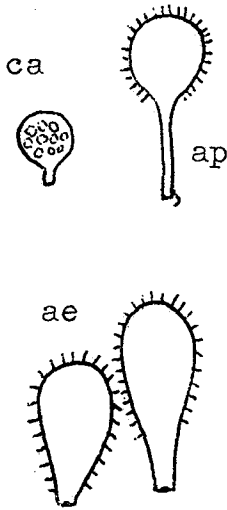


Fig. 19. *F. oligogloea*: ca = carpophore, from fertile side X 3; ap = acanthocyst from pore edge X 1000; ae = acanthocysts from epicutis of pileus X 1000.

43. *Favolaschia oligogloea* Sing. spec. nov.

Pileus white, often becoming pale sordid brown, on drying becoming sordid beige fuscous and finely white-mealy under a lens, eventually glabrescent, circular to oval-circular, pustulate-reticulate, 2-3 mm broad. — Pores white, dried white on the pore-edges, interior or pores becoming concolorous with the pileus but somewhat paler, at first only 3-4 pores present, alter 10-15, dried 6-8 per mm. — Pseudostipe white, dried mostly concolorous with the pileus, often nutant (at an angle with the pileus), slightly mealy, insititious, strictly lateral, varying from extremely short to as long as the pileus diameter: 0.5-2.7 mm long. — Context thin; odor none.

Spores $7.5-8.5 \times 4.5-5.5 \mu$, ellipsoid, smooth, hyaline, amyloid. — Hymenium: Basidia $15-19 \times 6.5-8 \mu$, 4-spored. Gloeocystidia none. — Hyphae $2.5-3.5 \mu$ broad, some broader (to 8.5μ), but not with constricted septa, filamentous to cylindrical, not or scarcely gelatinized, with thin to somewhat thickened wall, hyaline to melleous-hyaline, with clamp connections, inamyloid. Gloeo-vessels present but not numerous, $2.5-3.5 \mu$ broad, filamentous, granular and blue inside (cresyl blue mounts). — Cortical layers: Gloeocystidia none or very inconspicuous. Acanthocysts on pore edges $9-35 \times 6.5-11 \mu$, vesiculose-subglobose, mostly with an up to 25μ long pedicel, thin-walled, with basal clamp, with medium sized diverticula all over the round portion; on epicutis similar, $20-25 \times 7.5-11.5 \mu$, with short pedicel or none, all hyaline, inamyloid. Stipe likewise provided with superficial acanthocysts.

On monocotyledonous culms and stems, gregarious. Amazonas region.

Material studied: ECUADOR: Napo, Lago Agrio, 8-V-1973 (F), Singer B 7278 (F), TYPUS.

Illustration: Fig. 19.

44. *Favolaschia volkensis* (Bres. apud Henn. in Engler) Henn., Engler's Bot. Jahrb. 22:93. 1897.

Laschia volkensis Bres. apud Henn. in Engler, Pflanzenwelt Ost-Afrikas 1 C:58. 1895.

Pileus lemon yellow, orbicular, but sinuate at the point of pseudostipe attachment, transparently reticulate, pustulate, glabrous, (4)-7-10 mm broad. — Pores concolorous, more than 10, wide (in marginal region about 0.5 mm wide, otherwise 0.5-1.5 mm wide), 5-6-angular when mature with rather thick dissepiments, round when young. — Pseudostipe lateral (appearing eccentric because often attached deeply in the rear sinus), concolorous, pruinose and somewhat rough to slightly hispid below, the pruina evanescent, equal, terete, stuffed or solid 4-9 × 0.6-1.2 mm, often with a widened base but insititious.

Spores (6.7)-8-9.8 × (5.5)-6-8.2 μ, ellipsoid to ovoid or subglobose, smooth, hyaline, amyloid. — Hymenium: Basidia 30-40 × 8.5-9.7 μ, 4-spored. Gloeocystidia none. — Hyphae of the trama of the pileus and the hymenophore hyaline, loosely arranged in a gelatinous matrix, filamentous, 1.7-2-(3.7) μ broad, with clamp connections, inamyloid, thin-walled. Gloeovessels none seen (if present very scarce and inconspicuous and thin). — Cortical layers: Gloeocystidia none. Acanthocysts numerous on the epicutis of the pileus and the pore edges, the former hyaline to yellowish (wall pale yellow to deep chrome yellow) the latter hyaline or faintly yellowish, without noticeable internal bodies, inamyloid, subcylindric to ventricose or ampullaceous to clavate-elongated, not broadly vesiculose, 26-55 × 2.5-18 μ, all with thin, more rarely thick (up to 1.5 μ) wall and densely echinulate with rod-shaped or coarsely verruculose setulae projecting 1.3-2.5 μ and covering the echinulate cells all over excepting sometimes the lower portion, sometimes rising from or occasionally replaced by similar but smooth hyaline bodies which are hyphal ends of the infraepicuticular layer and which rise to the surface and intercalate themselves among the acanthocysts, these smooth cells vesiculose or broadly ventricose, thin-walled, hyaline, optically 'empty', 18-27 × 12-16 μ.

On rotten wood of Dicotyledones, gregarious. East Africa.

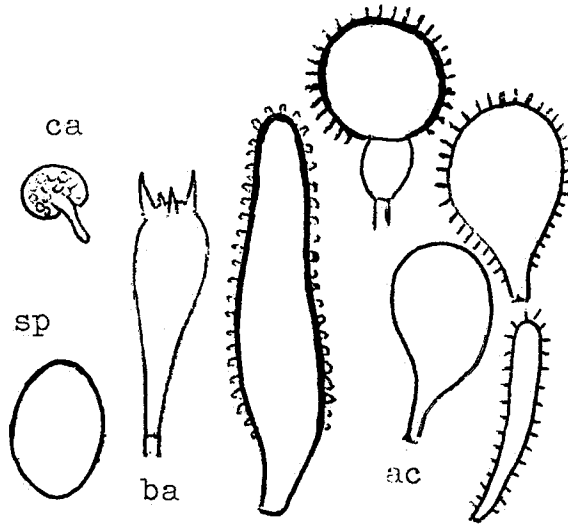


Fig. 20. *F. volkensii*: ca = carpophore from fertile side X 1; ba = basidium X 1000; sp = spore X 2000; ac = acanthocysts, among them one smooth X 1000.

Material studied: TANZANIA: Kilimandjaro, leg. Volkens P 260 (and apparently part of P 269), in alcohol (B). TYPUS.

It is not fully clear whether the lemon yellow color was indicated by the collector or given from alcohol material (which is now pale fuscidulous). Collection 269 is a mixed collection; I consider P 260 as holotypus.

F. volkensii is indeed, as assumed by me (1945) similar to those of the African representatives of the subsection *Auriscalpium* especially *F. zenkeriana*, and differs mainly in the absence of distinct gloecystidia and perhaps the more yellow color of the fruiting bodies. Fortunately, the type still exists in Berlin-Dahlem and shows that this species is different from *F. dybowskyana* with which it has been confused.

Illustration: Fig. 20.

Subsection *Intermediae* Sing. subsect. nov.

This subsection differs from the preceding ones because the contents of the acanthocysts is inamyloid and/or most of the acanthocystcells are filled with internal bodies which are well visible in KOH, NH₄OH, cresyl-blue mounts as coarse amorphous bodies or plaque-like bodies layered in a slate-

like manner. Basidia often 2-spored, or 1-2-3-spored ones intermixed with 4-spored ones. Gloeocystidia and gloeo-vessels usually well developed.

Type species: *Favolaschia intermedia* (Berk. & Curt.) Sing.

Acanthocystibus corpusculis saepe amyloideis repletis. Typus subsectionis: F. intermedia (Berk. & Curt.) Sing.

Key to the species and infraspecific taxa

- A. Contents of acanthocysts (all or most) amyloid (walls inamyloid)
 - B. On Monocotyledones
 - C. On Bambuseae; spores $7-9.5 \times 4.5-7.5 \mu$; pileus underneath the pruina tending to grayish, pinkish-grayish or brown; acanthocysts often elongated up to 50μ and up to 17μ broad, forming a tomentose-pruinose and detersile covering on the pileus which is (fresh) up to 4.5 mm broad; pores 9-52 44. *F. roseogrisea*, p. 82
 - C. On Iridaceae; spores $5-9.5 \times 3-6 \mu$, not larger; pileus pinkish isabelline to pale cinnamon brownish when dried, with a finely pruinose whitish covering; acanthocysts small and the elongated ones (which are the majority) not larger than $45 \times 4.5-(6) \mu$; pileus not over 2 mm broad; pores 4-10 45. *F. meridae*, p. 84
 - B. On Dicotyledones
 - D. Spores large and subglobose: $8-12.3 \times 6.5-10.2 \mu$; acanthocysts not longer than 50μ with distinctly amyloid contents; basidia voluminous (to 13.5 or 14.5μ broad); surface of pileus with a sugary-pruinose covering 46. *F. echinata*, p. 85
 - D. Spores smaller and not all subglobose; not combining all the characters indicated above
 - E. Acanthocysts reaching $115 \times 21 \mu$ (some of them very voluminous); with setulae $1-2 \mu$ projecting; surface of pileus grossly mealy-furfuraceous; pseudostipe none 47. *F. furfurella*, p. 87
 - E. Acanthocysts much shorter, often with longer setulae, surface of pileus pruinose or with a sugary coat; pseudostipe present or absent
 - F. Fresh pileus varying between whitish and violet ('mello-mauve' M&P); interior of acanthocysts strongly amyloid; pileus to 4 mm broad when fresh (dried to 2.2 mm); pores 11-21; on dead branches 48. *F. violascens*, p. 88
 - F. Fresh pileus never violet (as far as known); interior of acanthocysts weakly and slowly amyloid; pileus not over 3 mm broad when fresh (dried 1-1.5 mm broad); pores 5-17; on small twigs and herbaceous stems 49. *F. subamyloidea*, p. 89

- A. Acanthocysts never internally amyloid50. *F. intermedia*, p. 91
- G. On Monocotyledones or Pteridophyta, carpophores (including the surface of the pileus underneath the sugary coating and the interior of the tubes not discolored or weakly so (to ochre)
 - K. On Gramineae (Bambuseae); spores up to 8.3 μ long
..... ssp. *saccharina*, p. 93
 - K. Not on Gramineae; spores reaching longer than 8.3 μ
 - L. On Palmae; spores reaching broader than 7.5 μ ; setulae of acanthocysts up to 2.5 μ projecting ssp. *intermedia*, p. 92
 - L. On Pteridophyta; spores not broader than 7.5 μ ; setulae up to 3.5 μ projecting ssp. *singeriana*, p. 91
- G. On Dicotyledones; pileus strongly discolored underneath the sugary covering when old or dried and so is the interior of the tubes
..... Subspecies *pulverulenta*, p. 94
 - H. Pileus dried (1)-4.5 mm broad; pores 12-16, often protracted but not lamelliform; hyphae not strongly gelatinized in KOH; basidia 2-4-spored; setulae of acanthocysts to 3 μ long, many acanthocysts without contents visible in KOH; on fallen woody twigs and dead wood of branches var. *dicotyledonea*, p. 95
 - H. Pileus dried and mature 0.5-1.6-(2) mm broad; pores 10-30, sometimes lamellarly protected, or else trama strongly gelatinous in the pileus; setulae of the acanthocysts mostly 1-2 μ long, fewer reaching sometimes up to 2.8 μ (and the pores protracted into forked lamellae); on herbaceous stems
 - I. Pileus (dried) 0.5-0.8 mm broad; pores 10-11; basidia 4-spored ...
..... var. *pulverulenta*, p. 96
 - I. Pileus (dried) 1-1.6-(2) mm broad; pores 12-30; basidia 1-2-(4)-spored, or 4-spored
 - J. Hyphae of the pileus-trama at least in parts of it rather distinctly imbedded in a gelatinous mass, strongly gelatinous; basidia 4-spored; pores never protracted or lamelliform; pseudostipe not lateral . . var. *tetraspora*, p. 97
 - J. Hyphae weakly gelatinized by gelatinizing hyphal walls not imbedded in a gelatinous mass; basidia 1-2-(4)-spored or all 2-spored; pores often lamelliform and protracted at least in part of the population var. *dennisia*, p. 96

44. *Favolaschia roseogrisea* Sing. spec. nov.

Pileus fresh pinkish gray, becoming gray in age, in dried condition at first white from the sugary-tomentose detersile covering but older caps showing the brownish ground color (often more liver-brownish on margin, more sordid brownish pallid otherwise and the covering layer also eventually somewhat sordid-brownish, smooth, not visibly pustulate, subcircular to oval or

conchate, attached to a lateral or eccentric to subcentrally attached pseudostipe continuing the pileus at a slight angle (carpophores therefore often tongue-shaped or spatulate), convex, 3-4.5 mm broad (fresh), up to 3 mm broad when dried. — Pores 9-52, white or whitish with eventually and on drying becoming gray or brownish at least in the tube interior, 0.15-0.25 mm wide when dried, at first round with thick dissepiments, later angular, but not lamelliformly elongated. — Pseudostipe concolorous with the pileus surface, white or whitish powdery but eventually partly discoloring like the covering of the pileus, laterally or eccentrically to subcentrally attached to the sterile surface of the pileus, insititious, rarely almost absent, usually 1.5-3 mm long. — Context (dried brownish or grayish brown) inodorous.

Spores 7-9.5 × 4.5-7.5 μ , mostly about 8-8.5 × 6-6.2 μ , ellipsoid, short ellipsoid, and sometimes some subglobose, smooth, amyloid. — Hymenium: Basidia 20-31 × 6.2-8.8-(11) μ , 4-spored. Gloeocystidia 2-50 × 7-24 μ , versiform, often clavate-subvesiculose to basidiomorphous, with coarsely granose or granular contents bluing in cresyl blue mounts, scanty to moderately numerous, all smooth. — Hyphae gelatinized, some thin-walled and imbedded, others thickish-(to 1 μ) walled, hyaline or subhyaline in KOH, inamyloid, subparallel with each other in the pseudostipe and in the more or less regular hymenophoral trama, with clamp connections. Gloeo-vessels long, moderately numerous, 2.5-11 μ broad, pale golden yellow to subhyaline. — Cortical layers: Gloeocystidia on the sterile surfaces of pileus and pseudostipe as well as the pore edges like those of the hymenium (see above). Acanthocysts forming the covering of pileus, pseudostipe and pore edges, very numerous, many cells becoming free, 12-50 × 6.5-17 μ , either elongated and broadly clavate to clavate-subvesiculose, others vesiculose, many with pedicel, most with optically conspicuous often slate-like hyaline or subhyaline contents, few optically 'empty', the others opaque, slowly and weakly to rapidly and strongly amyloid in their interior, with hyaline wall which becomes purplish pink in cresyl blue, contents amethyst to violet in cresyl blue mounts, sometimes a yellowish incrustation (KOH) present; setulae 1-2.5 μ high.

On Gramineae (Bambuseae) dead culms, gregarious. Northern South America. Known host: *Guadua angustifolia*.

Material studied: TRINIDAD: Leg. Rayner in Sept. 1939, comm. Dennis, det. Singer (LIL). — COLOMBIA: Tolima: Ruta de Cajamarca a Calaná, km 28, 11-IV-1968 Singer B 6035 (F), TYPUS. — Cundinamarca: Salto de Tequendama, 24-VII-1960 (F).

Illustration: Fig. 21.

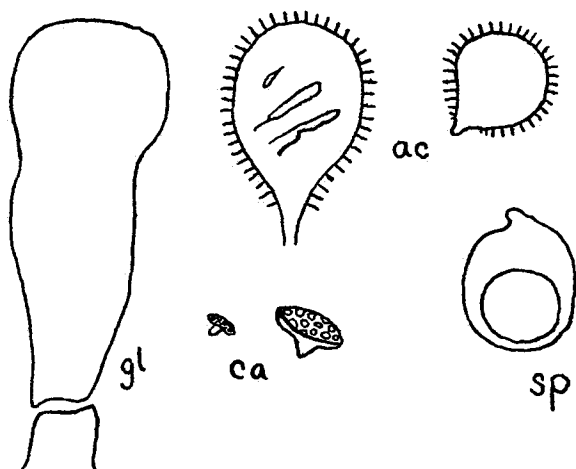


Fig. 21. *F. roseogrisea*: gl = gloeocystidium $\times 1000$; ac = acanthocysts $\times 1000$; ca = carpophores $\times 1$; sp = spore $\times 2000$.

45. *Favolaschia meridae* Sing. spec. nov.

Pileus pinkish isabelline to pale cinnamon brownish (dried) but white pruinose from a very fine pruina visible under a lens, attached to a pseudo-stipe, smooth, later somewhat sulcate, up to 2 mm broad. — Pores with wide pruinose edges, few: 4-10, wide, often some lamellary extended. — Pseudostipe constant, concolorous, mealy, attached to the sterile surface of the pileus eccentrically or attached laterally, of variable size but not longer than 1 mm.

Spores $5-9.5 \times 3-6 \mu$, mostly ellipsoid, some short-ellipsoid, reniform or applanate on inner side, smooth, amyloid. — Hymenium: Basidia $18-33 \times 8.5-9.5 \mu$, 4-spored, with basal clamp. Gloeocystidia scattered $19-30 \times 7.5-8.5 \mu$, sometimes directly continued into gloeo-vessels with coarse-granose or guttulate content, in cresyl blue mounts blue, in KOH yellowish. — Hyphae in most areas of the trama poorly gelatinized, in some places sometimes slightly gelatinized, with thin to firm or even slightly thickened and possibly gelatinizing wall (up to 0.7μ), with clamp connections, inamyloid, without visible pigment in KOH, underneath the epicuticular acanthocysts non-gelatinized and similar to the tramal hyphae, $2-2.5 \mu$ broad, some up to 5μ broad, rarely broader. Gloeo-vessels moderately numerous and becoming deep and bright blue in cresyl blue mounts, long, but only $2-5 \mu$ broad, subhyaline to pale yellowish. — Cortical layers: Gloeocystidia few to scattered (as above). Acanthocysts $6-45 \times 2-6.5 \mu$, mostly elongated or

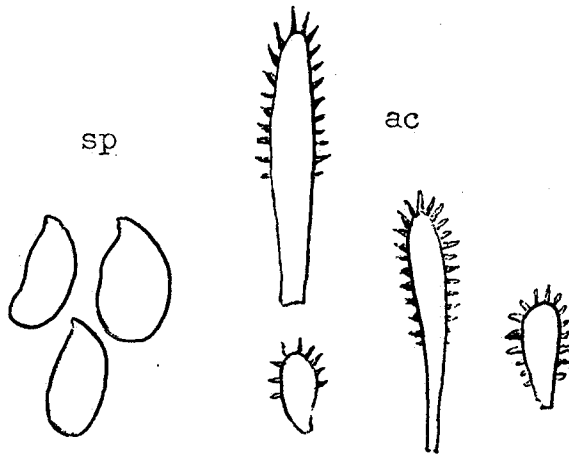


Fig. 22. *F. meridae*: sp = spores \times 2000; ac = acanthocysts \times 1000.

moderately ventricose, narrowly clavate or cylindrical, some constricted in the middle, few broader and then very small, the contents occasionally tending to coagulate into a few small interior bodies but not into slate-like plaques, slowly and weakly amyloid (pale violet) echinulate all over with setulae projecting 2-4.5 μ (mostly about 3 μ) narrowly conic-spinulose, sub-acute or obtuse, hyaline.

On dead iridaceous leaf in Venezuela.

Material studied: VENEZUELA: Mérida: Parque Nacional Sierra Nevada: Laguna Negra, 18-VII-1971. Dumont et al. VE 2317 (NY), TYPUS.

In the type collection there are a few slightly larger carpophores but these are now black and obviously infected by a non-basidiomycetous fungus. The normal fruiting bodies are in dried condition not larger than 1.2 mm (including pseudostipe).

Illustration: Fig. 22.

46. *Favolaschia echinata* Sing. *Lloydia* 13:253. 1950.

Pileus argillaceous-avellaneous ('pl. 12 G 6, 'fallow', 'oak buff', M&P), somewhat more sordid in age or on drying (grayish melleous ocher) but at first completely and later partly covered by an almost whitish or white covering, smooth to somewhat pustulate, mostly circular, sessile and attached directly

with some point of the sterile surface or else with an often poorly differentiated extension of the sterile surface of the margin (pseudostipe), 2-8 mm broad when fresh and mature. — Pores with white pore edges, the interior of the tubes (and everywhere underneath the pruina of the edges) becoming 'sombreira' or 'sunset', dried sordid ocher to melleous-ocher, the outermost ones as broad, sometimes even broader than the rest, 1-18, mostly frequently 7-10, isodiametric or in age often some elongated, angular when mature, 0.3-1 mm wide. — Pseudostipe, if present, poorly differentiated from the sterile surface of the margin of the pileus to which it is attached, concolorous and tending to be brown in the herbarium, also at first covered by a white or whitish pruina, usually quite short, up to as long as the diameter of the pileus.

Spores 9.5-12.3 × 8-11 μ, mostly 9.5-10.5 × 8.5-9.5 μ, ellipsoid, short ellipsoid, subglobose or reniform, mostly short-ellipsoid to subglobose, hyaline, amyloid. — Hymenium: Basidia 25-44 × 11-14.5 μ, i.e. rather voluminous, (2)-4-spored, or all 4-spored, usually all hyaline, rarely some with a golden cell sap, clavate. Gloeocystidia 45 × 7-10.3 μ, mostly basidiomorphous or as protruding apices of the gloeo-vessels, most at least partly bluing in cresyl blue mounts. — Hyphae weakly or scarcely gelatinous in the trama of the pileus and the dissepiments, hyaline, inamyloid. Gloeo-vessels present, moderately numerous to rather numerous, pale yellowish to light yellow, 2.5-8 μ broad. — Cortical layers: Gloeocystidia scarce to scattered underneath or among the acanthocysts (as above). Acanthocysts 15-50 × 11-20.5 μ, numerous and crowded on the sterile surface including the pore edges, vesiculose, some pedicellate, the interior amyloid, in few exceptional cells inamyloid and optically 'empty', in the majority or practically all with coarse internal bodies, these often plaque-like and in slate-like accumulations, in cresyl blue mounts many, but not necessarily all colorable (blackish blue or violet), wall thin, echinulate all over with setulae which are dense, narrowly conical, 1.5-3-(3.6) μ projecting.

On dead dicotyledonous trees (small twigs, fallen branches) and on herbaceous stems of Dicotyledones. From Venezuela to Argentina. Known host—*Boehmeria caudata*.

Material studied: VENEZUELA: Mérida: San Javier del Valle resort, 24-VII-1971, Dumont et al. VE 2889 (NY). — Guarico: Parque Nacional Guatopo 30-VI-1971 Dumont et al. VE 990 (NY). — ARGENTINA: Tucumán: Sierra de San Javier, Parque Aconquija, 1-III-1949, Singer T 168 (LIL), paratypus. — Los Sosas, 19-I-1950, Singer T 919 (LIL), TYPUS.

Illustration: Fig. 23.

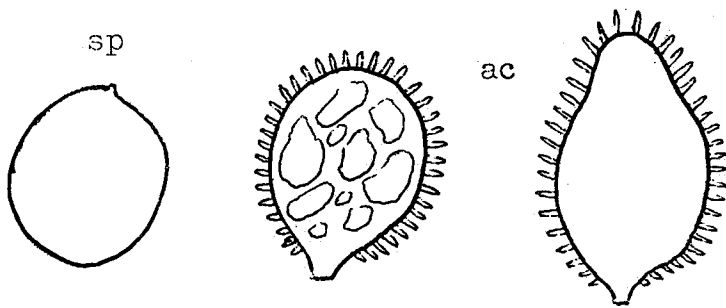


Fig. 23. *F. echinata*: sp = spore $\times 2000$; ac = acanthocysts $\times 1000$.

47. *Favolaschia furfurella* Sing. spec. nov.

Pileus whitish mealy-subfurfuraceous all over, only slightly subpustulate, uneven, versiform, sessile, about $1.5-2.5 \mu$ broad (dried). — Pores white, remaining so at the edges but becoming light ochraceous brown in the tube interior, 16-22 when mature, 0.25-0.50 mm wide (dried), at first somewhat smaller and round, later angular. — Pseudostipe none.

Spores $7.5-8.5 \times 4-5.5 \mu$, ellipsoid, without suprahilar depression or applanation, hyaline, smooth, amyloid. — Hymenium: Basidia $14-23 \times 6-8 \mu$, 4-spored, with basal clamp. Gloeocystidia numerous, $16-30 \times 6.5-9.3 \mu$, rather light but bright blue in cresyl blue mounts, mostly clavate, more rarely cylindrical or ventricose; occasionally a tramal hypha entering the hymenium as a thick-walled, ventricose, cystidioid element (with in cresyl blue blue walls). — Hyphae hyaline, inamyloid, moderately strongly but at least in part of the trama distinctly gelatinized and loosely arranged, some inflated (up to 12μ wide), all thin-walled in the pileus-trama, only in the pseudostipe and near the outer limits of the pileus-trama an occasional thick-walled element rarely encountered. — Cortical layers: Gloeocystidia few at the sterile surfaces (see above). Acanthocysts amyloid of two types (1) vesiculose, more numerous than type 2 on the pore edges, less so on the sterile surfaces, e.g. $13.5-15 \times 11-13 \mu$, with slate-like layered internal plaques well visible in KOH, with subhyaline to somewhat lilac contents and thin, lilac-pinkish wall in cresyl blue mounts, entirely echinulate with setulae $1-2 \mu$ projecting, all hyaline in cresyl blue, very few without any visible contents; (2) more voluminous and often longer, ventricose very striking and numerous on the sterile surfaces, less so on the pore edges, $27-115 \times 18-21 \mu$, otherwise like type 1.

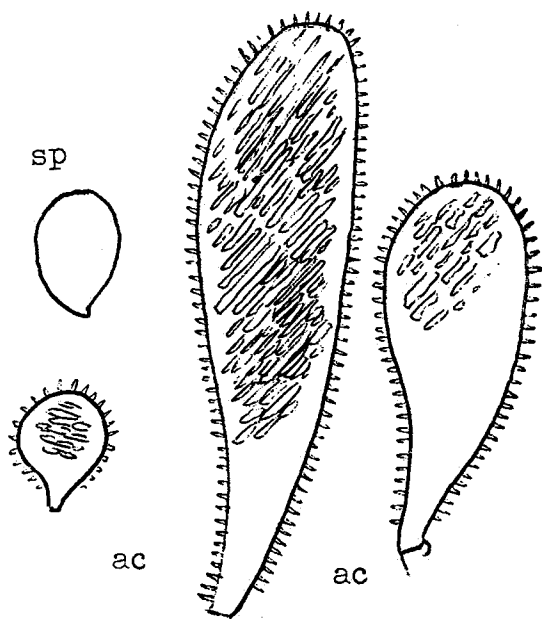


Fig. 24. *F. furfurella*: sp = spore X 2000; ac = acanthocysts X 1000.

On dead herbaceous stems (apparently dicotyledonous) in Venezuela.

Material studied: VENEZUELA: Mérida: Parque Nacional Sierra Nevada. 25-VII-1971. Dumont et al. VE 2991 (NY) typus.

Illustration: Fig. 24.

48. *Favolaschia violascens* Sing. spec. nov.

Pileus (fresh) white to violet ('mello-mauve' M&P) with a sugary but extremely fine, pallid bloom visible when dry under a lens but eventually glabrescent and dried soon showing the brown surface underneath the pruina, circular to oval in outline, attached to a pseudostipe or directly and sublaterally to the substratum, fresh up to 4 mm broad, dried up to 2.2 mm broad. — Pores white, the tube interior brown when dried, 11-21, isodiametric or occasionally slightly laterally extended, 0.3-0.4 mm wide (both fresh and revived), round to rounded-angular, pore edges remaining white on drying and pruinose. — Pseudostipe if present (always present unless carpophores formed on lower side of substratum), concolorous and pruinose like the pileus, attached laterally or to the eccentric point of the sterile

surface of the pileus, very short or up to the size of the diameter of the pileus in length. — Context concolorous, then (dried) brown.

Spores $8.5-9 \times 7-7.3 \mu$ if subglobose, $7-9.5 \times 5-6.5 \mu$ if ellipsoid, more often ellipsoid than subglobose, smooth, without suprahilar depression or applanation, amyloid. — Hymenium: Basidia $18-25 \times 7-8.5 \mu$, 2-4-spored, with basal clamp. Gloeocystidia $18-32 \times 5-11.5 \mu$, obpiriform, clavate, or clavate-vesiculose, rather numerous, yellowish inside. Hyphae poorly gelatinizing with a thickish wall and therefore appearing glassy in KOH mounts. Gloeo-vessels very numerous, long, yellowish, $6-12 \mu$ in diameter. — Cortical layers: Gloeocystidia mainly on pore edges, as above. Acanthocysts $11-30 \times 7-15 \mu$, subvesiculose or broadly clavate to broadly ventricose and broadly rounded above, strongly amyloid in their interior either all through or merely in a half-moon-shaped apical zone or in other inside bodies which are often plaque-like and layered in a slate-like manner, echinulate all over, setulae variable in length from 1.5 to 3.3μ .

On dead dicotyledonous branches, gregarious, Yungas region.

Material studied: BOLIVIA: La Paz: Nor-Yungas, Carmen Pampa, 17-II-1956, Singer B 1227 (F), TYPUS.

49. *Favolaschia subamyloidea* Sing. spec. nov.

Pileus (dried) sordid ochraceous or brownish underneath a white sugary-mealy covering, often with lobed margin and slightly pustulate surface, sessile or attached to a pseudostipe, $0.5-1.3$ mm broad (dried). — Pores white, the tube interior ochraceous to pale sordid brownish in dried material, 4-17, mostly 5-15, about $0.2-0.5$ mm wide when revived and unequal or equal in diameter but not consistently small in the marginal row at first more round, later more angular. — Pseudostipe if present, either laterally or eccentrically to centrally attached to the sterile surface of the pileus, concolorous and equally mealy, short, i.e. shorter than the diameter of the pileus.

Spores (if basidia uniformly 4-spored) $7-8.8 \times 5-5.7 \mu$ (if basidia mostly 2-spored) $7.5-12 \times 5.3-8.5(9) \mu$, (if basidia 2-4-spored: within the above limits), ellipsoid, fewer ovate or short ellipsoid, smooth, amyloid. — Hymenium: Basidia $23-34 \times 7-9.3 \mu$, either all 4-spored or all (1)2-spored, or 2- and 4-spored mixed, with basal clamp. Gloeocystidia few to rather numerous, subhyaline to yellowish, basidiomorphous. — Hyphae in the trama of the pileus hyaline or subhyaline, filamentous, but some inflated up to 15μ diameter, with clamp connections, inamyloid, poorly gelatinized (imbedded

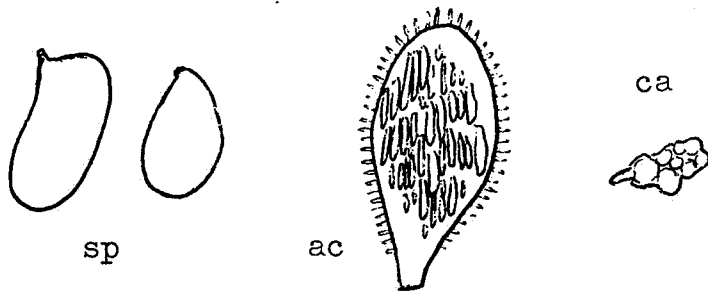


Fig. 25. *F. subamyloidea*: sp = spores $\times 2000$; ac = acanthocyst $\times 1000$; ca = carpophore from fertile side $\times 6$.

in a gelatinous mass), with thin to often slightly thickened wall. Gloeovessels subhyaline to yellowish, with granular contents, not quite so numerous and conspicuous as in *F. subceracea* but fairly conspicuous and numerous, $7-13 \mu$ broad. — Cortical layers: Gloeocystidia occasionally seen among the acanthocysts, like the hymenial ones or simply as terminal portions of gloeo-vessels reaching the surface. Acanthocysts $14-39 \times 6.5-31 \mu$, mostly $15-27.5 \times 9.5-19.5 \mu$, vesiculose to broadly ventricose or broadly clavate, weakly, more rarely rather strongly amyloid in the interior, with coarse internal bodies which are often plaques arranged in a slate-like manner, hyaline or subhyaline, rarely absent so that in a very few of these cells the interior appears 'empty', many of the cells (which are crowded and form the sugary coating on the sterile surfaces and the pore edges) becoming free, densely echinulate all over, setulae rod-shaped and narrowly conical, projecting $1-2.5 \mu$.

On dead woody twigs or bark and on dead herbaceous stems, always on Dicotyledones. Colombia and Venezuela.

Material studied: COLOMBIA: Anglo-Colombian Cocoa Expedition, FH 138 K, (F). — VENEZUELA: Sucre: NW of Irapa, 9-VII-1972, Dumont et al. VE 4425 (NY), TYPUS. — 9 km N of El Rincón, 6-VII-1972 (NY). — Aragua: Parque Nacional Henry Pittier, 10 km above Maracay, 12-VII-1971 (NY).

This species differs from the following in the weakly and often slowly amyloid acanthocysts and is thus in a way intermediate between *F. intermedia* and *F. violascens*.

Illustration: Fig. 25.

50. *Favolaschia intermedia* (Berk. & Curt.) Sing. comb. nov.

Laschia intermedia Berk. & Curt., Journ. Linn. Soc., Bot. 10:322. 1869.

Favolaschia saccharina Pat., Bull. Herb. Boissier 3:54. 1895.

Laschia saccharina (Pat.) Sacc. & Syd., Syll. 14:197. 1899.

Favolaschia pulverulenta Henn., Hedwigia 36:203. 1897.

Laschia pulverulenta (Henn.) Sacc. & Syd., Syll. Fung. 14:199. 1899.

Laschia gemma Höhnelt in Schiffner, Denkschr. K. Akad. Wiss., math.-nat. Kl. 83:11. 1907.

Subspec. *singeriana* (Dennis) Sing. stat. nov.

Favolaschia singeriana Dennis, Kew Bull. for 1952:331. 1952.

Pileus white, with a white, pulverulent sugar-like coating, circular, more rarely oval, often slightly crenulate at the margin, sessile or with a pseudostipe, up to 2 mm broad. — Pores concolorous, eventually often cream colored in the tube interior, 4-30, often only 4-10 those along the margin of the pileus isodiametric and mostly round but the others mostly angular and subsodiametric and larger (0.2-0.4 mm diam.), the pore edges mealy-sugary. — Pseudostipe if present either laterally or eccentrically attached or attached to the vertex of the pileus, varying from 0 to 1 mm long, more or less white pulverulent.

Spores 7-10.5 × (4)4.5-7.5 μ in purely 4-spored specimens 7.5-8.3 × (4)4.5-5.5 μ, ellipsoid, hyaline, sometimes with amorphous contents similar to those of the gloeocystidia, smooth, without suprahilar depression, amyloid. — Hymenium: Basidia 17.8-23 × 8-9 μ, either all or nearly all 4-spored, or 1-2-3-4-spored and then 2-spored ones often predominating, basidioles mostly subcylindric, with basal calmp. Gloeocystidia scarce and not always well differentiated from the endo-gloeocystidia and the gloeovessels and often not reaching the level of the sterigmata. — Hypidia often seen among the basidioles in young specimens. — Hyphae not truly gelatinous and not dissociating in a gelatinous mass (KOH), hyaline, inamyloid, with clamp connections. Hymenophoral trama regular. Gloeovessels conspicuous and often numerous, long, 4-12-(15) μ broad, internally granular and hyaline to yellowish, the contents hyaline to lilac or (in youth) bright blue in cresyl blue mounts, eventually becoming coccinoid in many collections, wall often pinkish in cresyl blue, some short (endocystidia). — Cortical layers: Sterile surfaces and pore edges with few gloeocystidia (as above) but innumerable acanthocysts, many becoming free; these acanthocysts 15-39 × 9-20 μ, vesiculose to broadly ventricose-clavate, rarely a few subcylindrical sometimes with a short pedicel, contents either (rarely) invisible in KOH mounts, usually distinct and mostly in plaques forming

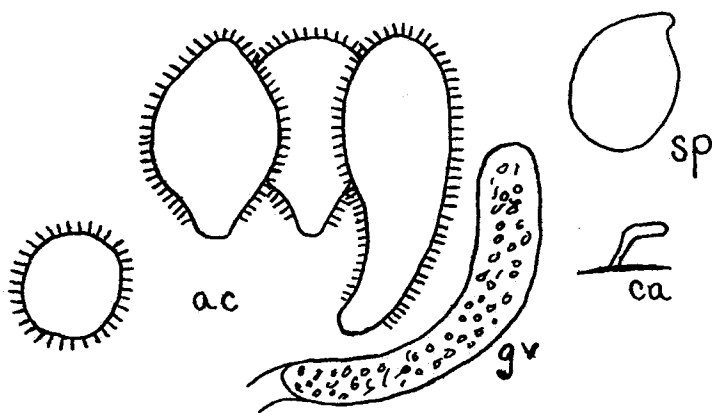


Fig. 26. *F. intermedia* ssp. *indermedia*: ac = acanthocysts (at left side a free one) X 1000; gv = gloeo-vessel X 1000; sp = spore X 2000; ca = section through carphophore on substratum X 3.

slate-like accumulations over most of the interior, inamyloid, not bluing in cresyl blue mounts but red or lilac or only partially bluing in younger cells, also visible in cotton blue mounts but there subhyaline, echinulate all over, rarely one or another cell smooth, setulae 0.5-3.5 μ high.

On dead parts of Pteridophyta (fern rachis, rotting parts of tree ferns, etc.) in tropical and tropical-montane forest in Venezuela.

Material studied: VENEZUELA: D.F.: Vicinity of Macarao, 21-VI-1971, Dumont et al. VE 342, 349 (NY). — Aragua: Maracay, Rancho Grande 19-XI-1949. Dennis 95 C (K), TYPUS. — Lara: Parque Nacional Yacambu 9-VII-1971, Dumont et al. VE 1781 (NY). — Sucre: NW of Irapa, 11-VII-1972, Dumont et al. VE 4683 (NY).

Illustration: Dennis (1952), fig. 5.

Subspec. *intermedia*

Pileus white, with a pulverulent-sugary coating, circular or oval, often minutely lobed or crenulate, sessile or with a small pseudostipe attached to the substratum, if sessile, attached to the lateral or eccentric to central portion of the sterile surface of the pileus, somewhat pustulate when mature, glabrescent when old but even then still pruinose under a lens, up to 2 mm broad. — Pores white, sometimes all more or less isodiametric but not smaller near the margin, sometimes several elongated and even sublamellar at first round, later some somewhat angular, 0.1-0.4 mm wide (dried) and 4-6 per

mm, 5-11 of them when mature. Pseudostipe, if present usually lateral and vertical, 1.2-2.2 × 0.2 mm.

Spores 7-10.7 × 5.3-9.5 μ, if from 4-spored basidia - not over 9.5 × 7.8 μ, ellipsoid to broadly ellipsoid, smooth, amyloid. - Hymenium: Basidia 19.5-26.7-9 μ, either all or nearly all 4-spored, or mostly (1)-2-spored. Gloeocystidia as in the preceding subspecies. - Hyphae not or scarcely dissociating in KOH and not truly gelatinous, hyaline, inamyloid, mostly filamentous (2-2.5 μ) with clamp connections, but a few secondary (clampless) septa usually present, few of the hyphal cells moderately inflated. Gloeo-vessels numerous especially in the upper portion of the pileus-trama but also in other portions of the trama, hyaline to citrine-hyaline, long, some short (endocystidia), with granular or vermiform or coarsely granose contents, 3-10 μ broad. - Cortical layers: Gloeocystidia few or rare, mostly as ends of gloeo-vessels reaching the surface layer. Acanthocysts numerous on sterile surfaces and pore edges, some eventually free, either somewhat elongated, subclavate and at times somewhat irregular, 22-40 × 10-15 μ, or (most of the free ones) subglobose to globose or vesiculose and little elongated, 16-40 × 10-17 μ, all hyaline and inamyloid, echinulate, with setulae narrowly conical or rod-shaped, 1-2.5 μ projecting, contents as in the preceding subspecies.

On dead palm leaf petioles, and other parts of dead palm. Cuba, Venezuela, Brazil.

Material studied: VENEZUELA: Sucre: NW of Irapa, 12-VII-1972. Dumont et al. VE 4773 (NY). - BRAZIL: São Paulo, km 77 on road to Curitiba, Furtado, herb. no. S.P. 95395 (BAFC).

Illustration: Fig. 26.

Subspec. *saccharina* (Pat.) Sing. stat. nov.

Favolaschia saccharina Pat., Bull. Herb. Boissier 3:54. 1895.

Laschia saccharina (Pat.) Sacc. & Syd., Syll. fung. 14:197. 1899.

Pileus white coated, usually remaining white or buffy whitish even when old and dried, subcircular to reniform, laterally attached to the substratum and sessile, or attached to a short pseudostipe, smooth, 0.25-4 mm broad. - Pores white, the tube interior sometimes becoming sordid pallid or cream on drying, the pore edges pulverulent as the sterile surfaces, 3-30 of them, not markedly smaller in the marginal row than otherwise, neither isodiametric nor lamellarly elongated, somewhat angular, at least when quite mature, 0.2-0.4 mm wide. - Pseudostipe, if present, attached to the sterile surface near the vertex or laterally, also white or whitish, pulverulent, up to 1 × 0.4 mm. - Context white or pallid.

Spores 6-8.2 × 4-6.5 μ, ellipsoid, some cylindrical, fewer broadly ellipsoid, some ovoid, without suprahilar depression, smooth, amyloid. — Hymenium: Basidia 17-22 × 6-7.7 μ (1-2-3-)4-spored. Gloeocystidia scattered, 12-23 × 5-10 μ, versiform, mostly basidiomorphous, with finely granular pale yellowish contents. — Hyphae not or scarcely dissociating in KOH, poorly gelatinizing, at least in most parts of the trama, mostly filamentous, hyaline, with clamp connections, inamyloid. Gloeo-vessels with granular contents or with contents like that of the acanthocysts, moderately to rather numerous, in places almost crowded, pale to light yellow, or a few deeper yellow, eventually often becoming coscinoid, also present in the regular hymenophoral trama, 3-8 μ broad. — Cortical layers: Gloeocystidia few and mostly merely extensions of the uppermost gloeo-vessels (as above). Acanthocysts on pore edges and sterile surfaces very numerous, some dehiscent-free, either vesiculose (so most of the free ones) and 13-40 × 7.5-20 μ, or elongated and up to 65 × 14 μ, echinulate with rod-shaped to narrowly conical setulae projecting 1-2.5 μ, contents as in the preceding subspecies, very few of these cells without contents, all inamyloid, hyaline in KOH, with pink or lilac-pink wall in cresyl blue mounts.

On dead culms and sheaths of Bambusae, often on *Chusquea* spec. in Ecuador and Venezuela.

Material studied: TRINIDAD: St. Joseph, 30-XI-1949. Dennis 95 B (K). — VENEZUELA: D.F.: Parque Nacional El Avila, 27-VII-1972. Dumont et al. VE 6152 (NY). — VE 6145 (NY). — ECUADOR: Lagerheim (FH), TYPUS.

Illustration: Dennis (1952), fig. 4.

Subspec. *pulverulenta* (Henn.) Sing. stat. nov.

Favolaschia pulverulenta Henn., Hedwigia 36:203. 1897.

Pileus young white from a pulverulent coating but underneath the coating as well as on the pseudostipe (if present), in the tube-interior, and in the context tending to become dirty brown, 0.5-3 mm broad. — Otherwise like the preceding subspecies; pores 5-30.

Spores (5)6.8-11.7 × (3.8)4.5-7.5 μ, of different size and shape according to the varieties (see below) all smooth, amyloid. — Hymenium: Basidia 1-2, 2- or 4-spored. Gloeocystidia present but sometimes scarce. — Hyphae gelatinized or non-gelatinized, inamyloid, with clamp connections. Gloeo-vessels present, conspicuous. — Cortical layers: Acanthocysts numerous, with setulae 1-2.5 μ long, all or most with inside-bodies often arranged in a slate-like manner, inamyloid.

On dead parts of Dicotyledones, either on dead wood or on herbaceous stems. From Venezuela to Brazil.

Var. *dicotyledonea* Sing. var. nov.

? *Laschia gemma* Höhnelt in Schiffner, Denkschr. K. Akad. Wiss., math.-nat. Kl. 83:11. 1907.

Pileus relatively large when mature: 2-4.5 mm broad, soon becoming brownish all over even when collected and always when dried, pruinete. — Pores white pulverulent at edges but tending to become brownish in the tube interior when old or dried, (5)-12-16, subsisdiametric or some somewhat elongated but rarely becoming lamelliform, often quadrangular or rounded-quadrangular, 0.3-0.8 mm wide (fresh). — Pseudostipe either absent or, if present, short and laterally attached or attached to the vertex of the pileus, surface like that of the pileus; dissepiments thin when carpophores mature.

Spores (5)-6.2-9.5-(10.5) \times (3.8)-4.3-6.5-(7.5) μ , not over 9.5 \times 6.5 μ , if all basidia are 4-spored, ellipsoid, some ovate, fewer subglobose, weakly to distinctly amyloid. — Hymenium: Basidia 18.5-26 \times 7.7-9 μ , either 2- and 4-spored mixed, or all 4-spored, often with sterigmata of unequal length, up to 10.5 μ long, with or without clamped base. Gloeocystidia e.gr. 43 \times 14 μ , sometimes not bluing strongly in cresyl blue mounts, with granular contents. Basidiol-like cystidioles often longer than mature basidia, thin-walled, e.gr. 34 \times 7.5 μ . Hyphae poorly or not gelatinizing, hyaline, inamyloid, eventually brownish hyaline, with clamp connections (but some secondary septa present) mostly filamentous but some inflated. Gloeo-vessels present, moderately numerous to very numerous, yellowish, with granular contents 6-11.5 μ broad. — Cortical layers: Gloeocystidia few (as above). Acanthocysts either small and elongated and medium sized and vesiculose, 6-22.5-(37) \times 4.2-15-(16) μ , with contents as in the preceding subspecies and setulae (1)-1.5-2.7-(3) μ projecting.

On woody twigs fallen from dicotyledonous trees and shrubs in tropical forests and plantations. Trinidad and Venezuela south to Bolivia. Known host: *Theobroma*.

Material studied: TRINIDAD: River Estate, Diego Martin 29-IX-1949, Dennis 95 (K), TYPUS of variety. — VENEZUELA: Sucre: between El Rincón and peak of Palo de Agua 15-VII-1972, Dumont et al. VE 5143 (NY). — BOLIVIA: La Paz: Nor-Yungas, San Jerónimo 1800-1900 m alt. 7-II-1956, Singer B 977 (F).

The type of *F. gemma* is evidently too young (no spores!) to be placed with full confidence but the species probably belongs here.

Illustration: Dennis (1952), fig. 6 (as *F. singeriana* var. ?).

Var. *pulverulenta*

Pileus colored as the preceding variety but much smaller, 0.5-1 mm broad; pores only 5-17, 0.1-0.2 mm wide (dried), round when young, becoming 3-6-angular with rounded angles when mature, with eventually brownish tube interior. — Pseudostipe usually present, lateral, short: 0.2-0.5 mm long.

Spores 6.5-8.5 × 4.5-6.5 μ, ellipsoid. — Basidia 4-spored. Gloeocystidia 19 × 8 μ, subhyaline. — Hyphae hyaline to brownish-hyaline, hymenophoral trama regular, not or weakly gelatinized. Gloeo-vessels present, subhyaline. — Acanthocysts either vesiculose or slightly elongated, with contents as in the preceding forms, inamyloid, setulae 1.2-3.5 μ projecting.

On dead herbaceous stems and sticks (Dicotyledones), Venezuela, Brazil.

Material studied: VENEZUELA: Sucre: NW of Irapa, 12-VII-1972, Dumont et al. VE 4763 (NY).

I have not studied the type of *F. pulverulenta* (Ule 1265) which has been lost at B, but am convinced from the description of the fungus as well as the host that it is the same as the Venezuelan variety.

Var. *dennisiana* Sing. var. nov.

Pileus nearly of the color and size as in the preceding variety but slightly whiter and larger, about 1-2 mm broad when dried; pores 20-30, angular-subisodiametric or slightly protracted to lamelliform, the pores then being replaced by forked lamellae. — Pseudostipe usually present as a protraction of the sterile surface of the pileus in an eccentric or subcentral point, but often very short.

Spores 6.5-11.5 × 4.5-7.5 μ, ellipsoid or a few cylindrical, fewer short ellipsoid. — Basidia 17-27.5 × 5.5-8.2 μ, 2-spored, often some 1-spored and some 4-spored ones intermixed; gloeocystidia 16-27.5 × 4-10 μ, basidiomorphous and often difficult to distinguish from the basidioles since these seem to have some in cresyl blue bluing contents at times; in some sections also larger (50-60 × 27-28 μ) gloeocystidia observed. — Hyphae poorly gelatinizing but hyphal wall somewhat swelling in warm KOH, some hyphae inflated to 5-12 μ, the rest filamentous, hyaline, inamyloid, with clamp connections but some secondary septa present. Gloeo-vessels numerous in the zone underneath the cortical layers and the pore edges, with finely oily-granular, more rarely coarsely granose contents slowly blue in cresyl blue mounts, long, yellow or yellowish, 3.5-10.5 μ broad. — Cortical layers consisting principally of acanthocysts which are equally numerous at pore edge, 12-50 × 8-20 μ, some more elongated and ventricose to subclavate,

others strictly vesiculose to subglobose, some becoming free, few (vesiculose ones) without contents, but the majority with a slate-like accumulation of inside-plagues visible in ammonia and cresyl blue mounts, but not or only partially bluing in the latter medium, inamyloid, echinulate, few smooth, setulae 1-2.5 μ projecting, some, especially at the apex of the cells, reaching 2.8 μ in length, with pinkish wall and more lilac-violet setulae in cresyl blue, the setulae rod-shaped to narrowly conical.

On dead herbaceous stems of dicotyledonous plants in Venezuela.

Material studied: VENEZUELA: Mérida: La Montana above Mérida, 30-VII-1971, Dumont et al. VE 3454 (NY), TYPUS of the variety. — La Mucuy, 6-VIII-1958 leg. Dennis (K).

Var. *tetraspora* Sing. var. nov.

Pileus as in var. *dennisiana*, 1-1.5 mm (dried), often sessile. — Pores 12-16, about 6-7 per mm (dried). — Pseudostipe mostly none, or else very short and sublaterally attached to the sterile surface of the pileus, the carpophore then appearing spathulate.

Spores 7.5-9.5 \times 4.5-6.5 μ , ellipsoid to ovoid, rarely short ellipsoid. Basidia all 4-spored. Gloeocystidia pale yellowish granular inside, moderately numerous. — Hyphae strongly gelatinized, with clamp connections, inamyloid, filamentous, some inflated to 7-11 μ . Gloeo-vessels numerous, with coarsely granose, rather pale golden contents, the wall often appearing thick because of agglutinated internal material, long and broad, often fusoid, (5)-10-14 μ in diameter. — Acanthocysts as in the preceding variety.

On dead herbaceous stems (Dicotyledones). Venezuela.

Material studied: VENEZUELA: Trujillo: Between Escuque and La Mesa de San Pedro, 31-VII-1971. Dumont et al. VE 3516 (NY).

Species incompletely known

The following species have been described in *Laschia* or *Favolaschia* and apparently belong in *Favolaschia* but since no specimens exist or else these are too scanty or in poor condition to be studied or too scantily annotated to be placed correctly, they could not be included in the preceding keys.

It is however possible that one or another of these represent good species, still not defined properly. That is why a survey of these species in form of a key is given below. Those not mentioned belong to other genera.

- A. European greenhouse species (origin unknown)
 - B. On *Encephalartus*. Carpophores bright red *Laschia coccinea* W.G. Smith
(see Sacc. 21:359)
 - B. On *Bambusa*. Carpophore grayish-fuscous *Laschia testudinella* R. Fries
(see Sacc. 6:409)
- A. Species described from extra-European localities (not from greenhouses) if on Cycadaceae, see 'B' above, if on Bambuseae, see 'O' below
 - C. Australian species. Carpophore brown-yellow with a short (pseudo-)stipe.
..... *Laschia micropus* Berk.
(see Sacc. 6:410)
 - C. Not from Australia
 - D. Species described from the Pacific Islands, Aru Island, Fiji, Philippines and New Guinea
 - E. Pileus pigmented, \pm orange
 - F. (Pseudo-?)stipe \pm 5 cm long; possibly not a *Favolaschia*.
Described from Aru Island *Laschia longipes* Berk.
(Sacc. 6:408)
 - F. Pseudostipe much shorter. Said to be devoid of cystidia,
with spores $5-7 \times 2.5-3 \mu$ New Guinea
..... *Favolaschia ledermannii* Sydow
(see Sacc. 23:456; cf. also *F. grandiuscula* Sydow
and *F. lauterbachii* Henn.,
both probably not belonging to *Favolaschia*)
 - E. Pileus white to hyaline
 - G. Pores seriate; (possibly not a *Favolaschia*) from Fiji
..... *Laschia crenulata* A.L. Smith
(see Sacc. 21:359)
 - G. Pores not seriate, with or without a pseudostipe. Philippines
..... *Laschia philippinensis* Graff
(see Sacc. 23:455)
 - D. Species from Asia (tropical Asia and Japan), Africa, or the Americas
 - H. Palaeotropical and Japanese species
 - I. Asiatic species
 - J. Pileus brown; pores flesh color; sessile. Thailand
..... *Laschia changensis* Rostrup
(see Sacc. 14:144)
 - J. Differently colored and/or with pseudostipe
 - K. On *Calamus* (see note on *L. calamicola* under *F. minima* no. 7)
 - K. On other hosts
 - L. From Indonesia
 - M. Pileus black-striate; pores black-granular.
..... *Laschia nigrostriata* Henn. & E. Nym.
(see Sacc. 16:171)

- M. Pileus and pores uniformly white or pallid (see *F. holtermannii* and *L. javanica* under *F. pustulosa* no. 4; if on *Bambusa*, cf. *P. semipellucidus* Zoll., no. 7)
- L. From Japan
 - N. On *Sasa*, *Sasamorpha* (Bambuseae) and *Actinidia* (Actinidiaceae); pileus white or pale flesh-grayish; spores 6-7 × 3.4-4.2 μ
. *Favolaschia nipponica* Kobayasi
(see J. Hattori Bot. Lab. 8:2. 1952)
 - N. On *Bambusa* or *Phyllostachys* or on *Alsophila mertensiana*; pileus white or whitish
 - O. On *Alsophila* (see note under *F. pezizaeformis* no. 6)
 - O. On *Bambusa* or *Phyllostachys* (Bambuseae)
 - P. Sessile, small.
. *Favolaschia fujianensis* Kobayasi
(see J. Hattori Bot. Lab. 8:2. 1952)
 - P. With pseudostipe, rarely sessile, up to 3.5 mm large
Favolaschia phyllostachydis Kobayasi
asi
(see J. Hattori Bot. Lab. 8:2. 1952)
- I. African species
 - Q. On *Elaeis*. Carpophores whitish . . *Favolaschia bibundensis* Henn.
(see Sacc. 14:198)
 - Q. On other hosts
 - R. Pileus yellow or yellowish
 - S. Stipe central (perhaps not a *Favolaschia*?)
. *Favolaschia baumanniana* Henn.
(see Sacc. 14:198)
 - S. Pseudostipe lateral, eccentric or absent
 - T. Pores sublamellar-venose; (pseudo-?)stipe 3-6 mm long *Favolaschia citrinella* Henn.
(see Sacc. 14:199)
 - T. Pores rounded-pentangular; (pseudo-?)stipe 5-13 mm long *Favolaschia zenkeri* Henn.
(see Sacc. 21:360);
F. congolensis De Seynes
(see under *F. dybowskyana* no. 19)
 - R. Pileus white, pink, red, or brown
 - U. Pileus red, reddish, or pink
 - V. Pileus 3-4 mm broad, blood red or dark red.

- West Africa *Favolaschia sanguinea* Henn.
(see Sacc. 17:144)
- V. Pileus 5-11 mm broad, reddish when fresh
Laschia citrinella ssp. *rubella* Sacc. (see Sacc.
16:171). Cf. also *F. rosea* Henn. whose color is
an artefact according to Lloyd who syno-
nymized it with *L. frieseana* [= *F. tonkinensis*,
no. 5]
- U. Pileus white to brownish or badius
- W. Pileus white, sessile, 2-4 mm, East Africa
. *Favolaschia goetzei* Henn.
(see Sacc. 16:172)
- W. Pileus allegedly pink (after preservation in alco-
hol), sessile with short pseudostipe, dia-
meter of pileus 5-11 mm, or else badius
- X. West Africa; pileus not badius
. *Favolaschia rosea* Henn.
(see Sacc. 17:199; cf. 'V' above)
- X. East Africa; pileus badius
. *Favolaschia cagnei* Mattiolo
(see Sacc. 21:359)
- H. Neotropical species and species described from the temperate zone of South
America
- Y. Tropical species from Cuba to Brazil
- Z. Margin of pileus umber; pseudostipe attached to the vertex of the
pileus. Cuba *Laschia curtisii* Berk.
(see Sacc. 6:409)
- Z. Margin of pileus not umber; or pseudostipe not attached to the
vertex of the pileus, Brazil. (See Z.1 below)
- Z.1. Pseudostipe lateral; pileus entirely yellow
. *Favolaschia brasiliensis* Henn.
(see Sacc. 14:199;
cf. *F. selloana* no. 20)
- Z.1. Pileus sessile; color unknown
. *Laschia reticulata* Berk. & Cooke
(see Sacc. 6:410)
- Y. Temperate-zone species from Chile. (See Z.2. below)
- Z.2. Pileus golden yellow *Favolaschia valparaisensis* Henn.
(see Sacc. 16:171;
cf. under *F. dybowskyana* no. 19)
- Z.2. Pileus pallid, becoming badio-fuscous.
. *Favolaschia papulata* (Mont.) Sing.
(see Gay, Fl. Chile 7:Pl. 7, f. 8)

Diagnoses latinae taxorum novorum Favolaschiarum

Favolaschia oligopora Sing. spec. nov. Pileo rubro, pallescente, 1.5 mm. cc. lato; poris duobus vel quinque concoloribus; pseudostipite concolori. — Sporis $8.5-10 \times 8-9 \mu$; basidiis tetrasporis; strato corticali dermatogloeocystidiis et acanthocystibus praedito. Ad palmas in Columbia, Singer B 6279 (F), TYPUS.

Favolaschia fendleri Sing. spec. nov. Pileo aurantio-roseo, nonnihil pallescente, in siccis usque ad 3 mm lato; poris 9-20, pallidioribus, angularibus; pseudostipite nullo vel laterali. — Sporis $7.5-10.5 \times 4.5-6.5 \mu$; basidiis tetrasporis; gloeocystidiis in hymenio sat numerosis, in epicute praesentibus cum numerosis acanthocystibus, nonnullis cellulis levibus prope superficiem visis. Ad palmas in Brasilia, Singer & Furtado B 4118 (F), TYPUS.

Favolaschia aurantiaca Sing. spec. nov. Pileo aurantiaco vel rufo, sed nonnihil pallescente, 1-4.5 mm lato; poris 20-50, plerumque subrotundis; pseudostipite subnullo vell laterali. — Sporis $7.5-9.5 \times 5.5-7.5 \mu$; basidiis tetrasporis; gloeocystidiis versiformibus ad aciem pororum nec non in epicute; acanthocystibus numerosis, nonnullis levibus observatis. Ad Bambuseas in Bolivia, Singer B 2199 (F), TYPUS.

Favolaschia sabalensis var. *geonematis* Sing. var. nov. — Sporis subglobosis a varietate sabalensi differt. Ad *Geonema* (Palmae) in Aequatoria, Singer B 7441 (F), TYPUS.

Favolaschia calocera var. *claudopus* Sing. var. nov. — A var. calocera carpophoris subminoribus et pseudostipite brevior differt. Ad *Elaeagnum* pungentem in Nova Zelandia, legit R. Beaver (F), TYPUS.

Favolaschia pterigena var. *boliviana* Sing. var. nov. — Pileo albo-brunnescente, brunneo in siccis; basidiis tetrasporis. Ad filices arboreos in Bolivia, Singer B 817 (F), TYPUS.

Favolaschia pterigena var. *purpurea* Sing. var. nov. Pileo purpureo, siccando sordescente; basidiis tetrasporis. Ad Filices arboreos, in Bolivia, Singer B 603 (F), TYPUS.

Favolaschia heliconiae Sing. spec. nov. Pileo albo, $1-5 \times 0.7-2$ mm; poris 12-20; pseudostipite laterali. — Sporis $5.5-8.5 \times 3.5-6 \mu$; basidiis tetrasporis; gloeocystidiis in hymenio moderatim numerosis; acanthocystibus numerosis, versiformibus, inamyloideis. Ad Monocotyledones praesertim Heliconias in Venezuela, Dumont et al. VE 5029 (NY), TYPUS.

Favolaschia mainsii Sing. spec. nov. Pileo sordido; poris angularibus; pseudostipite nullo. Ad palmas in Belice, legit E.B. Mains (BPI), TYPUS.

Favolaschia dealbata Sing. spec. nov. — Pileo albo, 2-2.5 mm lato; poris \pm 30; pseudostipite excentrico. — Sporis $7.5-9 \times 5.7-7.2 \mu$; basidiis tetrasporis; gloeocystidiis numerosis; acanthocystibus numerosis, inamyloideis, adnatis. Ad Bambuseas in Panama, Martin & Welden 8070 (LIL, IO), TYPUS.

Favolaschia dumontii Sing. spec. nov. Pileo fumoso, pendulo de pseudostipite perbrevis, levi, 2-3 mm lato; poris albis, 25-35. — Sporis $7-8.5 \times 5-6.5 \mu$; gloeocystidiis in hymenio sparsis, in strato corticali sat numerosis; acanthocystibus numerosis, versiformibus, inamyloideis. Ad Rubum in Venezuela, Dumont et al. VE 2480 (NY), TYPUS. — Pigmento hic intraparietali!

Favolaschia teapae Sing. spec. nov. Pileo albo vel sordide ochreo, 3-4.5 mm lato; poris albis, 5-34, versiformibus; pseudostipite nullo, laterali vel dorsali. — Sporis $5.5-7.5 \times 3.5-5.5 \mu$; basidiis (2)-4-sporis; gloeocystidiis admodum sparsis vel moderatim numerosis; acanthocystibus dimorphis, inamyloideis, adnatis. Ad caules ramulosque dicotyledoneos in Mexico, Singer M 8798 (F), TYPUS.

Favolaschia andina Sing. spec. nov. — Pileo coriocolore-gilvo, sessili, 5-10 mm lato; poris albis, 30 vel pluribus. — Sporis $6.5-10 \times 5.5-8.3 \mu$; basidiis tetrasporis; gloeocystidiis in hymenio nullis vel admodum sparsis, in epicute nullis; acanthocystibus numerosis, inamyloideis. Ad caules et frustula lignea arbustorum in alpinis Columbiae, Singer B 7022 (F), TYPUS.

Favolaschia montana Sing. spec. nov. — Pileo albo, 2.5-4 mm lato; poris albis, 20-22, pro ratione amplis, subangularibus. — Sporis $7.5-9 \times 4.5-6 \mu$; basidiis tetrasporis; gloeocystidiis in hymenio sat numerosis sed inconspicuis, in epicute paucis vel nullis; acanthocystibus numerosis inamyloideis. Ad lignum dicotyledoneum in alnetis montanis, Argentina, Singer T 5056 (F), TYPUS.

Favolaschia puberula Sing. spec. nov. Pileo ex albo submelleo vel ochreo, farinaceo, 1-2 mm lato; poris albis, 30 vel pluribus; pseudostipite laterali vel dorsali, pubescente. — Sporis $7-8 \times 4-5 \mu$ vel $8.5 \times 6.5 \mu$; basidiis bi- vel frequentius tetrasporis; gloeocystidiis in hymenio paucis vel nullis, in epicute haud numerosis; acanthocystibus admodum numerosis, vesiculosis, inamyloideis; membris terminalibus hypharum epicuticularium longis, $\pm 1 \mu$ latis sed ad basin saepe incrassatis, pubescentiam pseudostipitis efformantibus. Ad ramulos spinosos emortuos in Venezuela, Dumont et al. VE 710 (NY), TYPUS.

Favolaschia alsophilae Sing. spec. nov. Pileo pallido, 2-4 mm lato; poris pallidis, demum usque ad quinque praesentibus; pseudostipite nullo vel laterali. — Sporis $7.2-9 \times 5.3-6.7 \mu$; basidiis (2)-4-sporis; gloeocystidiis in hymenio

nullis; acanthocystibus vesiculosus, inamyloideis, setulis brevioribus; gloeovascularibus nullis. Ad *Alsophilam* in Columbia, Singer B 6443 (F), TYPUS.

Favolaschia pantherina Sing. spec. nov. Pileo pallide brunneo-reticulato sicco spadiceo vel colore *Amanitae pantherinae* gaudente, sessili, 4-6 mm lato; poris 16-24. — Sporis $8.2-10.2 \times 7.5-9 \times 6.5-7.5 \mu$; basidiis tetrasporis; gloeocystidiis nullis; acanthocystibus numerosis, plerumque manifeste elongatis, inamyloideis. Ad *Bambuseas* in Argentina, Singer M 1003 (F), TYPUS.

Favolaschia oligogloea Sing. spec. nov. Pileo albo, sordescente, 2-3 mm lato; poris albis, demum usque ad 10-15; pseudostipite albo, saepe nutante, laterali. — Sporis $7.5-8.5 \times 4.5-5.5 \mu$; basidiis tetrasporis; gloeocystidiis nullis vel admodum inconspicuis; acanthocystibus numerosis, vesiculosus, inamyloideis. Ad culmos monocotyledoneos in Aequatoria, Singer B 7278 (F), TYPUS. — Hyphis hic paullum vel vix gelatinosis.

Favolaschia roseogrisea Sing. spec. nov. Pileo rosello-griseo grisascente, 3-4.5 mm lato; poris 9-52; pseudostipite laterali vel dorsali. — Sporis $7-9.5 \times 4.5-7.5 \mu$; basidiis tetrasporis; gloeocystidiis versiformibus praesentibus in hymenio et in superficiebus sterilibus; gloeovascularibus moderatim numerosis, $2.5-11 \mu$ latis; acanthocystibus numerosissimis, dein nonnullis liberis, $12-50 \times 6.5-17 \mu$, amyloideis. In *Bambuseis* in Columbia, Singer B 6035 (F), TYPUS.

Favolaschia meridae Sing. Pileo roseolo-isabellino vel pallide cinnamomeo-brunneo, albo-pruinoso, usque ad 12 mm lato; poris 4-10; pseudostipite praesente, usque ad 1 mm longo. — Sporis $5-9.5 \times 3-6 \mu$; basidiis tetrasporis; gloeocystidiis dispersis vel paucis; acanthocystibus plerumque elongatis, debiliter amyloideis, setulis $2-4.5 \mu$ longis. Ad folium *Iridaceae* in Venezuela, Dumont et al. VE 2317 (NY), TYPUS.

Favolaschia furfurella Sing. spec. nov. Pileo albido-furfuraceo-pruinoso; poris albis, 16-22; pseudostipite nullo. — Sporis $7.5-8.5 \times 4-5.5 \mu$; basidiis tetrasporis; gloeocystidiis numerosis in hymenio, paucis in epicute; acanthocystibus dimorphis, omnibus amyloideis, multis ex eis elongatis et voluminosus (usque ad $115 \times 21 \mu$), setulis $1-2 \mu$ projicientibus. Ad caudices herbaceos in Venezuela, Dumont et al. VE 2991 (NY), TYPUS.

Favolaschia violascens Sing. spec. nov. Pileo albo vel violaceo, admodum subtiliter saccharino-pruinoso, usque ad 4 mm lato; poris albis, 11-21; pseudostipite interdum absente, frequentius praesente concolori pileo, laterali vel dorsali-excentrico. — Sporis $8.5-9 \times 7-7.3 \mu$ vel $7-9.5 \times 5-6.5 \mu$; basidiis bi- vel tetrasporis; gloeocystidiis sat numerosis in hymenio et ad poros; acanthocystibus amyloideis, breviusculis ($11-30 \times 7-15 \mu$). Ad ramos

dicotyledoneos in Yungis Bolivianis, Singer B 1227 (F), TYPUS.

Favolaschia subamyloidea Sing. spec. nov. Macro- et microscopice *F. intermediae* similis, sed acanthocystibus debiliter et saepe tarde amyloideis ita ut inter hanc et *F. violascentem intermedia* appareat. Ad ramulos et caules herbaceos dicotyledoneos in Venezuela, Dumont et al. VE 4425 (NY), TYPUS.

Favolaschia intermedia ssp. *pulverulenta* var. *dicotyledonea* Sing. var. nov. Pileo pro ratione majusculo: (1)2-4.5 mm lato; poris 12-16, ad ramulos dicotyledoneos ligneos et ad lignum emortuum varium arborum et arbustorum in Trinidad insula, Dennis 95 (K), TYPUS.

Favolaschia intermedia ssp. *pulverulenta* var. *tetraspora* Sing. var. nov. Pileo 1-1.5 mm lato; poris 12-30, haud protractis; hyphis pilei in massa gelatinosa immersis; basidiis tetrasporis. Ad caules herbaceos dicotyledoneos in Venezuela, Dumont et al. VE 3516 (NY), TYPUS.

Favolaschia intermedia ssp. *pulverulenta* var. *dennisiana* Sing. var. nov. Pileo 1-2 mm lato; poris 20-30, saepe protractis immo lamelliformibus; hyphis paullum gelatinosis; basidiis 1-2-(4)-sporis vel omnibus bisporis. Ad caules herbaceos dicotyledoneos in Venezuela, Dumont et al. VE 3454 (NY), TYPUS.

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