SYDOWIA
ANNALES MYCOLOGICI
Editi in notitiam Scientiae Mycologicae Universalis
Series II

Vol. V 1951 Nr. 3—6

Some Mycological Notes.

By K. B. Boedijn (Den Haag).

With 7 Textfigures.

Introduction.

The following notes are all on Indonesian fungi. They are partly relative to nomenclature as owing to modern conceptions in Mycology several corrections proved to be necessary. Descriptive notes have been added especially to little known species and even some new forms are recorded.

Nearly all material was studied in the fresh state and is preserved in the Herbarium of the Botanical Garden, Bogor (Buitenzorg) Java.

Colour notes were made with the aid of Ridgway R. Color standards and color nomenclature, Washington, 1912.

To Dr. H. C. D. de Wit I wish to express my thanks for the help with the Latin diagnoses.

1. **Creopus palmicola** (Berk. et Br.) Boedijn nov. comb.

Syn. *Hypocrea palmicola* B. et Br. Journ. Linn. Soc. Bot. XIV. 112, 1875.

The species has dark coloured spores and consequently belongs in the genus *Creopus* Link.

2. **Bisbyella** Boedijn nov. nom.

Syn. *Agyriopsis* Sacc. et Syd. Syll. Fung. XIV., 805, 1899 non Karsten, Not. Sällsk. Fauna et Flora Fenn. Förh. X. 104, 1869.

Bisbyella javanica (v. Höhnel) Boedijn nov. comb.

Agyriopsis javanica v. Höhn. Sitzb. Ak. Wiss. Wien, Math.-Nat. Kl. Abt. 1. CXVIII. 1227, 1909.

3. **Lamprospora verruculosa** (B. et Br.) Boedijn nov. comb.

Syn. *Peziza verruculosa* B. et Br. Journ. Linn. Soc. Bot. XIV. 105 (1875. — *Barlacina albocaerulescens* Penz. et Sacc. Malpighia XV. 202, 1901. — *Barlacina verruculosa* (B. et Br.) Petch. Ann. R. Bot. Gard. Peradeniya VI. 169, 1916.

4. **Humaria appendiculata** (P. Henn.) Boedijn nov. comb.

Syn. *Lachnea appendiculata* P. Henn. Monsunia I. 35, 1900. — *L. Fleischeriana* P. Henn. Monsunia I, 35, 1900. — *L. folliculata* v. Höhn. Sitzb. Ak. Wiss. Wien, Math.-Nat. Kl. Abt. 1. CXVII. 306, 1909. — *Ciliaria Fleischeriana* (P. Henn.) v. Overeem, Icon. Fung. Mal. IX. 1, 1925.

This species was redescribed and beautifully pictured by v. Overeem as *Ciliaria Fleischeriana.* Yet in Monsunia Hennings has created two species of *Lachnea.* As can be seen from the descriptions they refer to the same species. The first was based on somewhat old material with discoloured apothecia. As *L. appendiculata* was first mentioned, this name must have priority.

5. *Microstoma* Bernstein Nov. Act. Ac. Caes. Leop. Carol. Nat. Cur. XXIII. 649—656, 1852, Boedijn char. emend.

Syn. *Plectania* Fuck. Symb. Myc. 323, 1869 p. p. — *Sarcoscypha* Sacc. Syll. Fung. VIII. 153, 1889 p.p. — *Cookeina* Kuntze Rev. Gen. Pl. II. 849, 1891, p.p. — *Boedijniopeziza* Ito et Imai. Trans. Sapporo Nat. Hist. Soc. 15, 1937.

Apothecia stipitate, arising from a pseudorhiza or without such a structure. Stalk long, hairy or smooth. Cups mostly urceolate, covered with hairs, often fasciculated, especially round the margin. In the young stage those hairs closing the aperture. Cortex pseudoparenchymatic, hypothecium consisting of longitudinal hyphae. Between cortex and hypothecium there is a typical gelatinous layer, which is also present in the stipe. Asci cylindrical, 8 spored, with excentric operculum. Spores large ellipsoid to fusoid, hyaline, smooth, with one layered wall. Paraphyses more or less strongly dichotomously branched and sometimes anastomosing.

Kanouse (6) has given an account of *Plectania* and allied genera, including *Microstoma.* The description of this genus however had to be slightly altered to allow the insertion of *Peziza insititia.*

Microstoma insititia (Berk. et Curt.) Boedijn nov. comb.

Syn.: *Peziza insititia* Berk et Curt. Proc. Amer. Ac. Arts Sci. 148, 1862. — *Trichoscypha insititia* (Berk. et Curt.) Sacc. Syll. Fung. VIII. 161, 1889. — *Cookeina insititia* (Berk. et Curt.) Kuntze, Rev. Gen. Pl. II. 849, 1891. — *Trichoscypha magnispora* Lloyd Mycol. Not. VI. Nr. 65. 1050, 1921. — *Boedijniopeziza insititia* (Berk. et Curt.). Ito et Imai Trans. Sapporo Nat. Hist. Soc. 15, 1937.

This species, which up to now was mostly placed in the genus *Cookeina,* has the leading characters of *Microstoma,* which in my opinion are the gelatinous layer and the large fusoid spores. It does not possess a pseudorhiza, whereas the paraphyses are anastomosing. But those characters are of minor importance and the insertion of

our species in *Microstoma* seems justified. For a full account and figures of this species see Boedijn (2).

6. *Septobasidium pteruloides* (Mont.) Pat. Bull. Soc. Myc. France 4, 337, 1925.

Colonies on scale insects on branches, 12 cm or more long, completely surrounding the branches and sometimes even passing on the leaves. Colour purplish black. Basal layer thin. From this layer long bristles are arising, mostly unbranched. Near the growing margin they are short and more or less arranged in rings. In the older parts this arrangement is indistinct. They are 3—12 mm long and up till 0.5 mm broad, consisting of longitudinal hyphae. On those hyphae the probasidia are arising, often in pairs. They are subglobose, thinwalled, 10—14 μ in diam. Basidia strongly curved, 4 celled, 21—27.5 ⇌ 6—8 μ. In some instances no probasidia could be detected at the base of the basidia. Spores ellipsoid, unequalsided with blunt apiculus 12—16 ⇌ 5—6.5 μ. Only a few detached spores could be observed.

Borneo, Kina Balu, Clemens collection.

7. **Steccherinum investiens** (Berk.) Boedijn nov. comb.

Syn.: *Hydnum investiens* Berk. Lond. Journ. Bot. IV. 57, 1845. — *Mycoleptodon investiens* (Berk.) Boedijn, Bull. Jard. Bot. Buitenz. sér. 3. XVI, 382, 1940.

8. *Vanromburghia* Holtermann, Mycol. Unters. Trop. 104, 1898.

Syn.: *Phlebophora* Lév. Ann. Sci. Nat. Bot. XVI. 238, 1841, p.p. — *Cymatella* Pat. Bull. Soc. Myc. Fr. XV. 193, 1899.

Up to now this genus was badly understood. Léveillé erected it with the type species *Phlebophora campanulata*. Afterwards he added a second species, viz. *Ph. rugulosa*. It is a pity, that the type according to Quélet is a deformed *Tricholoma resplendens*. But the second species in my opinion is wholly different and certainly no deformity. However v. Höhnel claims, that during his stay in Java he has found between typical *Ph. rugulosa* also specimens provided with gills. Even intermediate forms could be observed. He therefore considers our species to be an Agaric and transfers it to the genus *Mycena*.

After many years of observation in the field, I now come to the conclusion that v. Höhnel is fallen a victim to an error. For I never found a specimen with gills and so the observations of v. Höhnel are referring to two different species viz. *Phlebophora* and a *Mycena*. But the most conclusive evidence is found in the morphology of our species, which certainly is no *Mycena*. As the name *Phlebophora* cannot be used, as it was based on a deformity, *Vanromburghia* is now the valid name. Furthermore there is only one species.

8. **Vanromburghia rugulosa** (Lév.) Boedijn nov. comb.

Syn.: *Phlebophora rugulosa* Lév. in Zollinger, Syst. Verz. etc. Zürich 12, 17, 1854. — *Cyphella rugulosa* (Lév.) Sacc. Syll. Fung. VI. 685, 1888. — *Craterellus rugulosus* Pat. Bull. Soc. Myc. Fr. X, 55, 1894. — *Vanromburghia silvestris* Holtermann, Mykol. Unters. Trop. 104, 1898. — *Phlebophora Solmsiana* P. Henn. in Engl. u. Prantl, Nat. Pflanzenfam. 1. Abt. 1**, 128, 1900. — *Mycena rugulosa* v. Höhn. Sitzb. Ak. Wiss. Wien, Math.-Nat. Kl. Abt. 1. CXVII. 1011, 1908 p.p.

Fructifications of a typical tough fleshy consistency. Cap 0.5—5 cm in diam., at first hemisphaerical afterwards depressed till nearly infundibuliform, with a prominent umbo. Margin often lobed and undulating, after drying involute. Surface of pileus smooth, radially

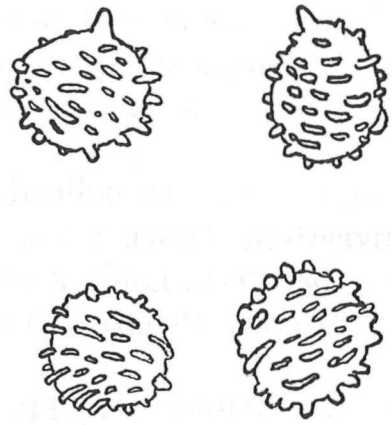

Fig. 1. *Bondarzewia Berkelyi.* — Spores.

striate, colour red brown or orange brown, darker at the umbo. Underside smooth, pale flesh colour or ochraceous, with a number of more or less distinct white veins, radiating from the top of the stalk. Those veins sometimes nearly wanting. Stalk white, subpruinose, hollow, 1—6 cm long, 0.5—3 mm broad. Hymenium covering the underside of the pileus. Basidia cylindric, 2—4 spored, 40—46 ⇌ 5—7 μ. Spores colourless, ovoid with lateral apiculus, protoplasmatic contents or 1 till 2 oildrops: 8—11 ⇌ 4—5 μ. Cystidia long cylindrical with pointed apex, 65—75 ⇌ 7—9 μ. Trama of pileus dimorphic, consisting of radiating colourless hyphae, intermingled with a network of much thinner yellow hyphae. The pruinose structure of the stipe is formed by ovoid or more elongated cells 16—24 ⇌ 7—11 μ.

Java, in the mountains on dead wood, stems and branches, common. Not found in the low country.

9. *Bondarzewia Berkeleyi* (Fr.) Singer Ann. Mycol. XXXIX. 47, 1941.

Syn.: *Polyporus Berkeleyi* Fr. Nov. Symb. Myc. 40, 1851. — *Polyporus eurocephalus* B. et Br. Journ. Linn. Soc. Bot. XIV. 48, 1875. — *Grifola Berkeleyi* (Fr.) Pilát, Atl. Champ. Eur. III, 56, 1936/42.

Specimen found, up till 20 cm high, 18 cm broad. Pilei imbricate, dimidiate, attenuated near the base into a stalk. All stalks united into a thick stem up till 8 cm in diam. near he base. Pilei with thick, more or less lobed and often slightly undulating border. Surface velvety, colour redbrown with darker concentric zones. Pores white at first, afterwards pale cream colour, rounded or slightly elongated, up till 1 mm in diam., edge finely floccose. Near the stem pores more strongly elongated. Context up till 1.5 cm thick, white, compact, fleshy. The velvety surface is formed by ascending hyphae up till 10 μ broad, slightly constricted at the septae and provided with a brownish orange fluid in the vacuoles. At places those hyphae are much longer, giving rise to the zones. Basidia 4 spored, attenuated near the base, 25—28 ⇌ 7—8.5 μ. Spores globose, colourless with central gutta, 7—8.5 μ in diam., the wall provided with very short ridges, which stain blue in J. All the hyphae of the fructification thinwalled and richly provided with protoplasm.

Java, Tjibodas, at the base of a tree.

The type of *P. eurocephalus* at Kew is in a bad shape. In the Herbarium of Bresadola at Stockholm however I saw material of our species, collected by v. Höhnel in Tjibodas, Java. Therefore from the same locality as our plant. On the label was written *P. eurocephalus* = *P. Berkeleyi* forma? As I cannot see any difference with *P. Berkeleyi* I consider *P. eurocephalus* a synonym of the former.

10. *Strobilomyces polypyramis* Hook. fil. ap. Berk. in Hooker's Journ. Bot. III. 78, 1851.

Cap at first hemisphaerical afterwards expanding, up till 8 cm in diam. of a dirty brown colour, wholly covered by nearly black floccose angular scales 1—8 mm in diam., largest in the centre, sometimes confluent and forming irregular patches. In the young stage a partial veil is extending from the margin of the pileis to the top of the stipe. This veil also covered by floccose scales. In older stages margin of cap appendiculate with the remains of the veil. Tube layer 6—8 mm high, decurrent on the stem, of a brown colour. Pores at first pure white, afterwards brown, 1—1.5 mm in diam. Flesh floccose and spongy, of a dirty white colour, becoming dark bistre on exposure to the air. Stalk long and slender, often somewhat sinuous, solid, sulcato-striate, brown, covered with dark floccose scales, which partially disappear in old specimens, 7—12 cm long, 10—12 mm broad. Top sometimes slightly enlarged and up till 15 mm broad. Basidia 4 spored 35—45 ⇌ 14—15 μ. Spores broadly ovoid, with blunt lateral apiculus, redbrown, covered with irregular nearly black tubercles, which often are confluent, giving rise to short, sometimes branched ridges and a crest near the top of the spore:

9—14 = 7—10 μ. Cystidia vesicular, 50—58 ⇌ 12—17 μ. In old age and after conservation the whole fructification takes a dull black colour.

J a v a. Bogor, Botanical Garden, on the ground.

From this species and *St. montosus* Berk. I have seen the types at Kew. They seem to me nearly related if not identical.

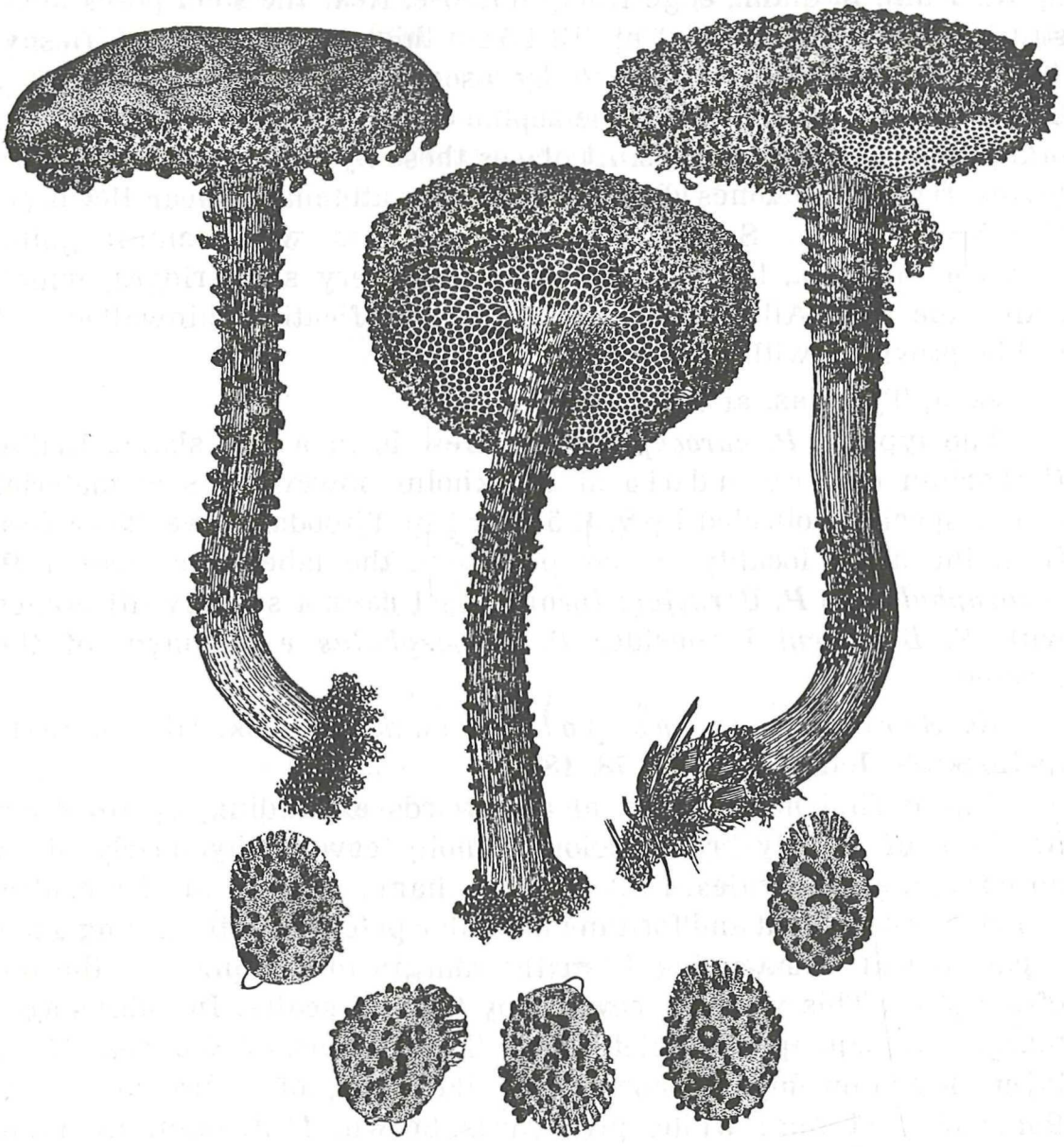

Fig. 2. *Strobilomyces polypyramis.*

11. **Heimiella** Boedijn nov, gen.

Gymnocarpus, pileus glaber, velum nullum; tubuli crassi, lutei; caro pallide colorata; stipes amplus, sulcato-striatus, ± glaber, basi leniter dilatatus; basidiis clavatis, tetrasporis; sporae subovoideae, reticulatae, pallide brunneo-flavae; cystidia ampullacea, tenuiter tunicata.

Gymnocarp, without a velum. Cap smooth, tube layer thick, yellowish. Flesh pale coloured. Stem long, solid, finely furrowed, nearly smooth, with a slightly swollen base. Basidia 4 spored, club-shaped. Spores subovoid, with a reticulum of raised bands, pale brownish yellow in colour. Cystidia flask-shaped, thinwalled.

Heimiella retispora (Pat. et Baker) Boedijn nov. comb.

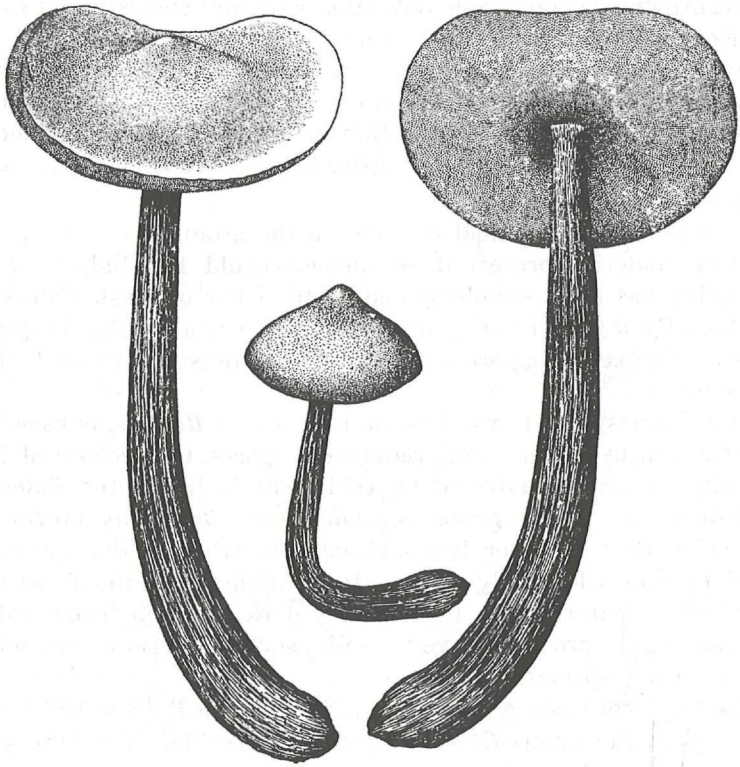

Fig. 3. *Heimiella retispora.*

Syn.: *Boletus retisporus* Pat. et Baker Journ. Straits Branch. R. Asiatic Soc. LXXVII. 72, 1918. — *Boletellus retisporus* (Pat. et Baker) Gilbert, Les Bolets, 108, 1931. — *Strobilomyces retisporus* (Pat. et Baker) Gilbert, Les Bolets, 108, 1931.

Cap at first bell shaped, often with a typical umbo, afterwards expanding and margin reflexed locally, 5.5—8 cm in diam. Surface smooth, seldom cracking in some places, Colour pale brown, darker in the centre. Tube layer easily separable from the pileus, thick, up till 1 cm near the middle, up till 5 mm near the margin. Pores cream colour, at first roundish, afterwards more or less elongated and up

till 0.5 mm in diam. Flesh pale yellowish, about 6 mm thick near the stalk, 1 mm near the margin. Stem long, solid, rugose, nearly smooth, with more ore less swollen base, brown, much darker than the pileus, 11—20 cm long, 1.5—3 cm broad at the base, 7—18 mm in the middle. Basidia 4 spored, clubshaped, 31—41 μ long, 14—17 μ broad at the top. Sterigmata conical, 2.5—5 μ long, 2—2.5 μ broad at the base. Spores obliquely attached to the sterigmata; subovoid, dirty yellow till pale brownish yellow, reticulate; the reticulum consisting of raised, colourless bands of different height and often interrupted and irregular, 15—18 ⇌ 9—11 μ. Hyaline border 1—1.5 μ, near the base of the spore sometimes up till 3 μ broad. Lateral apiculus masked by the border. Cystidia flask shaped, thinwalled, necks of varying length, often slightly undulating or constricted, 53—74 ⇌ 11—14 μ, necks 4—6 μ broad.

J a v a, Bogor. Botanical Garden, on the ground.

Only material preserved in alcohol could be studied, so the description has to be supplemented on the basis of fresh collections.

W e i F a n C h i u (19) gives a discription of a species designated as *Strobilomyces retisporus,* which differs in some respects from our material.

Our species, which was first described as a *Boletus,* is especially characterised by its subovoid, reticulated spores. On account of these characters it was transferred by G i l b e r t to the genus *Boletellus* and afterwards to the genus *Strobilomyces. Boletellus* however is provided with a more or less distinct veil, whereas the spores are fusoid and longitudinally striate. In *Strobilomyces* the spores are indeed of the same shape, but the very dark coloured fructifications are showing a prominent veil, while such a structure is wholly lacking in our species.

As our form has the general appearance of a *Boletus* and similar spores as in the genus *Strobilomyces.* the erection of a new genus seems not superfluous.

12. **Phlebopus portentosus** (B. et Br.) Boedijn nov. comb.

Syn. *Boletus portentosus* B. et Br. Journ. Linn. Soc. Bot. XIV. 46, 1875.

Cap convex, smooth, up till 20 cm in diam. Margin at first involute. Colour yellowish brown till greenish brown, about between old gold and buffy citrine or light brownish olive till buffy olive, in the centre sometimes tinged with S a c c a r d o's umber and sometimes with some pale spots about naples yellow, dark olive buff or deep olive buff. Tube layer about 1.5 cm high, depressed round the stipe, dirty yellow, about old gold, orange citrine or aniline yellow. Orifices subangular 0.5—1 mm in diam. Wall of tubes rather thin. Stem thick, nearly smooth, sulcato-striate incrassated at the base, up till 12 cm

long, 7 cm broad at the base, 4 cm near the top. Colour dull blackish brown, with innate dark fibrils, at the base about buffy olive or clay-color tinged with black, above fuscous. At the top there is a rather sharply defined yellow zone, about amber yellow to chamois. Flesh 2.5—3 cm thick, pale yellow, about Massicot yellow, after cutting turning slowly bluish in some places, about pale niagara green till

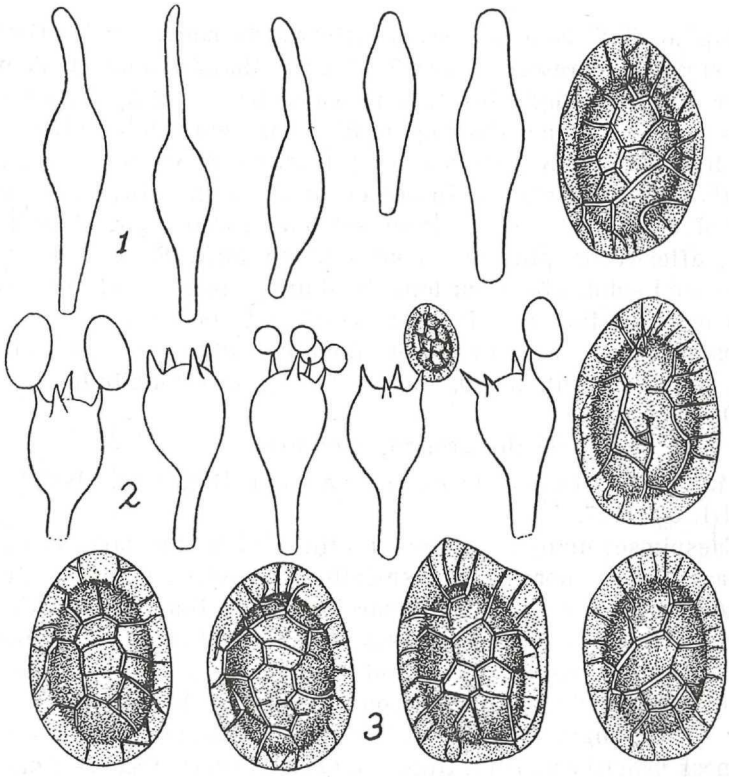

Fig. 4. *Heimiella retispora.* — 1. Cystidia. 2. Basidia. 3. Spores (much enlarged).

pale glaucous blue. In the stalk the flesh is dirty yellow, turning brownish in old age. Basidia clubshaped, 4 spored 40—45 ⇌ 6—8 μ. Spores yellowish brown, oval till subglobose, with large central gutta, 6—12 ⇌ 5—9 μ. No cystidia.

Sumatra, Java, on the ground, common.

Up to now this species was considered a *Boletus*. As can be seen from the description this form is better placed in the genus *Phlebopus*, characterised among other things by the relatively short tubes, the shape of the spores and the absence of cystidia.

For figures of this species see Boedijn (1).

13. *Clitopilus apalus* (B. et Br.) Petch Ann. R. Bot. Gard. Peradeniya VI. 326, 1917.

Syn.: *Lentinus apalus* B. et Br. Journ. Linn. Soc. Bot. XIV. 45, 1875. — *Clitopilus orcellarius* Ces. Atti R. Accad. Sc. Fis. Matem. Napoli VIII. 1878. — *Clitopilus bogoriensis* Henn. et Nym. Monsunia I, 155, 1900. — *Clitopilus crispus* Pat. Bull. Soc. Myc. Fr. XXIX. 214, 1913.

Cap at first hemisphaerical, afterwards convex with flattened often sligthly depressed centre, 2—6 cm in diam. Colour chalk white. Border at first strongly involute, provided with a filmy fringe, afterwards spreading and showing radially arranged low ridges, often extending till nearly halfway the pileus. Flesh white, 2 mm broad near the stem, diminishing in breadth near the margin; with a strong smell of meal. Gills dense, decurrent, 1.5—3 mm high; at first dirty white, afterwards pinkish, about pinkish buff. Stem even, white, smooth and solid, 1.5—4 cm long, 3—8 mm broad, sometimes slightly thickened near the base, Basidia cylindric 4 spored, 20—24 ⇌ 7—8 μ. Spores oval with short and blunt apiculus, subhyaline till pale dirty pink, provided with 8—10, mostly 8 very low longitudinal ridges, 7.5—9 ⇌ 4.5—6 μ.

Java, Bogor on the ground, common.

14. *Tricholoma lactescens* Pat. Bull. Soc. Myc. France, XXXIII. 59, 1917.

Caespitose; many specimens up till 50 with the stalks connate at the base. Pileus more or less smooth, the surface with a texture as chamois leather, with easily separable rather thick outer skin 15—30 cm in diam. Margin more or less undulating. Colour pale yellowish, about between ivory yellow and Marguerite yellow, centre dirty brown, about between avellaneous and wood brown. Flesh thick, white and spongy, 11—22 mm thick near the stalk diminishing in thickness near, the margin. Gills emarginate, nearly free, 1—2 cm high, edge crenate, colour yellowish white, about ivory yellow. Stalk about same colour as the cap, in places spotted with dirty brown, slightly striate and also provided with an easily separable outer skin; solid, interior white, 10—30 cm long, 1.5—3 cm broad. Trama of gills compact, consisting of hyphae 6—15 μ broad, colourless, constricted at the septae, running chiefly parallel with the hymenium. Subhymenial layer 36—45 μ broad, pseudoparenchymatic in structure, consisting of irregular cells 3—6 μ long. Basidia 4-spored, clubshaped, 33—36 μ long, 4.5—6 μ broad at the top. Sterigmata 2—3 μ long. Spores colourless, elliptic 5—6 ⇌ 3—4 μ, with a large central gutta.

From the gill trama long fusoid elements are ascending and protruding between the basidia. They are often wavy, thinwalled,

more or less pointed at the apex, with weakly refractive contents, 45—66 ⇌ 9—13 μ. This species is typical non putrescent.

Java. Bogor, Tjemplang near Semplak, on the ground between grass.

15. **Leucocoprinus dolichaulus** (B. et Br.) Boedijn nov. comb. *Lepiota dolichaula* B. et Br. Trans. Linn. Soc. London XXVII, 150, 1871.

Cap convex at maturity with a prominent umbo, up till 15 cm in diam., white with numerous scattered small brown scales and a dark brown umbo. Near the edge some large white flocci. Flesh soft, white up till 1 cm or more thick. Gills rather crowded up till 1.5 cm broad, cream colour, free, in larger specimens a free zone up till 1 cm broad round the top of the stalk. Stem up till 20 cm long, 10—12 mm broad, cream colour, rather equal, slightly fibrillous, hollow. Base often swollen and floccose, top penetrating in pileus up till the umbo. Ring white, situated about 3—5 cm from the apex of the stipe, movable, consisting of an adpressed white band, passing into a nearly horizontal part, the underside of which is covered by brown scales. Trama of gills typical spongy, with large cavities everywhere between the separate threads. Subhymenium layer pseudoparenchymatic. Basidia 4 spored clubshaped, 20—35 μ long, 11—14 μ broad at the top, up till 6 μ near the base. Spores elliptic, thickwalled, with very short apiculus at the base and a small germpore at the top: 11.5—17 ⇌ 7—10 μ, most common dimensions 15 ⇌ 8 μ, with several small or one large gutta. On edge of gills broad clubshaped cells 24—29 μ long. 7—14 μ broad near the top.

Java. Bogor, on the ground.

16. *Coprinus hexagonosporus* Josserand Rev. Myc. XIII. 83, 1948.

Ephemeral species. Cap 2—5 mm in diam. at first hemisphaerical afterwards expanding and plane; plicate, pubescent at first. Colour brown at the disc, greyish in the margin area. Flesh nearly wanting. Gills free, about 1 mm broad, soon black and deliquescing. Stipe 2—4 cm long, about 0.5 mm broad, hollow, white, afterwards greyish. Basidia clubshaped 4 spored, 20—25.5 ⇌ 8—9.5 μ. Spores dark chestnut brown, flattened, in face view six-sided, in side view elliptical, with a germpore under the nodule at the top of the spore 11—14 ⇌ 5.5—9 μ. On the cap are thinwalled, clubshaped hairs, especially near the margin, 63—80 μ long, 12—15 μ broad at the top, 5—7 μ near the base. The stalk consists of strictly parallel hyphae 7—18 μ broad.

Sumatra, Kampong Baroe near Medan on cowdung; Java. Bogor, on horse dung.

In a former publication (Boedijn 1) the Sumatra material was erronously assigned to *C. papillatus* Fr.

17. *Copelandia* Bres. Hedwigia LIII. 51, 1913.

This genus was based on a *Panaeolus* from the Philippines, characterised by presence of cystidia and according to Bresadola this species is *P. papilionaceus* (Fr.) Quél.. But apart from the fact, that this form does not occur in Malaysia, *P. papilionaceus* has no cystidia as was rightly noticed by Romagnesi (11). However there is a very common species viz. *P. cyanescens* B. et Br., which is provided with typical cystidia, in shape similar to those seen in the genus *Inocybe*. This species is widely distributed in our region.

For that reason there can be no doubt, that Bresadola founded his genus on *P. cyanescens*. Berkeley and Broome who described the species from Ceylon, have not given microscopical details. It is strange, that Petch (10) in redescribing the species omits the presence of cystidia. That may be the reason why it was overlooked by Bresadola. Up to now our genus rests monotypic.

Copelandia cyanescens (B. et Br.) Boedijn nov. comb.

Syn.: *Panaeolus cyanescens* B. et Br. Journ. Linn. Soc. Bot. XI, 557, 1871.

Pileus 1—3 cm in diam., hemisphaerical, margin sulcate, at first pale ochraceous and slightly viscid, afterwards pale greyish, sometimes ochraceous in the centre. Flesh thin, white. Stalk 6—12 cm long, 1—3 mm broad, straight or slightly bent, white, smooth, hollow. Gills adnate, up till 5 mm broad, black with a white edge. Basidia 4 spored. Spores subglobose, apiculate (citriform) with a distinct germpore, dark blackish brown, 12—16 ⇌ 9—11 μ. Cheilocystidia club-shaped, thinwalled 25—27 ⇌ 7—8 μ. Pleurocystidia ventricose till flaskshaped thickwalled near the apex, which is mostly incrusted, pale yellowish with in the fresh state a blue zone near the top, 43—62 ⇌ 13—16 μ.

Whole fungus turning blue when bruised.

Sumatra, Java, on dung and rich soil, common.

A figure of the species, including the cystidia is to be found by Boedijn (1).

18. *Agaricus crocopeplus* Berk. et Br. Journ. Linn. Soc. Bot. XI, 546, 1871.

Syn.: *Agaricus chrysocyclus* Berk. et Br. l. c. XI. 550, 1871. — *Lepiota aurantiaca* P. Henn. Monsunia I, 21, 1900.

Pileus at first hemisphaerical with a more or less involute margin, afterwards convex, 2.5—6 cm in diam., creamcolour, covered by erect pointed scales of a brilliant orange colour, about salmon orange or orange chrome. Those scales arranged in dense set rings, closest near the centre. Margin appendiculate by flocci of the same

colour. Flesh dirty white, about 5 mm thick near the stem, rapidly thinning out near the margin. Gills free, crowded 3—4 mm high, for a long time pure white, afterwards dull brownish black; edge nearly white. Stalk 5—9 cm long, 6—8 mm broad, sometimes slightly swollen at the base; creamcolour, clothed below the ring with orange flocci, most profusely just under the ring, at first stuffed, then hollow. Basidia 4 spored. Spores dark blackish brown, elliptic, rather thickwalled, with lateral apiculus, 6—8 ⇌ 3.5—4 μ. On the edge of the gills there are thinwalled clubshaped hairs with yellow contents 27.5—45 ⇌ 5—15 μ.

Sumatra, Java, among grass on the ground, Common.

19. **Inocybe Petchii** Boedijn nov. nom.

Syn.: *Inocybe umbonata* Petch Ann. R. Bot. Gard. Peradeniya VI. 202, 1917 non Quélet, Champ. Jur. et Vosg. I. 110, 1876.

Cap at first conical, with a cortina extending from the margin of the pileus to the top of the stipe. Afterwards expanding and broadly campanulate till convex, with a prominent umbo, 1.5—6 cm in diam., 1.5—3 cm high. Surface fibrillose-scaly, striate. Colour brown, about between tawny and ochraceous tawny. Flesh greyish, very thin, except in the umbo. Gills adnexed till nearly free, up till 5 mm broad near the margin, diminishing in breadth near the stipe. Colour greyish brown about Isabella colour, edge white. Stem long and slender with slightly bulbous base, solid, stuffed with a watery tissue, striate, at first covered by adpressed dark scales, becoming glabrous, 9.5—18 cm long, 2—6 mm broad, bulbous base 5—10 mm in diam., Colour dark brown, about between snuff brown and bister. Trama of pileus homomorphic, consisting of septated hyphae up till 28 μ broad, running chiefly parallel with the surface. Subhymenial layer hardly developed. Basidia short clubshaped, 4 spored, 40—45 ⇌ 12—16 μ. Sterigmata up till 9 μ long. Spores yellowish brown, subglobose, stellately nodulose, with 3 till 4 blunt spines diverging from each nodule, 8—12 μ in diam., spines up till 5 μ long. Cystidia on face of gills and top of stipe, ventricose till flaskshaped, thickwalled with incrusted apex, 35—60 ⇌ 12—20 μ. Wall up till 3 μ broad near the apex. — In some of the specimens, one of the 4 spores on the basidia rests frequently undeveloped.

Java, Tjibodas, on the ground, not rare.

20. **Fulvidula insularis** Boedijn nov. comb.

Syn.: *Flammula insularis* Boedijn, Bull. Jard. Bot. Buitenzorg sér. 3. XVI. 408, 1940.

21. **Fulvidula malayana** Boedijn nov. comb.

Syn.: *Flammula malayana* Boedijn Bull. Jard. Bot. Buitenzorg sér 3. XVI. 410, 1940.

22. **Conocybe zeylanica** (Petch) Boedijn nov. comb.

Syn.: *Galera zeylanica* Petch, Ann. R. Bot. Gard. Peradeniya, VI. 317, 1917.

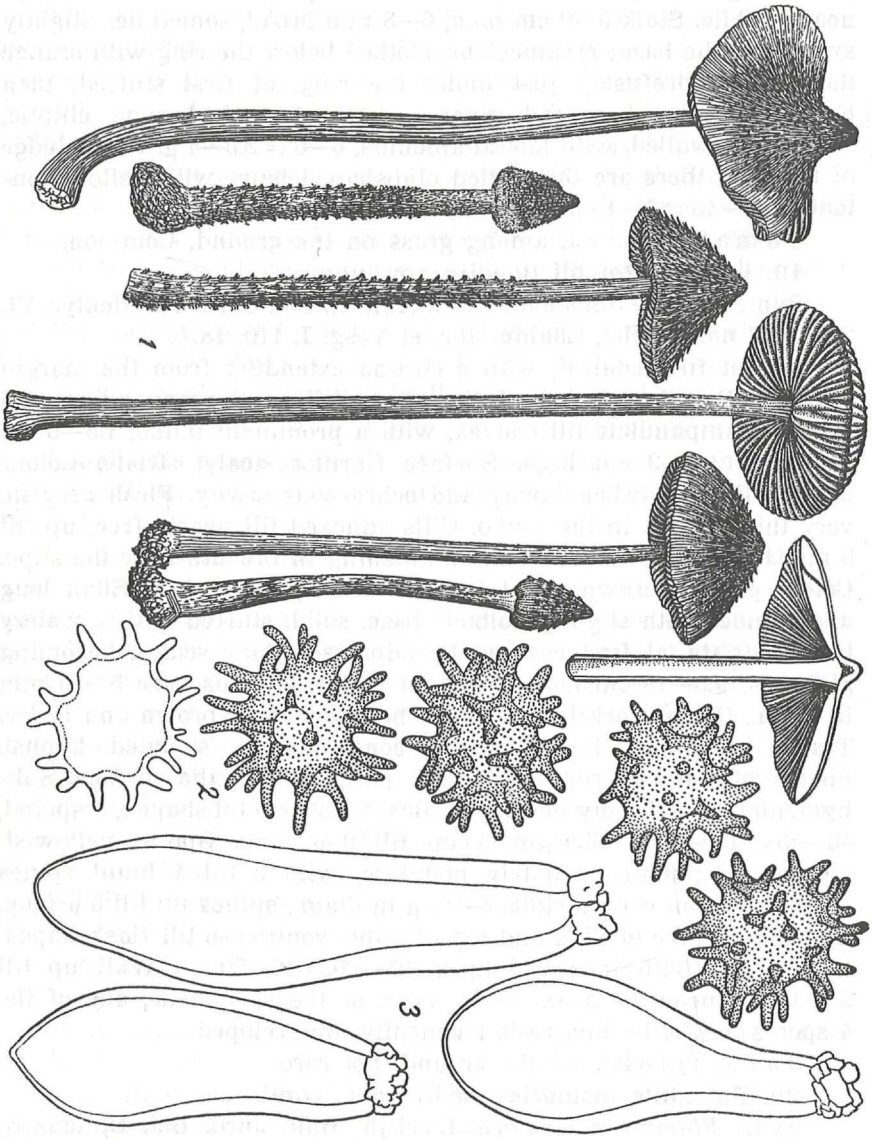

Fig. 5. *Inocybe Petchii*. — 1. Sporophores. 2. Spores, one in optical section. 3. Cystidia.

23. **Galerina sulciceps** (Berk.) Boedijn nov. comb.

Syn.: *Marasmius sulciceps* Berk. Lond. Journ. Bot. VI. 490, 1847.

Material from Sumatra was erroneously assigned by me (Boedijn 1) to *Galera lateritia* Fr.

Phaeomarasmius sulciceps (Berk.) Scherffel Hedwigia XXXVI. 289, 1897.

This is most probably a poisonous species (Boedijn 3). But the insertion into the genus *Phaeomarasmius* cannot be maintained. The brown coloured spores are warted, safe for a smooth area near the apiculus. Those spore characters and the presence of large flask-shaped cystidia are typical for the genus *Galerina.*

24. **Groveolopsis** Boedijn nov. nom.

Syn.: *Septoriopsis* v. Höhn. Sitzb. Ak. Wiss. Wien, Math. Nat. Kl. Abt. 1, CXXIX. 168, 1920, Bull. Jard. Bot. Buitenzorg 3. sér. VI. 7, 1924 non Frag. et Paul, Bol . Soc. Hist. Nat. XV. 127, 1915 nec Stevens et Dalb. Mycologia, XI. 4, 1919.

Groveolopsis pandani (v. Höhn.) Boedijn nov. comb.

Syn.: *Septoriopsis pandani* v. Höhn. Sitzb. Ak. Wiss. Wien, Math. Nat. Kl. Abt. 1, CXXIX. 168, 1920.

25. **Rhinotrichum spirale** (Penz. et Sacc.) Boedijn nov. comb.

Syn.: *Physospora spiralis* Penz. et Sacc. Malpighia, XV. 241, 1901.

According to Linder (7) the name *Rhinotrichum* cannot be maintained and has to be replaced by *Oidium.* The well known conidial fructifications of the *Erysiphaceae* are then to be assigned to *Acrosporium.* As the name *Oidium* in the old conception is widely used especially in phytopathological literature, such an alteration seems not recommandable.

26. **Titaea costaricana** (Syd.) Boedijn nov. comb.

Syn.: *Aorate costaricana* Syd. Ann. Mycol. XXVII. 84, 1929.

Parasitic on *Meliola.* Invisible to the naked eye. Mycelium colourless, branched, indistinctly septate, especially covering the setae of the host, 0.5—1.5 μ broad. Conidia on very short lateral branches, often nearly sessile; mostly 6 celled, the cells arranged in an indistinct flat spiral. Basal cell 2.5—3 μ in diam., provided with mostly 3 long filiform setae, 11—23 μ long, 0.5—1 μ broad near the base. Seldom the tips of these setae slightly swollen. Basal cell surrounded in its upper half by mostly 5 slightly angular cells, 3—4.5 μ in diam. The whole conidium without the setae 8—12 μ in diam. In case of 2 basal cells, the uppermost only bearing setae.

Java, Bogor, on the colonies of *Meliola* spec. div.

27. *Pseudocamptoum fasciculatum* (Cke. et Mass.) Mason in Ciferri Micoflor. Doming. Estac. Agron. de Moca Ser. B. Botan. XIV. 55, 1929.

Syn.:*Monotospora fasciculata* Cke. et Mass. Grevillea XXI. 29, 1892. — *Pseudocamptoum citri* Frag. et Cif. Bol. R. Soc. Espan. XXV. 9, 454, 1925. — *Camptoum palmarum* Boedijn, Rec. Trav. Bot. Néerl. XXVI. 432, 1929. *Monotospora reniformis* Teng Contr. Biol. Lab. Sc. Soc. China VIII. 42, 1932.

Gregarious. Conidiophores fasciculate, unbranched, septated, dark brown, paler near the apex 150—340 ⇌ 5—8 μ. Conidia solitary at the top, at first globose and colourless, afterwards crescent shaped, flattened and dark brown, 14—20 ⇌ 9—12 μ.

Sumatra, Java, on dead leaves and leafstalks of palms common.

28. *Scolecotrichum cinnamomi* Rac. Paras. Algen und Pilze Java's II. 40, 1900.

Syn.: *Cladosporium superficiale* Petch Ann. R. Bot. Gard. Peradeniya IX. 327, 1925.

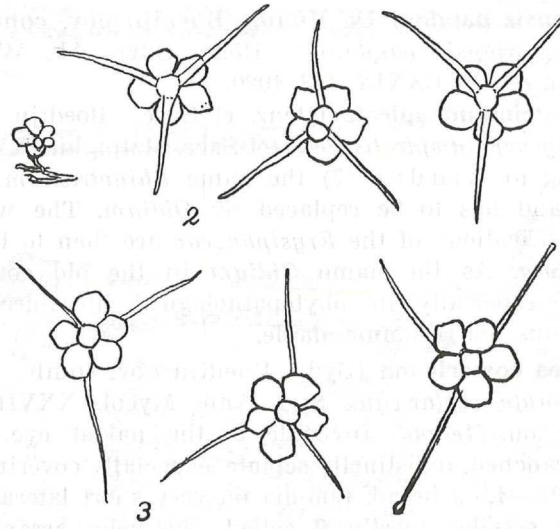

Fig. 6. *Titaea costaricana.* — 1. Immature conidium. 2. Conidia bottom view. 3. Conidia, top view.

Colonies hypophyllous, forming large dull greysh black patches up till 5 cm in diam., by confluence often much larger. Afterwards the leaf under the colonies dying off, giving rise to large pale brown, sharply defined spots. In the leaf there is a strongly branched and septated, hyaline till subhyaline intercellular mycelium, traversing nearly the whole tissue, occasionally even reaching the upperside and forming there an external mycelium and conidiophores. On the underside of the leaf there is a dense layer about 7 μ high of brown, branched and septated hyphae. Mostly only from the border of this conidiophores are arising. They are straight or slightly bent, brown, mostly unbranched, septated, nodulose at the apex, 50—108 ⇌ 2.5—3.5 μ. Conidia solitary or seldom 2 at the top of the conidio-

phores, 1—3 celled, mostly 2 celled, pale olivaceous, mostly faintly rough, sometimes slightly constricted at the septae; very variable as to shape and dimensions: eggshaped, clubshaped till cylindric. 7—11 ⇌ 3—3.5 μ; the elongated conidia 12.5—22 μ long.

J a v a, Bogor, on living leaves of *Cinnamomum zeylanicum.*

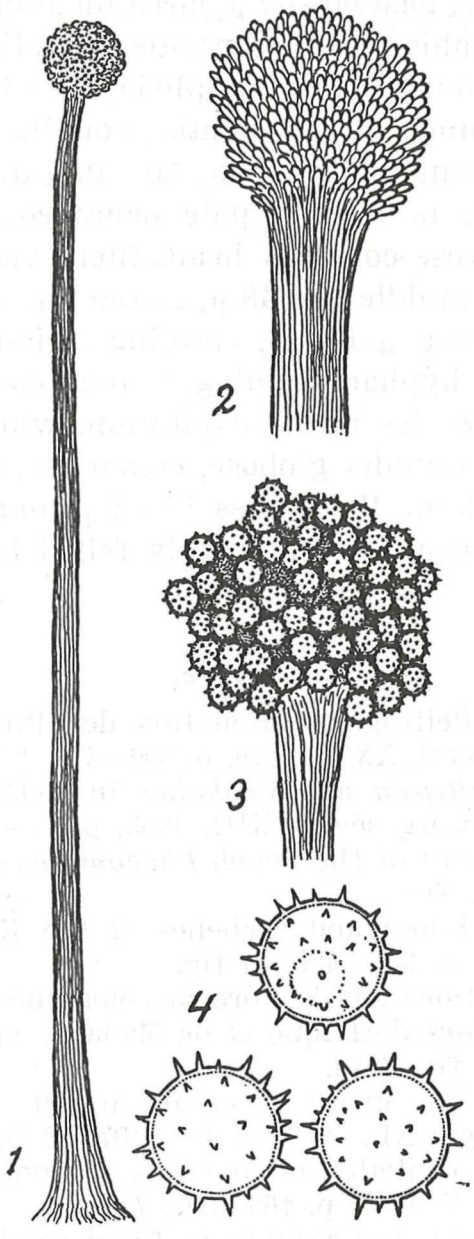

Fig. 7. *Stilbellula pallida.* — 1. Synnema. 2. Capitulum without conidia. 3. Capitulum with conidia. 4. Conidia.

29. **Stilbellula** Boedijn nov. gen.

Synnemata gregaria, pallide colorata; stipes ex hyphis parallele positis, septatis, connatis, subhyalinis compositus; capitulum globosum; conidiophora ex apice hypharum divergentia, simplicia; conidia acrogena, solitaria, globosa, hyalina, echinulata, continua.

Synnemata composed of septated pale coloured hyphae, running strictly parallel. Capitulum globose. At the top of the stipe the conidiophores diverging and each forming a sole conidium Conidia onecelled, globose, hyaline, echinulate.

Stilbellula pallida Boedijn nov. spec.

Synnemata 1.5—3 mm longa. Capitula alba vel pallide rosea; stipes dilute ochraceus, basi 60—77 μ, circa medium 24—48 μ, in apice 9—38 μ crassus ex hyphis parallele positis, septatis, connatis 1—1.5 μ crassis compositus; conidiophora simplicia, 2.5—4 μ crassa, ex apice stipitis hypharum oriunda et divergentia; conidia acrogena, solitaria, globosa, hyalina, echinulata, continua, 7.5—10 μ diam.

Synnemata 1.5—3 mm long, pale ochraceous, with a globose, white till very pale rose-coloured head. Stem very compact, at the base 60—70 μ, in the middle 24—48 μ, at the top 9—38 μ broad; consisting of hyphae 1—1.5 μ broad, running strictly parallel to each other. At the top the hyphae forming conidiophores 2.5—4 μ broad, converging and giving rise to the capitulum, which without conidia is 53—103 μ in diam. Conidia globose, colourless, covered by hyaline spines, 7.5—10 μ in diam., the spines 1.5—2 μ long.

Java, Depok, gregarious on freshly felled bamboo culms.

Literature.

1. Boedijn, K. B., Beitrag zur Kenntnis der Pilzflora von Sumatra. Rec. Trav. Bot. Neerl. XXVI. 1929, p. 396—439, 17 fig.
2. — The genera *Phillipsia* and *Cookeina* in Netherlands India. Bull. Jard. Bot. Buitenzorg sér. 3. XIII. 1933, p. 57—76, 7 fig.
3. — A poisonous species of the genus *Phaeomarasmius*. l. c. sér 3. XVI. 1938, p. 76—82, 2 fig.
4. — The Mycetozoa, Fungi and Lichenes of the Krakatau group. l. c. sér. 3. XVI. 1940, p. 358—429, 14 fig.
5. Heim, R., Observations sur la flore mycologique malgache. III. Trois Bolets gigantesques d'Afrique et de Madagascar. Rev. Mycol. n. s. I. 1936, p. 3—18, 2 fig. 4 pl.
6. Kanouse, B. B., The genus *Plectania* and its segregates in North America. Mycologia XL. 1948, p. 482—497, 12 fig.
7. Linder, D. H., A contribution towards a monograph of the genus *Oidium*. Lloydia V. 1942, p. 165—207, 7 pl.
8. Mason, E. W., Annotated account of fungi received at the Imperial Mycologcal Institute, List II. fasc. 2, 1933, 67 pp., 19 fig.
9. Miller, L. W., The genera of *Hydnaceae* Mycologia XXV. 1933, p. 286—302.
10. Petch, T., Revisions of Ceylon Fungi. Ann. R. Bot. Gard. Peradeniya. IV. 1907, p. 21—68.
11. Romagnesi, H., Essai d'une classification générique des Agarics ianthinosporés et mélanosporés. Rev. Mycol. n. s. I. 1936, p. 27—36.
12. Romagnesi, H., Sur quelques groupements naturels d'Agarics ochrosporés. l. c. n. s. I. 1936, p. 207—213.
13. Seaver, F. J., *Humaria* and *Lachnea*. Mycologia XL, 1948, p. 498—499.

14. Singer, R., Das System der *Agaricales*. Ann. Myc. XXXIV. 1936, p. 286—378.
15. — Das System der *Agaricales* II. l. c. XL, 1942, p. 1—132.
16. — Das System der *Agaricales* III. l. c. XLI. 1943, p. 1—189.
17. — The *Boletineae* of Florida with notes on extralimital species. Farlowia II. 1945, p. 97—141, 1 pl.
18. Smith, A. H., Studies in the dark spored Agarics. Mycologia XL, 1948, p. 669—707, 93 fig.
19. Wei Fan Chiu, The Boletes of Yunnan. Mycologia XL, 1948, p. 199—231.