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EDITORS

M. A. DONK
(Herbarium Bogoriense)

AND

C. G. G. J. VAN STEENIS
(Flora Malesiana)

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SOME MICROTHYRIALES AND OTHER FUNGI FROM INDONESIA

C. G. HANSFORD *

SUMMARY

The species included in this paper belong mainly to the Microthyriales. New species are described in the genera: *Parastigmatea* Doidge (1), *Hysterostomina* Theiss. & Syd. (1), *Aphanopeltis* Syd. (1), *Asterinella* Theiss. (5), *Asteromyxa* Theiss. (1), *Asterolibertia* Arnaud (1), *Clypeolella* Hoehn. (1), *Asterina* Lév. (21), *Lembosia* Lév. (5), and *Patouillardina* Arnaud (1). New Combinations are made in the following genera: *Chaetothyrium* Speg. (2), *Echidnodes* Theiss. & Syd. (3), *Peltella* Syd. (1), *Trichasterina* Arnaud (1), *Asterolibertia* Arnaud (1), and *Clypeolella* Hoehn. (1).

The present paper is the second on a collection of fungi forwarded to me by the Keeper, Herbarium Bogoriense, Bogor, Indonesia, of which a large part has already been dealt with in a separate publication.[1] Among the remainder several new or noteworthy species, mainly of Microthyriaceae, were represented, and these are treated here. I have to acknowledge the very careful work of the Keeper, Herbarium Bogoriense, and his staff in checking the specimen numbers, the locality names, and especially in determination of many of the plants in accordance with the most recent information. Their work has added greatly to the value of this account, facilitating the re-collection of the species and their recognition.

Chaetothyrium setosum (Zimm.) Hansf., *comb. nov.*

= *Antennaria setosa* Zimm. *in* Cbl. Bakt., II. Abt., 8: 151. 1902.
= *Limacinia setosa* (Zimm.) Sacc. & Trott. *in* Sacc., Syll. Fung. 17: 557. 1905.
= *Hypocapnodium setosum* (Zimm.) Speg. *in* Physis, Buenos Aires 4: 287. 1918.
= *Aithaloderma setosum* (Zimm.) Boedijn in Bull. Jard. bot. Buitenz. III 11: 227. 1931.
= *Capnodium guajavae* Bern. *in* Bull. Dept Agr. Ind. néerl. 11: 21. 1907.
= *Limacinia guajavae* (Bern.) Sacc. & Trott. *in* Sacc., Syll. Fung. 22: 63. 1913.
= *Aithaloderma longisetosum* H. & P. Syd. *in* Ann. myc., Berl. 12: 545. 1914.

Colonies epiphyllous, thin, smooth, black, with scattered perithecia. Mycelium entirely superficial, of brown substraight hyphae 3—6 μ thick, the cells 5—12 μ long, slightly constricted at the septa, closely and irregularly branched, eventually forming an almost complete pellicle, usually

* Reader in Mycology and Plant Pathology, Waite Agricultural Research Institute, University of Adelaide, South Australia.
[1] C. G. Hansford: Meliolales of Indonesia. *In* Reinwardtia 3: 75-112. 1954.

only one layer deep; hyphopodia none. Boedijn mentions *Triposporium* conidia on the mycelium, but I did not find any in the material examined. Perithecia scattered, black, subglobose, seated on a broad base, 60—100 μ diam., subopaque; each with an indistinct, very slightly papillate ostiolar area, eventually opening by an irregular pore, surrounded by small, somewhat radiate wall cells; perithecial wall apparently of a single layer of subopaque greenish-black parenchyma; around the apex with up to 9 subopaque dark brown, erect-spreading, straight simple obtuse setae up to 100 × 6 μ, attenuate to 2—3 μ at apex, which is slightly paler, continuous or indistinctly 1—2-septate, smooth. Nucleus of immature perithecium consisting of a loose tissue of hyaline septate filaments. Asci developing as a basal rosette, replacing the original tissue, broad ellipsoid to somewhat fusoid, subsessile, 8-spored, 40—55 × 12—17 μ, elongating at maturity and becoming almost cylindric. Paraphyses none. Spores multiseriate and sub-parallel in ascus, hyaline subclavate with rounded ends, gradually attenuate downwards, 3—4-septate, 16—23 × 3—5 μ, after discharge becoming slightly swollen and tinged olivaceous, slightly constricted at the septa and almost cylindric.

On leaf of indet. palm, Bogor (Buitenzorg), *Boedijn s.n.* (*BO 11859*); on *Tetracera scandens*, Depok, Java, *Boedijn 812* (*BO 11869*); on *Saccharum spontaneum*, Krakatau I., Sunda Straits, *Boedijn 2399* (*BO 11862*); on *Hydrangea sp.*, Bogor (Buitenzorg), Java, *Boedijn s.n.* (*BO 11816*); on *Coffea robusta*, Warongloa, Java, *Boedijn s.n.* (*BO 11856*).

Chaetothyrium spinigera (Höhn.) Hansf., *comb. nov.*

= *Limacinia spinigera* Höhn. *in* S.B. Akad. Wiss. Wien, Math.-nat. Kl., Abt. I, 116: 100. 1907.

Colonies epiphyllous, effuse, thin, smooth, entirely superficial. Mycelium forming a thin pellicle, easily detached from leaf, of a single layer of pale brown, substraight hyphae 4—6 μ thick, the cells mostly about 20 μ long, irregularly branched and closely reticulate-interwoven, some hyphae subhyaline, others have inflated cells up to 9 μ wide, more or less constricted at the septa. Hyphopodia none; no penetration of the host leaf was found, but the fungus is not associated with scale insects. Conidia (*Tripospermum sp.*) arising as short erect branches on the mycelium, the stalk cell about 15 μ long, bearing at its apex one or two cells from which 3—4 radii are formed, each more or less straight, 3—6-septate, gradually attenuate to the obtuse apex, up to 70 μ long by 7—10 μ thick at the base; basal parts concolorous with mycelium, apices subhyaline. Perithecia loosely scattered, depressed-globose, dark brown, each with up to 3 erect-spreading, brown, straight or slightly bent, obtuse to subacute, 2—4-septate setae arising from the base and sides; setae up to 70×6—8 μ, gradually attenuate upwards, paler towards their apices. Perithecial wall of one layer of brown parenchyma, the cells angular, 10—15 μ diam., covering an indistinct layer of hyaline flattened cells, the whole wall 6—8 μ thick, with no definite apical pore. Asci numerous, filling the whole interior of the single loculus, aparaphysate, ripening in succession, erect, clavulate-

ellipsoid, subsessile, elongating at maturity to 60 × 15 μ, 8-spored, thin-walled. The asci arise from the whole surface of the thin, hyaline, finely fibrous base of the perithecium, which is in direct contact with the leaf cuticle; a few loose cells occur amongst the asci and around the interior surface of the wall of the perithecium, probably representing the remains of a delicate ground tissue. Spores 2—3-seriate, hyaline, fusoid with rounded ends, straight or slightly constricted at the middle septum, the end cells smaller, 20—24 × 6—7 μ.

On *Ficus ampelas*, Krakatau I., Sunda Straits, *Boedijn 2409* (*BO 13964*).

PHAEOSACCARDINULA JAVANICA (Zimm.) Yamamoto

Phaeosaccardinula javanica (Zimm.) Yamamoto *in* Ann. phytopath. Soc. Japan **10**: 262. 1940.

Colonies chiefly epiphyllous, thin, smooth, brownish, effuse and often covering the whole leaf; often associated with scale insects and then accompanied by a thicker velvety growth of *Microxyphium sp.*; mycelium of a single layer of brown, substraight to flexuous hyphae, 3—7 μ wide, the cells 5—20 μ long, closely and irregularly branched and reticulate-interwoven to form almost a continuous pellicle, closely adherent to host leaf save where mixed with *Microxyphium*. Hyphopodia none. There is no penetration of the host. Perithecia loosely scattered, black, subglobose becoming cupulate when dry, up to 240 μ diam. and to 200 μ high, smooth, without setae; outer wall a single layer of subopaque dark brown parenchyma, continuous with the mycelial pellicle around the edges of the flat base, enclosing one or more layers of hyaline compressed parenchyma. Nucleus at first fibrous-parenchymatous, hyaline, loose, finally replaced by a basal group of asci; mature asci not seen. Spores 8, multiseriate, ellipsoid, hyaline, becoming pale olivaceous, mostly 7-septate, with one or two longitudinal septa in the wider parts, constricted slightly at one or more septa, smooth, the ends rounded, 30—35 × 12—15 μ.

On *Thea sinensis*, Pagilaran (estate), Java, *BO 11132*; on indet. dicotyledon, Nusa Kambangan, Java, *Boedijn 1108* (*BO 12082*).

These specimens do not agree with those collected by the author in Uganda (Hansford 2872 and 3064), which have a much thicker mycelial mat and a thicker, soft, loosely fibrous perithecial wall; the perithecia are loosely attached by mycelial hyphae above the mycelial mat. Another name must be found for specimens of this character, with which Boedijn 1100 (BO 12090) on *Cocos nucifera*, Java, agrees.

CAPNODIUM WALTERI Sacc., *prox.*

Colonies epiphyllous, mixed with *Phaeosaccardinula sp.* and often contaminated with *Microxyphium sp.*, at first thin, becoming dense and woolly with development of the pycnidia, widely effuse. Mycelium of dark brown straight or flexuous hyphae 4—10 μ thick, constricted at the septa, the cells rounded, smooth. Mycelial conidia erect on the mycelium, though

becoming horizontal on drying, arising as single lateral branches from mycelial cells; long fusoid, attenuate-rounded at the apex, and gradually attenuate from middle down to the subtruncate base, dark brown, straight or somewhat bent, up to 100 × 7—10 μ, 10—18-septate, smooth, sometimes very slightly constricted at some septa; germinating by production of hyphae from each end. Pycnidia numerous, ampulliform, scattered, black, smooth, with somewhat swollen base, gradually attenuate into an elongate neck, up to 250 μ high by about 50 μ diam. at the base, about 10—20 μ wide at apex, which has no setae; wall of parenchyma in lower part, the neck of parallel hyphae in a single layer; the whole black with a green tinge. Pycnospores very like the mycelial conidia, dark brown, fusoid, straight or slightly bent, up to 70 × 6—8 μ, the ends attenuate-rounded, smooth, transversely 10—14-septate and sometimes very slightly constricted at a few septa, the ends paler. *Ascostromata* scattered, sessile or very shortly stipitate, black, ovate to somewhat clavulate, up to 150 μ high by 100 μ diam., narrowed below into the stalk about 50 μ diam. when present, rounded or slightly papillate at apex, without setae. Asci formed basally in a lysigenous locule near the apex and dissolving the stroma tissue until only the outermost layer remains as a single parenchymatous wall, developing an apical pore when mature. Asci aparaphysate, ovate, clavate or ellipsoid on a basal stipe, widely rounded at the apex, where the wall is definitely bitunicate and up to 5 μ thick; up to 80 × 30 μ, 8-spored. Spores irregularly arranged in ascus, clavate-oblong with widely rounded ends, 3—5-septate, constricted at middle septum with the upper half wider than the lower, 24—30 × 7—10 μ, the epispore sometimes nearly smooth, but usually distinctly and closely verrucose. No longitudinal septa were found in the spores.

On *Cocos nucifera*, Nusa Kambangan, Java, *Boedijn 1160 p.p.* (*BO 12690*).

CAPNODIUM SP.

Colonies on leaves and stems, black, thin to thick and felted, effuse. Mycelium of dark brown, beaded hyphae, the cells subglobose to barrel-shaped, constricted at the septa, smooth or finely roughened on surface, 5—16 μ wide, closely and irregularly branched, the ultimate branches often gradually attenuate towards their apices, widely divergent, closely reticulate and often in loose strands and forming a thick layer. Setae are present on the colonies, though not definitely proved to belong to the same mycelium; erect, loosely scattered, up to 1000 μ high, the main axis up to 30 μ diam. below, gradually attenuate to 6 μ at apices of branchlets, in upper half irregularly and repeatedly branched with widely divergent branches, the surface finely roughened-granulose, dark brown, paler at apices. No conidial stage found. Ascostromata loosely scattered and often hidden amongst the mycelium and setae, ovate to subglobose, up to 120 μ diam. and about 140 μ high, with up to 20 erect-spreading setae around the upper half; setae straight, dark brown, 0—2-septate, simple, obtuse, up to 40 × 7 μ; wall of mature ascostroma of 2—3 layers of brown parenchyma, the cells larger and darker on the exterior, about 15 μ thick, thinner towards the irregular apical pore. Asci numerous, erect, cylindric-

ellipsoid, subsessile, 4—8-spored, rounded and slightly thickened at the apex, up to 120 × 20 μ. Paraphyses none. Spores at first hyaline becoming dark brown, subellipsoid, smooth, 3-septate, the central cells larger than the terminal which are broadly rounded, constricted at all septa, 33—42 × 12—15 μ.

On *Tristania laurina*, Tjibodas, Java, *Boedijn 35* (*BO 10562*).

Parastigmatea taraktogenodis Hansf., *sp. nov.*

Plagulae hypophyllae, olivaceae, effusae, saepe confluentes, leves, secundum venas folii sitae. Mycelium ex hyphis dilute olivaceis exhypho-podiatis compositum. Ascomata orbicularia obtuse conoidea, atra, nitida, subcuticularia; paries superior extus ex hyphis radiantibus, subopace atrobrunneis, 3 μ crassis, indistincte septatis, unistratosis compositus, et intus 1—3 strata fortiter compressa hyalina includens; margine haud fimbriata, poro irregulare dehiscentia. Paries inferior dilute brunneis vel subhyalinus, 10—15 μ crassis, ex hyphis 1,5—2 μ cr. compositus, intus in paraphyses ramosas fibrosas hyalinas 1 μ crassis transeuns. Asci erecti vel centripetaliter directi, numerosi, cylindracei vel subsaccati, sessiles, apice rotundati haud incrassati, 8-spori, circa 80 × 12 μ, tunica 1—2 μ crassa. Sporae 2-seriatae, oblongae utrinque rotundatae vel subtruncatae, continuae, hyalinae, leves, 16—20 × 4—5 μ, tenuiter tunicatae, saepe 2-guttulatae.

Hab. in foliis *Taraktogenodis heterophyllae*, G. Tjibodas, Java, *Bakhuizen van den Brink 7855A* (*BO 12926*; typus).

The mycelial hyphae are closely adnate to the cuticle and are not removed in a collodion film, hence inferred to be within the cuticular surface. There are no epidermal or other haustoria and no penetration of the stomata, hence nutrition must be only through the outer epidermis wall and the inner cuticle.

Hysterostomina anodendronis Hansf., *sp. nov.*

Ascostromata amphigena atra, suborbiculata, usque ad 10 mm diam., superficialia, irregulariter rugulosa, inter loculos 1—2-stratosa, indistincte radiata, ex hyphis atrobrunneis 4—5 crassis composita. Loculi inordinati, subcircinati, Y-formi vel elongati, longitudinaliter dehiscentes, late aperti. Paries inferior ex hyphis brunneis 3—4 μ crassis compositus, sursum in hymenium transeuns. Asci numerosi, erecti, clavato-cylindracei, sessiles, apice late rotundati, 8-spori, usque ad 30 × 15 μ; paraphyses numerosae, ascos superantes, sursum brunneae. Sporae 2—3-seriatae, oblongae utrinque rotundatae, 1-septatae, constrictae, leves, brunnescentes, 14—19 × 7—9 μ, cellulis aequalibus.

Hab. in foliis *Anodendronis sp.*, G. Bundor, Java, *Boedijn 1143* (*BO 12413*; typus).

The ascostromata are irregularly rugulose above the loculi, which are inordinate and versiform, from indistinctly circinate to Y-shaped or merely elongate, and open widely by longitudinal clefts, the upper wall

becoming more or less erect around the hymenium of asci and paraphyses, which extend about 30—40 μ high above the leaf surface. The lower wall is not distinct from the hypothecial tissue of brown hyphae, which passes into the hymenium. The lower wall is connected at many points directly through the cuticle to an internal mycelium more or less filling individual cells of the epidermis, but not extending deeper into the leaf.

DIELSIELLA PSYCHOTRIAE (Syd.) Hansf.

Dielsiella psychotriae (Syd.) Hansf. *in* Mycol. Papers, C.M.I. No. 15: 170. 1946.

Mycelium invading the stomata on lower side of the host leaf, as close bundles and masses of hyaline septate hyphae, penetrating the mesophyll to the close vicinity of the vascular bundles, intercellular and not producing haustoria. Thyriothecia superficial, formed as irregularly radiating locules in a black ascostroma, which is flattened, closely adherent to the host surface, irregularly rounded, up to about 700 μ diam., orginating from a central mass of dark brown, vertically elongated pseudoparenchyma emerging from a stoma, from which a radiate plate of opaque dark brown, closely adnate hyphae stretches out over the leaf, forming the upper wall of the stroma, 1—2 cells thick. The central mass is often prominently umbonate. The lower wall of the ascostroma is of greenish-hyaline, irregularly radiating hyphae with thick gelatinised walls and narrow lumen (1—2 μ), septate and in most places one-layered. The loculi are irregularly radiating from the centre to almost the margin of the ascoma, rarely branched or forming a ring around the central umbo with radiating branches towards the margin; longitudinally rimose-dehiscent before the asci ripen, the upper wall remaining sub-erect and enclosing a mass of structureless hyaline mucus overtopping the asci. Internally above the basal wall of the loculus there is a loose tissue of branching, irregularly meandering hyaline hyphae, very variable in thickness and in places almost absent, above which the asci form a close palisade, intermixed with "paraphyses," which may actually be aborted or collapsed asci, being hyaline, rather thick-walled with narrow lumen, often somewhat clavate at the apex, and sometimes dilated at the base. Asci erect, ellipsoid, sessile, straight or bent, 25—35 × 8—12 μ, widely rounded and somewhat thickened at the apex with a central narrow internal pore, 8-spored. Spores oblong with rounded ends, becoming pale olivaceous, 1-septate, not constricted, smooth, 9 × 4 μ, the cells equal.

Pycnidial stromata are similar to the ascostromata, but contain many irregularly arranged, more or less circular locules, each opening by a central irregular pore in the upper wall; lined internally with very short conidiophores which bud off the pycnospores to fill the cavity. Pycnospores hyaline, continuous, oblong with rounded ends, thin-walled smooth 5—7 × 2—3 μ.

Both kinds of stromata are connected at several subsidiary points in the lower surface through the host stomata to the internal mycelium.

On *Psychotria sarmentosa*, Mt. Kinabalu, British North Borneo, *Clemens 29577 (BO 13644)*.

Echidnodes crustacea (Cooke) Hansf., *comb. nov.*

= *Asterina crustacea* Cooke *in* Grevillea 14: 13. 1885. (Type on *Rhododendron*, Java.)

= *Lembosia crustacea* (Cooke) Theiss. *in* Ann. myc., Berl. 11: 432. 1913.

= *Lembosia congregata* Syd. *in* Ann. myc., Berl. 8: 40. 1910. (Type on *Rhododendron*, Philippines.)

= *Lembosia diffusa* subsp. *brevisecula* Penz. & Sacc. *in* Malpighia 11: 527. 1898. (Type on *Rhododendron*, Java.)

= *Lembosia brevisecula* (Penz. & Sacc.) Syd. *in* Ann. myc., Berl. 2: 162. 1904. S. B. Akad. Wiss. Wien, Math.-naturw. Kl., Abt. I, 118: 1505. 1909.

= *Morenoella brevisecula* (Penz. & Sacc.) Höhn., Fragm. Mykol., X, no. 445 *in* S. B. Akad. Wiss. Wien, Math.-nat. Kl., Abt. I, 118: 1505. 1909.

= *Morenoella gedeana* Rac., Paras. Algen Pilze Javas 3: 28. 1900. (Type on *Rhododendron*, Java.)

Colonies hypophyllous (Cooke said amphigenous, but this is incorrect), sometimes causing a slight brown leafspot appearing on the upper surface, black, dense, smooth, up to 4 mm diam. or confluent. Superficial mycelium of dark brown hyphae, more or less straight, irregularly branched, loosely to closely reticulate, 4.5—6 μ thick, the cells mostly 20—25 μ long, exhyphopodiate. Branches from the external mycelium penetrate the stomata and lower mesophyll, as paler brown, septate, branched, intercellular hyphae 3—4 μ thick, which form more or less massive coralloid haustoria in the host cells, often terminal on the hyphal branches, and especially in the cells surrounding the vascular bundles, more or less filling each infected cell.

Thyriothecia closely scattered, elliptic to linear, simple or sometimes Y-shaped, up to 500 × 230 μ, black, convex; upper wall opaque, radiate at the margin, composed of dark brown hyphae similar to those of the mycelium, passing at the edges into mycelial hyphae which form almost a solid layer between the thyriothecia. Lower wall subhyaline to pale brown, of indistinctly radiating-tortuous hyphae, passing above into a plectenchymic layer upon which the asci are borne. Dehiscence by longitudinal fissure of the upper wall. Asci numerous, erect, broadly ellipsoid, contracted below into a very short, wide stipe, rounded at apex and thickened when young to 7 μ, 8-spored, up to 80 × 40 μ. Paraphyses numerous, erect, branched, torulose, hyaline, filamentous, 2—3 μ thick, continuous, sometimes becoming olivaceous at apex. Spores multi-seriate to conglobate dark brown, smooth, oblong with rounded ends, 1-septate, constricted, 32—37 × 16—18 μ, the cells equal.

On *Rhododendron retusum*, Java (*BO 2696*, type of *L. diffusa* subsp. *brevisecula*; *1667, 1685, 10921, 10926, 11124, 12696, 13599*).

Echidnodes irregularis (Syd.) Hansf., *comb. nov.*

= *Asterina irregularis* Syd. *in* Elmer, Leafl. Philip. Bot. 5: 1540. 1912.

= *Morenoella irregularis* (Syd.) Theiss. *in* Ann. myc. 11: 458. 1913.

= *Cirsoniella irregularis* (Syd.) Arnaud *in* Ann. Ecole nat. Agr. Montpellier 16: 127. 1918.

= *Halbania irregularis* (Syd.) Arn. *in* Ann. Ecole nat. Agr. Montpellier 16: 163. 1918.

The type collection is represented in Herbarium Bogoriense:

Colonies hypophyllous, irregularly radiating, black, dense, 5—10 mm diam., smooth. Mycelium of dark brown, crooked hyphae 5—7 μ thick, the cells mostly 25—30 μ long, irregularly branched and becoming very closely reticulate, in places forming irregular solid knots. Hyphopodia none. Short branches from the hyphae meander towards the nearest stoma, above which they are often swollen at the tip to subglobose or elliptic, penetrating the stoma by a fine hypha which divides immediately below the guard cells to form a bunch of hyaline cells; there appears to be no further penetration of the host and no haustoria were found in epidermis or mesophyll cells.

Thyriothecia irregularly elliptic-linear, up to 750 × 200—300 μ, opening by a longitudinal slit; margin somewhat fimbriate; upper wall of dark brown radiating hyphae, opaque; lower wall subhyaline to pale brown, indistinctly radiate. Asci ovate-globose, sessile, 55—75 × 50—65 μ, 8-spored, aparaphysate. Spores dark brown, ellipsoid with obtuse ends, 1-septate, constricted, verrucose, 32—36 × 15—16 μ.

On *Vatica sp.*, Puerto Princesa, Palawan, Philippines, *Elmer 12961* (*BO 3563*).

Echidnodes serpens (Pat.) Hansf., *comb. nov.*

= *Lembosia serpens* Pat. *in* Ann. Jard. bot. Buitenzorg Suppl. 1: 122. 1897.
= *Morenoina serpens* (Pat.) Theiss. *in* Ann. myc., Berl. 11: 453. 1913.

The type collection on a fern, Tjibodas, Java, is represented in Herbarium Bogoriense:

Colonies hypophyllous, effuse, rather dense, covering entire leaflets, smooth. Mycelium of exhyphopodiate brown hyphae, straight or flexuous, 2.5—3 μ thick, indistinctly septate, irregularly branched and loosely reticulate over the whole leaflet between the thyriothecia. Mycelium penetrating into the greater part of the mesophyll through the stomata as brown, septate, branched, intercellular hyphae, not forming haustoria, often concentrated around the vascular bundles.

Thyriothecia superficial, black, linear, up to 700 × 200 μ at maturity longitudinally dehiscent; margin more or less fimbriate; upper wall of subopaque dark brown hyphae radiating outwards; lower wall subhyaline, indistinctly radiate. Asci fairly numerous, erect, ovate to subglobose sessile, 8-spored, 33—40 × 15—23 μ, aparaphysate. Spores subhyaline, becoming brown, clavulate with attenuate-rounded ends, 1-septate, constricted, smooth, 20—24 × 8—9 μ, the upper cell distinctly shorter and wider than the lower.

Conidia not seen.

On a fern, Tjibodas, Java, *Massart 112* (*BO 3701*).

Aphanopeltis lasianthi Hansf., *sp. nov.*

Plagulae hypophyllae, tenues vel subdensae, usque ad 10 mm diam., saepius numerosae minoresque, interdum confluentes, leves. Mycelium ex hyphis radiantibus-reticulatis, atrobrunneis, subrectis vel flexuosis, 3—4 μ crassis (cellulis 20—30 μ longis), irregulariter ramosis, exhyphopodiatis compositum; mycelium internum per stomatum penetrans, ex hyphis intercellularibus, dilute brunneis, septatis, tortuosis, laxe ramosis compositum; haustoria nulla. Pycnidia pauca, laxe dispersa, superficialia, usque ad 80 μ diam., orbiculata, margine haud radiata, atra, convexa, poro centrali dehiscentia. Pycnosporae hyalinae, ellipsoideae utrinque obtusae, continuae, leves, 7—9 × 2—3 μ. Thyriothecia orbiculata, convexa, atra, usque ad 100 μ diam., haud fimbriata, glabra; paries superior radiatus, mox mucoso-diffluens tum hymenium nudum pallide luteum, firme mucosum detegens. Paries inferior unistratosus, ex hyphis irregulariter radiantibus hyalinis 2—3 μ crassis compositus. Asci numerosi, erecti, ellipsoidei vel subclavati, sessiles, apice rotundata et leniter incrassati, 8-spori, 25—30 × 9—12 μ. Paraphyses ascos simulantes sed inanes, saepius collabescentes, numerosae. Sporae hyalinae, ellipsoideae utrinque obtusae, 1-septatae, haud constrictae, leves, 8—10 × 3 μ, cellulis aequalibus.

Hab. in foliis *Lasianthi purpurei*, Tjibodas, Java, *Boedijn 239* (*BO 11711*; typus); loc. cit., *Boedijn 1788* (*BO 12206*), *Boedijn 1482* (*BO 12767*); in foliis *Lasianthi laevigati*, Tjisarua, Java, *Boedijn 755* (*BO 11740*).

The internal mycelium penetrates the whole mesophyll of the leaf and produces an indistinct brown area on its upper surface.

CALOTHYRIUM APHANELLUM Syd.

Calothyrium aphanellum Syd. *in* Ann. myc., Berl. **29**: 222. 1931.

The type was described on *Leea*, Venezuela; a specimen on *Leea javanica* in Herbarium Bogoriense has the following characters:

Colonies always hypophyllous, to 3 mm diam., very thin and scarcely visible. Mycelium of substraight pale brown hyphae 3 μ thick, irregularly branched, very loosely reticulate, without hyphopodia, but with short branches penetrating the stomata. Thyriothecia scattered, brown, smooth, circular, 40—100 μ diam., usually separate, not fimbriate. Upper wall of radiating pale brown hyphae 3 μ thick, splitting radiately at maturity into broadly triangular segments. Asci aparaphysate, ovate, about 20 × 15 μ, broadly rounded above, sessile, 8-spored. Spores more or less parallel in ascus, oblong with attenuate-rounded ends, 1-septate, slightly constricted, smooth, 10—13 × 4 μ, hyaline to subhyaline. Pycnidia similar to the thyriothecia but with central round pore in upper wall; lower wall indistinct. Pycnospores hyaline, fusoid, straight, 1-septate, not constricted, 10—13 × 3—4 μ, smooth.

On *Leea javanica*, Krakatau I., Sunda Straits, *Boedijn 2514* (*BO 14336*).

Peltella palmarum (Wint.) Hansf., *comb. nov.*

= *Myiocopron palmarum* Wint. in Hedwigia **24**: 25. 1885.

Ascomata completely superficial, black, round, discoid, smooth, closely scattered and often 2—3-connate at the edges, but not forming a continuous crust as in other species described on palms; up to 150 μ diam., the margin entire or crenate, not fimbriate; no free mycelium; amphigenous on dead parts of leaves and sometimes on living parts. Upper wall of dark brown radiating hyphae 2.5—3 μ thick, the cells up to 7 μ long, at maturity forming an irregular central pore. Lower wall hyaline, indistinct. Asci numerous, directed toward the central pore, saccate to broadly ellipsoid, sessile or very shortly nodose-stipitate, with firm, rather thick wall (1—2 μ) thickened around the broadly rounded apex to 10 μ in young asci, 8-spored, 40—50 ×15—20 μ. Beneath the asci and spreading amongst them are a few hyaline, loosely branched hyphae about 1.5 μ thick, septate, which sometimes resemble paraphyses. Spores multi-seriate, hyaline, continuous, ellipsoid with rounded ends, sometimes slightly clavulate smooth thin-walled, 14—16 × 5—6 μ.

On *Rhapis* sp., Bogor, Java, *van Overeem s.n.* (*BO 157*).

Asterinella ardisiae Hansf., *sp. nov.*

Plagulae plerumque hypophyllae, tenuissimae, aegre perspicues, leves, usque ad 10 mm diam. Mycelium ex hyphis subrectis brunneis 2,5 μ crassis, irregulariter ramosis, obsolete septatis compositum, laxe reticulatum. Hyphopodia nulla; ramuli mycelii in stomatibus folii penetrantes. Thyriothecia laxe dispersa, suborbiculata, leniter convexa, levia, haud fimbriata, atra, usque ad 140 μ diam., raro connata; paries superior radiatus, stellatim dehiscens; paries inferior hyalinus, ex hyphis laxe ramosis, intertextis compositus. Asci aparaphysati, erecti, ovati, sessiles, apice incrassati, 8-spori, circa 25 × 20 μ. Sporae parallelae, oblongae utrinque obtusae, hyalinae, brunnescentes, 1-septatae, leniter constrictae, 15—18 × 6—7,5 μ, cellulis subaequalibus, episporio laxe granuloso vel verruculoso. Pycnidia thyriotheciis consimilia; pycnosporae hyalinae, oblongae utrinque obtusae, 1-septatae, haud constrictae, leves, 12—16 × 3,5—4,5 μ, episporio tenui.

Hab. in foliis *Ardisiae humilis*, Banten (Bantam), Java, *Boedijn 1251* (*BO 12577*; typus).

Haustoria were not observed in the epidermis or mesophyll, and details of internal mycelium were too difficult to obtain, as the subepidermis is filled with crystals and sections were unsatisfactory. The lower wall of the thyriothecium is hyaline and loosely fibrous, the ascogenous hyphae ramifying amongst this tissue and forming erect asci apparently without croziers.

Asterinella conocephali Hansf., *sp. nov.*

Plagulae amphigenae, plerumque hypophyllae, atrae, densae, leves vel rugulosae, usque ad 1,5 mm diam. Mycelium ex hyphis radiantibus atrobrunneis, 5 μ crassis, cellulis plerumque 10—15 μ longis, dense irregulariterque ramosis, compositum, passim subsolidum. Pycnidia dispersa, orbiculata, atra, convexa, levia, usque ad 80 μ diam., subfimbriata; paries superior ex hyphis radiantibus atrobrunneis compositus, stellatim dehiscens. Paries inferior hyalinus indistinctus. Pycnosporae ovatae vel subpiriformes, continuae, utrinque rotundatae vel basi subtruncatae, brunneae, leves, 8 × 3 μ, in medio zono subhyalina praeditae. Thyriothecia pycnidia consimilia, usque ad 130 μ diam., saepe 2—3-connata, interdum in thyriothecia composita irregularia confluentia, atra convexa, levia, haud fimbriata; paries inferior dilute brunneus, obsolete radiatus. Asci numerosi, erecti, aparaphysati, subsessiles vel brevissime nodoso-stipitati, apice late rotundati, incrassati usque ad 3 μ, immaturi late ellipsoidei, circa 25 × 10 μ, maturi elongati usque ad 40 × 8 μ, 8-spori, bitunicatae. Sporae inordinatae vel conglobatae, brunnescentes, oblongae utrinque rotundatae, 1-septatae, leves, 8—11 × 3,5—4,5 μ, cellulis subaequalibus.

Hab. in foliis *Conocephali suaveolenti*, Depok, Java, *BO 10974* (typus).

Asterinella dipteridis Hansf., *sp. nov.*

Plagulae plerumque hypophyllae, tenues, leves, effusae. Mycelium laxe reticulatum, ex hyphis brunneis, exhyphopodiatis, 2—3 μ crassis, flexuosis vel tortuosis, obsolete septatis, irregulariter ramosis compositum. Thyriothecia dispersa, suborbicularia, atra, convexa, usque ad 140 μ diam.; paries superior radiatus, ex hyphis atrobrunneis, 2—3 μ crassis, compositus, stellatim dehiscens; paries inferior hyalinus indistinctus. Asci usque ad 20, aparaphysati, in ordine maturescentes et collabascentes, subglobosi vel late ovati, sessiles, 8-spori, circa 30 × 20 μ. Sporae conglobatae, oblongae utrinque rotundatae, brunnescentes, leves, 1-septatae, 16—18 × 6—7 μ, cellula superiore leniter breviore crassiore. Conidia non visa.

Hab. in foliis *Dipteridis conjugatae*, Java: Tjiseureuh, *Boedijn 3173* (*BO 15265*; typus); G. Salak, *Boedijn 1197* (*BO 12276*); G. Bunder, *Boedijn 2627* (*BO 14486*).

At intervals the mycelial hyphae are closely attached to the host cuticle, which is stained yellow-brown, as well as often the underlying epidermal cells, but no evidence of actual penetration of cuticle or epidermis was found. Some stomata are filled with small plugs of mycelium, and hyaline, much branched hyphae penetrate the mesophyll, not forming haustoria and intercellular; these internal hyphae may possibly not belong to the *Asterinella* but represent the mycelium of some mould.

Asterinella ilicicola Hansf., *sp. nov.*

Plagulae hypophyllae, effusae, subdensae, leves. Mycelium ex hyphis tortuosis, atrobrunneis, 4—5 μ crassis, obsolete septatis, dense irregula-

riterque ramosis, dense reticulatis compositum. Hyphopodia nulla. Thyriothecia dispersa, simplicia vel 2-connata, orbiculata, convexa, atra, usque ad 200 μ diam., margine laxe fimbriata; paries superior radiatus, cellulis 5—10 × 3,5—5 μ, stellatim lateque dehiscens; paries inferior hyalinus indistinctus. Asci usque ad 20, in ordine maturescentes, aparaphysati, globosi, sessiles, 4—8-spori, usque ad 50 × 40 μ, tunica 1—2 μ crassis, apice usque ad 4 μ crasso. Sporae conglobatae, brunnescentes, oblongae, obtusae, 1-septatae, constrictae, 28—33 × 16—19 μ; episporio echinulato; cellulis subaequalibus. Conidia non visa.

Hab. in foliis *Ilicis odoratae*, Kandang Badak, above Tjibodas, G. Gede, Java, *Boedijn 738 (BO 11706*; typus).

The leaf stomata are often filled with mycelial plugs, but no further penetration from these was discovered, nor any direct penetration of the cuticle by the closely adpressed mycelial hyphae.

Asterinella tetracerae Hansf., *sp. nov.*

Plagulae plerumque hypophyllae, atrae, leves, subdensae, usque ad 10 mm diam. vel confluentes. Mycelium ex hyphis atrobrunneis, subrectis vel undulatis, 3,5—5 μ crassis, cellulis plerumque 25—30 μ longis, irregulariter ramosis, dense radianto-reticulatis compositum, in centro densius, sterile. Hyphopodia nulla. Thyriothecia subaggregata, primo rotundata, saepius polycentrica, demum irregulariter orbiculata vel ellipsoidea, atra, convexa, usque ad 500 μ diam., margine irregulariter crenulata; paries superior ex hyphis pellucide brunneis tortuoso-radiantibus, 4 μ crassis (cellulis usque ad 8 μ longis) compositus, in maturitate irregulariter stellato-dehiscens demum centro secedente; paries inferior subhyalinus vel dilute brunneus, ex hyphis irregulariter radiantibus, 4 μ crassis compositus. Asci numerosi, erecti, sessiles, saccati, 8-spori, apice late rotundati, deorsum leniter contracti, usque ad 35 × 20 μ, tenuiter tunicati. Sporae multiseriatae vel conglobatae, oblongae utrinque rotundatae, 1-septatae, leniter constrictae, 16—18 × 7—8 μ, cellula superior leniter crassiore, episporio verruculoso.

Hab. in foliis *Tetracerae indicae*, Depok, Java, *Boedijn 808 (BO 11906*; typus); in foliis *Tetracerae assae*, Tjibodas, Java, *Boedijn 2648 (BO 11582*).

The colony appearance is very characteristic, the hyphae radiating from a sterile central boss, and the thyriothecia forming indefinite zones. No penetration of the host, either through stomata or cuticle was found in my sections. Around the periphery of each colony are numerous orbicular "pycnidia," about 70 μ diam., with the usual type of radiate upper wall and subhyaline radiate lower wall, opening by an irregular apical pore from which a few fractures extend radially; all apparently were sterile. No conidial stage was found.

Asteromyxa melodori Hansf., *sp. nov.*

Plagulae epiphyllae, velutinae, usque ad 10 mm diam., tenues. Mycelium ex hyphis brunneis, exhyphopodiatis, 2,5—4 crassis, irregulariter septatis, saepe incrassato-geniculatis, laxe reticulatis, irregulariter ramosis saepe 2—3-connatis compositum. Thyriothecia dispersa, vel 2—3-confluentia irregulariter rotundata, usque ad 110 μ diam., haud fimbriata, convexa; paries superior primo radiatus, convexus, demun irregulariter lateque apertus, reliquiis erectis hymenium circumdatis; paries inferior primo hyalinus vel subhyalinus, irregulariter radiatus, demum mucosus. Asci erecti, in massa mucosa hyalina obducentes, aparaphysati, ellipsoidei, apice late rotundati, sessiles, 8-spori, usque ad 50 × 20 μ, in ordine maturascentes et collabascentes. Sporae brunneae, oblongae, obtusae, 1-septatae, leniter constrictae, leves vel obsolete longitudinaliter striatae, 14—16 × 7—8 μ, cellulis aequalibus.

Conidiophora numerosa, erecta, ex hyphis mycelii oriunda, singula vel laxe fasciculata, simplicia, recta vel sursum subgeniculata, atrobrunnea, deorsum subopaca, 2—3-septata, usque ad 150 × 5—6 μ. Conidia acrogenea, singula, obovata, continua, atrobrunnea, apice late rotundata, deorsum leniter attenuata, basi truncata, 12—16 × 8—9 μ, episporio dense tuberculato, poris germinationis 3—5 aequatorialibus praedita.

Hab. in foliis *Melodori latifolii*, Depok, Java, *Boedijn 2063* (*BO 13616*; typus).

An internal mycelium fills cells of the epidermis, and is connected directly through the cuticle to the external hyphae, often at the swollen geniculations on these; very rarely penetrating below the epidermis, at first hyaline, becoming brownish and consisting of a pseudoparenchyma of rounded cells; the cuticle is stained brown above the infected host cells, and below them the palisade tissue also turns brown, even though not invaded. The colonies appear through the leaf on the lower surface as faint brownish discoloured areas. The thyriothecia are peculiar in their structure and dehiscence; the originally radiate upper wall becomes raised by the development of a structureless mass of hyaline mucus within, and finally ruptures irregularly, its remains standing erect around the asci, which are aparaphysate. The original structure of the lower wall soon disappears and adds to the mucus development within. The conidiophores are limited to the mycelium and do not arise from the thyriothecia, which are quite glabrous.

In its method of parasitism this fungus shows an approach to the *Asterolibertia* group of genera, with intercalary hyphopodia, especially if one regards the internal parenchyma as consisting of single coralloid haustoria which have developed further and become septate.

Trichasterina microspila (Syd.) Hansf., *comb. nov.*

= *Prillieuxina microspila* Syd. *in* Philipp. J. Sci. 21: 141. 1922.

Colonies epiphyllous, thin, scarcely visible, to 3 mm diam. Mycelium of crooked, pale brown hyphae 3—4 μ thick, the cells about 20—25 μ long, septa indistinct, branching irregular, loosely to closely reticulate. Hyphopodia rather few, irregularly scattered but not opposite, often forming part of mycelial rings around leaf trichomes, 10—15 μ long; stalk cell cylindric, often bent, mostly about 5 μ long but up to 20 μ; head cell narrow ovate-clavate, entire or sinuous-lobed, often bent, 8—12 × 4—6 μ. Mycelial setae scattered irregularly over older parts of colony, erect, straight or flexuous, simple, obtuse, 3—4-septate, up to 80 × 4—5 μ, slightly attenuate upwards. Conidia none. Thyriothecia closely scattered, usually separate, subcircular, up to 120 μ diam., black, convex, smooth, the margin irregularly crenate; upper wall of radiating dark brown hyphae 3 μ thick, splitting radially at maturity into broad triangular segments. Lower wall hyaline, of loose, indistinct hyphae. Asci not seen. Spores brown, oblong with rounded ends, 1-septate, constricted, the upper cell globose and slightly wider than the lower, 18—22 × 8—10 μ; epispore closely and finely verrucose.

On *Leucosyke capitellata* (= *Missiessya capitellata*), Amboina, *Robinson 221* (*BO 3546*).

Asterolibertia santiriae (Syd.) Hansf., *comb. nov.*

= *Asteriuella santiriae* Syd. *in* Ann. myc., Berl. 15: 248. 1917.

Colonies amphigenous, black, thin, to 10 mm diam., smooth. Mycelium of substraight dark brown hyphae 5—7 μ thick, the cells mostly 20—30 μ long, branching opposite or irregular, loosely reticulate with polygonal meshes. Hyphopodia intercalary, more or less swollen, irregularly distributed but often alternating with mycelial cells, 15—20 × 8—10 μ. Thyriothecia loosely scattered, rounded, 250—350 μ diam., or sometimes elliptic up to 400 × 250—300 μ, black, slightly convex; lower wall hyaline, of indistinct wavy-reticulate hyphae amongst a brownish structureless substance. Upper wall of dark brown radiating hyphae 4—6 μ thick, the cells 5—15 μ long, splitting radiately or longitudinally at maturity; the edge crenate or with loose fringing hyphae up to 70 μ long. Asci fairly numerous, aparaphysate, ovate to elliptic, sessile, 50—75 × 45—60 μ, at first 8-spored but often only 2 or 4 ripen. Spores conglobate or irregularly arranged, oblong-ellipsoid with obtuse ends, 1-septate below the middle, slightly constricted, 32—36 × 17—22 μ; upper cell larger than lower and subglobose; epispore smooth.

On *Santiria sp.*, Philippines, *C. F. Baker 8121* (type coll.), represented in Herb. Bogor. (*BO 15948*).

Asterolibertia spatholobi Hansf., *sp. nov.*

Plagulae epiphyllae, atrae, densae, leves, usque ad 10 mm diam. Mycelium ex hyphis atro-virideo-brunneis 5—6 μ crassis, cellulis 10—15 μ longis, dense radianto-reticulatis compositum, subsolidum. Hyphopodia intercalata, irregulariter disposita, singula vel 2—3-aggregata, leniter tumida et cellulis aliis obscuriora, 6—8 × 6—8 μ. Conidia nulla. Thyriothecia irregulariter denseque dispersa, plus minusve orbiculata, usque ad 250 μ diam., saepe 2—3-confluentia et irregularia; paries superior obsolete radiatus, ex hyphis atrobrunneis 4—6 μ crassis compositus, irregulariter stellatim dehiscens et parte centrali secedens; paries inferior dilute brunneis, ex hyphis tortuosis 4—5 μ crassis compositus. Asci numerosi, globosi vel late ovati, sessiles, 8-spori, circa 45 × 35 μ. Sporae brunneae, oblongae utrinque rotundatae, 1-septatae, constrictae, leves, 18—20 × 7,5—8,5 μ, cellulis subaequalibus.

Hab. in foliis *Spatholobi ferruginei*, Tjiapus-Kloof, Java, *Boedijn s.n.* (*BO 10978*; typus).

The mycelium by profuse and irregular lateral branching forms a solid pellicle, in which the hyphopodia are irregularly distributed, sometimes in groups of 2—3, along the principal hyphae. The asci in the exposed hymenium are embedded in a loose fibrous tissue continuous with the lower wall, not formed of definite erect paraphyses.

Clypeolella camelliae (Syd. & Butl.) Hansf., *comb. nov.*

= *Asterina camelliae* Syd. & Butl. *in* Ann. myc., Berl. 9: 389. 1911.

Colonies epiphyllous, rarely also hypophyllous, on the older leaves, up to 4 mm diam. or widely confluent, becoming dense and almost solid as the thyriothecia develop and fuse. Mycelium of substraight dark brown hyphae 7—10 μ thick, the cells mostly 13—25 μ long, branching opposite or irregular at wide angles, at first loosely reticulate, becoming much denser by further branching and finally almost solid; the hyphal walls are very finely crenulate. Hyphopodia alternate or more distant, continuous, hemispheric to irregular, finely crenulate in outline or even sublobate, 10—15 μ long 8—21 μ wide. Mycelial conidia formed singly on short branches of the mycelium, sessile, fusoid, 3-septate, not constricted, subhyaline, the middle cells darker, smooth, the base attenuate to a subtruncate hilum, the apex more or less elongate-attenuate to subacute bent; germination usually from the basal cell or that next above, the other collapsing; a hyphopodium is first formed on a short pedicel, from which the mycelium develops.

Thyriothecia numerous, black, almost flat, up to 350 μ diam., but usually about 200 μ, often widely connate to form large continuous sheets beneath the mycelium in the centre of the colony; edge not fimbriate, individually more or less circular in outline. Lower wall indistinct; upper wall of radiating hyphae 4—6 μ thick, the cells 5—15 μ long, subopaque

dark brown, stellate-dehiscent when mature. Asci few, aparaphysate, ovate to ellipsoid, sessile, 8-spored, about 70 × 40 μ. Spores more or less parallel and multiseriate in ascus, oblong with obtuse ends, 1-septate slightly constricted, smooth, dark brown 40 × 18 μ, the cells equal.

On *Thea sinensis*, Java: G. Salak, *Boedjo 3219* (*BO 16216*), Gunung Mas (estate), *Boedjo 3510* (*BO 16464*), G. Patuha, *Boedjo 3148* (*BO 17031*); Sumatra: Pematangsiantar, *Steinmann s.n.* (*BO 12487, 12503*), Padang, *Kruckenius s.n.* (*BO 15175*).

This is often parasitised by *Helminthosporium dorycarpum* Mont., and by *Dimerium spp.*

The mode of dehiscence of the thyriothecium is that of *Asterina*, but no species of this genus is known to have mycelial conidia of this type, which is common in *Clypeolella*; on the other hand the hyphopodia are not typical of this genus.

Clypeolella crypteroniae Hansf., *sp. nov.*

Plagulae amphigenae, plerumque hypophyllae, usque ad 5 mm diam. vel confluentes, primo tenues, aegre perspicues, demum densae et subcrustosae, leves. Mycelium ex hyphis dilute brunneis, 3,5—4,5 μ crassis, obsolete septatis, cellulis plerumque 20—30 μ longis, opposite vel irregulariter acuteque ramosis, reticulatis compositum, in maturitate subsolidum. Hyphopodia alternata vel unilateralia, continua, ovata, apice leniter attenuata, integra, 6—8 × 5—7 μ. Thyriothecia immatura, sub hyphis mycelii oriunda, atrobrunnea, haud fimbriata, orbiculata; paries superior radiatus, hyphis 4 μ crassis. Asci et sporae non visae. Conidia fusoidea, curvata, 3-septata, subhyalina, cellula basali leniter obscuriore, levia, haud constricta, 30—38 × 6—7 μ, apice rotundata, basi subpedicellata, truncata.

Hab. in foliis *Crypteroniae paniculatae*, G. Bunder, Java, *Boedjo 2630* (*BO 14458*; typus).

At germination the conidia form primary hyphopodia from the basal cell, while the other three cells empty and collapse.

Asterina alchorneae-javanensis Hansf., *sp. nov.*

Plagulae epiphyllae, tenues, aegre prespicues, leves. Mycelium ex hyphis atrobrunneis, flexuosis vel tortuosis, 3—4,5 μ crassis, obsolete septatis, cellulis plerumque 20—30 μ longis, primo laxe, demum in centro plagularum dense reticulatis compositum. Hyphopodia alternata vel unilateralia, 1-septata, 10—17 μ longa; cellula basali cylindracea, plerumque recta, 3—8 μ longa; cellula apicali 2—4-lobata, recta, fortiter curvata vel uncinata, 5—10 × 5—10 μ. Thyriothecia dispersa, plerumque singula, atra, convexa, suborbiculata, 90—130 μ diam., margine laxe fimbriata, hyphis fimbriarum tortuoso-radiantibus, usque ad 70 μ longis; paries inferior griseo-hyalinus, radiatus, ex hyphis 3—4 μ crassis compositus; paries superior atrobrunneis, radiatus, cellulis 3—4,5 × 4—10 μ, stellatim,

prope margine dehiscens et in centro secedens. Asci pauci, aparaphysati, globosi, sessiles, 8-spori, circa 30 × 25 μ. Sporae conglobatae, brunneae, oblongae utrinque rotundatae, 1-septatae, constrictae, 20—23 × 10—12 μ, cellulis subaequalibus, episporio subtiliter denseque verruculoso. Conidia nulla.

Hab. in foliis *Alchorneae javanensis*, Tjilodong, Java, *Boedijn 1680* (*BO 13008*; typus).

Asterina aporosae Hansf., *sp. nov.*

Plagulae epiphyllae, minutae, densae, usque ad 0.5 mm diam. Mycelium ex hyphis dilute brunneis, 3—4 μ crassis, cellulis plerumque circa 15 μ longis, opposite vel irregulariter lateque ramosis, dense reticulatis compositum. Hyphopodia, alternata, raro opposita, recta vel curvata, cylindracea apice rotundata, continua, 6—9 × 3,5—5 μ. Thyriothecia dense dispersa vel in centro plagularum saepius connata, atra, convexa, levia, 100—180 μ diam., haud fimbriata, stellatim dehiscentia; paries inferior indistinctus; paries superior pellucide atro-brunneus, radiatus, cellulis 4—10 × 3 μ. Asci numerosi, paraphysati, ovati vel ellipsoidei, sessiles vel brevissime modoso-stipitati, 8-spori, 25—35 × 11—15 μ. Sporae multiseriatae vel conglobatae, clavato-oblongae utrinque obtusae, 1-septatae, leniter constrictae, leves, 11—14 × 3,5—5 μ; cellula superiore breviore leniter crassiore.

Pycnidia thyriotheciis consimilia; pycnosporae subhyalinae, continuae, elongato-ellipsoideae, leves, 9—11 × 3 μ.

Hab. in foliis *Aporosae auritae*, Tjilodong, Java, *Boedijn 1696 p.p.* (*BO 13009*; typus).

Asterina ardisiae Hansf., *sp. nov.*

Plagulae hypophyllae, effusae, tenues, saepe late confluentes, leves. Mycelium ex hyphis flexuosis atrobrunneis, 6—7 μ crassis, cellulis plerumque circa 25 μ longis, irregulariter ramosis, laxe vel subdense reticulatis compositum. Hyphopodia alternata, continua, recta vel curvata, plus minusve cylindracea apice rotundata, 8—14 × 6—8 μ. Thyriothecia laxe dispersa, orbiculata, sepius distincta, usque ad 300 μ diam.; paries inferior subhyalinus, irregulariter radiatus, mox mucosus; paries superior radiatus, atrobrunneis, cellulis usque ad 14 μ longis et 6 μ crassis; margine subfimbriatus, hyphis fimbriarum tortuoso-radiantibus et lateraliter connatis, exhyphopodiatis; stellatim dehiscentia et parte centrali secedente. Asci suberecti, aparaphysati, late ellipsoidei vel ovati, apice incrassati (—5 μ), 8-spori, usque ad 60 × 30 μ. Sporae irregulariter positae, oblongae utrinque rotundatae, 1-septatae, leves, 24—27 × 10—12 μ, diu hyalinae, demum brunnescentes; cellula superiore saepe crassiore. Conidia non visa.

Hab. in foliis *Ardisiae coloratae*, G. Bunder, Java, *Boedijn 1292* (*BO 12890*; typus).

The interior of the thyriothecium is at first filled with hyaline, thin-walled, shortly septate, much branched tortuous loose hyphae, amongst

which the asci arise basally as erect outgrowths from very similar ascogenous hyphae, no evidence of crozier formation being found.

Asterina argyreiae Hansf., *sp. nov.*

Plagulae epiphyllae, atrae, densae, usque ad 1 mm diam. leves. Mycelium laxe vel subdense reticulatum, ex hyphis dilute brunneis, tortuosis, 2,5—3,5 μ crassis, cellulis plerumque 20—30 μ longis, irregulariter ramosis compositum. Hyphopodia lateralia vel interdum fere intercalata, pulvinata vel corralloidea, ferme nodo hypharum circumdata, circa 6 × 5 μ, sessillia vel sine septo basali. Thyriothecia subaggregata, rotundata, convexa, atra, levia, 50—100 μ diam., fimbriata, hyphis fimbriatum numerosis, tortuoso-radiantibus usque ad 70 μ longis, saepe lateraliter connatis; paries inferior obsoletus; paries superior radiatus, atrobrunneis, cellulis 4—10 × 3—4 μ, radiatum dehiscens, segmentibus suberectis. Asci pauci vel numerosi, aparaphysati, globosi vel late ovati, sessiles, 8-spori, 30—35 × 25—30 μ. Sporae conglobatae, dilute brunneae, oblongae utrinque obtuse rotundatae, 1-septatae, constrictae, 15—18 × 8—9 μ, cellulis subaequalibus, episporio levi vel obsolete punctato. Conidia non visa.

Hab. in foliis *Argyreiae capitatae*, Nusa Kambangan, Java, *Boedijn 1113* (*BO 12077*; typus).

The hyphopodia are peculiar in this species, being sometimes lateral and cut off by a basal septum from the parent hyphae, but often without this septum, becoming deeply palmately lobate or even coralloid-branched, and very rapidly surrounded by a small knot of closely branched hyphae originating from the parent hypha or from another hypha close by.

Asterina boedijniana Hansf., *sp. nov.*

Plagulae epiphyllae, tenues, usque ad 4 mm diam., leves. Mycelium ex hyphis brunneis, 3,5—5 μ crassis, cellulis 20—45 μ longis, rectis vel leniter undulatis, irregulariter ramosis compositum. Hyphopodia alternata vel opposita, recta vel curvata, saepe leniter antrorsa, 13—22 μ longa; cellula basali cylindracea, 3—8 μ longa; cellula apicali subcylindracea, recta vel curvata, margine sinuoso-lobata, 8—15 × 4—7 μ. Thyriothecia laxe dispersa, orbiculata, usque ad 170 μ diam.; paries inferior radiatus, ex hyphis dilute fuligineis 3—4 μ crassis compositus; paries superior convexus, atrobrunneus, subopacus, ex hyphis radiantibus, 3—5 μ crassis compositus; margine subfimbriata, hyphis fimbriarum tortuoso-radiantibus, dilute brunneis, usque ad 60 μ longis; stellatim dehiscentia et centro secedente. Asci haud numerosi, aparaphysati, subglobosi vel ovati, sessiles, 8-spori, 40—50 × 35—40 μ. Sporae conglobatae, atrobrunneae oblongae utrinque rotundatae, 1-septatae, constrictae, 22—25 × 11—12 μ, cellulis subglobosis, superiore leniter majore; episporio echinulato vel verrucoso, spinis usque ad 1,5 μ longis.

Hab. in foliis *Capparidis acuminatae*, Tjikampek, Java, *Boedijn s.n.* (*BO 10946*; typus).

This is close to *A. elegans* Doidge, but differs in the very loosely reticulate mycelium and in the irregular hyphopodia, which are normally formed somewhat behind the septum of the parent cell, and often opposed by a hyphal branch. No pycnidia or pycnospores were found.

Asterina borneensis Hansf., *sp. nov.*

Plagulae amphigenae, atrae, densae, leves, usque ad 3 mm diam. vel confluentes. Mycelium ex hyphis atrobrunneis, flexuosis vel tortuosis, 5—7 μ crassis, cellulis plerumque 20—25 μ longis, opposite vel irregulariter ramosis, dense reticulatis compositum. Hyphopodia alternata, unilateralia vel raro opposita, continua, hemisphaerica vel elongata, integra, 7—12 × 7—10 μ. Thyriothecia dispersa, orbiculata, atra, convexa, usque ad 200 μ diam.; paries inferior subhyalinus, obsoletus; paries superior ex hyphis radiantibus atrobrunneis 4—6 μ crassis compositus, non vel lenissime fimbriata, stellatim dehiscens et parte centrali secedente. Asci pauci, aparaphysati, globosi, sessiles, 2—4-spori, 60—70 μ diam., membrana 2—3 μ crassis. Sporae atrobrunneae, clavulato-oblongae utrinque obtusae, 1-septatae, constrictae, 45—50 × 22—24 μ, cellula superiore leniter majore, episporio dense echinulato. Conidia non visa.

Hab. in foliis *Elaeocarpi sp.*, Paka, Mt. Kinabulu, British North Borneo, *Clemens 28905* (*BO 13575*; typus).

Asterina cyrtandrae Hansf., *sp. nov.*

Plagulae hypophyllae, usque ad 2 mm diam., tenuissimae aegre perspicues. Mycelium ex hyphis tortuosis, brunneis, 2,5—4 μ crassis, indistincte septatis, cellulis plerumque 20—40 μ longis, irregulariter ramosis, undulato-reticulatis compositum. Hyphopodia alternata vel dispersa, continua, pulvinata vel coralloidea, margine fortiter crenato-lobata 6—8 × 6—11 μ. Thyriothecia laxe dispersa, atra, convexa, rotundata, haud fimbriata, 80—120 μ diam.; paries inferior subhyalinus, indistinctus; paries superior radiatus, brunneis, ex hyphis radiantibus 4 μ crassis compositus, stellatim prope marginem dehiscens. Asci pauci, aparaphysati, immaturi. Sporae dilute brunneae, leves, ellipsoideae utrinque rotundatae, 1-septatae, constrictae, 15—18 × 5—7 μ, cellulis subaequalibus. Pycnidia non visa.

Hab. in foliis *Cyrtandrae pictae*, G. Patuha, Java, *Boedijn 2166 p.p.* (*BO 17413*; typus); Tjibodas, Java, *Boedijn 1824 p.p.* (*BO 13213*).

Asterina elaeocarpicola Hansf., *sp. nov.*

Plagulae plerumque hypophyllae, atrae, subdensae, usque ad 3 mm diam., vel confluentes. Mycelium dense reticulatum, ex hyphis atrobrunneis, tortuosis, 4—6 μ crassis, cellulis plerumque 20—35 μ longis, opposite vel irregulariter ramosis compositum. Hyphopodia alternata vel opposita, continua, uncinata vel irregulariter curvata, cylindracea, 13—23 × 4—7 μ. Thyriothecia subgregaria, atra, convexa, levia, 130—200 μ diam., saepe

2—3-connata, margine crenata, vel leniter fimbriata; paries inferior hyalinus, indistinctus; paries superior radiatus, atrobrunneus, ex hyphis 4—5 μ crassis compositus, stellatim dehiscens et parte centrali secedente. Asci circa 8—10, dubie paraphysati, globosi vel late ovati, sessiles, 8-spori, 40—52 × 25—35 μ, sursum muco luteo tecti. Sporae conglobatae vel multiseriatae, atrobrunneae, oblongae utrinque obtusae, 1-septatae, fortiter constrictae, 24—27 × 12—14 μ, cellulis subaequalibus, episporio indistincte granuloso. Conidia non visa.

Hab. in foliis *Elaeocarpi punctati* (= *Acronodiae punctatae*), Batulanteh, Sumbawa, Lesser Sunda Is., *de Voogd 1642* (*BO 15180*; typus).

Asterina erythropali Hansf., *sp. nov.*

Plagulae amphigenae, atrae, tenues, leves, usque ad 4 mm diam., saepe numerosae subconfluentesque. Mycelium ex hyphis subrectis vel leniter undulatis, atrobrunneis, 4—5 μ crassis, cellulis plerumque 25—30 μ longis, opposite vel irregulariter acuteque ramosis, laxe angulose reticulatis compositum. Hyphopodia alternata, raro opposita, 1-septata, leniter antrorsa, 11—16 μ longa; cellula basali cylindracea, 2—4 μ longa; cellula apicali sinuosa, crenata vel sublobata, recta vel curvula, 8—12 × 6—10 μ. Thyriothecia in centro plagularum subaggregata, rotundata, convexa, atra, levia, usque ad 200 μ diam., interdum 2-connata; paries inferior hyalinus, indistinctus; paries superior radiatus, subopace atrobrunneus, hyphis 3,5—4,5 μ crassis, margine fibriatus, hyphis fimbriarum laxe tortuoso-radiantibus, exhyphopodiatis, usque ad 80 μ longis. Asci subnumerosi, aparaphysati, globosi vel late ovati, apice incrassati, 4—8-spori, sessiles, immaturi. Sporae atrobrunneae, oblongae utrinque obtusae, 1-septatae, constrictae, 25—29 × 11—13 μ, episporio grosse verruculoso, cellulis subaequalibus.

Pycnidia thyriotheciis consimilia, usque ad 160 μ diam., stellatim dehiscentia; paries inferior radiatus, dilute brunneus; pycnosporae ovatae vel late piriformes, continuae, atrobrunneae, leves, 16—20 × 11—13 μ, poris germinationibus 3—4, aequatorialibus.

Hab. in foliis *Erythropali scandentis*, Java?, *BO 5068* (typus).

Asterina evodiae Hansf., *sp. nov.*

Plagulae epiphyllae, tenues, leves, orbiculares, numerosae non confluentes, 0,5—2 mm diam. Mycelium laxe reticulatum, ex hyphis brunneis undulatis vel flexuosis 3—4 μ crassis, cellulis plerumque circa 30 μ longis, opposite vel irregulariter ramosis compositum. Hyphopodia opposita vel irregulariter disposita, continua, saepius curvata, digitata vel irregulariter lobata, 5—13 × 4—9 μ. Thyriothecia laxe dispersa, singula, atra, orbiculata, convexa, margine crenata vel leniter fimbriata, 80—120 μ diam.; paries inferior hyalinus, tenuissimus, obsolete radiatus; paries superior atrobrunneus, radiatus, cellulis 4—8 × 4 μ, radiatim dehiscens et parte centrali secedente. Asci pauci, aparaphysati, globosi vel late ovati, sessiles, 8-spori, 25—30 × 25—35 μ. Sporae conglobatae, brunnescentes, oblongae,

obtusae, 1-septatae, constrictae, 17—21 × 10—11 μ, cellulis subaequalibus vel superiore leniter crassiore, episporio verrucoso-echinulato. Conidia non visa.

Hab. in foliis *Evodiae aromaticae*, G. Bunder, Java, *Boedijn 1209 p.p.* (*BO 12477*; typus).

Asterina fici-globosae Hansf., *sp. nov.*

Plagulae epiphyllae, subtenues, atrae, leves, usque ad 5 mm diam. Mycelium ex hyphis subrectis vel undulatis, atrobrunneis, 5—6 μ crassis, cellulis plerumque 25—40 μ longis, irregulariter ramosis, laxe reticulatis compositum. Hyphopodia alternata vel unilateralia, continua, digitata, recta vel curvata, apice late rotundata, 10—16 × 5—6 μ. Thyriothecia dispersa, rotundata, atra, convexa, usque ad 220 μ diam.; paries inferior subhyalinus, indistincte fibrosus; paries superior radiatus, atrobrunneus, hyphis 3—4 μ crassis, margine breviter denseque fimbriatus, stellatim dehiscens. Asci subnumerosi, erecti, aparaphysati, globosi vel late ellipsoidei, sessiles, 8-spori, usque ad 55 × 30 μ, sursum membrana incrassata (—6 μ). Sporae conglobatae, brunnescentes, oblongae obtusae, 1-septatae, constrictae, 20—24 × 9—11 μ, cellulis subaequalibus, episporio dense granuloso. Conidia non visa.

Hab. in foliis *Fici globosi*, Tjitjadas, Java, *Boedijn 3000* (*BO 14522*).

Asterina geniostomaticola Hansf., *sp. nov.*

Plagulae amphigenae, illis *Asterinae geniostomatis* commixta et consimilia. Mycelium dense reticulato-radiatum, ex hyphis pellucide brunneis, subrectis, 4—5 μ crassis, cellulis plerumque 25—30 μ longis, opposite vel irregulariter acuteque ramosis compositum. Hyphopodia alternata vel unilateralia, continua, digitata vel saepius pulvinata, crenata vel palmatolobata, 6—12 × 7—11 μ. Thyriothecia in centro plagularum dense aggregata, saepe 2—3-connata, singulis rotundatis 100—180 μ diam., atra, convexa, levia, margine dense fimbriata, hyphis fimbriarum tortuoso-radiantibus usque ad 120 μ longis, saepe lateraliter connatis; paries inferior hyalinus, indistinctus; paries superior radiatus, ex hyphis atrobrunneis 4 μ crassis compositus, in maturitate stellatim, prope marginem dehiscens et late apertus. Asci numerosi, aparaphysati, globosi vel late ovati, sessiles, 8-spori, 30—40 × 30 μ. Sporae conglobatae, atro-brunnescentes, oblongae obtusae, 1-septatae, constrictae, 20—22 × 9—11 μ, cellula superiore leniter majore, episporio laxe echinulato, spinulis usque a 2 μ longis, subhyalinis.

Hab. in foliis *Geniostomatis arborei*, Tjibeureum, Java, *Boedijn 1830 p.p.* (*BO 13196*; typus).

This differs markedly in mycelial and spore characters from *A. geniostomatis*, with which it occurs mixed on the same leaves.

Asterina geniostomatis Hansf., *sp. nov.*

Plagulae amphigenae, atrae, subdensae, leves, secedentes, usque ad 2 mm diam. Mycelium ex hyphis atrobrunneis subrectis, 5—8 μ crassis, cellulis plerumque 20—30 μ longis, opposite vel irregulariter ramosis, dense reticulatis compositum. Hyphopodia opposita vel alternata, continua, ovata, integra, subantrorsa, recta vel leniter curvata, 10—13 × 6—8 μ, apice late rotundata. Thyriothecia dispersa vel subaggregata, in centro plagularum subconnata, rotundata, atra, convexa, usque ad 230 μ diam., haud fimbriata, stellatim prope marginem dehiscentia; paries inferior subhyalinus, indistincte fibrosus; paries superior ex hyphis subopacis radiantibus 5—6 μ crassis compositus. Asci pauci, aparaphysati, subglobosi vel late ovati, sessiles, apice late rotundati, incrassati (—2 μ), 4—8-spori. Sporae atrobrunneae, clavulato-oblongae utrinque obtusae, 1-septatae, constrictae, 32—38 × 16—17 μ, cellula superiore leniter majore, episporio dense echinulato (—2 μ). Conidia non visa.

Hab. in foliis *Geniostomatis arborei*, Tjibeureum, Java, *Boedijn 1830 p.p.* (*BO 13196*; typus).

Asterina horsfieldiae Hansf., *sp. nov.*

Plagulae epiphyllae, subdensae, orbiculares, usque ad 8 mm diam., interdum confluentes, fortiter adhaerentes. Mycelium dense reticulatum, ex hyphis atrobrunneis subrectis 5—6 μ crassis, cellulis plerumque 30—40 μ longis, opposite vel irregulariter ramosis, compositum. Hyphopodia opposita vel dispersa, continua, ovata vel ellipsoidea, subintegra, 10—14 × 7—9 μ. Thyriothecia primo dense dispersa, demum subconnata, rotundata vel subellipsoidea, atra convexa, levia, 150—200 × 100—140 μ, margine irregulariter crenata, vel lenissime fimbriata; paries inferior indistinctus; paries superior radiatus, cellulis usque ad 15 × 3,5—4,5 μ, stellatim, longitudinaliter vel irregulariter dehiscens, parte centrali mox secedente. Asci late ellipsoidei, sessiles vel brevissime nodoso-stipitati, 8-spori, 60 × 45—50 μ. Paraphyses indistinctae, subnullae. Sporae irregulariter dispositae, oblongae, obtusae, atrobrunneae, 1-septatae, fortiter constrictae, 35—40 × 18—20 μ, cellula superiore leniter majore, episporio melleo, echinulato usque ad 1,5 μ. Conidia non visa.

Hab. in foliis *Horsfieldiae iryae*, Tjitjadas, Java, *Boedijn 2835* (*BO 14446*; typus).

This species verges towards *Lembosia* in shape of the thyriothecia, but in view of the fact that most of those observed were rounded rather than elongate, it seems best to place it in *Asterina*; between these genera it appears difficult to draw a hard and fast line.

Asterina melastomaticola Hansf., *sp. nov.*

Plagulae epiphyllae, tenues, leves, laxe dispersae, usque ad 2 mm diam., epidermidem folii rubescentes. Mycelium ex hyphis dilute brunneis, flexuosis, 3—4 μ crassis, irregulariter laxeque ramosis, indistincte septatis compositum. Hyphopodia dispersa alternata vel unilateralia, continua,

pulvinata vel obtusae conoidea, integra vel crenulata, 6—10 × 5—8 μ. Thyriothecia pauca, in centro plagularum subaggregata vel saepe 2—3-connata, orbiculata, usque ad 160 μ diam., atra, convexa, levia; paries inferior subhyalinus, indistinctus; paries superior ex hyphis radiantibus subopace atrobrunneis 3—4 μ crassis compositus, margine fimbriatus, hyphis fimbriarum tortuosis exhyphopodiatus, usque ad 60 μ longis, stellatim prope marginem dehiscens demum late apertus. Asci pauci, paraphysati, globosi vel late ovati, sessiles 8-spori. Sporae conglobatae, atrobrunneae, oblongae, obtusae, 1-septatae, constrictae, 15—19 × 8—9 μ, cellulis aequalibus subglobosis, episporio verruculoso-echinulato. Conidia non visa.

Hab. in foliis *Melastomatis malabathrici*, Tjigombong, Java, *Boedijn 753* (*BO 11732*).

Asterina pittospori Hansf., *sp. nov.*

Plagulae epiphyllae, atrae, leves, tenues, 2—4 mm diam. Mycelium ex hyphis subrectis, atrobrunneis, 5—6 μ crassis, cellulis 20—30 μ longis, opposite vel irregulariter acuteque ramosis, laxe reticulatae. Hyphopodia alternata, hemisphaerica vel subglobosa, integra, 8—13 × 8—10 μ. Thyriothecia subaggregata, suborbiculata, usque ad 160 μ diam., margine laxe fimbriata, hyphis fimbriarum tortuosis, usque ad 70 μ longis; paries inferior subhyalinus vel griseus, subradiatus hyphis 4 μ crassis; paries superior subopace atrobrunneus, radiatus, hyphis 5—6 μ crassis, stellatim prope marginem dehiscens, parte centrali mox secedente. Asci haud numerosi, aparaphysati, globosi vel ovati, sessiles, 8-spori, 30—45 × 30—38 μ. Sporae conglobatae, oblongae, obtusae, 1-septatae, constrictae, 25—28 × 12—14 μ, cellula superiore lenissime majore, episporio tenuiter verruculóso. Conidia non visa.

Hab. in foliis *Pittospori ferruginei*, G. Beser, Java, *Boedijn 2003* (*BO 13526*; typus); G. Pantjar, Java, *Boedijn 1741* (*BO 13101*); in foliis *Pittospori elementis*, Mt. Apo, Davao, Mindanao, Philippines, *Elmer 11824 p.p.* (*BO 3627*).

Asterina planchonellae Hansf., *sp. nov.*

Plagulae epiphyllae, tenues vel subdensae, atrae, leves, numerosae, raro confluentes, usque ad 5 mm diam. Mycelium laxe vel dense reticulatum, ex hyphis subrectis, atrobrunneis, 4—5 μ crassis, cellulis 30—40 μ longis, opposite vel irregulariter lateque ramosis compositum. Hyphopodia alternata vel unilateralia, recta vel curvata, cylindracea apice late rotundata, integra, continua, 7—13 × 4—6 μ. Thyriothecia subdense dispersa, in centro saepe connata, atra, convexa, orbiculata, 150—250 μ diam., margine laxe fimbriata, hyphis fimbriarum radiantibus usque ad 100 μ longis; paries inferior subhyalina, indistincta; paries superior atrobrunneus, radiatus, hyphis 4—6 μ crassis, stellatim dehiscens. Asci subnumerosi, aparaphysati, late ovati, sessiles vel brevissime nodoso-stipitati, 8-spori, 60—75 × 40—50 μ. Sporae multiseriatae vel conglobatae, oblongae utrin-

que obtusae, 1-septatae, constrictae, atrobrunneae, 30—35 × 14—17 μ, cellulis subaequalibus, episporio levi. Conidia non visa.

Hab. in foliis *Planchonellae nitidae*, G. Tjibodas prope Tjampea, Java, *Boedijn 850* (*BO 11869*; typus).

Asterina pouzolziae Hansf., *sp. nov.*

Plagulae epiphyllae, atrae, subdensae, dispersae, 0,5—1 mm diam. Mycelium ex hyphis brunneis flexuosis 3—4 μ crassis, obsolete septatis, cellulis 20—30 μ longis, opposite vel irregulariter ramosis, reticulatis compositum. Hyphopodia alternata vel unilateralia, continua vel 1-septata 6—20 μ longa; cellula basali cylindracea vel sublobata, 0—10 μ longa; cellula apicali curvata, varie lobata, pulvinata vel cylindracea, 6—15 × 4—7 μ. Thyriothecia in centro plagularum dispersa vel subaggregata, orbiculata, convexa, levia 80—130 μ diam., saepe 2-pluries-connata, margine irregulariter crenata, hyphis fimbriarum paucis, tortuosis, usque ad 50 μ longis; paries inferior subhyalinus indistincte radiatus; paries superior atrobrunneus, radiatus, cellulis 4—12 × 4 μ, stellatim prope marginem dehiscens. Asci pauci, aparaphysati, globosi vel late ovati, sessiles, 8-spori, 25—30 × 20—25 μ. Sporae conglobatae oblongae, obtusae, 1-septatae, constrictae, leves, 14—18 × 8—10 μ, cellulis subaequalibus. Conidia non visa.

Hab. in foliis *Pouzolziae zeylanicae*, Ngebel, Java, *Boedijn 3116* (*BO 13243*)

Asterina saniculicola Hansf., *sp. nov.*

Plagulae plerumque epiphyllae, atrae, tenues, 0,5—1,0 mm diam. Mycelium laxe reticulatum, ex hyphis brunneis, tortuosis, 3—4 μ crassis, cellulis plerumque 15—20 μ longis, irregulariter ramosis compositum. Hyphopodia alternata vel unilateralia, continua, pulvinata, crenata vel fortiter lobata, 5—7 × 5—9 μ. Thyriothecia in centro plagularum subaggregata, orbiculata, atra, convexa, levia, 80—130 μ diam., margine crenata haud fimbriata; paries inferior griseus, radiatus, hyphis 4—5 μ crassis; paries superior pellucide atrobrunneus, radiatus, cellulis 5—12 × 4—5 μ, stellatim prope marginem dehiscens. Asci pauci, aparaphysati, globosi vel late ovati, sessiles, 8-spori, 20—30 × 18—25 μ. Sporae conglobatae, oblongae, obtusae, 1-septatae, constrictae, 13—16 × 6—7 μ, cellula superiore lenissime crassiore, episporio verruculoso. Conidia non visa.

Hab. in foliis *Saniculae europaeae*, Tjibodas, Java, *Boedijn 1829* (*BO 13207*; typus); loc. cit., *Boedijn 1825* (*BO 13203*).

Asterina saniculae Doidge, from South Africa, has different mycelium and its hyphopodia are one-septate.

Asterina sideroxyli Hansf., *sp. nov.*

Plagulae hypophyllae, tenues vel subdensae, usque ad 5 mm diam. vel confluentes. Mycelium ex hyphis tortuosis, dilute brunneis, 3—5 μ crassis, cellulis 20—30 μ longis, irregulariter ramosis, subdense reticulatis com-

positum. Hyphopodia in hyphis sessilia, lateralia, vel in ramulis terminalia continua, curvato-ellipsoides, integra, 10—16 × 4—8 μ, raro transversia et haustoria bina efformantia. Thyriothecia laxe dispersa, atra, orbiculata, convexa, usque ad 280 μ diam., margine breviter fimbriata; paries inferior indistinctus; paries superior radiatus, opace brunneus, cellulis 5—15 × 5 μ, stellatim lateque dehiscens. Asci pauci, ovato-ellipsoidei, sessiles, 8-spori, circa 80 × 50 μ; paraphyses jam diffluentes. Sporae conglobatae, oblongae, obtusae, 1-septatae, constrictae, leves, atrobrunneae, 32—39 × 17—19 μ, cellulis subaequalibus subglobosis. Conidia non visa.

Hab. in foliis *Siderocylli* sp., Mt. Apo, Davao, Mindanao, Philipines, *Elmer 16801* (*BO 3631*; typus).

Asterina tinosporae Hansf., *sp. nov.*

Plagulae epiphyllae, tenues, atrae, usque ad 1 mm diam., numerosae subconfluentesque. Mycelium ex hyphis brunneis, subrectis vel undulatis, 3,5—5 μ crassis, obsolete septatis, laxe radianto-reticulatis compositum. Hyphopodia alternata vel unilateralia, continua, pulvinata, varie lobata, 6—11 × 8—12 μ. Thyriothecia dispersa, atra, orbiculata, convexa, 50—90 μ diam., margine laxe fimbriata, hyphis fimbriarum rectis vel tortuosis, usque ad 120 μ longis; stellatim dehiscentia et parte centrali secedente; paries inferior griseo-hyalinus, obsolete radiatus, hyphis 3 μ crassis; paries superior brunneus, radiatus, cellulis 4—12 × 3—4 μ. Asci pauci, aparaphysati, ovati vel subglobosi, sessiles, 8-spori, 20—28 × 18—24 μ. Sporae conglobatae, brunnescentes, oblongae utrinque obtusae, 1-septatae, leniter constrictae, 14—17 × 7—8 μ, cellulis subaequalibus vel superiore leniter crassiore, episporio levi vel obsolete punctato. Conidia non visa.

Hab. in foliis *Tinosporae coriaceae*, Nusa Kambangan, Java, *Boedijn 1101* (*BO 12089*; typus).

Lembosia agathidis Hansf., *sp. nov.*

Plagulae amphigenae, usque ad 2 mm diam., densae atrae. Mycelium ex hyphis atrobrunneis, subrectis vel flexuosis, 3—4 μ crassis, cellulis 15—25 μ longis, irregulariter ramosis, dense radianto-reticulatis compositum. Conidia (?) mycelii erecta, cercosporoidea, atrobrunnea, basi truncata, sursum ad apicem obtusam attenuatae, transverse 2—4-septatae, 25—50 × 7—8 μ, levia, interdum leniter constrictae, cellula basali saepe subglobosa. Thyriothecia ellipsoidea vel Y-formia, irregulariter dispersa, interdum 2-connata, usque ad 500 × 200 μ, atra, levia, longitudinaliter rimoso-dehiscentia; paries inferior hyalinus indistinctus; paries superior opace ater, ex hyphis parallelo-radiantibus compositus, margine haud fimbriatus. Asci numerosi, ovati vel late ellipsoidei, sessiles, apice late rotundati incrassatique (—4 μ), 8-spori, circa 35 × 20 μ. Paraphyses obsoletae, hypothecio transeuntes, hyalinae, indistincte septatae, numerosae, ascos aequantes, epithecio nullo. Sporae brunnescentes, clavulato-oblongae, obtusae, 1-septatae, constrictae, leves, 16—18 × 8 μ, cellula superiore leniter crassiore.

Hab. in foliis *Agathidis sp.*, Malili, Celebes, *Bosbouwproefstation (Forest Res. Inst.)* 55.20804 (*BO* 16150), 55.21647 (*BO* 16327).

Lembosia zalaccae Hansf., *sp. nov.*

Plagulae epiphyllae, 10—20 mm diam. vel late confluentes, tenues, leves. Mycelium laxe reticulatum, ex hyphis subrectis atrobrunneis 6,5—8 μ crassis, cellulis plerumque 30—40 μ longis, opposite acuteque ramosis, compositum. Hyphopodia alternata vel unilateralia, continua, hemisphaerica, integra, 8—10 × 12—16 μ. Thyriothecia laxe dispersa, primo orbiculata demum ellipsoideo-linearia, usque ad 1200 × 250—300 μ, margine laxe fimbriata, hyphis fimbriarum subrectis usque ad 120 μ longis; paries inferior subhyalinus, indistinctus; paries superior radiatus, atrobrunneis, cellulis 5—15 × 6—7 μ, longitudinaliter lateque dehiscens. Asci sessiles, ovati vel subglobosi, firme tunicati, primo 8- demum 2—4-spori, usque ad 70 × 45 μ; paraphyses numerosae, filiformes, septatae, ramosae, primo hyalinae, sursum brunnescentes, difluentes, ascos leniter superantes. Sporae irregulariter positae, atrobrunneae, oblongae, obtusae, 1-septatae, constrictae, 38—44 × 18—20 μ, cellulis aequalibus ellipsoideis, episporio minute verruculoso. Conidia non visa.

Hab. in foliis *Zalaccae edulis*, Pasaruan, Java, *Boedijn 1270* (*BO* 12539; typus).

The thyriothecium is at first filled with a loose tissue of septate, branched, filiform "paraphyses," amongst which at the base the ascogenous hyphae ramify, with many erect branches which develop into asci; the paraphyses turn brown above the young asci after dehiscence of the upper wall of the thyriothecium, but are soon replaced by the collapsed remains of discharged asci.

Morenoella annularis Hansf., *sp. nov.*

Plagulae perumque epiphyllae, atrae, leves, usque ad 2,5 mm diam., rotiformes. Mycelium ex hyphis subrectis vel leniter undulatis, atrobrunneis 4 μ crassis, ex centro subsolido parenchymatico radiantibus laxe fasciculatisque, in marginem dense ramosis reaggregatis et circulum solidum pseudoparenchymaticum efformantibus, compositum. Hyphopodia in centro plagularum aggregata, alternata, opposita vel ternata, sessilia, pulvinata, margine crenulata, 5—7 μ diam. Spermogonia (?) prope marginem evoluta, orbiculata vel late ellipsoidea, atra, convexa, usque ad 100 × 60 μ, et 15—30 μ alt., poro centrali irregulari vel rima brevi dehiscentia; microsporae bacillariae, hyalinae, continuae obtusae, rectae, 3—4 × 1 μ in sporophoris simplicibus hyalinis, 10 × 1 μ acrogenae. Pycnidia spermogoniis consimilia; conidia piriformia, continua, apice rotundata, minute truncata, levia, 9—11 × 5—6 μ, brunnea, zono lato equatoriale subhyalino praedita. Ascomata tarde apparentia, in marginem oriunda deinde centripetaliter orta, orbiculata vel late ellipsoidea, 100—150 × 60—120 μ, margine haud fimbriata, atra, levia; paries inferior dilute brunneus vel subhyalinus, indistincte fibrosus; paries superior radiatus atrobrun-

neus, longitudinaliter vel irregulariter stellatim dehiscens. Asci numerosi, erecti, aparaphysati, clavati vel ellipsoidei, sessiles, apice late rotundati et in juventute leniter incrassati, 8-spori, 35—40 × 13—17 μ. Sporae multiseriatae vel subconglobatae, oblongae, obtusae, 1-septatae, leniter constrictae, brunnescentes, leves, 12—13 × 5—6,5 μ, cellulis aequalibus.

Hab. in foliis *Tetracerae fagifoliae*, Tjilodong, Java, *van Overeem 22* (*BO 808*; typus); in foliis *Tetracerae sp.*, Depok, Java, *Doctera van Leeuwen s.n.* (*BO 11122*).

Colonies mostly epiphyllous, black, smooth, to 2.5 mm diam., consisting of a central boss of dense hyphae and hyphopodia, almost parenchymatous, with loose fasciculate hyphae radiating outwards to coalesce towards the edge, where the fruiting bodies are first formed, and constitute a solid rim to the wheel-like colonies. Later the colonies become more even and almost solid by development of additional ascomata inside. Mycelium of substraight to somewhat undulate dark brown hyphae 4 μ thick, the cells in the centre and margin 8—12 μ long, in the middle region longer to 40 μ, irregularly branched at acute angles. Hyphopodia closely crowded in the central region, 1—2—3 to a single mycelial cell, sessile, continuous, pulvinate-crenate, 5—7 μ diam. There is no penetration of the host leaf save by the haustoria produced by the hyphopodia in the centre of the colony.

The first fruiting structures produced by a colony are apparently spermogonia, which like all the fruiting bodies are circular to widely ellipsoid, radiate in structure, black, convex; these spermogonia open by an irregular central pore or short cleft and discharge the "microconidia," which are abstricted from the apices of fine simple hyaline "conidiophores" lining the whole interior surface of the locule and forming a close palisade; microconidia bacillary, hyaline, straight, obtuse 3—4 × 1 μ. Shortly afterwards other similar loculi give rise to pycnospores or "macroconidia," abstricted terminally from simple hyaline conidiophores lining the sides and edge of the flattened-conic locules; conidia piriform, continuous rounded at apex, minutely truncate at the base, smooth, brown with a broad hyaline equatorial band, which is thin-walled and sometimes slightly constricted, 9—11 × 5—6 μ. The ascomata are formed much later, like the other fruiting bodies arising as swellings beneath the mycelial pellicle towards the margin, gradually extending in succession inwards to the centre until mature colonies are almost solid; circular to widely elliptic, not fimbriate at the margin; the upper wall radiate, black, opening by a longitudinal cleft or by irregular stellate fissures; lower wall subhyaline to pale brown, of indistinctly fibrous structure.

MORENOELLA DECALVANS (Pat.) Theiss.

Morenoella decalvans (Pat.) Theiss. *in* Ann. mycol., Berl. 11: 452. 1913.
= *Lembosia decalvans* Pat. *in* Ann. Jard. bot. Buitenz., Suppl. 1: 122. 1897.

Part of the type has been re-examined:

Colonies epiphyllous, effuse, strongly adnate, 2—3 mm diam., thin, dendritic. Mycelium of pale brown hyphae 3—4 μ thick, the cells 20—35 μ

long, branching irregular, loosely to rather closely reticulate with angular meshes, in places forming mycelial knots. Hyphopodia alternate or unilateral, restricted almost entirely to some areas of each colony, scarce in others, hemispheric, entire, continuous, 5—8 μ high and wide. Thyriothecia closely crowded in centre of colony, often circinately arranged, black, convex, at first circular, becoming elliptic-linear 150—500 × 100—150 μ, the margin crenate to loosely fimbriate, the fringing hyphae up to 70 μ long. Lower wall indistinct. Upper wall of radiating hyphae, dark brown, subopaque, 4—5 μ thick, the cells 5—10 μ long, longitudinally split at maturity and the centre falling away. Asci aparaphysate, ovoid to ellipsoid, sessile, 8-spored, 40—50 × 23—30 μ. Spores conglobate, oblong with rounded ends, 1-septate, constricted, 18—20 × 8—10 μ, the upper cell slightly larger than the lower and globose, epispore finely punctate. No conidia present.

On *Pachygone sp.*, Botanic Gardens, Buitenzorg (Bogor), Java, *Massart 135* (*BO 3699*).

Patouillardina aporosae Hansf., *sp. nov.*

Plagulae epiphyllae, tenuissimae, aegre perspicues, usque ad 3 mm diam., vel effusae. Mycelium ex hyphis subrectis vel flexuosis, atrobrunneis, 4—5 μ crassis, cellulis plerumque 25—30 μ longis, indistincte septatis, opposite vel irregulariter lateque ramosis, laxissime reticulatis compositum. Hyphopodia continua, cylindracea, recta vel curvata, integra, apice obtusa, 8—11 × 4—6 μ. Thyriothecia laxe dispersa, orbiculata, atra, convexa, usque ad 250 μ diam., margine crenata haud fimbriata; paries inferior indistinctus, ex hyphis subhyalinis undulatis compositus; paries superior subopace atrobrunneus, radiatus, cellulis 4—12 × 3—4 μ, stellatim dehiscens. Asci pauci, aparaphysati, sessiles, tenuiter tunicati, ovati, usque ad 70 × 50 μ, 8-spori. Sporae atrobrunneae, leves, clavatae, 2-septatae, ad septum superiorus leniter constrictae, apice late rotundatae, deorsum basim obtusum versus attenuatae, 40—45 × 11—14 μ. Conidia nulla.

Hab. in foliis *Aporosae aurita*e, Tjilodong, Java, *Boedijn 1696 p.p.* (*BO 13009*).

MICROTHYRIACEAE ON EUGENIA

The Bogor Herbarium contains a considerable series of specimens of this family on species of *Eugenia*, both from Java and from the Philippines, and it has been a matter of great difficulty to sort them satisfactorily. A few are definitely distinct from the others and are here described as separate species.

Lembosia boedijnii Hansf., *sp. nov.*

Plagulae epiphyllae, tenues, atrae, leves. Mycelium ex hyphis atrobrunneis, rectis 4—5 μ crassis, cellulis 20—25 μ longis, opposite vel irregulariter ramosis, partim laxe, partim dense hyphopodiigerisque

reticulatis compositum. Hyphopodia alternata vel unilateralia, continua, hemisphaerica, integra, 6—8 × 8—10 μ, passim numerosa. Thyriothecia dispersa, atra, convexa, levia, primo rotundata demum elliptico-linearia, usque ad 450 × 250 μ, margine crenata vel laxissime fimbriata, hyphis fimbriarum usque ad 50 μ longis; paries inferior indistinctus; paries superior radiatus, opace brunneus, cellulis 5—15 × 5 μ, longitudinaliter dehiscens. Asci numerosi, ovati vel globosi, sessiles, 8-spori, circa 50 × 40 μ; paraphyses numerosae, filiformes septatae, demum in muco brunneolo diffluentes. Sporae conglobatae, oblongae, obtusae, 1-septatae, constrictae, 24—28 × 13—15 μ, cellula superiore leniter crassiore, episporio atrobrunneo levi.

Hab. in foliis *Eugeniae sp.*, Tjiapus-kloof, Java, *Boedijn s.n.* (*BO 10982*; typus).

The hyphopodia are very different from those of other forms on *Eugenia*, and their distribution is peculiar, in that they are very numerous and closely aggregated in some parts of the colony, while almost completely absent from others.

Lembosia javensis Hansf., *sp. nov.*

Plagulae amphigenae, plerumque epiphyllae, usque ad 4 mm diam., leves, tenues. Mycelium ex hyphis atrobrunneis subrectis vel leniter sinuosis, 4,5—6 μ crassis, cellulis plerumque 30—40 μ longis, alternatim vel irregulariter acuteque ramosis (raro opposite), laxe radianto-reticulatis compositum. Hyphopodia alternata vel usque ad 5% opposita, 1-septata, recta vel curvata, subantrorsa, 11—25 μ longa; cellula basali cylindracea 2—13 μ longa; cellula apicali subglobosa, ovata vel cylindracea, integra, 7—13 × 6—8 μ. Thyriothecia dispersa, atra, elliptica vel linearia, usque ad 1000 × 500 μ, atra, levia, convexa, longitudinaliter dehiscentia, margine subfimbriata, hyphis fimbriarum tortuoso-radiantibus usque ad 100 μ longis; paries inferior subhyalinus, indistinctus; paries superior radiatus, atrobrunneus, ex cellulis 5—15 × 5—6 μ compositus. Asci sat numerosi, ovati vel globosi, sessiles, usque ad 50 × 45 μ, primo 8-spori sed tantum 2—4 sporae maturescentes; paraphyses numerosae, subhyalinae vel luteae, ascos leniter superantes, filiformes, simplices. Sporae atrobrunneae, oblongae, obtusae, 1-septatae, constrictae, 34—38 × 16—18 μ, cellulis subaequalibus vel superiore leniter majore, episporio dense distincteque atrogranuloso. Conidia non visa.

Hab. in foliis *Eugeniae operculatae*, Tjibodas, Java, *Boedijn 2658* (*BO 14489*; in foliis *Eugeniae formosae* (*Eu. pseudoformosae*), Nusa Kambangan, Java, *Boedijn 1082* (*BO 12108*; typus).

Lembosia eugeniae-polyanthae Hansf., *sp. nov.*

Plagulae epiphyllae, tenues, leves, usque ad 5 mm diam., vel late confluentes. Mycelium ex hyphis atrobrunneis, 4—6 μ crassis, cellulis plerumque 20—30 μ longis, subrectis vel subtiliter undulatis, opposite vel irregulariter acuteque ramosis, subdense reticulatis compositum. Hypho-

podia alternata, subantrorsa, recta vel curvula, 10—17 μ longa, continua vel 1-septata; cellula basali breviter cylindracea, 0—6 μ longa; cellula apicali cylindracea, ovata vel leniter rotundato-lobata, 7—11 × 6—8 μ. Thyriothecia dispersa, atra, convexa, ex rotundato elliptico-linearia, saepe composita, 300—700 × 150—300 μ, margine laxe fimbriata, hyphis fimbriarum subrectis radiantibus, usque ad 70 μ longis; paries inferior indistinctus; paries superior opace atrobrunneus, radiatus, cellulis 5—15 × 5 μ, longitudinaliter dehiscens, parte centrali mox secedente. Asci non visi. Sporae atrobrunneae, oblongae, obtusae, 1-septatae, constrictae, leves, 30—33 × 14—15 μ, cellulis aequalibus.

Hab. in foliis *Eugeniae polyanthae*, Depok, Java, *Boedijn 803* (*BO 11908*; typus); in foliis *Eugeniae longiflorae*, Tjilodong, Java, *van Overeem 33* (*BO 807*), G. Pantjar, Java, *Boedijn 1705* (*BO 12107*); in foliis *Eugeniae cf. jamboloidis* (*Eu. cerasiformis*), Tjilodong, Java, *van Overeem 17* (*BO 793*).

ASTERINA COLLICULOSA Speg.

Asterina colliculosa Speg., Fungi Puigg. no. 347 *in* Bol. Acad. nac. Ciene. Córdoba 11: 559. 1889.

The only specimen I have seen of this species is a specimen (Phil. Bur. Sci. 21902) on *Eugenia jambolana* (= *Eu. cumini*), from Rizal, Luzon, Philippines, determined by both Rehm and Yates:

Colonies epiphyllous, dense, black, up to 10 mm diam., or confluent over the whole leaf, mixed with those of a species of *Meliola*. Mycelium of dark brown, substraight hyphae 6 μ thick, the cells mostly 25—30 μ long, branched irregularly at wide angles, closely reticulate, often with rectangular meshes. Hyphopodia alternate, spreading or somewhat antrorse, straight or slightly bent, 1-septate, 10—15 μ long; stalk cell cylindric, 2—5 μ long, head cell ovate to cylindric with broadly rounded apex, entire, 7—10 × 6—10 μ. Thyriothecia closely scattered, circular, opaque black, up to 250 μ diam., often 2—3-connate and then larger and irregular; basal wall pale olivaceous, indistinctly tortuous-radiate; upper wall of subopaque dark brown radiate hyphae 3—5 μ thick, the cells up to 12 μ long; margin not or slightly fimbriate, the loose tortuous fringing hyphae up to 80 μ long, few; dehiscence by irregular stellate fracture of the centre of the upper wall, the central parts later secedent to expose the contents. Asci not seen. Spores dark brown, oblong with rounded ends, 1-septate, constricted, 31—36 × 14—16 μ, the cells subequal and each ovate, epispore smooth.

(Description from specimen in the Pretoria herbarium.)

ASTERINA PEMPHIDIOIDES Cooke

Asterina pemphidioides Cooke *in* Grevillea 5: 16. 1876.

For the present I am including here a series of specimens listed below, which show minor differences between themselves, but generally cor-

respond to Robinson 2468 on *Eugenia jambolana*, Macassar, Celebes, determined by Sydow, in Herbarium Bogoriense (BO 3982):

On *Eugenia densiflora*, ? Java, *BO 5047*.
On *Eugenia laxiflora* (= *Eu. cerasiformis*), Java, *BO 12345*.
On *Eugenia polyantha*, Java, *BO 12687, 12002*.
On *Eugenia jambaloides* (= *Eu. cerasiformis*), Java, *BO 13621 p.p.*
On *Eugenia operculata*, Java, *BO 14478*.
On *Eugenia lineata* (= *Eu. longiflora*), Java, *BO 12100, 13020*.

Of these the last specimen (13020) corresponds exactly to one (Phil. Bur. Sci. 22678 = BO 3609), which is the type of *Asterina Eugeniae* Yates, so that I am somewhat doubtful of Sydow's determination of Robinson 2468, at present my sole authority for the use of Cooke's name above.

Robinson 2468:

Colonies epiphyllous, 2—3 mm diam., rather dense when mature, smooth, widely confluent. Mycelium of brown hyphae 4—5 μ thick, the cells mostly 15—20 μ long, the septa rather indistinct, irregularly branched, forming a loose reticulum of wavy meshes. Hyphopodia alternate or scattered, at wide angles, short cylindric with rounded apex, entire, continuous, straight or bent, 7—13 × 5—7 μ. Thyriothecia scattered, more or less circular, convex, black, smooth, up to 230 μ diam. or confluent, the margin fimbriate, the fringing hyphae tortuous-radiating up to 130 μ long. Lower wall very thin, of greenish-hyaline tortuous hyphae 2—3 μ thick; upper wall opaque dark brown, of radiating hyphae 5 μ thick with cells 5—12 μ long, stellate-dehiscent nearly to the margin into broad triangular segments which soon fall away, leaving the ascoma widely open. Asci rather few, apparently aparaphysate, globose to widely ovate-ellipsoid, 40—45 × 30—35 μ, 8-spored. Spores conglobate, oblong-clavulate with rounded ends, 1-septate, constricted, 20—22 × 10—11 μ, the upper cell globose, the lower slightly narrower, epispore verruculose. Germination by the formation of a terminal hyphopodium from the upper cell, while the lower empties, collapses and soon disappears; the upper cell then forms the mycelium from the end opposite to the hyphopodium.

Bogor 13020:

The mycelium consists of straighter hyphae than the above, branched alternately or irregularly at acute angles and eventually forming a close network of polygonal meshes. Hyphopodia like those of Robinson 2468. Thyriothecia scattered, black, circular to 200 μ diam. or connate and then elliptic to Y-shaped; these composite thyriothecia open by longitudinal fissures like a *Lembosia*, while the single round ascomata are stellately dehiscent as in the previous description. In other characters this specimen corresponds very closely to Robinson 2468, save for the process of spore germination; here the spore first forms an "appressorium" or stalked

hyphopodium of 2 cells, of which the distal acts as a hyphopodium, forming the first haustorium into the leaf epidermis, while the basal or proximal cell enlarges laterally and forms the beginnings of the mycelium; by this latter stage the whole spore has emptied and collapsed, soon disapearing altogether. This is altogether different from Robinson 2468, in which the upper spore cell forms an integral part of the young colony, and presumably is even more permanent.