

CHECKLIST OF GENERA OF THE *BIONECTRIACEAE*, *HYPOCREACEAE* AND *NECTRIACEAE*, WITH AN ACCOUNT OF EXCLUDED GENERA AND SPECIES

A number of genera initially placed in the *Hypocreales* because of their bright-colored, soft-textured fruiting-bodies have been previously or are herein removed from the order (Gams & Müller, 1980; Rossman, 1987; Samuels & Hallett, 1983; Samuels & Rossman, 1992; Samuels *et al.*, 1993). Such misplaced genera are accounted for in this section, as summarized in Table 1 (p. 12). The genera excluded from the *Bionectriaceae*, *Hypocreaceae*, and *Nectriaceae* in this study are placed among 19 families in 12 orders of ascomycetes as well as one basidiomycetous genus, *Mycaureola* (Porter & Farnham, 1986). Two genera are uniloculate, discomycetous loculoascomycetes (Rossman, 1987), while a number of excluded genera have true apothecia and belong in the *Helotiales* and *Pezizales* or are lichenized fungi and placed in the *Lecanorales*. Many pyrenomycetes confused with the hypocrealean fungi are herein placed in the *Diaporthales* and *Xylariales*, often in the *Hyponectriaceae* and *Thyridiaceae*. Genera for which ordinal placement is most difficult are those having immersed ascumata. The immersed habit often results in a simplification of ascumatal morphology; thus careful observations must be made of centrum characteristics. Immersed non-hypocrealean genera include: *Charonectria* and *Hyponectria*, differentiated from the *Hypocreales* by the presence of apically free paraphyses, now placed in the *Hyponectriaceae*, *Xylariales*; and *Cryptoleptosphaeria*, *Cryptonectriella* and *Schizoparme* also having apically free paraphyses and asci with a conspicuous ascus ring, now placed in the *Diaporthales*. Several genera are placed in the *Niessliaceae* and *Clavicipitaceae* of the *Hypocreales*.

Actiniopsis Starbäck, Bih. Kongl. Svenska Vetensk.-Akad. Handl. 25: 54. 1899.

Lectotype, designated by Clements & Shear (1931): *A. bambusae* Starbäck.

Actiniopsis was described without reference to its taxonomic placement. It was included in the *Hypocreales* by von Höhnelt (1911, 1912), Clements & Shear (1931), Petch (1938), and Rogerson (1970), based on the fleshy ascumata with fasciculate hairs surrounding the ascumatal apex. The genus was originally described with two species, *A. bambusae* and *A. plumbea* Starbäck. According to Malme (1937) and Santesson (1952), *A. bambusae* is a synonym of the lichen species *Trichothelium epiphyllum* Müll.-Arg. *Actiniopsis plumbea*, a synonym of *Trichothelium horridulum*

(Müll.-Arg.) R. Santesson, is also the type of *Ophiodictyon* Sacc. & P. Syd. Samuels (1976b) reviewed the history of the two original species in *Actiniopsis* and confirmed the non-hypocrealean nature of their ascumata based on an examination of type specimens. Thus, as stated by Samuels (1976b), neither *Actiniopsis* nor *Ophiodictyon* belong in the *Hypocreales*, rather, they are synonyms of the lichen genus *Trichothelium* Müll.-Arg. in the *Trichotheliales*.

The eight additional names included in *Actiniopsis* have been redispersed as discussed by Samuels (1976b). One species, *Ijuhya peristomialis* (Berk. & Broome) Rossman & Samuels (= *Actiniopsis peristomialis* (Berk. & Broome) Petch = *Peristomialis berkeleyi* Boud.), type of the genus *Ijuhya* Starbäck, is a member of the *Bionectriaceae*.

Ahlesia Fuckel, Jahrb. Nassauischen Vereins Naturk. 23–24: 281. 1869 [1870].

Type: *A. lichenicola* (Fuckel) Fuckel (= *Peziza lichenicola* Fuckel, Fungi rhenani 1169. 1864), recognized as *Thelocarpon lichenicola* (Fuckel) Poelt & Hafellner, Phytion (Austria) 17: 67. 1975, in the *Lecanorales*.

Although originally placed in the *Patellariaceae* (Fuckel, 1870), *Ahlesia* was later considered a synonym of *Thelocarpon* Nyl. in the *Hypocreaceae* (Rehm, 1891). The ascumata of both genera are fleshy and light- to bright-colored; those of *Ahlesia* are apothecial while in *Thelocarpon* they appear perithecial. In his monograph, Salisbury (1974) stated that *Ahlesia* is lichenized and similar to *Thelocarpon* in the *Lecanorales*. He reviewed the disposition of all species that have been included in *Ahlesia*. Poelt & Hafellner (1975) regarded the ascumata of *Thelocarpon* to be modified apothecia rather than true perithecia and considered *Ahlesia* to be a synonym of *Thelocarpon*. They also correlated the structure of the ascumata with a reduction in the apical apparatus of the ascus. Based on these accounts, *Ahlesia* is considered a synonym of *Thelocarpon*. See *Thelocarpon* for further discussion.

Allantonectria Earle is a synonym of *Nectria* in the *Nectriaceae*.

ADDITIONAL NAME.— *Allantonectria creonectrioides*, Chardón, J. Dept. Agric. Porto Rico 14: 241. 1930. The type specimen was examined and determined to be a

synonym of *Stilbocrea gracilipes* in the *Bionectriaceae*.

Allonectella Petrak is an accepted genus in the *Nectriaceae*.

Amphinectria Speg., Bol. Acad. Nac. Ci. 26: 346. 1923 [1924].

Type: *A. portoricensis* Speg.

In his original description, Spegazzini (1924) wrote that 'este género se aparenta de *Calonectria*', suggesting an affinity with members of the *Hypocreales*. Clements & Shear (1931) considered *Amphinectria* to be a synonym of *Berkelella* Sacc. in the *Hypocreaceae*. Petrak (1951) examined the type specimen of *A. portoricensis*, on which he found only a 'kleiner, rundlicher Thallus' and immature perithecia. He concluded that this genus was a lichen but that it could not be adequately characterized. The holotype specimen of *A. portoricensis* from LPS was examined by Rossman (1987). No ascomata resembling the description were present on it, although ascomata were found of *Micropeltidium portoricense* Speg., a name based on the same type specimen. The drawings of *A. portoricensis* on the packet suggest that this fungus has bitunicate asci. Pirozynski (1977) questionably regarded *Amphinectria* as a synonym of the loculoascomycete genus *Melioliphila*, probably based on specimens labelled *Amphinectria erubescens* (Desm.) Speg., many of which have been reidentified as *Melioliphila volutella* (Berk. & Broome) Rossman (Rossman, 1987). Although it is possible that *Amphinectria* is a synonym of *Melioliphila*, none of the species in that genus are known to possess 7–9-septate ascospores as described for *A. portoricensis* (Rossman, 1987). Until another specimen of *A. portoricensis* is located, this genus remains an ambiguous member of the *Tubeufiaceae*, *Pleosporales*.

ADDITIONAL NAME.— *Amphinectria erubescens* (Desm.) Speg. (= *Calonectria erubescens* (Desm.) Sacc. = *Sphaeria erubescens* Desm.), herein recognized as *Hydropisphaera erubescens* in the *Bionectriaceae*.

Amylocarpus Currey, Proc. Roy. Soc. London 9: 119. 1859.

Type: *A. encephaloides* Currey.

Although most authors considered *Amylocarpus* to belong to the *Plectascales* based on the cleistothecial ascomata, the genus was placed in the *Hypocreales* by Benny & Kimbrough (1980). The type and only species, *A. encephaloides* Currey, occurs on intertidal wood in the Atlantic and Pacific Oceans and the Baltic Sea according to Kohlmeyer & Kohlmeyer (1979), who provided a de-

tailed description and illustrations. Unlike genera in the *Hypocreales*, *Amylocarpus* has a number of unusual characteristics such as non-ostiolate ascomata that dissolve at maturity, asci that deliquesce prior to maturity, an amyloid reaction of the ascospores that have radiating awl-like appendages at each end (Crumlish & Curran, 1994). Recent molecular work by Landvik *et al.* (1996) placed *Amylocarpus* in the *Helotiaceae* lineage, with *Neobulgaria* as well as *Blumeria* (*Erysiphales*) and *Sclerotinia* (*Sclerotiniaceae*, *Helotiales*), thus *Amylocarpus* is unrelated to the hypocrealean fungi.

Aphysiostroma Barrasas, Martínez & Moreno is an accepted genus in the *Hypocreaceae*.

Apiocrea Syd. & P. Syd. is regarded as a synonym of *Hypomyces*, *Hypocreaceae*, though it may be recognized as the generic name for species with *Sepedonium* anamorphs.

Aponectria (Sacc.) Sacc. is a synonym of *Nectria* in the *Nectriaceae*.

Arachnocrea Z. Moravec is an accepted genus in the *Hypocreaceae*.

ADDITIONAL NAME.— *Arachnocrea citrinella* (Ellis) Z. Moravec (= *Hypocrea citrinella* Ellis) is the type of *Pseudohypocrea* in the *Hypocreaceae*.

Ascolanthanus Cailleux, Compt. Rend. Hebd. Séances Acad. Sci. III, 265: 1473. 1967.

Type: *A. trisporus* Cailleux.

This unispecific genus was originally placed in the 'Nectriales' similar to *Mycorhynchus*. Lundqvist (1980) examined the seven specimens of *Ascolanthanus trisporus* at PC. Although reference is made to a type specimen in the original publication, none was specifically designated type and Lundqvist concluded that this species is not validly typified. In his thorough account of the family *Pyxidiophoraceae*, Lundqvist (1980) stated that 'the differences between this species [*A. trisporus*] and *Copranophilus spinuliformis* Speg. are insignificant', thus *Ascolanthanus* is accepted as a synonym of *Copranophilus* in the *Pyxidiophoraceae*, *Laboulbeniales*.

Balzania Speg., Anales Mus. Nac. Hist. Nat. Buenos Aires 6: 286. 1898 — Plate 37, a–i.

Type: *B. platensis* Speg.

= *Leucocrea* Sacc. & Syd., in Lindau, Engler & Prantl's Natürl. Pflanzenfam. 1 (1): 540. 1900. — Type: *L. nivea* (Speg.) Sacc. & Syd. (= *Mattirohia nivea* Speg.), a synonym of *B. platensis* Speg.

Stromata scattered, superficial, tuberculate, surface pallid to buff-colored, with intertwined hyphae and black ostiolar areas, sometimes with the papilla extending beyond the stromal surface, becoming paler in KOH. Ascumata brown, KOH-. Asci unitunicate, cylindrical, with a short stalk, apex simple. Paraphyses abundant, persistent, unbranched, anastomosing, extending beyond asci. Ascospores muriform, cells appearing to disarticulate, translucent brown, surrounded by a sheath, smooth-walled.

NOTES.— The unispecific genus *Balzania* was described as being like *Valsonectria*; it was included in the *Hypocreales* by Rogerson (1970). Another unispecific genus, *Leucocrea*, based on a species described by Spegazzini (1899), was placed in the *Hypocreales* by

Saccardo & Sydow (in Lindau, 1900). Based on a study of the type specimens, *B. platensis* and *Mattirolia nivea* are determined to be synonyms. *Balzania* is characterized by a pallid, waxy stroma bearing brown, globose, membranous-fleshy ascumata having simple, thread-like paraphyses and translucent, brown, muriform ascospores. The muriform ascospores surrounded by an outer sheath and peculiar septal thickening are similar to those of *Thyronectrioidea chrysogramma* (Ellis & Everh.) Seaver. The well-developed, pallid, fleshy, KOH- stroma of *B. platensis* that does not incorporate host tissue is similar to that found in *Thyridium*, although some species of the latter genus have KOH+ stromata. The genus *Balzania* is not hypocrealean, rather it belongs in the *Thyridiaceae*, *Xylariales*.

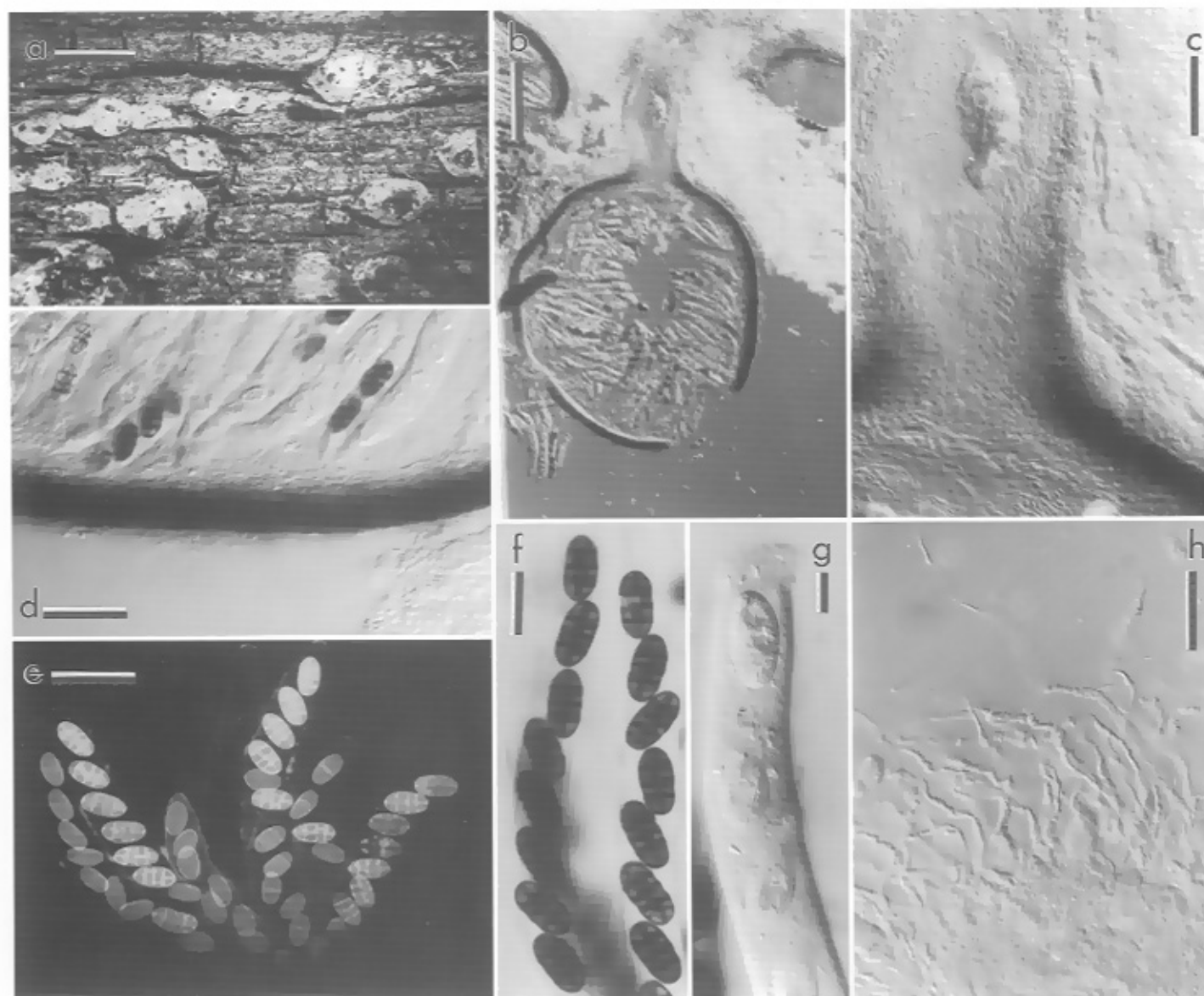


Plate 37. a-h. *Balzania platensis*. a. Habit. b. Median section of ascoma. c. Median section of elongate ascumatal apex. d. Median section of ascumatal wall. e. Ascospores within asci; note muriform septation visible with fluorescence microscopy. f. Ascospores within asci. g. Apex of immature ascus. h. Paraphyses within immature ascus. a-g. Holotype of *Mattirolia nivea* - LPS. h. Holotype - LPS. Scale bars: a = 2.5 mm; b = 200 μ m; c-e, h = 50 μ m; f = 25 μ m, g = 10 μ m.

Balzania platensis Speg., *Anales Mus. Nac. Hist. Nat. Buenos Aires* 6: 286. 1898 — Plate 37, a–i.

= *Mattiroliia nivea* Speg., *Anales Mus. Nac. Hist. Nat. Buenos Aires* 6: 292. 1899.

= *Leucocrea nivea* (Speg.) Sacc. & Syd., in Lindau, Engler & Prantl's *Natürl. Pflanzenfam.* 1 (1): 540. 1900.

Stromata scattered, superficial, not merged with host tissue, tuberculate, 2–3 mm diam × 1 mm high, each with one to several ascomata, surface pallid to buff-colored, with intertwined hyphae and black ostiolar areas, sometimes with the papilla extending beyond the surface of the stroma, becoming paler in KOH. Ascomata brown, KOH–, basally immersed in the stroma, easily removed from it, ostioles not collectively erumpent. Asci unitunicate, cylindrical, 169–195 × 13.5–21 µm, with a short stalk, apex without ring and thinner than the sides of the ascus, ascospores uniseriate. Paraphyses abundant, persistent, unbranched, anastomosing, extending beyond the asci, 2–5 µm wide, wider at the base, tapering to an acute apex. Ascospores oblong, 20–24 × 9–12 µm, muriform, with 3 transverse and 1 longitudinal septa, cells appearing to disarticulate, translucent brown, surrounded by an outer sheath, smooth-walled.

HABITAT.— On bark of *Ailanthus glandulosa* and unidentified decorticated wood.

DISTRIBUTION.— Known only from Argentina.

TYPE.— ARGENTINA. La Plata, on bark of dead trunk of *Ailanthus glandulosa*, Aug 1891, C. Spegazzini (LPS 1645, holotype of *B. platensis*). The specimen consists of several fragments of wood with bark, with ill-defined stroma and bases of old, destroyed, perithecial remnants. ARGENTINA. 'Ad palos et asseres vetustos prope Colonia Resistencia', Chaco, Apr 1883 (LPS-1704, holotype of *M. nivea*). The specimen consists of two pieces of decorticated wood.

Battarrina (Sacc.) Clem. is accepted as a unispecific genus in the *Bionectriaceae*.

Berkelella (Sacc.) Sacc., *Syll. Fung.* 9: 989. 1891

= *Hypomyces* subgenus *Berkelella* Sacc., *Syll. Fung.* 2: 475. 1883.

Type: *Hypomyces stilbiger* Berk. & Broome, *J. Linn. Soc.* 14: 113. 1875 (= *Byssostilbe stilbiger* (Berk. & Broome) Petch, *Ann. Roy. Bot. Gard. (Peradeniya)* 5: 296. 1912), recognized as *Berkelella stilbiger* (Berk. & Broome) Sacc., *Syll. Fung.* 9: 998. 1891.

= *Byssostilbe* Petch, *Ann. Roy. Bot. Gard. (Peradeniya)* 5: 296. 1912. — **Type:** *B. stilbiger* (Berk. & Broome) Petch (= *Hypomyces stilbiger* Berk. & Broome), recognized as *Berkelella stilbiger* (Berk. & Broome) Sacc.

Berkelella was originally described as a subgenus of *Hypomyces* for species with multiseptate ascospores; it included one species, *Hypomyces stilbiger*. When Saccardo raised the subgenus to generic rank, he included

B. stilbiger and added *B. caledonica* (Pat.) Sacc. (= *Hypomyces caledonicus* Pat.). The taxon *Berkelella*, whether recognized as a subgenus or genus, is automatically typified by the one and only species for which it was originally erected, namely *B. stilbiger* (Article 7.2 and 10.2, ICBN). Petch (1912) mistakenly designated *B. caledonica* as the lectotype, an error that was perpetuated by Clements & Shear (1931). The type specimen of *Hypomyces stilbiger* was examined by Rossman (1977) and determined to be a member of the *Clavicipitaceae* (as *Byssostilbe stilbiger*). Seifert (1985) presented a detailed account of *B. stilbiger* (as *Byssostilbe stilbiger*) and its anamorph, *Polycephalomyces tomentosus* (Schrad.) Seifert, occurring on sporangia of myxomycetes. *Berkelella* (1891) is an earlier name for *Byssostilbe* (1912).

Seifert (1985) suggested that *Berkelella* (as *Byssostilbe*) differs from *Neobarya* Lowen (= *Barya* Fuckel 1870, non Klotzsch 1854) only in its myxomyceticolous habit and thus should be congeneric. Eriksson & Hawksworth (1986) presented the case for retaining *Berkelella* (as *Byssostilbe*) and *Neobarya* as distinct genera. If *Berkelella* is a synonym of *Neobarya*, then *Berkelella* provides the earliest name for this taxon belonging to the *Clavicipitaceae*, *Hypocreales*.

ADDITIONAL NAME.— *Berkelella caledonica* (Pat.) Sacc., *Syll. Fung.* 9: 989. 1891.

= *Hypomyces caledonicus* Pat., *Bull. Soc. Mycol. France* 3: 126. 1887.

The type specimen of *Hypomyces caledonicus* was examined and found to belong to the *Herpotrichiellaceae* (Barr, 1972, 1976; Müller *et al.*, 1987). This name is a synonym of *Capronia poroethelia* (Berk. & M.A. Curtis 1876) M.E. Barr. The specimen matches Barr's (1991) concept of that species, which occurs commonly in North America and Europe on *Laxitexum bicolor* and related hosts (Barr, 1976; T. Læssøe, pers. comm.).

SPECIMEN EXAMINED.— NEW CALEDONIA. 'On hymenium of *Stereum fasciatum*' (FH – Patouillard, holotype of *Hypomyces caledonicus*).

Bionectria Speg. is an accepted genus in the *Bionectriaceae*.

Bonordenia Schulzer is a synonym of *Hypomyces* in the *Hypocreaceae*.

Borinquenia F. Stevens, *Trans. Illinois State Acad. Sci.* 10: 173. 1917.

Type: *B. miconiae* F. Stevens.

Although the type and a paratype specimens exist, no

ascomata remain on them and this genus cannot be characterized. Based on the illustration and description in the original publication, this genus appears to be allied with members of the *Tubeufiaceae* as suggested by Pirozynski (1977) and Rossman (1987), particularly the genus *Malacaria* Syd., type *M. luxurians* (Rehm) Rossman. The persistent paraphyses, bitunicate asci, and smoky-brown ascospores of the type species exclude *Borinquenia* from the *Hypocreales*.

HOLOTYPE.— PUERTO RICO. Arecibo, Utuado, on *Miconia laevigata*, 30 Dec 1913, F.L. Stevens 6871 (ILL-13883). Paratype: Puerto Rico. Arecibo, Utuado, on *Miconia laevigata*, 30 Dec 1913, F.L. Stevens 6862 (ILL-13882).

Bresadolella Höhn., Ann. Mycol. 1: 522. 1903.

Type: *B. aurea* Höhn., a synonym of *Trichosphaerella decipiens* E. Bommer, M. Rousseau & Sacc.

Bresadolella was established as a genus similar to *Neorehmia* in the *Nectriaceae*. The type and only species, *B. aurea*, was determined to be a synonym of *Trichosphaerella decipiens* E. Bommer *et al.* 1891, as several authors have suggested (Müller & von Arx, 1962; Munk, 1957). *Trichosphaerella decipiens* is the type of the genus *Trichosphaerella* E. Bommer *et al.* in the *Niessliaceae*, *Hypocreales* (Samuels & Barr, 1998). See *Trichosphaerella* elsewhere in this section.

Bryonectria Döbbeler is an accepted genus in the *Bionectriaceae*.

Byssocallis Syd., Ann. Mycol. 25: 14. 1927.

Lectotype, designated by Clements & Shear (1931): *B. phoebes* Syd.

In the original publication of the genus, Sydow (1927) included two species, *Byssocallis aphanes* Syd. and *B. phoebes*. An examination of the type specimen of *B. phoebes* revealed this genus to be a member of the *Tubeufiaceae*, *Pleosporales*, differentiated from *Melioliphila* Speg. by bright-yellow pigmentation in the ascomata and hyphae. *Byssocallis phoebes* is described and illustrated in Rossman (1987).

ADDITIONAL NAME.— *Byssocallis aphanes* Syd., Ann. Mycol. 25: 16. 1927.

TYPE.— COSTA RICA. San Pedro de San Ramón, on living leaves of *Rondelitia*, 6 Feb 1925, H. Sydow, Fungi in Itinere Costaricensi collecti 191 p.p. Type specimen not located (Rossman, 1987).

Byssostilbe Petch is a nomenclatural synonym of *Berkelella* as discussed above in this section.

Calonectria Ces. & De Not. is an accepted genus in the *Nectriaceae*.

Most names described or combined in *Calonectria* were accounted for by Rossman (1979b, 1983).

Calostilbe Sacc. & Syd. is an accepted genus in the *Nectriaceae*.

All names placed in *Calostilbe* are synonyms of *C. striispora*.

Calyptonectria Speg., Anales Mus. Nac. Hist. Nat. Buenos Aires 19: 412. 1909.

Lectotype, designated by Clements & Shear (1931): *C. platensis* Speg.

Ascomata basally immersed, subglobose to lenticular; ostiole surrounded by a small, white disk; sparse golden hyphae on ascomata and substratum becoming red in KOH. Ascomatal wall black, KOH+ reddish brown. Asci bitunicate, clavate, sessile, apex with a fluorescent ring. Pseudoparaphyses abundant, trabeculate, branching, anastomosing. Ascospores fusiform, muriform, constricted in the middle, hyaline, smooth-walled.

NOTES.— *Calyptonectria* was established for two species of *Hyponectria*-like fungi having muriform ascospores, *C. argentinensis* Speg. and *C. platensis*. Based on the type species, *Calyptonectria* has basally immersed ascomata, bitunicate asci with numerous trabeculate pseudoparaphyses, and hyaline, muriform ascospores. This genus does not belong in the *Hypocreales*; rather it is placed in the *Melanommataceae*, *Melanommatales*. The ascomatal walls that become reddish brown in KOH suggest a similarity to the genus *Strickeria* Körb., but *Calyptonectria* has ascomata that remain basally immersed and hyaline ascospores.

Calyptonectria platensis Speg., Anales Mus. Nac. Hist. Nat. Buenos Aires 19: 412. 1909. — Plate 38, a–j.

= *Calyptonectria argentinensis* Speg., Anales Mus. Nac. Hist. Nat. Buenos Aires 19: 412. 1909.

Ascomata scattered, associated with golden-yellow discoloration in the substratum, basally immersed, with ostiolar region and lower portions of the ascomata extending through the substratal surface, ascomatal base integrated with the host tissue such that the ascomata cannot be readily detached; ascomata black, slightly vinaceous, subglobose, lenticular to globose, ostiolar opening surrounded by a small, white, slightly raised disk; ascomata covered with sparse golden hyphae; hyphae on the ascomatal walls and substratum becoming

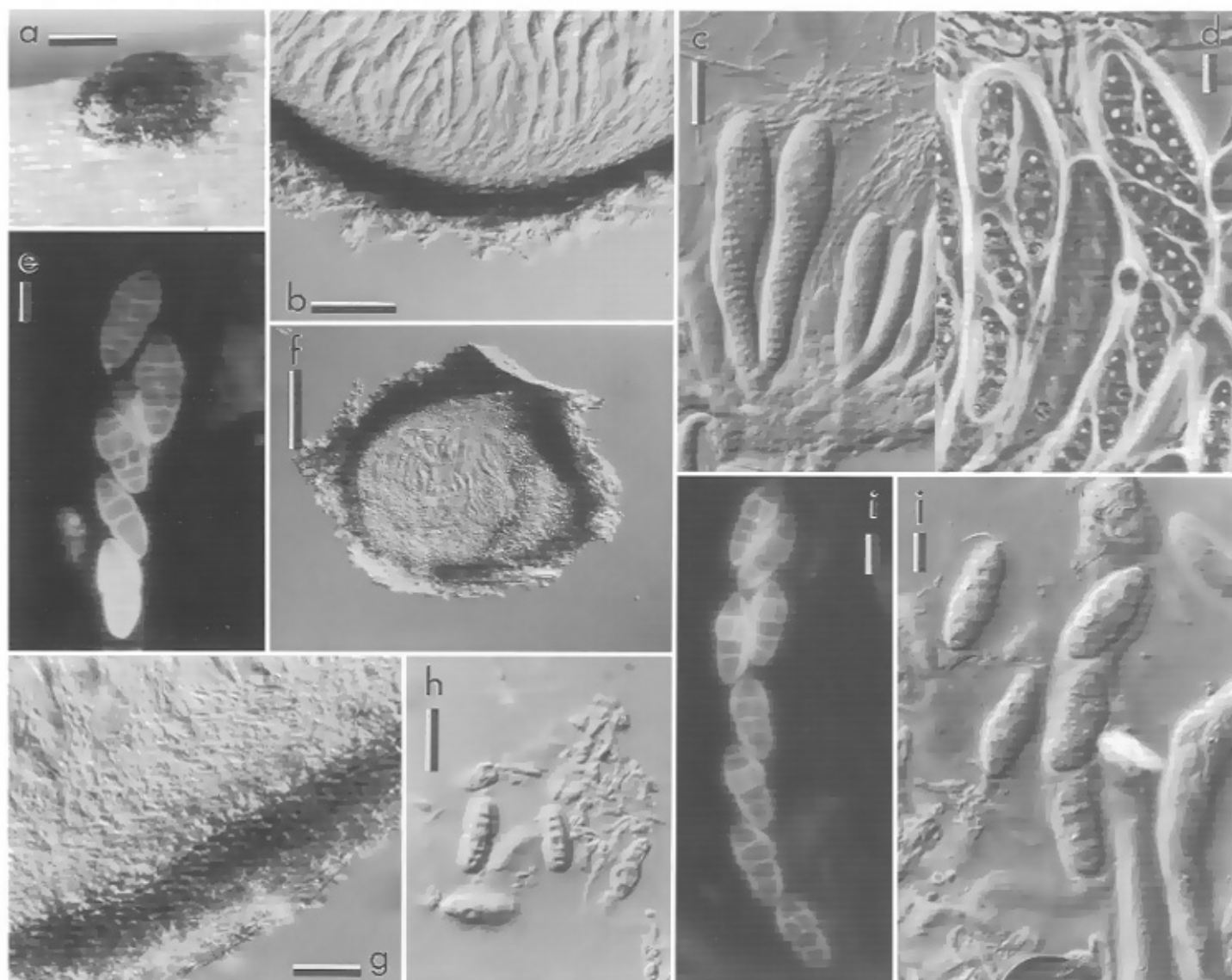


Plate 38. a–j. *Calyptronectria platensis*. a. Habit. b. Median section of ascomatal wall. c. Immature asci and interthecial elements. d. Mature ascospores within asci. e. Ascospores within asci under fluorescence microscopy, showing muriform septation. f. Median section of immature ascoma. g. Section of ascomatal wall. h. Ascospores released from asci. i. Ascospores within asci under fluorescence microscopy, showing muriform septation. j. Ascospores in asci. a–e. Holotype of *Calyptronectria argentinensis* – LPS. f–j. Holotype – LPS. Scale bars: a = 250 μm; b = 50 μm; c, g, h = 25 μm; d, e, i, j = 10 μm; f = 100 μm.

reddish brown in KOH; red pigments dissolved in KOH. Ascomatal wall 20–35 μm thick, of two regions: outer region 15 μm thick, of non-descript cells with thickened, heavily pigmented walls and ellipsoid lumina 3–7 μm diam; inner region hyphal, hyaline. Apex with densely compacted hyphae; ostiolar opening lined with short filaments. Pseudoparaphyses abundant, trabeculate, branching, anastomosing, 1–1.5 μm wide, attached at the apex to the ascomatal wall. Asci bitunicate, clavate, (85–)125–135 × (13–)16–20 μm, sessile, apex with a fluorescent ring shaped like an inverted cone, 4–8-spored, ascospores pluriseriate above, uniseriate below. Ascospores irregularly ellipsoid to fusiform, 19–25 × 6–10 μm, slightly wider above the middle, initially 1-septate, becoming 3-septate, finally muriform with 3–5 transverse

and 1 longitudinal septa, constricted in the middle, hyaline, becoming dilute brown after release, smooth-walled.

TYPE.— ARGENTINA. La Plata, on decaying branches of *Manihot carthaginensis*, Sep 1906, Spegazzini (LPS 1209, holotype of *Calyptronectria platensis*); Buenos Aires, Santa Catalina, on stems of *Foeniculum piperitum*, Oct 1908, Spegazzini (LPS 1208, holotype of *Calyptronectria argentinensis*).

EXCLUDED SPECIES:

Thyridium ohiense (Ellis & Everh.) Rossman & Samuels, *comb. nov.* — Plate 39, a, b; Plate 40, a.

≡ *Teichospora ohiensis* Ellis & Everh., Proc. Acad. Nat. Sci. Philadelphia 1894: 329. 1894.

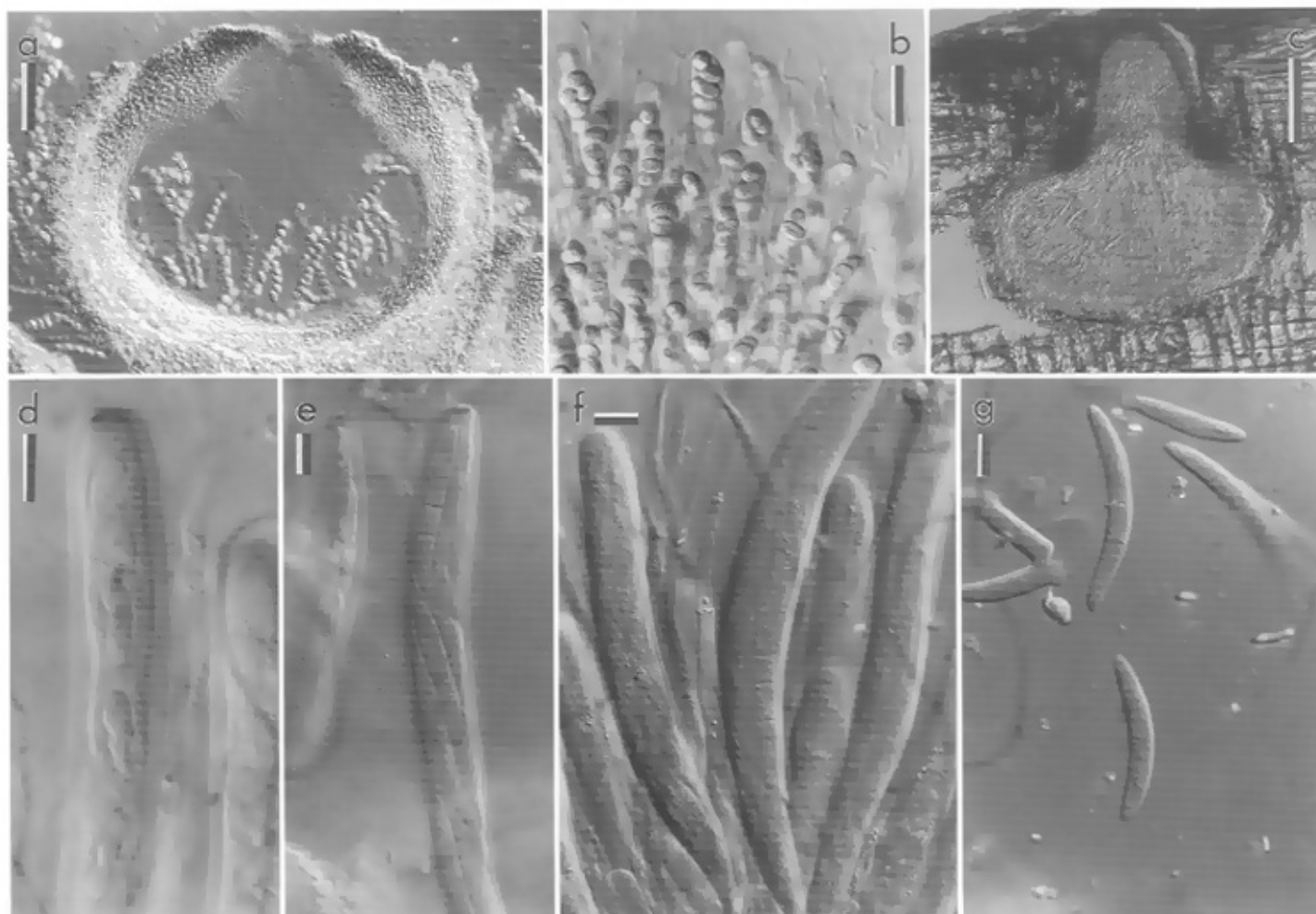


Plate 39. a, b. *Thyridium ohiense*. a. Median section of ascoma. b. Asci with ascospores showing interthecial elements. c–g. *Cesatiella australis*. c. Median section of ascoma. d. Immature asci with developing ascospores. e. Immature asci with almost mature ascospores. f. Asci with mature ascospores. g. Ascospores released from the asci. a, b. Holotype of *Teichospora ohiensis* – NY. c. Lectotype – FH. d–g. Isolectotype – PAD. Scale bars: a, c = 100 μm ; b = 50 μm ; d–g = 10 μm .

≡ *Teichosporella ohiensis* (Ellis & Everh.) Berl., Icon. Pyrenom. 2: 62. 1896.

≡ *Strickeria ohiensis* (Ellis & Everh.) O. Kuntze, Rev. Gen. Pl. 3(2): 534. 1898.

≡ *Calyptronectria ohiensis* (Ellis & Everh.) M.E. Barr, Mycotaxon 18: 155. 1983.

Ascomata superficial, on a well-developed stroma, aggregated in groups of 10–20. In longitudinal section basal stroma of tissue forming a loose *textura angularis* to prosenchymatous *textura intricata*, cells hyaline, thin-walled, 7–12 μm diam. Ascomata subglobose to globose, with a short papilla, collapsing by lateral pinching or not collapsing when dry, 275–385 μm diam, fleshy, isabelline with dark sepia spots below when dry, cinnamon with conspicuous brick spots when rehydrated, shiny, black around the apex, wall slightly roughened, with periphysate ostiole. Ascromatal wall 30–38 μm thick, of two intergrading regions: outer region 20–30 μm thick, of *textura prismatica* at the sides, of slightly elongate cells 6–12 \times 4–6 μm , with pig-

mented, 1.5–2 μm thick walls, toward the apex forming a *textura angularis* 6–8 μm diam; inner region 8–10 μm thick, of thin-walled, hyaline cells, 7–10 \times 4–6 μm , forming a *textura prismatica*. Paraphyses 2–3 μm wide, becoming inflated up to 5 μm toward the base, thin-walled, septate, sparsely branching, extending beyond the asci. Asci unitunicate, broadly cylindrical, 60–76 \times 10–15 μm , without specialized apical apparatus, non-amyloid, (4-, 6-, 7-)–8-spored, ascospores biserial when immature, becoming uniserial at maturity. Ascospores broadly ellipsoid, often irregularly shaped, 11–15 \times 8–11 μm , muriform with 3–4 transverse and one, irregularly longitudinal septa, hyaline, becoming pale yellow with age, smooth-walled.

TYPE.— UNITED STATES: Ohio. Preston, on hard, dry wood, A. P. Morgan 1012 (NY, holotype of *Teichospora ohiensis*).

NOTES.— Although superficially resembling a member of the *Hypocreales* based on the fleshy ascomata, this

species is excluded from the order because of the presence of apically free paraphyses. Fungi with fleshy ascomata, a non-amyloid apical ascial ring, and true paraphyses are placed in the *Thyridiaceae*, *Xylariales*. This species in the genus *Thyridium* is distinct in having superficial ascomata on a well-developed stroma and broadly ellipsoid ascospores

Cesatiella Sacc., *Michelia* 1: 250. 1878.

Type: *C. australis* Sacc. & Speg.

Ascomata immersed in the substratum, solitary, globose, hyaline, with a dark brown clypeus around the papilla, ostiole lateral. Paraphyses numerous, septate. Asci unitunicate, with a distinct amyloid ring; ascospores elongate-fusiform, unequally 3-septate, hyaline.

NOTES.— *Cesatiella* was established as a genus in the *Hypocreaceae* related to *Nectria*. Petrak (1928) examined the type specimen and several additional specimens of *C. australis* collected in the Canary Islands on various woody or tough herbaceous substrata. He recognized that the genus did not belong in the *Hypocreales* and suggested that it was most closely related to *Ceratospheeria*, a genus placed in the *Diaporthales*. Petrak (1928) apparently failed to observe the amyloid ascial ring in the type specimen, probably from PAD, that he described as depauperate. For the present study parts of the type specimen at FH and PAD were examined. These suggest that *Cesatiella* is similar to *Leiosphaerella* and belongs in the *Hyponectriaceae*, *Xylariales* (Barr, 1990), based on the distinct, amyloid ring in the ascial apex and numerous septate paraphyses.

Cesatiella australis Sacc. & Speg., *Michelia* 1: 250. 1878. — Plate 39, c–g.

Ascomata immersed in the substratum, solitary, lacking a stroma, dark brown tissue forming a clypeus around the papillae. Ascomata globose, hyaline, except around the lateral ostiole. Paraphyses numerous, septate. Asci unitunicate, each with a distinct amyloid ring, ascospores parallel within the asci. Ascospores narrowly fusiform, unequally 3-septate, hyaline.

TYPE.— ITALY. Conegliano, on dead branch of *Olea europaea*, April, 1877, Spegazzini (FH, lectotype, designated herein; PAD, isolectotype).

ADDITIONAL SPECIMEN REPORTED.— CANARY ISLANDS. Teneriffa, 'am Meere bis Guimar', on thin, decorticated twig of *Phagnalon saxatile*, *Zollikoferia spinosa* and *Inula viscosa*, 26 May 1926, A. Ade, det. F. Petrak (FH, not seen).

ADDITIONAL NAMES:

Cesatiella polyblasta (Rommel & Sacc.) Höhn. (≡ *Calosphaeria polyblasta* Rommel & Sacc. ≡ *Phrag-*

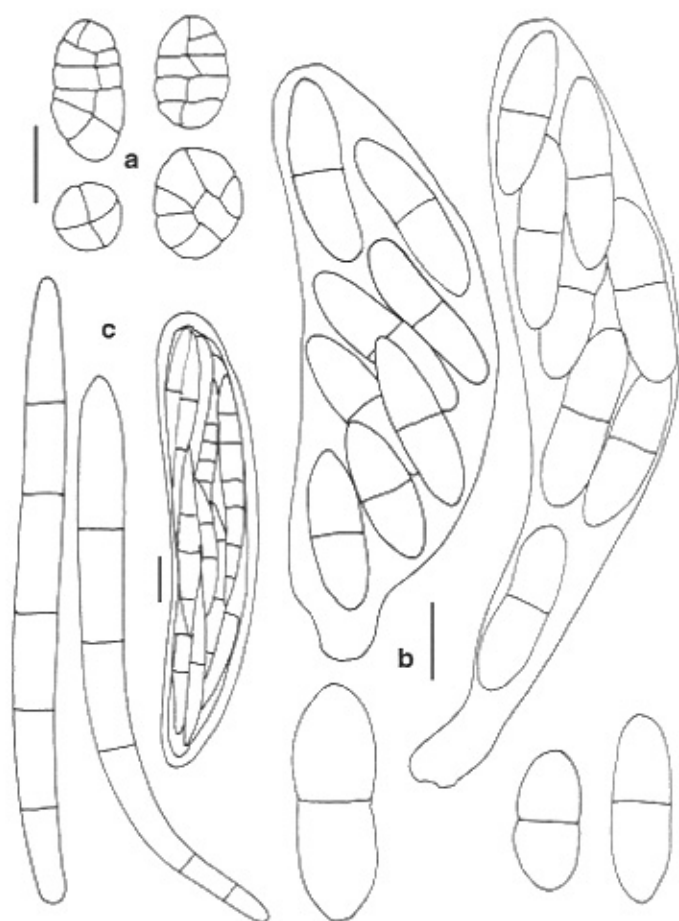


Plate 40. a. *Thyridium ohiense*, ascospores. b. *Charonectria consolationis*, asci and ascospores. c. *Chaetocrea parasitica*, ascus and ascospores. a. Holotype of *Teichospora ohiensis* – NY. b. Holotype – PAD. c. Holotype – W. Scale bars: a–c = 10 μ m.

mocalosphaeria polyblasta (Rommel & Sacc.) Petrak) is the type of *Phragmocalosphaeria* Petrak in the *Calosphaeriaceae*, *Calosphaeriales* (Hawksworth *et al.*, 1995).

Cesatiella solenospora (G.H. Otth) Höhn. (≡ *Cladosphaeria solenospora* G.H. Otth ≡ *Ophiomassaria solenospora* (G.H. Otth) Jacz.) is the type of *Ophiomassaria* Jacz. in the 'Sphaeriales' (von Arx & Müller, 1975).

Chaetocrea Syd., *Ann. Mycol.* 25: 18. 1927.

Type: *C. parasitica* Syd.

Ascomata superficial on the stroma of other fungi on living leaves, white, pale yellow when dry, translucent, less than 250 μ m diam, with hyaline, thick-walled, coralloid hairs. Pseudoparaphyses septate, thin-walled, extending beyond the asci. Asci bitunicate, cylindrical. Ascospores long-clavate, multiseptate, hyaline.

NOTES.— The genus *Chaetocrea* was originally placed

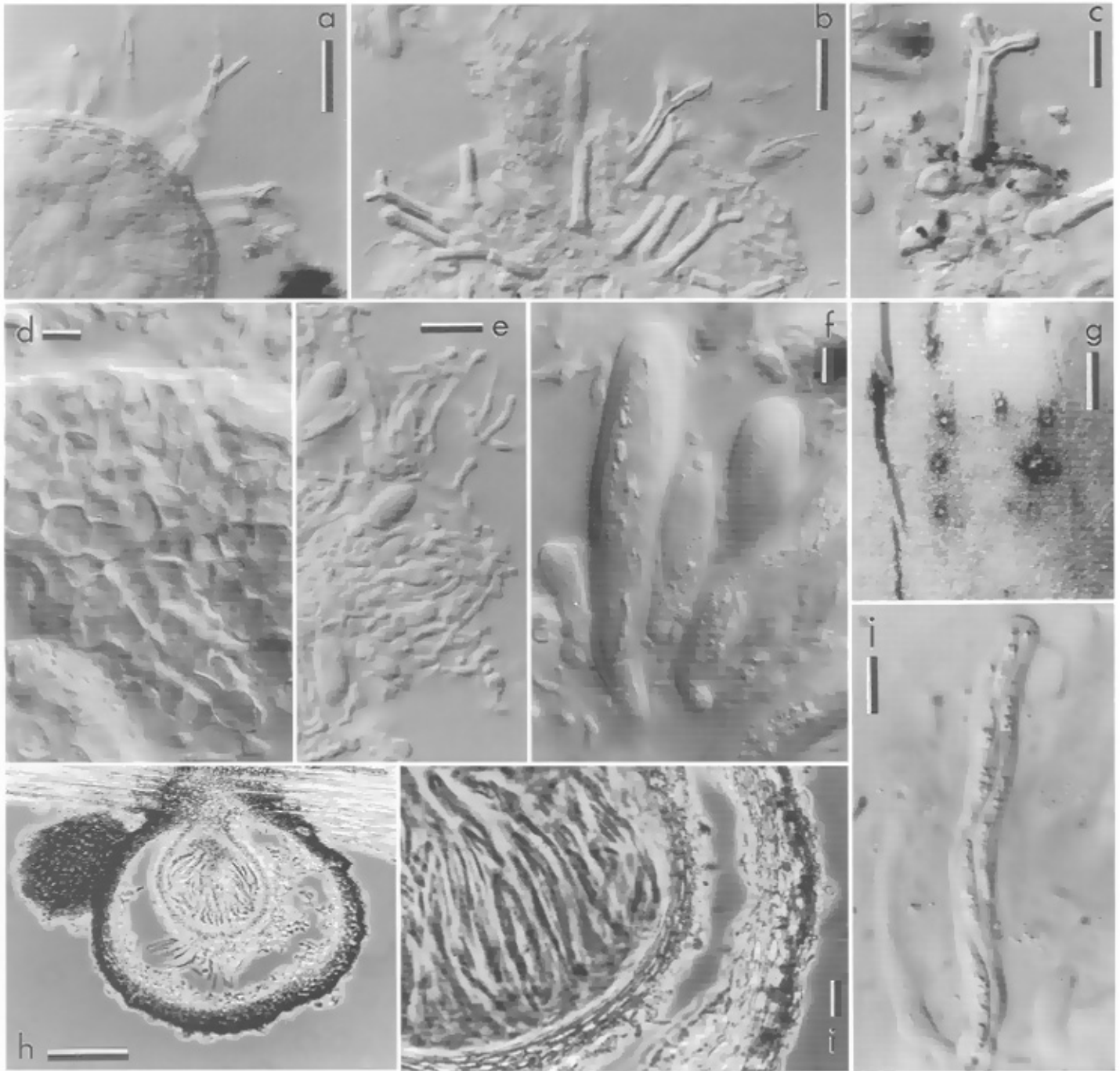


Plate 41. a–f. *Chaetocrea parasitica*. a. Ascoma with coralloid hairs. b. Coralloid hairs on surface of ascoma. c. Coralloid hairs detached from ascomatal surface. d. Ascomatal wall cells. e. Pseudoparaphyses developing among asci. f. Immature asci. g–j. *Cryptoleptosphaeria moravica*. g. Habit. h. Median section of ascoma developing within host ascoma immersed in substratum. i. Close-up of median section of ascomatal wall inside host ascoma. j. Ascus with ascospores. a–f. Holotype of *Chaetocrea parasitica* – W. g–j. Holotype of *Cryptoleptosphaeria moravica* – W. Scale bars: a, b = 50 μ m; c, e = 25 μ m; d, f, i, j = 10 μ m; g = 500 μ m; h = 100 μ m.

in the *Hypocreaceae*. Based on an examination of the type specimen of *C. parasitica*, specifically the soft-textured, light-colored, superficial ascomata, bitunicate asci, and presence of pseudoparaphyses, the unspecific genus *Chaetocrea* is herein placed in the *Tubeufiaceae*, *Pleosporales* as characterized by Barr (1980) and Rossman (1987). *Chaetocrea* is similar to several genera of the family in its occurrence on stromatic, leaf-inhabit-

ing fungi. The thin-walled, white ascomata of *Chaetocrea* suggest both those of *Paranectriella* with appendaged ascospores and occurring on black, hyphal, leaf-inhabiting ascomycetes, and *Uredinophila* with non-appendaged ascospores and occurring on fern rusts in the tropics. Species of *Puttemansia* occur on leaf-inhabiting, stromatic fungi but develop from the fungal stromata within living leaves and generally have asco-

mata much larger than those of *Chaetocrea*. One species of *Melioliphila*, *M. winkleriana* (Henn.) Rossman, has ascomata with hyaline, coralloid, thick-walled hairs similar to those found on the ascomata of *C. parasitica*. However, *Chaetocrea parasitica* has thin-walled ascomata and elongate ascospores that are unlike those of *M. winkleriana*.

Chaetocrea parasitica Syd., Ann. Mycol. 25: 18. 1927. — Plate 40, c; Plate 41, a–f.

Stroma scant to dense off-white mycelium growing over well-developed host stroma. Ascomata solitary to several, superficial, scattered, firmly attached on the edges and the center of the circular host stromata on abaxial leaf surface. Ascomata white, pale yellow when dry, hyaline in KOH, translucent, globose, 162–240 μm diam, not at all or slightly laterally collapsed when dry, non-papillate, apparently without ostiole, with hyaline, coralloid hairs on the upper part of the ascomata, hairs 50–80 \times 6–13 μm , branching once or twice dichotomously toward the apex, wall about 1.5 μm thick, with 2–3 thin septa near the apex, ends truncate or broadly rounded. Ascomatal wall relatively thin, about 10 μm thick (not sectioned), surface cells thin- to thick-walled (up to 1 μm), conspicuously angular, 7–10(–15) μm diam. Asci bitunicate, broadly cylindrical, 95–105 \times 17–20 μm . Pseudoparaphyses abundant among the asci, cellular, septate, thin-walled, 2–2.5 μm wide, extending beyond the asci, apparently attached at the apex and base. Ascospores long-clavate, widest near the apex, tapering toward the base, ends broadly rounded, slightly sigmoid, 74–93 \times 5–5.5 μm at widest point, 3–4 μm at the base, 5–7-septate, hyaline, smooth-walled.

SPECIMENS EXAMINED.— COSTA RICA. La Caja near San José, parasitic on stroma of *Cyclostomella disciformis* Pat. on leaves of *Nectandra sanguinea* Rottb., 4 Jan 1925, No. 169 (W – holotype of *C. parasitica*, Petrak Pilzherbarium 11007; isotypes: same collection data as holotype, BPI 652799; Sydow, Fungi exotici exsiccati no. 926, issued as *Cyclostomella disciformis* Pat., BPI 652798).

Charonectria Sacc., Michelia 2: 72. 1880.

Type: *C. consolationis* Sacc.

Clypeus hyaline, subcuticular, radiating from the ascomatal apex into the substratum. Ascomata immersed on leaves, scattered or in groups, subglobose, non-papillate, pallid, orange to yellow, KOH–. Ascomatal apex not differentiated. Paraphyses with free apices. Asci unitunicate, clavate, apex rounded, simple or with a non-amyloid ring, usually 8-spored. Ascospores oblong to ellipsoid, 1-septate, hyaline, smooth to spinulose. Anamorph unknown. Inhabiting herbaceous debris or lichens.

NOTES.— *Charonectria* was established for species similar to *Hyponectria*, namely *Nectria*-like fungi with immersed, solitary ascomata, having one-septate ascospores. At that time *Hyponectria* was considered to be a member of the *Hypocreales*, but now it is placed in the *Hyponectriaceae*, *Xylariales* (Barr, 1977, 1990). The type and additional specimens of *C. consolationis* were examined. *Charonectria* is determined to be a unique genus in the *Hyponectriaceae* based on the thin-walled, soft-textured, pallid ascomata immersed in leaves, presence of a pallid clypeus, apically free paraphyses, and large, one-septate ascospores. *Charonectria* is similar to *Hyponectria* in ascomatal wall structure and in the depression left from the dried ascomata but is differentiated by the 1-septate ascospores. Three species are included in the genus, *C. consolationis*, *C. amabilis*, and *C. sceptri*.

Charonectria consolationis Sacc., Michelia 2: 72. 1880. — Plate 40, b.

= *Nectriella consolationis* (Sacc.) E. Müll., in Müller & von Arx, Beitr. Kryptogamenfl. Schweiz. 11(2): 642. 1962.

Anamorph unknown.

Ascomata scattered on the abaxial side of the leaf, visible as a bump under the leaf surface, without apparent sign of mycelium or anamorph, immersed, subepidermal, with the apices rupturing the epidermis, non-stromatic, pale yellow, subglobose, 160 μm tall \times 180 μm diam, non-papillate. Ascomatal wall about 8–15 μm thick, of a single region of flattened cells, 5–8 μm \times ca 3 μm , wall about 1 μm thick; ascomatal apex not differing greatly from wall below, typically with rows of parallel, vertically elongated cells continuous with the inner region, cells narrower and merging with the periphyses and somewhat expanded or clavate; ostiolar canal periphysate. Paraphyses apically free, 2 μm wide at the base, to 3 μm wide at the apex, septate, unbranched, becoming gelatinized. Asci clavate, 77–100 (–160) \times 14–21(–25) μm , apex broadly rounded, simple, 1–, thin-walled, ascospores biserial, completely filling the ascus. Ascospores oblong to ellipsoid, (16–)23.5–27.5(–29) \times (5–)6.5–8.5(–10) μm , 1-septate, slightly constricted at the septum, hyaline, smooth to slightly verrucose, guttules often present.

HABITAT.— On dead leaves of *Laurus nobilis*.

DISTRIBUTION.— France, United Kingdom.

HOLOTYPE.— FRANCE. On the undersurface of *Laurus nobilis*, P. Brunaud 2350 (PAD).

ADDITIONAL SPECIMENS EXAMINED.— UNITED KINGDOM. England, Cornwall, St. Minver, on leaf litter of *Laurus nobilis*, 16 June 1980, P.M. Kirk 640 (IMI 249613); W. Sussex, Arundel Castle, on bottom of leaf of *Laurus nobilis*, 13 July 1983, R.W.G. Dennis (IMI 279333).

ILLUSTRATIONS.— Ellis & Ellis (1985, Fig. 684), Kirk (1981, Fig. 9A), both as *Nectriella consolationis*.

Charonectria amabilis Lowen & D. Hawksw., *sp. nov.*
— Plate 42, a.

Ascomata obpyriformia, 200–390 μm alta \times 200–300 μm diam, immersa, dispersa; papilla truncata, 120 μm diam, aurantia; paries 20 μm crassus, e cellulis rectangularibus 5–15 \times 3–6 μm constans. Asci clavati, 65–88 \times 9–12 μm , ad apicem obtusi, annulo praediti. Sporae uniseriatae vel biseriatae, globosae vel ellipsoideae, 12–17 \times 5.5–7 μm , 1-septatae, hyalinae, echinulatae, complures guttulas continentes. Paraphyses 2 μm crassae. Lichenicola.

Ascomata immersed, scattered, obpyriform, 200–390 μm high \times 200–300 μm diam, orange, KOH–; papilla truncate, 120 μm diam. Ascomatal surface cells angular. Ascomatal wall 20 μm thick, of one region; cells rectangular, 5–15 \times 3–6 μm , forming 4–5 layers. Paraphyses 2 μm wide, unbranched. Asci clavate, 65–88 \times 9–12 μm ; apex rounded, containing an apical ring; ascospores uniseriate to partially biseriatae. Ascospores subglobose to ellipsoid, 9.5–11 \times 5.5–8 μm , 1-septate, hyaline, sparsely echinulate, with several small guttules per cell. Anamorph unknown.

HABITAT.— Lichenicolous.

DISTRIBUTION.— Canada (Alberta); known only from type.

HOLOTYPE.— CANADA. Alberta: Jasper Park, Parker Ridge, near old Columbian ice field, 1980 m, on *Phaeorrhiza sphaerocarpa* (Th. Fr.) Sheard [as *Rinodina cf. cinnamomea* (Th. Fr.) Räs.], on alpine sod, 21 July 1981, R. Rosentreter 2150 (IMI 290622).

NOTES.— *Charonectria amabilis* is the only known lichenicolous pyrenomycete that has orange, immersed ascomata with persistent, apically free paraphyses.

Charonectria sceptri (P. Karst.) Lowen, *comb. nov.*

= *Nectria sceptri* P. Karst., Not. Sällsk. Fauna Fl. Fenn. Forh. 8: 213. 1866.

= *Nectria dacrymycella* (Nyl.) P. Karst. var. *sceptri* (P. Karst.) P. Karst., Fungi Fenn. exsic. 667. 1866.

= *Calonectria sceptri* (P. Karst.) Sacc., Michelia 1: 314. 1878.

= *Nectriella sceptri* (P. Karst.) Rossman, Mycotaxon 8: 542. 1979.

= *Hyponectria sceptri* (P. Karst.) Samuels, Rogerson, Rossman & J.D. Sm., Canad. J. Bot. 62: 1902. 1984.

= *Nectria dacrymycella* (Nyl.) P. Karst. f. *aconiti* Sacc., Syll. Fung. 2: 490. 1909.

= *Calonectria dacrymycella* (Nyl.) Rehm f. *aconiti* Sacc., Rehm Ascomyceten 1868. 1909.

= *Peziza oleosa* Ellis, Bull. Torrey Bot. Club 10: 52. 1883.

= *Calloria oleosa* (Ellis) Sacc., Syll. Fung. 8: 639. 1889.

= *Charonectria pedicularis* Tracy & Earle, in Greene, Pl. Baker. 1: 26. 1901.

= *Nectriella pedicularis* (Tracy & Earle) Seaver, Mycologia 1: 46. 1909.

= *Nectria pedicularis* (Tracy & Earle) Petrak, Hedwigia 68: 230. 1928.

Anamorph unknown.

Ascomata immersed–erumpent but remaining under

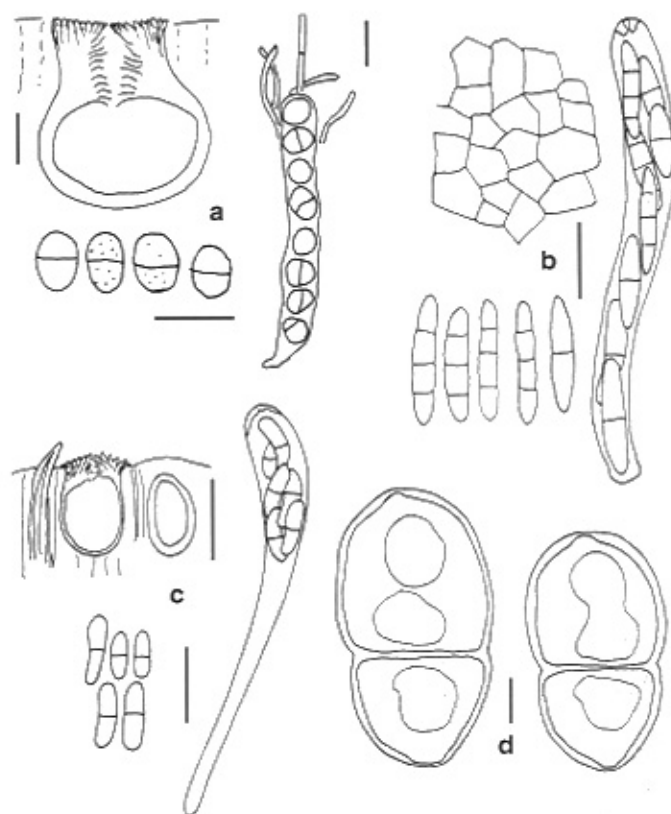


Plate 42. a. *Charonectria amabilis*, median section of ascoma in the stroma, ascus with tips of apical paraphyses, and ascospores. b. *Cryptoleptosphaeria moravica*, ascomatal wall cells, ascus, and ascospores. c. *Cryptonectriella geoglossi*, diagrammatic section through ascoma in stroma of host fungus with a seta, ascus and ascospores. d. *Dubitatio dubitationum*, ascospores. a. Holotype – IMI. b. Holotype – W. c. Holotype of *Nectriella geoglossi* – BO. d. Isotype slides – NY, ex holotype at LPS. Scale bars: upper bar in a and c = 100 μm , others in a–d = 10 μm .

the raised cuticle of the host, scattered or in groups of up to 20, subglobose, 300–375 high \times (295–)320–500 μm diam, brownish yellow, orange or red-orange, KOH–; papilla inconspicuous, 40–60 μm high \times 80–120 μm diam; collapsing vertically with the papilla retaining its shape, becoming ring-like with a central depression and a raised margin, with periphysate ostiole. Ascomatal wall (25–)32–50 μm thick, of two regions: outer region 10–20 μm thick, of thick-walled, angular, rounded, fused cells with yellow or orange oil droplets, extending into the substratum; inner region 20–30 μm thick, of thin-walled rectangular to ellipsoid cells, 10–15 \times 4–6 μm . Paraphyses apically free, 4–5 μm wide, sparse, septate, occasionally branched. Asci clavate, (48–)80–130 \times (8–)10–15 μm ; apex truncate to slightly rounded, with minute non-amyloid apical ring, base pedicellate, ascospores biseriatae in the middle, uniseriate above and below. Ascospores ellipsoid–fusiform, (16–)18–24 \times 3.5–5.5 μm , 1-septate, hyaline, pale orange in mass, spinulose, several pale orange to yellow guttules per cell.

HABITAT.— On dead stems of herbaceous plants in the *Apiaceae*, *Asteraceae*, *Caprifoliaceae*, *Cyperaceae*, *Fabaceae*, *Lamiaceae*, *Oleaceae*, *Poaceae*, *Ranunculaceae*, *Rosaceae*, and *Scrophulariaceae*.

DISTRIBUTION.— Worldwide at high elevations and latitudes: Austria, Germany, Iran (Samuels *et al.*, 1984), Italy, Russia, Switzerland, western United States (Colorado, Utah).

TYPES.— RUSSIA. Murmansk Region: Lapponia. Tulomensis, Subovi, on dead stems of *Pedicularis sceptrum-carolinum*, 11 July 1861, P.A. Karsten (holotype of *Nectria sceptri* – H, as *Peziza sceptri*; FH – Höhnel [asci immature], K, S); ITALY. Vette di Feltre Mountains, in stems of *Aconitum napellus* associated with *Leptosphaeria modesta*, Bizzozero (holotype of *Nectria dacrymycella* f. *aconiti* IMI 52312, slide); UNITED STATES. Colorado: La Plata Mountains, Bear Creek Divide, 3600 m, on dead stems of *Pedicularis crenulata* [*Scrophulariaceae*], 29 June 1898, C.F. Baker, F.S. Earle, & S.M. Tracy 230 (NY – holotype of *Charonectria pedicularis*; BPI 630417, 630418, FH, K, isotypes); Utah: Carbon County, Pleasant Valley near Schofield, 2300 m, on dead herbaceous stems, Feb 1882, S.J. Harkness (holotype of *Peziza oleosa* – NY).

SELECTED SPECIMENS EXAMINED.— AUSTRIA. Tirol: on dead stems of *Aconitum*, Sep 1909 (IMI 52314, slide); Tirol: St. Leonhard im Pitztal, Taschach-Gletscher, ca 2300 m, under the epidermis of diverse dry stems and leaves, 18 Aug 1875, Rehm Ascomyceten no. 232b, Thümen Mycoth. Univers. 1064 (FH – Höhnel, slides 3–1, 3–5; BPI 629598, K; NY; S; all as *Nectriella dacrymycella*). GERMANY. Bavaria: Hochvogel, Bägüdele-Alpe (Allgäuer Alpen), ca 1300 m, on dry stems of *Aconitum napellus*, 1909, Rehm, Ascomyceten no. 1868 (IMI, slide ex S; K; NY; S; all as *Calonectria dacrymycella* f. *aconiti*). SWITZERLAND. Graubünden: Val Fenga, west of Heidelberger Hütte, 2260 m, on dead stems of *Cirsium spinosissimum*, 4 Aug 1967, J. Poelt 5102 (GZU); Graubünden: Albula Pass Westseite, westlich des Weges von Weissenstein zur Fuorcla Crap Alv, on *Peucedanum ostruthium*, 5 Sep 1978, E. Müller, O. Petrini, & G. J. Samuels (NY). UNITED STATES. Colorado: Boulder County: Fourth of July Campground, 13 km NW of Nederland, ca 40° N; 105°38' W, alt. 3415 m, along north fork of Middle Boulder Creek, on dead stems of *Heraclium lanatum*, 21 Aug 1964, C.T. Rogerson (NY); Grand County, Church Park, Arapaho National Forest, 3300 m, T1S R77W S28, W of Fraser, on dead stems of *Pedicularis groenlandica* Retz., 23 Aug 1983, C.T. Rogerson (NY); Grand County, Rabbit Ears Pass, on dead stems of composite, 4 Sep 1966, M. & H. Flemming, C.T. Rogerson 66-70 (NY); Larimer County, Trail Ridge Road, between Rainbow Curve and Forest Canyon Overlook, Rocky Mountain National Park, 3660 m, on dead stems of *Senecio serra* Hooker, 7 Aug 1984, C.T. Rogerson (NY); Mesa County, SW of Mesa Lakes, 19 June 1930, R.W. Davidson 372 (BPI

629522); San Juan County, Red Mountain, 30 July 1897, C.L. Shear (BPI 629614); 49 additional collections by C.T. Rogerson were examined from the following counties: Box Elder, Cache, Duchesne, Iron, Rich, Sanpete, Summit, Wasatch, and Weber, on the following host genera: *Aconitum*, *Actaea*, *Agastache*, *Aquilegia*, *Bromus*, *Carex*, *Castilleja*, *Cirsium*, *Delphinium*, *Geum*, *Helenium*, *Helianthella*, *Lathyrus*, *Lomatium*, *Ligustrum*, *Osmorhiza*, *Pedicularis*, *Potentilla*, *Rudbeckia*, *Sambucus*, *Scrophularia*, *Senecio*, *Thalictrum*.

ILLUSTRATIONS.— Samuels *et al.* (1984, Figs. 14–22, as *Hyponectria sceptri*).

NOTES.— Cultures of *Charonectria sceptri* derived from ascospores germinated in cold conditions (0–15°C) did not produce conidia, but ascospores formed in colonies grown in darkness at these low temperatures (Samuels *et al.*, 1984).

NAMES EXCLUDED FROM *Charonectria*:

Charonectria biparasitica Höhn. (= *Cryptonectriella biparasitica* (Höhn.) Weese) is the type of the genus *Cryptonectriella* (Höhn.) Weese, discussed elsewhere in this section.

Charonectria erythrinella O. Jaap is recognized as *Pronectria erythrinella* (O. Jaap) Lowen in the *Bionectriaceae*.

Charonectria luteola (Desm.) Höhn. (= *Sphaeria luteola* Desm.) is recognized as *Nectriella luteola* (Desm.) Weese in the *Bionectriaceae*.

Charonectria sambuci Höhn. is recognized as *Nectriella sambuci* (Höhn.) Weese in the *Bionectriaceae*.

Charonectria umbelliferarum Höhn. is a synonym of *Nectriella halonata* Lowen in the *Bionectriaceae*.

Chiajaea Höhn. is a synonym of *Hypomyces* in the *Hypocreaceae*.

ADDITIONAL NAMES:

Chiajaea atkinsonii (Rehm) Sacc. (= *Calonectria atkinsonii* Rehm) is a synonym of *Pseudotrachia mutabilis*

KEY TO THE SPECIES OF *CHARONECTRIA*

1. Ascospores subglobose to ellipsoid, 9.5–11 × 5.5–8 μm; lichenicolous *C. amabilis*
1. Ascospores longer than 11 μm; on leaves of *Laurus* or dead stems of herbaceous plants 2
2. Ascospores ellipsoid to cylindrical, (16–)23.5–27.5(–29) × (5–)6.5–8.5(–10) μm; on leaves of *Laurus* *C. consolationis*
2. Ascospores ellipsoid to fusiform, (16–)18–24 × 3.5–5.5 μm; on dead stems of herbaceous plants *C. sceptri*

(Pers. : Fr.) Wehmeyer in the *Melanommatales*, according to Barr (1984).

Chiajaea hendersoniae (Fuckel) Höhn. (= *Cucurbitaria hendersoniae* Fuckel) is recognized as *Leptosphaeria hendersoniae* (Fuckel) L. Holm. in the *Pleosporales*, according to Holm (1957).

Chilonectria Sacc. is a synonym of *Nectria* in the *Nectriaceae*.

ADDITIONAL NAMES:

Chilonectria crinigera Ellis & Everh. is a synonym of *Nectria austroamericana* in the *Nectriaceae*.

Chilonectria cucurbitula (Tode : Fr.) Sacc. (= *Sphaeria cucurbitula* Tode : Fr.) is recognized as *Nectria cucurbitula* in the *Nectriaceae*.

Chilonectria myriospora (P. Crouan & H. Crouan) Sacc. (= *Nectria myriospora* P. Crouan & H. Crouan) is a synonym of *Thelebolus stercoreus* Tode : Fr. in the *Pezizales*, according to Kimbrough & Korf (1967).

Chilonectria rosellinii (Carestia) Sacc., *Michelia* 1: 280. 1878 (= *Nectria rosellinii* Carestia) is a synonym of *Nectria cucurbitula* in the *Nectriaceae*.

Chilonectria sphaerospora (Ellis & Everh.) Sacc. (= *Nectria sphaerospora* Ellis & Everh.) is a synonym of *Nectria austroamericana* in the *Nectriaceae*.

Chitinonectria Morelet is a synonym of *Neonectria* in the *Nectriaceae*.

Chromendothia L.N. Vassiljeva, *Mikol. Fitopatol.* 27: 5. 1993.

Type: *C. appendiculata* L.N. Vassiljeva.

Chromendothia was proposed with two species, *C. appendiculata* and *C. lutea* (Alb. & Schwein.) L.N. Vassiljeva (= *Sphaeria lutea* Alb. & Schwein.). Although this genus was placed in the *Hypocreaceae*, the description and illustrations of the type species, particularly the dark brown ascospores with hyaline end cells, suggest that *Chromendothia* is a synonym of *Camarops* or *Apiocamarops* in the *Boliniaceae*, *Sordariales*.

ADDITIONAL NAME:

Chromendothia lutea (Alb. & Schwein.) L.N. Vassiljeva was recognized as *Camarops lutea* (Alb. & Schwein. : Fr.) Nannfeldt (1972).

Chromocrea Seaver is a synonym of *Hypocrea* in the *Hypocreaceae*.

ADDITIONAL NAME:

Chromocrea ceramica (Ellis & Everh.) Seaver is recognized as *Hypocrea ceramica* Ellis & Everh. according to Doi (1966, 1968).

Chromocreopsis Seaver is a synonym of *Thuemenella* Penz. & Sacc. as discussed elsewhere in this section.

Most additional species in *Chromocreopsis* are accounted for in Samuels & Rossman (1992).

Chrysogluten Briosi & Farneti is synonym of *Cosmospora* in the *Nectriaceae*.

ADDITIONAL NAME.— *Chrysogluten cesatii* Briosi & Farneti as '(Thuemen) Briosi & Farneti' was based on a *Fusarium* name, *Fusarium cesatii* Thüm. The description of *C. cesatii* stated that the asci of the type specimen were immature. This specimen could not be located and the identity of *C. cesatii* remains obscure. According to Wollenweber & Reinking (1935) and Booth (1971), *F. cesatii* Thüm. is a synonym of *Gloeosporium ampelophagum* (Pass.) Sacc., now considered a synonym of *Sphaceloma ampelinum* de Bary (Sivanesan & Critchett, 1974).

Ciliomyces is a synonym of *Paranectria* in the *Bionectriaceae*.

Circinoniesslia Samuels & M.E. Barr is an accepted genus in the *Niessliaceae* according to Samuels & Barr (1997).

Clibanites is an accepted, unispecific genus in the *Bionectriaceae*.

Clintoniella (Sacc.) Rehm is a synonym of *Hypomyces* in the *Hypocreaceae*.

ADDITIONAL NAMES:

Clintoniella impressa (Mont.) Sacc. & Syd. (= *Hypocrea impressa* Mont.) is recognized as *Stilbocrea impressa* in the *Bionectriaceae*.

Clintoniella paullineae Rehm belongs in *Phyllocrea* in the *Phyllachoraceae*, *Xylariales*, according to Müller & von Arx (1962) and is described below.

Phyllocrea paullineae (Rehm) Höhn., *Ann. Mycol.* 16: 38. 1918.

= *Clintoniella paullineae* Rehm, *Hedwigia* 39: 223. 1900.

Ascomata clustered, erumpent through the epidermis, of the upper leaf surface, tuberculate clusters 0.5–1 mm diam, each with about 50 ascomata, with only asco-

matal apices emerging. Ascomata very dark red, smooth, not papillate, apex round, apparently opening through a small pore, KOH-. Cells of the ascumatal wall and stroma forming a thin-walled pseudoparenchyma. Interthelial elements highly compacted filaments among the asci. Asci unitunicate, clavate, 49–57 × 12–19 µm, sessile, apex simple, ascospores pluriseriate. Ascospores subfusiform to nearly cylindrical, 24–27 × 4–5 µm, septate in the middle, hyaline, smooth-walled.

TYPE.— BRAZIL: Serra do Rica, Rio de Janeiro, Folia *Paullinae*, Ule 2270, H.P. (FH, isotype).

NOTES.— Based on an examination of the type specimen and in agreement with Müller & von Arx (1962), *Phyllocrea paullinae* is regarded as a second species of *Phyllocrea* along with the type species, *P. quitensis* (Pat.) Höhn., in the *Phyllachoraceae*, *Xylariales*. The two species differ primarily in ascospore size.

Clintoniella rhytidospora (Ces.) Sacc. & Syd. (= *Hypocrea rhytidospora* Ces.) is a synonym of *Sarawakus lycogaloides* in the *Hypocreaceae*.

Clintoniella viridans (Berk. & M.A. Curtis) Sacc. & Syd. (= *Hypocrea viridans* Berk. & M.A. Curtis) is recognized as *Hypocrella viridans* (Berk. & M.A. Curtis) Petch, based on examination of the type specimen, and is included in the *Clavicipitaceae*. The anamorph is *Aschersonia viridans* Pat.

SPECIMEN EXAMINED.— CUBA, C. Wright, Herb. Berk. 1879 (K, holotype of *Hypocrea viridans*).

Copranophilus Speg., *Anales Mus. Nac. Hist. Nat. Buenos Aires* 19: 410. 1909.

Type: *C. spinuliformis* Speg.

Spegazzini placed this genus near *Treleasia* Speg. in the *Nectriaceae*. Lundqvist (1980) provided a complete discussion of both *Copranophilus* and *Treleasia*. Like Breton & Faurel (1967) he was unable to find perithecia on the type specimen of *C. spinuliformis*. However, based on Spegazzini's illustrations, Lundqvist concluded that *Copranophilus* is congeneric with *Ascolanthanus* Cailleux and that these genera can 'be merged with *Mycorhynchus* Sacc. & D. Sacc. i.e. *Pyxidiophora sensu lato*' in the *Pyxidiophoraceae*, *Laboulbeniales*.

[**Corallomyces** Berk. & M.A. Curtis 1853, non Fr. 1849, is a synonym of *Corallomycetella* in the *Nectriaceae*.]

ADDITIONAL NAMES:

Corallomyces aurantiicola (Berk. & Broome) Höhn. is

recognized as *Cosmospora aurantiicola* in the *Nectriaceae*.

Corallomyces berlinensis Henn. is a synonym of *Corallomycetella repens* in the *Nectriaceae*.

Corallomyces brachysporus Penz. & Sacc. is a synonym of *Cosmospora flammea* in the *Nectriaceae*.

Corallomyces caricae Henn. is a synonym of *Corallomycetella jatrophae* in the *Nectriaceae*.

Corallomyces heinsensii Henn. is a synonym of *Corallomycetella repens* in the *Nectriaceae*.

Corallomyces jatrophae A. Möller is recognized as *Corallomycetella jatrophae* in the *Nectriaceae*.

Corallomyces laeticolor (Berk. & M.A. Curtis) Höhn. is a synonym of *Cosmospora flammea* in the *Nectriaceae*.

Corallomyces sanguineus (Henn.) Höhn. (= *Hypocreodendron sanguineum* Henn.) is the type of the genus *Hypocreodendron* Henn., the anamorph of *Discoxyllaria* Lindq. & J.E. Wright in the *Xylariaceae*, *Xylariales*, according to Rogers *et al.* (1995).

Corallomycetella Henn. is an accepted genus in the *Nectriaceae*.

Cordycepioideus Stifler, *Mycologia* 33: 83. 1941.

Type: *C. bisporus* Stifler.

Cordycepioideus was proposed for an unusual hypocrealean fungus pathogenic on termites in Africa. Blackwell & Gilbertson (1981, 1984) and Blackwell & Rossi (1986) provided a thorough discussion of this genus based on an examination of the type and additional specimens and added a second species. The distinctive clavicipitalean apex in young asci, the recently reported *Hirsutella* anamorph (Ochiel *et al.*, 1997), and the molecular phylogeny (Suh *et al.*, 1998) place *Cordycepioideus* in the *Clavicipitaceae*.

Cosmospora Rabenh. is an accepted genus in the *Nectriaceae*.

Creomelanops Höhn., *Sitzungsber. Akad. Wiss. Wien. Math.-Naturwiss. Kl. Abt. 1*, 129: 146. 1920.

Type: *C. xanthocephala* (Syd., P. Syd. & E.J. Butler) Höhn. (= *Physalospora xanthocephala* Syd., P. Syd. & E.J. Butler), recognized as *Botryosphaeria xanthocephala* (Syd., P. Syd. & E.J. Butler) Theiss.

Despite its acknowledged relationship to 'dothideales' genera, von Höhnelt established *Creomelanops* for one species that was considered to have affinities with the *Hypocreales*. Samuels & Singh (1986) examined the holotype specimen of *C. xanthocephala* and concurred with its placement in *Botryosphaeria*, thus, *Creomelanops* is a synonym of *Botryosphaeria* in the *Botryosphaeriaceae*, *Pleosporales*. *Botryosphaeria xanthocephala*, and its anamorph, *Fusicoccum cajani* (Syd., P. Syd. & E.J. Butler) Samuels & B. Singh, were described and illustrated by Samuels & Singh (1986).

Creonectria Seaver is a synonym of *Nectria* in the *Nectriaceae*.

The fourteen names included in *Creonectria* are placed in various genera in the *Nectriaceae*.

Creopus Link is a synonym of *Hypocrea* in the *Hypocreaceae*.

ADDITIONAL NAME.— *Creopus spinulosus* (Fuckel) Moravec (\equiv *Chromocrea spinulosa* (Fuckel) Petch ex F.T. Brook & Mathieson) is recognized as *Hypocrea spinulosa* Fuckel in the *Hypocreaceae*.

Cryptoleptosphaeria Petrak, Ann. Mycol. 21: 196. 1923.

Type: *C. moravica* Petrak.

Ascomata immersed in effete locules of dark pyrenomycetes, globose to subglobose, hyaline, wall thin, of thin-walled, elongate cells, papillate. Asci unitunicate, broadly cylindrical, with an inamyloid, diaporthaceous ring. Ascospores long-ellipsoid to subacicular or fusiform, hyaline, one- to seven-septate.

NOTES.— Petrak (1923) placed this unispecific genus in the *Hypocreales*. The immersed ascomata of the type species, *C. moravica*, occur in *Leptosphaeria*-like ascomata that are also immersed in the culms of the grass, *Phalaris arundinacea*. Because the asci are diaporthalean, *Cryptoleptosphaeria* is placed in the *Diaporthales* allied with *Cryptonectriella*. A second species, *C. gracilis* based on *Debaryella gracilis*, is added to the genus.

Cryptoleptosphaeria moravica Petrak, Ann. Mycol. 21: 196. 1923. — Plate 41, g–j; Plate 42, b.

Host fungus initially filled with narrow, short-celled hyphae, ascomata immersed in this tissue which disintegrates as the ascomata develop. Ascomata globose to subglobose, 82–150 μm diam, hyaline, appearing as white dots at the ostiole of the host fungus, replacing the contents of the host and filling its locule, papillae

extending through ostiolar opening of host. Ascomatal wall 7–10 μm thick, of one layer of hyaline, thin-walled cells, cells elongate, 6–10 \times 1.5–2.5 μm , outer wall surface without evident cellular structure and with granules; granules and disintegrating hyphae also filling immature host ascomata. Papillae not anatomically distinct from the wall below, ostiolar canal periphysate, periphyses with swollen ends, often to 4–5 μm wide. Apically free paraphyses evident, disintegrating at maturity. Asci broadly cylindrical, 45–60 \times 6–6.5 μm , apex broad, with an inamyloid, diaporthaceous ring, thin-walled, sessile. Ascospores long-ellipsoid to subacicular, 10–17.5 \times 2–2.5 μm , 1-septate, eventually 3-septate, hyaline, smooth-walled.

HABITAT.— The host fungus is probably *Metasphaeria typhoides* Petrak, a species described from a specimen collected at the same place and the same day as *C. moravica*. Part of the type specimen of *M. typhoides* was examined and it appears identical to the host of *C. moravica*.

DISTRIBUTION.— Czech Republic, known only from the type.

TYPE.— CZECH REPUBLIC. Near Mährisch-Weißkirchen, in Wassergraben an der Betschwa bei Skalicka, in the ascomata of a *Leptosphaeria*-like fungus, seldom also in the pycnidia on *Sphaeropsidaceae* on the thin blades of *Phalaris arundinacea*, 17 Aug 1922 (W, holotype; FH, isotype).

Cryptoleptosphaeria gracilis (Munk) Rossman & Samuels, *comb. nov.*

\equiv *Debaryella gracilis* Munk, Bot. Tidsskr. 51: 226. 1954.

Ascomata basally immersed in decorticated wood, solitary or caespitose in small groups, subglobose, slightly elongated, 170–200 μm diam, pale orange, smooth, soft-textured, appearing waxy, papillae lateral, of divergent hyphae, ostiolar canal periphysate. Ascomatal wall 20–30 μm thick, of one region of small, non-descript cells, wall surface of intertwined hyphae. Paraphyses abundant, apically free, branched, septate, uniform in width, 1.5–2 μm wide. Asci unitunicate, narrowly clavate to cylindrical, 80–150 \times 6–9 μm , apex with a thickened 2-parted, I– ring, ring 3–4 μm long \times 2–3 μm wide, 8-spored, ascospores pluriseriate. Ascospores fusiform, 27–35 \times 3–4 μm , slightly curved, (4–)5–7-septate, hyaline, smooth-walled.

HABITAT.— On decorticated wood associated with other saprotrophic fungi.

DISTRIBUTION.— Argentina, Denmark.

TYPE (NOT EXAMINED).— DENMARK. Lunden, near the city of Silkeborg, on rotten wood associated with *Nectria modesta*, 2 Apr 1954, A. Munk.

KEY TO THE SPECIES OF *CRYPTOLEPTOSPHAERIA*

1. Ascospores long ellipsoid to subacicular, 10–17.5 × 2–2.5 µm, 1-septate, eventually 3-septate *C. moravica*
 1. Ascospores fusiform, 27–35 × 3–4 µm, slightly curved, (4–)5–7-septate *C. gracilis*

SPECIMEN EXAMINED.— ARGENTINA. Buenos Aires, Garden Castro, on decorticated wood of *Eucalyptus viminalis* Labill., 9 Aug 1987, Andrea I. Romero (LPS).

ILLUSTRATIONS.— Munk (1954, Fig. 4); Romero (1994, Fig. 8A–C, Pl. IX, 1–2), both as *D. gracilis*.

NOTES.— *Cryptoleptosphaeria gracilis* was described as *D. gracilis* by Munk (1954) who mentioned an ascial apical structure of the *Diaporthe*-type and abundant, filiform, thin-walled paraphyses. The specimen described and illustrated in Romero (1994) and cited above agrees with the protologue of *D. gracilis*. The massive apical ring and true paraphyses suggest that this species should be placed in the diaporthealean genus *Cryptoleptosphaeria*.

Cryptonectriella (Höhn.) Weese, Sitzungsber. Akad. Wiss. Wien, Math.-Naturwiss. Kl., Abt. 1, 128: 715. 1919.

≡ *Nectriella* sect. *Cryptonectriella* Höhn., Ann. Mycol. 16: 36. 1918.

Type: *C. biparasitica* (Höhn.) Weese (≡ *Charonectria biparasitica* Höhn. ≡ *Nectriella biparasitica* (Höhn.) Weese).

Ascomata immersed, scattered or in groups, non-stromatic, pallid, KOH–, obpyriform to subglobose. Ascumatal wall of one region. Paraphyses apically free. Asci unitunicate, clavate, usually not exceeding 100 × 15 µm, apex with a non-amyloid apical ring, sometimes lacking, 8-spored. Ascospores ellipsoid, 1-septate, hyaline, smooth-walled. Anamorph unknown. Fungicolous on pyrenomycetes or *Trichoglossum*, known from Europe and Indonesia.

NOTES.— Weese (1919) recognized the genus *Cryptonectriella* for species of *Nectria*-like fungi with non-stromatic, immersed ascomata and 1-septate, hyaline ascospores. Based on an examination of the type specimen, this genus is placed in the *Diaportheales* as evidenced by the diaportheaceous ascial ring, asci that float free, and the presence of apically free paraphyses. *Cryptonectriella* is differentiated from other genera of the *Diaportheales* by non-stromatic, immersed ascomata and its fungicolous habit. Two species are included herein: *C. biparasitica* and *C. geoglossi*.

Cryptonectriella biparasitica (Höhn.) Weese, Sitzungsber. Akad. Wien Wiss., Math.-Naturwiss. Kl., Abt. 1, 128: 715. 1919. — Plate 43, a–g.

≡ *Charonectria biparasitica* Höhn., Ann. Mycol. 1: 395. 1903.

≡ *Nectriella biparasitica* (Höhn.) Weese, Ann. Mycol. 12: 152. 1914.

= *Debaryella vexans* Höhn., Sitzungsber. Kaiserl. Akad. Wiss., Math.-Naturwiss. Kl., Abt. 1, 115: 1253. 1906.

Ascomata immersed singly in empty pyrenomycetous locules, scattered, non-stromatic, perithecial, globose to obpyriform, 400–650 µm high × 350–400 µm diam, pale yellow, KOH–, with a short, central, conical papilla, 50–150 µm high × 42 µm diam, ostiolar canal periphysate. Ascumatal wall thin, 15–25 µm thick, membranous, of thick-walled, elongate cells, 3.5–7 × 2 µm, wall generally detached from the host but papilla firmly attached to the host apex. Paraphyses persistent, scattered among the mature asci, apically free, unbranched, septate, about 6 µm wide at the base, tapering to 3 µm at the apex, extending about 25 µm or more above the asci. Asci unitunicate, 83–127 × 6–9 µm, broadly cylindrical, base constricted to a more or less long, narrow base, coming free from the base, apex with a non-amyloid ring, 8-spored. Ascospores broadly ellipsoid, 11–15 × 5–9.5 µm, 1-septate, rarely 0–3-septate, not constricted, hyaline, smooth-walled.

HABITAT.— In old stromata of *Valsa* or *Diaporthe* on wood.

DISTRIBUTION.— Europe (Czech Republic, Luxembourg).

TYPE.— CZECH REPUBLIC. Bohemia: Kubany Urwald, Böhmerwald, in old, empty perithecia of *Valsa flavovirens* in branch of *Fagus*, 6 June 1903, Höhnel A 2899 (FH – Höhnel, holotype of *C. biparasitica*); LUXEMBOURG. Kockelscheuer, on *Diaporthe* sp. on wood, J. Feltgen, det. von Höhnel (FH – Höhnel, holotype of *D. vexans*).

NOTES.— Both specimens consist of decorticated wood with conspicuous stromata of black pyrenomycetes. There is no outward sign of *Cryptonectriella biparasitica*; however, when sectioned, the yellow perithecia can be seen as a loose structure within the old dry, locules. The papilla of the hyperparasite protrudes into the ostiole of the host locules. Examination of the type specimen of *Debaryella vexans* revealed that this is a synonym of *C. biparasitica*.

Cryptonectriella geoglossi (van Overeem) Lowen, comb. nov. — Plate 42, c.

≡ *Nectriella geoglossi* van Overeem, Bull. Jard. Bot. Buitenzorg III, 5: 249, Pl. 2. 1923.

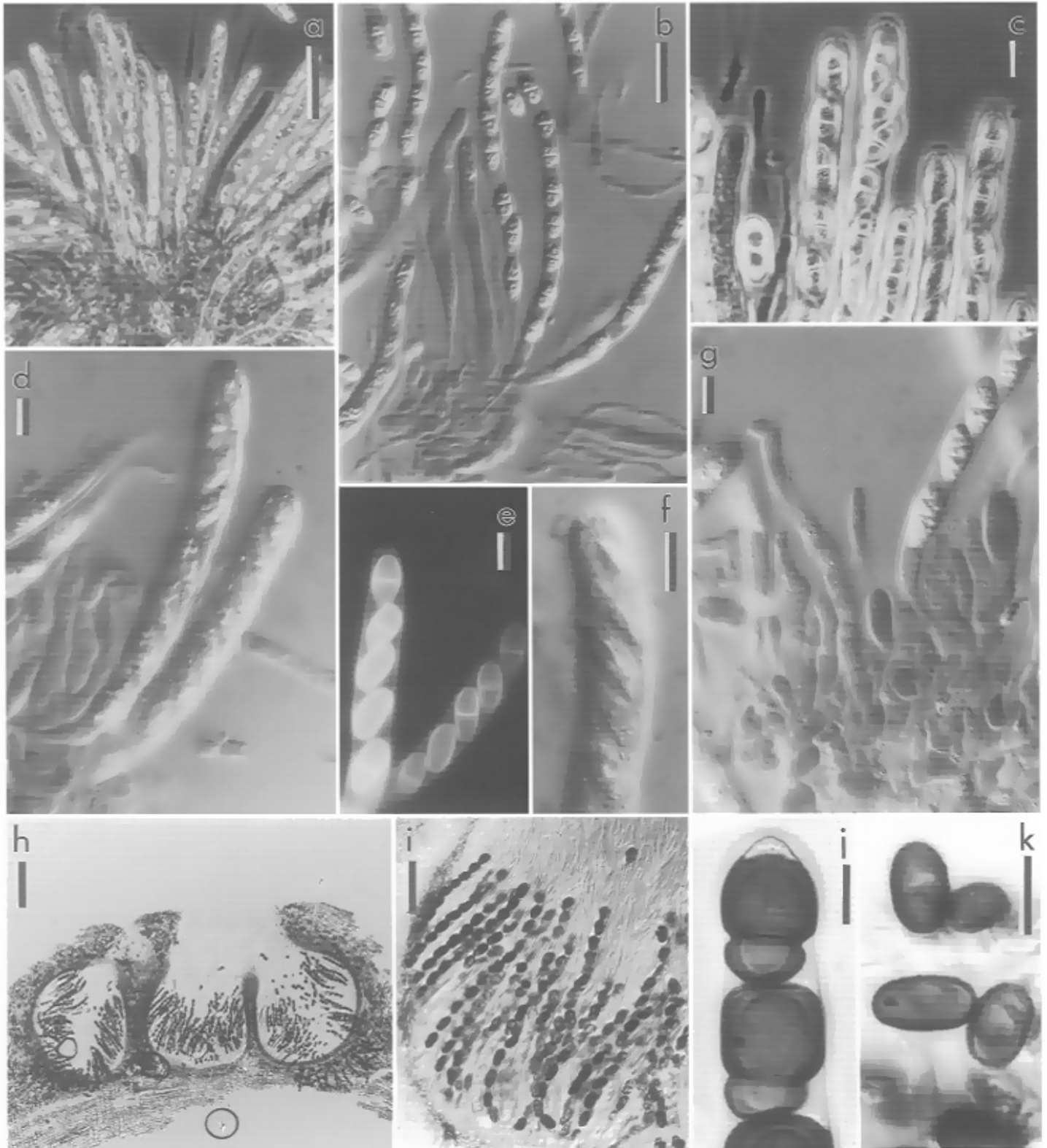


Plate 43. a–g. *Cryptonectriella biparasitica*. a. Asci with ascospores. b. Asci with ascospores and interthelial elements. c. Close-up of asci showing ascical apices. d. Asci. e. Asci with ascospores in fluorescence microscopy. f. Apex of immature ascus. g. Asci with interthelial elements. h–k. *Dubitatio dubitatum*. h. Median section through ascomata. i. Section of ascomatal wall showing asci among interthelial elements. j. Ascospores in ascus. k. Conidia of *Aplosporella*-like anamorph. a–c. Holotype – FH. d–g. Holotype of *Debaryella vexans* – FH. h–k. isotype slides of *Spegazzinula dubitatum* – NY, from holotype in LPS. Scale bars: a = 50 μm; b = 25 μm; c–g, j, k = 10 μm; h = 200 μm; i = 100 μm.

KEY TO THE SPECIES OF *CRYPTONECTRIELLA*

1. In old stromatic ascomata of pyrenomycetes, *Valsa* or *Diaporthe*; ascospores broadly ellipsoid, $11-15 \times 5-9.5 \mu\text{m}$ *C. biparasitica*
 1. In ascomata of *Trichoglossum*; ascospores ellipsoid, $6-9(-14) \times 2-3.5 \mu\text{m}$.. *C. geoglossi*

Ascomata crowded at the surface of *Trichoglossum*, completely immersed, barely visible through the hymenium, separated by the asci and paraphyses of the *Trichoglossum*, subglobose to ellipsoid, $77-144 \mu\text{m}$ high \times $35-90 \mu\text{m}$ diam, hyaline, with periphysate ostiole. Ascomatal wall $7-10 \mu\text{m}$ thick, of fused hyphae. Paraphyses apically free, narrowly filamentous, $0.5-1 \mu\text{m}$ wide. Asci clavate, *ca* $70 \times 4.5-6.5 \mu\text{m}$; base long and thin; apex rounded, slightly thickened; ascospores biserial in the middle, uniseriate above and below. Ascospores ellipsoid, one end often slightly attenuated, $6-9(-14) \times 2-3.5 \mu\text{m}$, 1-septate, often slightly curved, hyaline, smooth-walled.

HABITAT.— Immersed in the hymenium of *Trichoglossum hirsutum* (Pers.: Fr.) Boud.

DISTRIBUTION.— Indonesia.

TYPE.— INDONESIA. Java: Buitenzorg, Bogor Botanical Garden, parasitic in the hymenium of *Geoglossum walteri* Berk. [annotated as *Trichoglossum hirsutum* (Pers.: Fr.) Boud. *vide* Rifai], Mar 1921. C. & D. van Overeem-de Haas 600 (BO 09773, holotype; NY, isotype slides).

ADDITIONAL SPECIMENS EXAMINED.— INDONESIA. Java: Buitenzorg, Bogor Botanical Garden, parasitic in hymenium of *Geoglossum walteri* Berk. [annotated as *Trichoglossum hirsutum* *vide* Rifai], Mar 1931, collector unknown (BO 12195); same location and host, Apr 1931, collector unknown (BO 12358).

NOTES.— Known only from three collections found in Bogor Botanical Garden, *Cryptonectriella geoglossi* occurs in moist places among mosses.

Cryptonectriopsis (Höhn.) Weese, Sitzungsber. Akad. Wiss. Wien, Math.-Naturwiss. Kl., Abt. 1, 128: 715. 1919.

≡ *Hyponectria* sect. *Cryptonectriopsis* Höhn., Ann. Mycol. 16: 36. 1918.

Type: *C. biparasitica* (Höhn.) Weese (≡ *Hyponectria biparasitica* Höhn., Ann. Mycol. 16: 36. 1918).

Weese (1919) established *Cryptonectriopsis* for species of *Nectria*-like fungi that are immersed in the substratum and have one-celled, hyaline ascospores. The type specimen of *H. biparasitica* could not be located but this genus is probably not a member of the *Hypocreales*. Barr (1978) concluded that *Cryptonectriopsis* is a synonym of *Phomatospora* in the *Xylariales*.

Cryptoniesslia Scheuer is an accepted genus in the *Niessliaceae* according to Samuels & Barr (1997).

[**Cryptopeltosphaeria** Clem. & Shear, Genera of Fungi p. 282. 1931, *nom. nud.*]

Type: *C. moravica* Petrak

Clements & Shear (1931) included *Cryptopeltosphaeria* as an erroneous spelling for *Cryptoleptosphaeria* citing Petrak's species and publication. Eriksson & Hawksworth (1988) listed this name as a synonym of *Cryptoleptosphaeria* Petrak now placed in the *Diaporthales*, see discussion above.

[**Cryptothecium** Penz. & Sacc. 1897, non Hübner, in C.O. Weber 1851, is a synonym of *Protocreopsis* Doi in the *Bionectriaceae*.]

Cyanocephalum Zukal, Öster. Bot. Z. 43: 244. 1893.

Type: *C. murorum* Zukal

Zukal (1893) included *Cyanocephalum* with *Thelocarpon* in a new family, 'Thelocarpeae', suggesting that the family stood between the *Hypocreaceae* and *Sordariaceae*. *Cyanocephalum* was described with one species, the specimen of which is apparently lost (Weese, 1919). The original description included an illustration that may serve as the type. *Cyanocephalum* was described as having 'hard, whitish ascomata', and *Thelocarpon* as having 'soft, yellowish ascomata' (both translated from German). In ascomatal wall anatomy, ascus shape, and polysporous asci as well as its occurrence on a moist, moss-covered wall associated with algae, the description and illustration of *Cyanocephalum* indicates that it is a synonym of *Thelocarpon* as suggested by Müller & von Arx (1962).

ADDITIONAL NAME.— *Cyanocephalum flavidum* Rick is recognized as *Mycomedusiospora flavida* (Rick) Carroll & Munk in the *Sordariales* (Carroll & Munk, 1964).

[**Cyanoderma** Höhn. 1919, non Weber Bosse 1887, has been replaced by *Cyanodermella*. See below.]

Cyanodermella O. Eriksson, Opera Bot. 60: 155. 1981.

[≡ *Cyanoderma* Höhn., Sitzungsber. Akad. Wiss. Wien,

Math.-Naturwiss. Kl., Abt. 1, 128: 561 1919, non Weber Bosse 1887].

Type: *C. viridula* (Berk. & M.A. Curtis) O. Eriksson (= *Acrospermum viridulum* Berk. & M.A. Curtis, Grevillea 4: 161. 1876 = *Cyanoderma viridulum* (Berk. & M.A. Curtis) Höhn.).

Eriksson (1981) established *Cyanodermella* to replace the illegitimate homonym *Cyanoderma* Höhn. Von Höhnel (1919) described *Cyanoderma* in a key that included genera of hypocrealean ascomycetes having elongate ascospores. He considered *Cyanoderma* distinct from other genera such as *Ophionectria*, based on the bluish ascomata that were similar to *Lisea* and *Gibberella*. Based on an examination of a type specimen at LPS, Eriksson (1967) considered *Cyanodermella* similar to *Acrospermum* in the *Acrospermataceae* but separated it based on the presence of white crystalline material soluble in HNO₃. Our examination of type and other specimens agrees with the suggestion that this genus is related to *Acrospermum*. Later Eriksson (1981) decided that the ascal apex was more similar to that found in the *Stictidaceae*. In either case the genus does not belong to the *Hypocreales*.

TYPE.— UNITED STATES. Car. Inf. [South Carolina]: On decayed herbaceous stems. No. 1135. Ellis, North American Fungi 1177 (BPI bound).

ADDITIONAL SPECIMENS EXAMINED.— UNITED STATES: Florida, Orlando, on *Ericaceae*, 23 Feb 1938, C. L. Shear, det. W.W. Diehl (BPI 652795); *ibid.*, 8 Mar 1938 (BPI 652794); *ibid.* on *Asimina reticulata*, 18 Mar 1938 (BPI 652793); *ibid.*, 3 Apr 1938 (BPI 652792); New Jersey, Newfield, on fallen leaves of *Pyrus communis*, June 1881, Ellis, North American Fungi 857 (BPI 652790, also one bound specimen); Texas, Houston, on fallen leaves of *Quercus alba*, Apr 9 1869, H. W. Ravenel (BPI 652791).

ADDITIONAL NAME: *Cyanodermella candida* (Setchell) O. Eriksson (= *Acrospermum candidum* Setchell), on a fern in Central America, has white ascomata and is a second species in this genus (Eriksson, 1981).

Dasyphthora Clem. is a synonym of *Nectriopsis* in the *Bionectriaceae*.

Debarya Schulzer, Kanitz & Knapp, Verh. K. K. Zool. Bot. Ges. Wien 16: 60. 1866.

Type: *D. crustalina* Schulzer, Kanitz & Knapp, recognized as *Hypocrea crustalina* (Schulzer, Kanitz & Knapp) Sacc. & Traverso, Syll. Fung. 19: 941. 1910.

The brief description of this genus suggests *Hypocrea* and subsequent authors have agreed with this synonymy (Hawksworth *et al.*, 1995). The type specimen of this taxon no longer exists (M. Tortić, in lit.), thus it is not possible to accurately characterize the type species.

Debaryella Höhn., Ann. Mycol. 2: 274. 1904.

Type: *D. hyalina* Höhn.

Von Höhnel established this genus with one species as a member of the *Hypocreaceae* having soft or hyaline ascomata that develop in the empty locules of stromatic pyrenomycetes. He suggested that it differed from *Passerinula* and *Charonectria* in having 3-septate, hyaline ascospores. The type specimen at FH lacks any ascomata that match the description of *Debaryella hyalina*. Munk (1954) suggested that the genus was diaportheaceous and two additional species previously placed in *Debaryella* are herein removed to genera in the *Diaporthales*. Until suitable material is found that might serve as a neotype or epitype of the type species, *Debaryella* must be ignored.

TYPE SPECIMEN.— AUSTRIA. Am Dachsbauberg in der Pfalzau, Wiener Wald, in *Valsa scabrosa* parasitierend, May 1903 (FH – holotype of *D. hyalina*). Specimen depauperate.

ADDITIONAL SPECIES:

Debaryella gracilis Munk is placed in the diaportheaceous genus, *Cryptoleptosphaeria* as discussed elsewhere in this section.

Debaryella vexans Höhn. is a synonym of *Cryptonectriella biparasitica* as discussed elsewhere in this section.

Dexteria F. Stevens, Trans. Illinois State Acad. Sci. 10: 174. 1917.

Type: *D. pulchella* F. Stevens, recognized as *Hyalosphaera pulchella* (F. Stevens) Rossman.

In the original description, the unispecific genus *Dexteria* was described as being like '*Colonectria* [sic] but is distinguished from it by the gelatinization of the ascomatal wall and by the general habit'. The type specimen of *D. pulchella* was examined and the species determined to belong to *Hyalosphaera* F. Stevens, an unusual genus of bitunicate discomycetes (Rossman, 1987).

Dialhypocrea Speg. is an accepted genus in the *Hypocreaceae*.

Dialonectria (Sacc.) Cooke is a synonym of *Cosmospora* in the *Nectriaceae*.

Didymocrea Kowalski, Mycologia 57: 405. 1965.

Type: *D. sadasivani* (Ramachandra-Reddy) Kowalski, as '*sadasavani*' (= *Didymosphaeria sadasivani* Ramachandra-Reddy, Mycologia 53: 471. 1961, as '*sadasavani*').

Kowalski (1965) published a detailed developmental study of the centrum and concluded that *Didymocrea sadasivanii* showed a loculoascomycete centrum development but had unitunicate asci. He suggested that the genus belonged in the *Hypocreales*. Luttrell (1975) also studied the centrum development and concluded that this species is an example of a true pleosporalean fungus with functionally unitunicate asci similar to asci in *Cochliobolus*. Luttrell retained this fungus in *Didymosphaeria*. He made no mention of Kowalski's previous study. Kowalski (1965) and Luttrell (1975) agree in the details of centrum development in *D. sadasivanii*; however, their interpretation and conclusions differ. Kowalski considered the development of pseudoparaphyses as seen in *Didymocrea* equivalent to that of apical paraphyses, a characteristic unique to hypocrealean fungi (Rogerson, 1970). Because the interthecial elements develop from the apical region of the locule and become attached at the base of the centrum, these structures are regarded as pseudoparaphyses. Pseudoparaphyses are characteristic of some loculoascomycetes, particularly the order *Pleosporales* (Corlett, 1975; Luttrell, 1955). Aptroot (1995) examined type material of this species and concluded that it represented a unispecific genus closely related to the loculoascomycetous genus *Zopfia*. Although the asci are not functionally bitunicate, they appear to be thickened, thus *Didymocrea* is recognized as a unique genus in the *Pleosporales*.

Dimerosporiella Speg. is an accepted genus in the *Bionectriaceae*.

Dubitatio Speg., *Anales Soc. Ci. Argent.* 12: 212. 1882.

Type: *D. dubitationum* Speg. (= *Spegazzinula dubitationum* (Speg.) Sacc.).

= *Spegazzinula* Sacc., *Syll. Fung.* 2: 537. 1883. — Type: *S. dubitationum* (Speg.) Sacc., recognized as *D. dubitationum* Speg.

Ascomata immersed, with white crystalline rim at the surface, multiloculate, ostioles eccentric. Paraphyses abundant. Asci bitunicate, cylindrical. Ascospores dark brown, unequally one-septate.

NOTES.— Spegazzini considered *Dubitatio* to be intermediate between the *Sphaeriaceae* and the *Nectriaceae*. An examination of the type specimen reveals that *Dubitatio* belongs in the loculoascomycetes related to *Dothivalsaria* in the *Massariaceae* (Barr, 1979, 1987) or possibly in a new family (M.E. Barr, in lit.). Müller & von Arx (1962) considered *Dubitatio* to be a synonym of *Passerinula*, a genus that has also been determined to be a loculoascomycete. Although *Dubitatio* and *Passerinula* are superficially similar, differences in

stroma and ascospores are considered significant and the two genera remain distinct.

Dubitatio dubitationum Speg., *Anales Soc. Ci. Argent.* 12: 212. 1882. — Plate 42, d; Plate 43, h–k.

= *Spegazzinula dubitationum* (Speg.) Sacc., *Syll. Fung.* 2: 538. 1883.

= *Passerinula dubitationum* (Speg.) E. Müll., in Müller & von Arx, *Beitr. Kryptogamenfl. Schweiz* 11(2): 627. 1962.

Ascomata evident as white, raised, crystalline, ostiolar rim at the raised surface of the substratum, immersed deeply in the bark, solitary to aggregated in groups of two to four, ostiole eccentric, with one to four ascomata or pycnidia emerging through the same ostiole, ascomata perithecial, globose with elongate neck, 400–690 μm tall \times 340–540 μm diam, brown, occasionally the walls joined to become multiloculate; ostiolar rim about 100 μm wide, with the ostiole and rim becoming about 300 μm diam as the ascomata mature and the ostiole widens. Ascomatal wall of one region forming a *textura prismatica*, cells elongate, thin-walled, 7–15 \times 3–5 μm . Paraphyses not observed. Paraphyses abundant, cylindrical, thin-walled, 1.5–2 μm wide, sparsely septate, sparsely branched. Asci bitunicate, cylindrical, 100–188 \times 10–15 μm , (6–7)–8 ascospores per ascus. Ascospores broadly ellipsoid with rounded ends, 16–25 \times 9–13 μm , unequally 1-septate, with the upper cell larger, pale yellow when young, becoming dark brown, finely spinulose, with irregular guttules visible when mounted in Melzer's reagent, ascospore wall up to 2 μm thickened, possibly distoseptate.

ANAMORPH: *Aplosporella*-like. Pycnidia globose, about 300 μm diam, with ostioles converging with those of the ascomata, pycnidial wall in section similar to that of the ascomata. Conidia presumably holoblastic, broadly ellipsoid, 13–15 \times 7–10 μm , dark brown, finely spinulose.

SPECIMEN EXAMINED.— ARGENTINA. Buenos Aires. Tuyu, 'in ramulis dejectis *Celtidis talae* in sylvia Australioribus Montes largos dictis', Jan. 1881, Spegazzini (NY, isotype slide of holotype ex LPS).

ADDITIONAL NAME:

Dubitatio chondrospora (Ces.) Höhn. (= *Sphaeria chondrospora* Ces.) is recognized as *Pseudomassaria chondrospora* (Ces.) Jacz. (Barr, 1964; Müller & von Arx, 1962).

Eleutherosphaera Grove, *J. Bot.* 45: 171. 1907.

Type: *E. longispora* (W. Phillips & Plowr.) Grove (= *Eleutheromyces longisporus* W. Phillips & Plowr. = *Rhynchonectria longispora* (W. Phillips & Plowr.) Höhn.).

This unispecific genus was established as a relative of *Sphaeronaemella subulata*, as *Eleutheromyces* and

thus, was considered a member of the *Hypocreales*. It is a nomenclatural synonym of *Rhynchonectria* as discussed elsewhere in this section.

Emericellopsis J.F.H. Beyma is an accepted genus in the *Bionectriaceae*.

Endocreas Samuels & Rogerson is a synonym of *Valsonectria* in the *Bionectriaceae*.

Ephedrosphaera Dumort. is a synonym of *Nectria* in the *Nectriaceae*.

Epicrea Petrak, Sydowia 4: 325. 1950.

Type: *E. insignis* Petrak.

Ascomata forming in host stromata, caespitose in a

dense subiculum; ascomata obpyriform, orange, KOH+ red, hyphae with free ends arising from the surface except the ascomatal apex. Ascomatal wall formed from intertwined hyphae. Asci cylindrical, apex capitate, penetrated by a narrow pore. Ascospores acicular with pointed ends, 1-septate.

NOTES.—*Epicrea* was placed in the *Hypocreales* by Petrak (1950a). Following a study of the type specimen, the genus is placed in the *Clavicipitaceae*, based on the characteristic thin-walled ascomatal wall, asci with capitate apices penetrated by a narrow pore, acicular ascospores, and the fungicolous habit. The description of *E. insignis* and its occurrence on another fungus strongly suggest similarities with *Neobarya* Lowen (Eriksson & Hawksworth, 1986; Rogerson, 1970) and *Berkelella* (Sacc.) Sacc. as discussed elsewhere in this section.

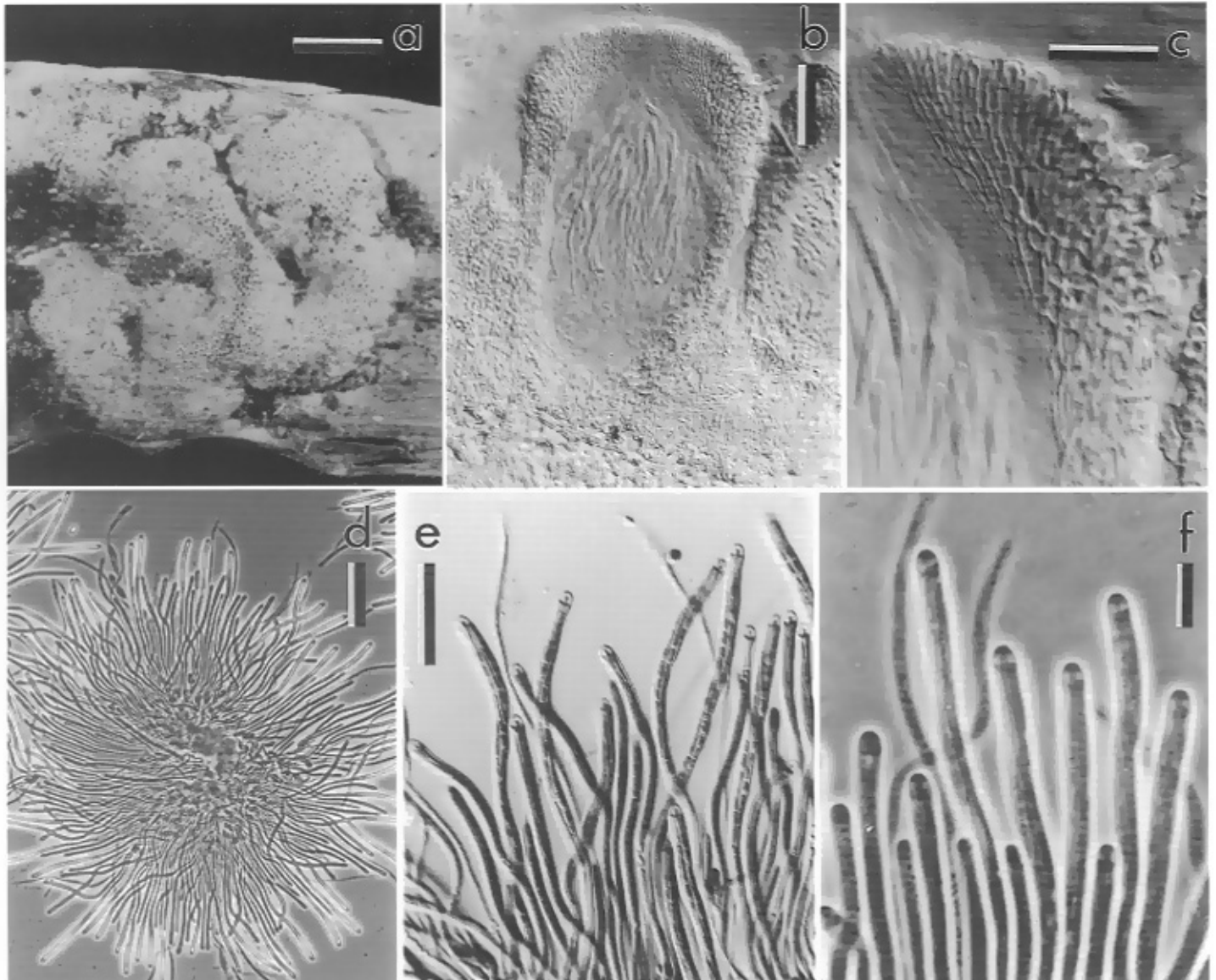


Plate 44. a-f. *Epicrea insignis*. a. Habit. b. Median section through ascoma. c. Median section of ascomatal apex. d, e. Asci with interthelial elements. f. Asci showing perforate ascial apices. a-f. Holotype - W. Scale bars: a = 2 mm; b, d = 50 μ m; c, e = 25 μ m; f = 10 μ m.

Epicrea insignis Petrak, Sydowia 4: 325. 1950. — Plate 44, a–f.

Forming on stromata of *Hypocrella*; when young, a broad, white, flat, hyphal, sterile part developing on a hemispherical, orange, fertile part of the host stroma. Ascomata perithecial, densely caespitose, orange, KOH+ dark purple, joined by pale orange mycelium, individual ascomata pyriform to cylindrical with slight constriction at the apex, 215–275 μm high \times 114–206 μm diam; dense interthecial subiculum KOH+ pale purple, yellow in lactic acid, subiculum surrounding the ascomata of densely interwoven, thick-walled, ca 5 μm wide hyphae, penetrating the host stroma completely and filling the host ascomata. Intertwined hyphae with free ends arising from ascomatal wall surface, infrequently branched, smooth-walled, septate, somewhat sinuous, up to 25 \times 3 μm . Ascomatal wall 25 μm thick, of small, 4–5 μm diam, thick-walled, angular cells; ascomatal apex an extension of the lateral wall lacking clavate elements. Asci cylindrical, capitate apex penetrated by a narrow pore, arising in a fascicle, from a basal pad in the base of the centrum, 8-spored. Ascospores acicular, 18–24 \times 1–1.5 μm , tapering at both pointed ends, 1-septate, hyaline, smooth-walled.

TYPE.— ECUADOR: Prov. Pichincha, Mindo, on stroma of *Hypocrella chusqueae* on living leaves of *Chusquea* sp., 15 Nov 1937, H. Sydow, Nr. 386.a, F. Petrak, Pilzherbarium 32179 (W 03388, holotype of *Epicrea insignis*, also holotype of *Hypocrella chusqueae*). The specimen consists of several pieces of bamboo leaf.

Because the holotype specimen of *Hypocrella chusqueae* was also examined, a modern description and illustrations of that species are presented under *Hypocrella* in this section.

Epinetria Syd. & P. Syd. is a synonym of *Dimersporiella* in the *Bionectriaceae*.

Erispora Pat., Bull. Trimestriel Soc. Mycol. France 38: 84. 1922.

Type: *E. parasitica* Pat.

This unispecific genus was described in the *Nectriaceae* and is characterized by solitary, pallid ascomata with polysporous asci and brown, ovoid, 1-septate ascospores, 5 \times 3 μm , unlike any member of the *Hypocreales*. The type specimen of this genus is apparently lost. Neither Pfister (1977) nor the present authors were able to locate the type specimen at either FH or PC. Unless a similar fungus is found that can be used to neotypify and characterize this generic name, *Erispora* will remain unknown.

TYPE (not located).— PHILIPPINES. Mont Maquiling, near

Los Baños, 'en partie immergé dans le strome filamenteux d'un champignon stérile, parasite de coccides, sur les branches de divers arbres', O. Reinking.

Feracia Rolland, Bull. Trimestriel Soc. Mycol. France 21: 28. 1905.

Type: *F. balearica* Rolland.

Although not expressly placed in the *Hypocreales* by its author, the unispecific genus *Feracia* was listed at the beginning of the hypocrealean fungi in the original publication, suggesting a relationship with other genera of this order. *Feracia* was included in the *Hypocreales* by Clements & Shear (1931), Rogerson (1970) and Hawksworth *et al.* (1995). The type species of *Feracia*, *F. balearica*, is described as having minute, globose, dark, ostiolate ascomata with clavate-oblong, numerous, hyaline paraphyses, polysporous asci, and brown, muriform ascospores, 10 \times 4 μm . The specimens of Rolland were not located at MP or PC and, according to Stafleu & Cowan (1983), are not known to exist. Based on the original description, this fungus is unlike any known hypocrealean species. Unless a similar fungus is found that can be used to neotypify and characterize this generic name, *Feracia* will remain unknown.

TYPE (not located).— SPAIN. Mallorca, 'Como negra. Janv., sur rameaux morts et dénudés de *Buxus balearica*' (V. Boix, Mall.).

Gibberella Sacc. is an accepted genus in the *Nectriaceae*.

Gibberellulina Sousa da Câmara, Agron. Lusit. 12: 101. 1950.

Type: *G. abietis* Sousa da Câmara.

Following a short description, Sousa da Câmara (1950) stated that this unispecific genus was 'somewhat related to *Gibberella* but was clearly different' (translated from Latin). Differences from *Gibberella*, based on the description of *Gibberellulina*, include orange-red ascomata and brown, one-septate ascospores. The type specimen was examined. Although *Gibberella pulicaris* and macroconidia of *Fusarium* were present, no ascomata resembling the description were found on it. Because of the inadequate type specimen and description lacking in details, this genus cannot be characterized.

SPECIMEN EXAMINED.— PORTUGAL. Minho, Gerez, Parque Tude de Sousa, on branches of *Abies nordmanniana* Spach., Maria Roselia de Sousa Dias 28, 6 July 1948, det. Prof. M.S. Câmara, 50042 (LISE, holotype).

Halonetria E.B.G. Jones is an accepted genus in the *Bionectriaceae*.

Heleococcum Jørgensen is an accepted genus in the *Bionectriaceae*.

Hyalocrea Syd. & P. Syd., *Ann. Mycol.* 15: 214. 1917.

Type: *H. epimyces* Syd. & P. Syd.

The unispecific genus *Hyalocrea* was originally placed in the *Nectriaceae* related to *Calonectria*. Based on examination of the type specimen of *H. epimyces*, Rossman (1987) placed *Hyalocrea* in the *Dothideaceae*, *Dothideales*. She described and illustrated this genus with four species.

Hyalosphaera F. Stevens, *Trans. Illinois State Acad. Sci.* 10: 172. 1917.

Type: *H. miconiae* F. Stevens.

The unispecific genus *Hyalosphaera* was described and placed in the *Hypocreaceae* by Stevens (1917). Type specimens of *H. miconiae* were examined and this species was determined to be a discomycete having bitunicate asci as redescribed and illustrated by Rossman (1987). Two additional species, all of which are parasitic on meliolaceous fungi on living leaves, were included in this peculiar loculoascomycetous discomycete genus (Rossman, 1987).

Hydronectria Kirschst., *Verh. Bot. Vereins Prov. Brandenburg* 67: 87. 1925.

Type: *H. kriegneriana* Kirschst.

Hydronectria was described in the *Hypocreaceae* related to *Nectria sensu lato*. The type species was collected on a rock in a freshwater stream, an unusual habitat for a hypocrealean fungus. Müller & von Arx (1962) redescribed the species and provided a diagrammatic illustration of the *Hydropisphaera*-like wall structure with the outer wall constructed of large, thin-walled cells. Kohlmeyer & Volkmann-Kohlmeyer (1993) published a description of the type species including photomicrographs of the type and only known specimen. They illustrate the 'apically attached paraphyses that are branched and lacking in mature ascospores.' A portion of the type specimen housed as BPI was examined by R. Harris (pers. comm.), who confirmed that these ascospores are seated on a mat of cyanobacteria of the genus *Schizothrix* Kuetzing. Based on the asci, which are widest above the middle and have a truncate apex, and the large-celled, soft ascospores, he suggested that *Hydronectria* belongs near the *Lasiosphaeriaceae* or the *Nitschkiaceae* possibly in *Rhagadostoma* Körb.

TYPE.— GERMANY. Brandenburg, coll. & comm. W. Krieger, rec. 1930 (BPI 629820).

ILLUSTRATIONS.— Kohlmeyer & Volkmann-Kohlmeyer (1993, Figs. 1–15), Müller & von Arx (1962, Fig. 251).

ADDITIONAL NAMES:

Hydronectria tethys Kohlm. & E. Kohlm., and a second variety, *H. tethys* var. *glabra* Kohlmeyer, were placed in the bionectriaceous genus *Kallichroma* Kohlm. & Volkm.-Kohlm., with the variety raised to species rank (Kohlmeyer & Volkmann-Kohlmeyer, 1993).

Hydropisphaera Dumort. is an accepted genus in the *Bionectriaceae*.

Hyphonectria (Sacc.) Petch is a synonym of *Hydropisphaera* in the *Bionectriaceae*.

ADDITIONAL NAMES:

Most of the species classified in *Nectria* subgenus *Hyphonectria* and the four species included by Petch (1937) in *Hyphonectria* were redisposed by Samuels (1976a, 1988).

Hypocrea Fr. is an accepted genus in the *Hypocreaceae*.

Hypocreella Sacc. *Michelia* 1: 322. 1878.

Lectotype, designated by Seaver (1910): *H. discoidea* (Berk. & Broome) Sacc. (= *Hypocrea discoidea* Berk. & Broome).

The genus *Hypocreella* was described for four species that were like *Hypocrea* but had filiform ascospores. Following treatments by Petch (1921) and Mains (1959), *Hypocreella* includes clavicipitaceous species with elongate ascospores that disarticulate into part-spores within the ascus and occur on insects, primarily scale insects and white flies. The pycnidial anamorphs are generally placed in *Aschersonia*. The type species, *H. discoidea*, has been studied recently by Hywel-Jones & Evans (1993) who give a thorough account of both the anamorph and teleomorph, confirming its placement in the *Clavicipitaceae*. Two species associated with genera considered to belong in the *Hypocreales*, for which the type specimens have been examined, are described and illustrated here.

Hypocreella aurantiaca (Petch) Mains, *Mycopath. Mycol. Appl.* 11: 318. 1959. — Plate 54, d–j (page 219).

= *Stereocrea aurantiaca* Petch, *Trans. Brit. Mycol. Soc.* 23: 135. 1939.

Stromata covering scale insects on the abaxial leaf surface, easily dislodged, discoidal, 1–3 mm diam, 1 mm tall, pale orange, KOH–, slightly tuberculate due to the numerous partially immersed ascospores, surrounded by a fringe of white hyphae. Stromata and ascospore surface furfuraceous, ostiolar region glabrous, broad,

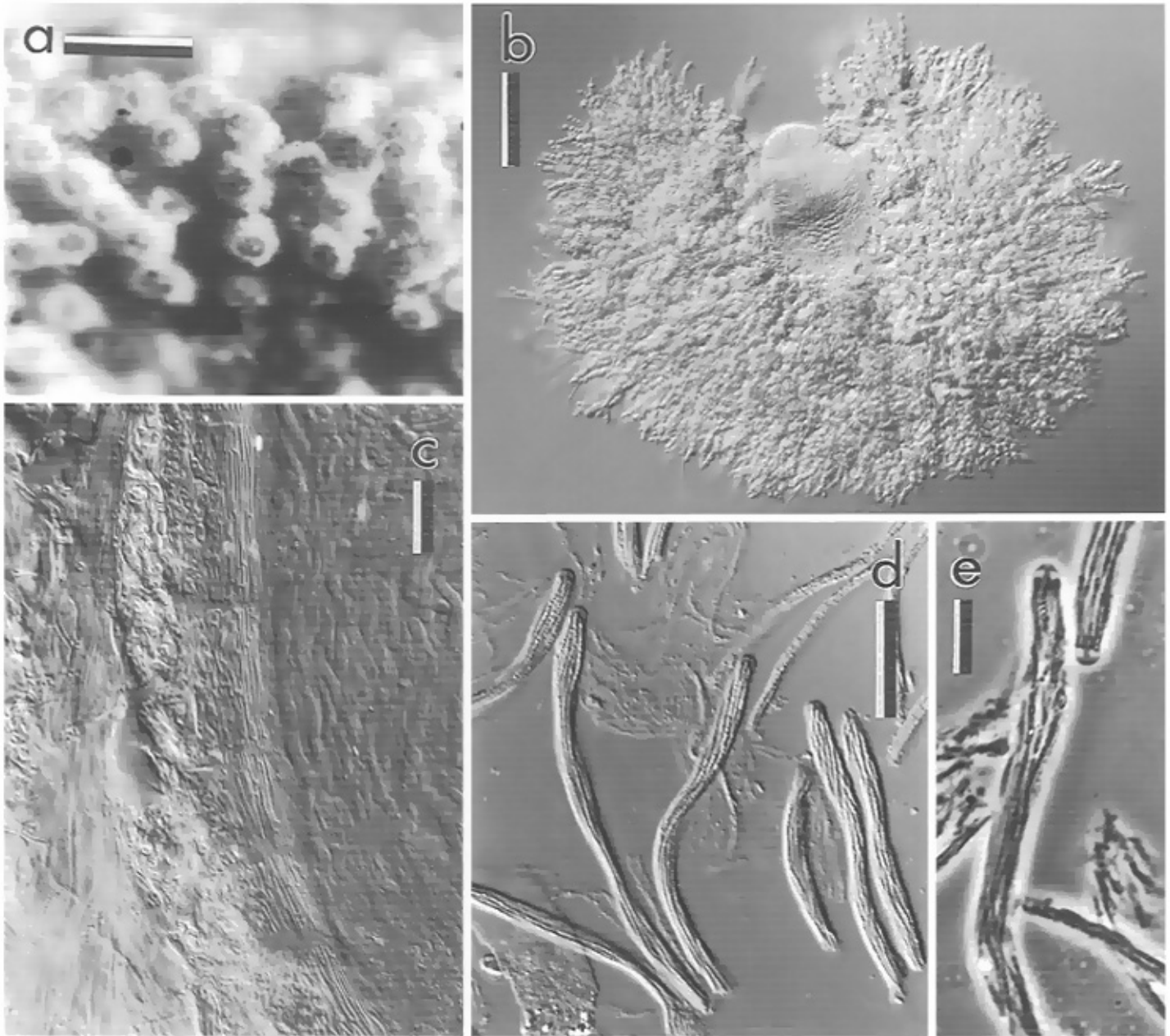


Plate 45. a–e. *Hypocrella chusqueae*. a. Ascomata on stroma. b. Squash mount of ascoma showing hairs. c. Median section of ascomatal wall. d. Asci with filiform ascospores. e. Asci showing perforate ascial apices, phase contrast. a–e. Holotype – W. Scale bars: a = 500 μm ; b = 100 μm ; c, d = 25 μm ; e = 10 μm .

darker orange. Asci unitunicate, broadly cylindrical, 150–200 \times 12–16 μm , sessile, apex with a conspicuous, large, thickened ring that is pierced by a pore, 8-spored. Ascospores very long, 110–150 \times 4–5 μm , multiseptate, apex rounded and base drawn out to a fine point, disarticulating into three or four part-ascospores.

HOLOTYPE.— UNITED STATES. Florida, on the scale insect *Paraleyrodes perseae*, on *Tamala borbonia*, 7 Oct 1936, Erdman West, det. T. Petch (FH).

ILLUSTRATIONS.— Mains (1959, Figs. 11–12).

NOTES.— Although Mains (1959) did not observe the disarticulating ascospores, he recognized this species as

a *Hypocrella*. Neither he nor Petch (1939) noticed that the structures that they regarded as conidia of the anamorph described as *Aschersonia aurantiaca* Petch are actually the non-septate part-ascospores. Hywel-Jones & Evans (1993) noted similarities between *Hypocrella discoidea* and *H. aurantiaca*.

Hypocrella chusqueae Petrak, Sydowia 2: 336. 1948 (see above under *Epicrea*). — Plate 45, a–e.

Stromata scattered, up to 1–1.5(–2.5) cm diam, hard, ascomata densely crowded, covering the stromata, completely immersed in a dense white subiculum with

a fringe of white hyphae around the ostiolar opening. Ascumata at stromatal margin free, with a coating of dense, vertically elongated, short, white hyphae, ca 3.5 µm wide; ascumata ca 400 µm high × 150 µm diam, hyaline, immersed in hyphae, which toward the base form a fine reticulum. Ascumatal surface of parallel, narrow hyphae, wall 25–30 µm thick, of two regions: outer region very thin, 5–10 µm thick, of narrowly intertwined hyphae; inner region of flat, compressed cells; ascumatal apex with hyphae extending from the wall to form a hyphal disk of straight, ca 1.5 µm thick-walled, highly branched, 3.5–4.5–5.6 µm wide hyphae. Asci very long, 150–200 × 5.5 µm, the capitate apex penetrated by a narrow pore, base not visible, asci arising in a basal fascicle. Ascospores thread-like, as long as the asci, spiralled within the ascus, about 1 µm wide, apparently non-septate, not fragmenting, discharged spores not observed.

HABITAT.— On living leaves of *Chusquea* sp.

DISTRIBUTION.— Ecuador, known only from the type specimen.

TYPE.— ECUADOR. Prov. Pichincha, Mindo, on living leaves of *Chusquea* sp., 15 Nov 1937, H. Sydow, Nr. 386.a. F. Petrak, Pilzherbarium 32179 (W 03388, also holotype of *Epicrea insignis*). The specimen consists of several pieces of bamboo leaf.

Hypocreopsis P. Karst. is an accepted genus in the *Hypocreaceae*.

Many additional names exist, some of which are excluded as follows:

Hypocreopsis endoleuca (Sacc.) E. Müll. is the type of *Myrmaeciella* Lindau as discussed elsewhere in this section.

Hypocreopsis episphaeria (Pat.) E. Müll. is the type of *Porphyrosoma* Pat. as discussed elsewhere in this section.

Hypocreopsis hypoxylodes Speg., type of *Phaeocreopsis* Sacc. & Syd., is a synonym of *Valsaria rubricosa* Ces. & De Not. according to Ju *et al.* (1996).

Hypocreopsis macrostoma (Berk. & M.A. Curtis) E. Müll. is recognized as *Stilbocrea macrostoma* (Berk. & M.A. Curtis) Samuels & Seifert in the *Bionectriaceae*.

Hypocreopsis pezizaeformis (Boedijn) Rifai (≡ *Phaeocreopsis pezizaeformis* Boedijn) is a synonym of *Valsaria rubricosa* Ces. & De Not. according to Ju *et al.* (1996).

Hypocreopsis phyllostachydis (Syd. & P. Syd.) Miyake

& Hara is recognized as *Mycocitrus phyllostachydis* (Syd. & P. Syd.) Doi in the *Hypocreaceae*.

Hypocreopsis tremellicola (Ellis & Everh.) Seaver is recognized as *Hypomyces tremellicola* (Ellis & Everh.) Rogerson by Samuels (1976a) and Rogerson & Samuels (1994).

[**Hypocreopsis** G. Winter, *Hedwigia* 14: 26. 1875, non Karst. 1873.]

Type: *H. pulchra* G. Winter.

This homonym was replaced by *Selinia* P. Karst. 1876, an accepted genus in the *Bionectriaceae*.

Hypolyssus Pers., *Mycol. eur.* 2: 6. 1825. *nom. confus.*

Lectotype, designated by Donk (1941): *H. undulatus* Pers., a synonym of *Caripia* in the *Podoscyphaceae*, *Stereales*.

NOTE.— Kuntze (1898) combined most names then available in *Hypomyces* into *Hypolyssus*.

Hypomyces (Fr.) Tul. is an accepted genus in the *Hypocreaceae*.

Hyponectria Sacc., *Michelia* 1: 250. 1878.

Type: *H. buxi* (Alb. & Schwein. : Fr.) Sacc. (≡ *Sphaeria buxi* (Alb. & Schwein.) DC., *Fl. Franç.* 6: 146. 1815 = *Sphaeria atrovirens* Alb. & Schwein. var. (β) *buxi* Alb. & Schwein. : Fr., Albertini & Schweinitz, *Conspectus Fung. Lusat.* p. 48. 1805 : Fries, *Syst. Mycol.* 2: 501. 1823). — Plate 46, a–e.

The genus *Hyponectria* with one species, *H. buxi*, was implicitly placed in the *Hypocreales* by Saccardo (1878). Although differences between *Hyponectria* and *Nectria* are not discussed in the protologue, the immersed ascumata and non-septate ascospores were characteristics that distinguished *Hyponectria* at that time. Barr (1977) presented a detailed description and illustrations of *Hyponectria buxi* and an account of the genus *Hyponectria*. Based on the presence of the clypeate, immersed ascumata and true paraphyses, this genus was excluded from the *Hypocreales* and is placed in the *Hyponectriaceae*, *Xylariales* (Barr, 1990).

This species epithet is often mistakenly attributed to 'DC. ex Desmazières'. Although Desmazières (1843) included a description and referred to *Sphaeria buxi* DC., the taxon had already been validly described and published by Albertini & Schweinitz (1805) and sanctioned by Fries at an infraspecific rank.

TYPES.— FRANCE. Caen, 'ad fol. *Buxi*, legit. Roberge, dedit Curtis'. Desmazières, Pl. Crypt. Fr. no. 1280. 1843 (PH, neotype specimen designated herein from Schweinitz herbarium; BPI – isoneotype in the Michener collection). In the original publication the type locality is 'Lusatia' (= Lausitz), once Poland, now Germany, with data 'in foliis *Buxi* emortuis aliquoties reperta fuit Maio, Junio'. None of

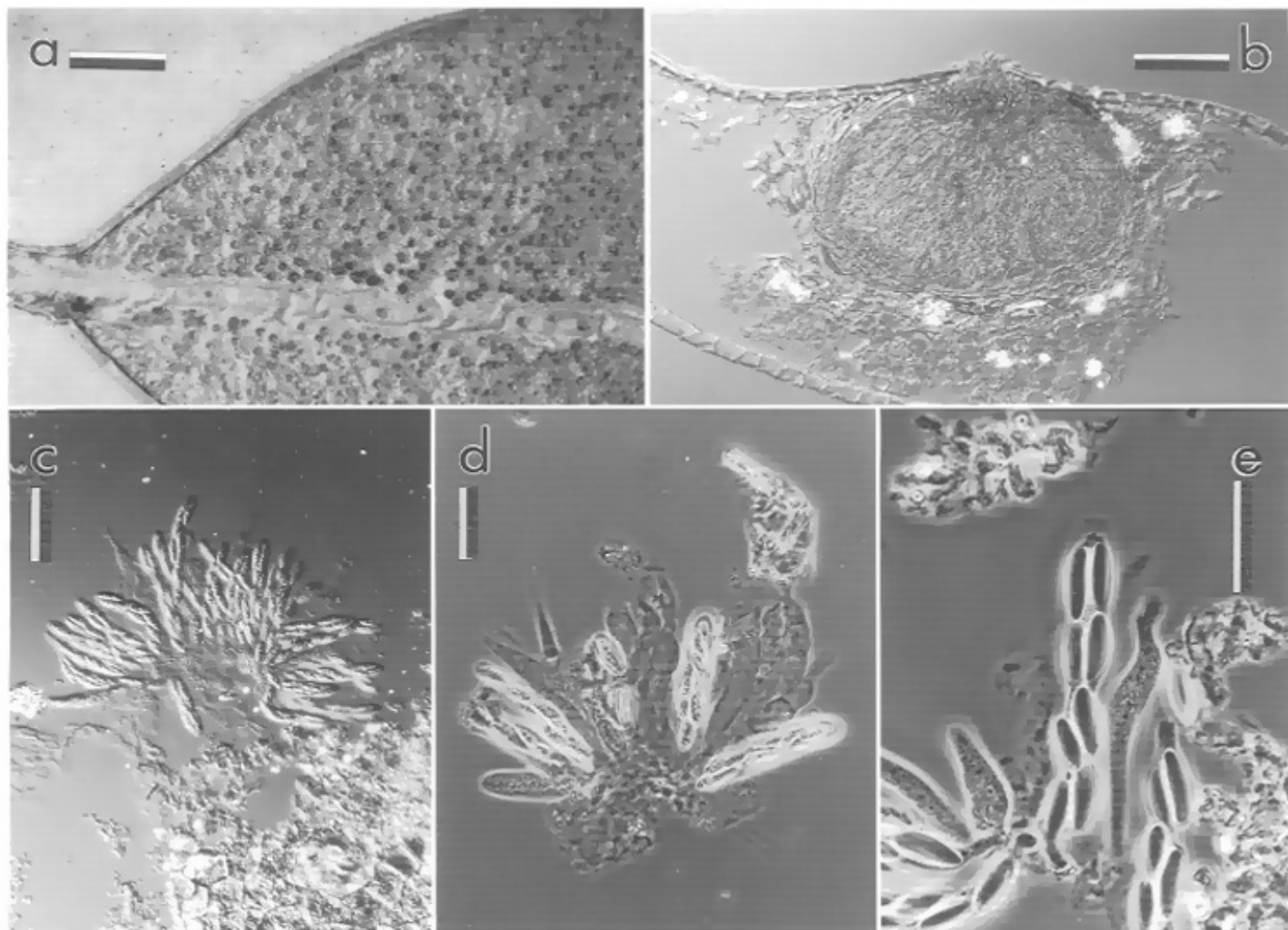


Plate 46. a–e. *Hyponectria buxi*. a. Habit. b. Median section of ascoma. c. Asci. d. Asci with interthelial elements. e. Asci with ascospores. a, b. Neotype – PH. c–e. Krieger 1119, issued as *Laestadia buxi* – BPI 629778. Scale bars: a = 2 mm; b = 100 μ m; c = 50 μ m; d, e = 25 μ m.

the specimens at BPI or PH from the Schweinitz herbarium labelled *S. buxi* or *S. atrovirens* var. *buxi* are from Lausitz. This neotype specimen is a portion of the collection that was widely distributed as Desmazières, Pl. Crypt. Fr. no. 1280 and around which the concept of this species has centered.

ADDITIONAL SPECIMEN EXAMINED.— GERMANY. Saxony, 'auf abgestorbenen Blättern von *Buxus sempervirens* L. im Garten des Rittergutes Augustusberg bei Nossen. Juni, Dezemb. 1889', W. Krieger, Krieger, Fungi saxonici 1119, *Laestadia buxi* (BPI 629778).

ADDITIONAL NAMES.— Barr (1977) included nine species in *Hyponectria*.

Ijuhya Starbäck is an accepted genus in the *Bionectriaceae*.

Kallichroma Kohlm. & Volkm.-Kohlm. is an accepted genus in the *Bionectriaceae*.

Larseniella Munk, Bot. Tidsskr. 46: 58. 1942, is recognized as a synonym of *Neorehmia* as discussed elsewhere in this section.

ADDITIONAL NAME:

Larseniella major Munk is a synonym of *Trichosphaerella decipiens* E. Bommer, M. Rousseau & Sacc. See *Trichosphaerella* as discussed elsewhere in this section.

Lasionectria (Sacc.) Cooke is an accepted genus in the *Bionectriaceae*.

Many additional names exist, some of which are re-disposed as follows:

Lasionectria gigantea Speg. is a synonym of *Hydropisphaera gigantea* (Speg.) Rossman & Samuels in the *Bionectriaceae*.

Lasionectria hirta (Bloxam) Cooke is a synonym of *Trichonectria hirta* (Bloxam) Petch in the *Bionectriaceae*.

Lasionectria volutella (Berk. & Broome) Cooke is a synonym of *Melioliphila volutella* (Berk. & Broome)

Rossmann in the *Tubeufiaceae*, *Pleosporales* (Rossmann, 1987).

Lecythium Zukal, *Österr. Bot. Z.* 43: 213. 1893.

Type: *L. aerugineum* Zukal.

Although described as a member of the *Hypocreaceae*, Zukal (1893) considered *Lecythium* to be unusual, not comparable to any other genera. No specimens of this unispecific genus have been located; in fact, none of Zukal's specimens are known to exist. The ascomata of *L. aerugineum* are described as 'perithecia solitary, soft-textured, entirely superficial, flask-shaped (similar to old Roman earthenware tear bottles), hairs bright blue-green, with a long neck and distinct ostiole surrounded by a white crown of cilia, 500–800 µm tall × 150–200 µm diam' (translated from German). Based on this description and the illustration, the long-necked ascomata, presence of interthecial elements resembling pseudoparaphyses, and narrowly fusiform, three-septate ascospores with appendages at each end suggest that *Lecythium* is a unique fungus, probably not belonging to the *Hypocreales*.

The generic name is spelled *Lecithium* in Hawksworth *et al.* (1995) but is linguistically correct as *Lecythium* in the original publication.

Lepidonectria Speg. is a synonym of *Ijuhya* in the *Bionectriaceae*.

Leucocrea Sacc. & Syd. is a synonym of *Balzania* as discussed elsewhere in this section.

Leuconectria Rossmann, Samuels & Lowen is an accepted genus in the *Nectriaceae*.

Lilliputia Boud. & Pat. is a synonym of *Roumegueriella* in the *Bionectriaceae*.

Lisea (Sacc.) Sacc. is a synonym of *Gibberella* in the *Nectriaceae*.

Most additional taxa have not been considered except as follows:

Lisea buxi (Fuckel) Sacc. (≡ *Gibbera buxi* Fuckel) is recognized as *Gibberella buxi* (Fuckel) G. Winter in the *Nectriaceae*.

Lisea nemorosa (Sacc.) Sacc. (≡ *Botryosphaeria nemorosa* Sacc.) is recognized as *Gibberella nemorosa* (Sacc.) Wollenw. in the *Nectriaceae*.

Lisea parasitica Rick is a synonym of *Nectriopsis perpusilla* (Mont.) Samuels in the *Bionectriaceae*, according to Samuels (1988).

Lisiella (Cooke & Masee) Sacc. is a synonym of *Gibberella* in the *Nectriaceae*.

Only one additional name has been placed in this genus, namely *Lisiella syringae* (Hazsl.) Sacc. & Syd., *Syll. Fung.* 14: 625. 1899 (≡ *Lisea syringae* Hazsl., *Math. Term. Közlem.* 25: 6. 1892). The description suggests that this species may belong in *Gibberella*, but the type specimen was not examined.

Loculistroma F. Patt. & Charles, U.S.D.A. Bur. Pl. Industries Bull. 171: 11. 1910.

Type: *L. bambusae* F. Patt. & Charles.

Loculistroma was established as a unispecific genus related to the stromatic members of the *Hypocreaceae*, unique in the structure of the stroma and having olivaceous ascospores. This fungus was considered to be the cause of witches'-broom of bamboo with wide geographical distribution in central China. The type specimen was examined and no fungus resembling this description could be found on it. Patterson & Charles (1910) stated that 'the parasite resembles the sclerotia of *Claviceps purpurea*' with perithecia that 'developed from the peripheral layer'. The ascospores are described as olivaceous, fusiform, 3–5-septate, 22 × 4.5–5 µm. Based on the extensive description of the disease and the details of the fungus, *Loculistroma* is most likely a member of the *Clavicipitaceae*, possibly a synonym of *Aciculosporium* I. Miyake.

HOLOTYPE.—CHINA, Hankow, on *Phyllostachys* sp., comm. F.N. Meyer, Oct. 1908 (BPI 632466).

Loramycetes Weston, *Mycologia* 21: 72. 1929.

Type: *L. juncicola* Weston.

When Weston (1929) described this unispecific genus, he suggested that it might be allied with the *Hypocreales* among other groups but came to no definitive conclusions. Using morphological and developmental studies, Digby & Goos (1987) demonstrated that *Loramycetes* is a discomycete, allied with the *Helotiales*, and is unrelated to the *Hypocreales*.

Macbridella Seaver, *Mycologia* 1: 195. 1909.

Type: *M. chaetostroma* (Ellis & Macbride) Seaver (≡ *Nectria chaetostroma* Ellis & Macbride), a synonym of *Byssosphaeria rhodomphala* (Berk.) Cooke.

Macbridella was described for stromatic species of *Nectria* with brown ascospores. Of the two species included in the genus, Seaver (1909b) designated *M. chaetostroma* as the type. Samuels (1973a) examined the type specimen of *M. chaetostroma* and noted that this name is a synonym of *Herpotrichia rhodosticta*

(Berk. & Broome) Sacc., now recognized as *Bysso-sphaeria rhodomphala* (Berk.) Cooke (Barr, 1984). *Macbridella* is a synonym of the genus *Bysso-sphaeria* Cooke in the *Melanommataceae*, *Pleosporales*.

ALL ADDITIONAL NAMES are redispersed as follows:

Macbridella amazonensis Bat., J.L. Bezerra, & C.R. Almeida is a synonym of *Corallomycetella jatrophae* in the *Nectriaceae*.

Macbridella cinnabarina Seaver is a synonym of *Rubrinectria olivacea* in the *Nectriaceae*.

Macbridella olivacea Seaver is recognized as *Rubrinectria olivacea* in the *Nectriaceae*.

Macbridella sansevieriae (Bat., J.L. Bezerra, & C.R. Almeida) Samuels (= *Nectria sansevieriae* Bat., J.L. Bezerra, & C.R. Almeida) is recognized as *Cosmospora sansevieriae* in the *Nectriaceae*.

Macbridella striispora (Ellis & Everh.) Seaver (= *Nectria striispora* Ellis & Everh.) is recognized as *Calostilbe striispora* in the *Nectriaceae*.

Malacaria Syd., Ann. Mycol. 28: 69. 1930.

Type: *M. meliolicola* Syd.

Malacaria was proposed without indication of family placement or related genera. Rogerson (1970) included *Malacaria* in his key to the genera of the *Hypocreales*. Based on an examination of the type specimens, Rossman (1987) determined that *M. meliolicola* is a member of the *Tubeufiaceae*, *Pleosporales* based on the presence of soft-textured ascomata, bitunicate asci, and pseudoparaphyses. All additional names in *Malacaria* were discussed by Rossman (1987).

Malmeomyces Starbäck, Bih. Kongl. Svenska Vetensk.-Akad. Handl. 25: 32. 1899.

Type: *M. pulchellus* Starbäck (= *Calonectria pulchella* (Starbäck) Weese = *Chaetothyrium pulchellum* (Starbäck) Theiss.).

Stroma scant, hyphal. Ascomata solitary to gregarious, superficial on a stroma, ochraceous, subglobose with an apical rim, with erect, black setae, and a short acute papilla. Paraphyses forming gelatinous strands. Asci unitunicate. Ascospores hyaline, striate.

NOTES.— Starbäck (1899) placed *Malmeomyces* in the *Hypocreales* but suggested that it may also be related to the *Perisporiaceae* based on the lack of an ostiole. Examination of the type specimen reveals ostiolate asco-

mata with erect, black setae developing from a well-defined rim. The presence of an ostiole and other characters of the ascomata and the centrum suggest that *Malmeomyces* belongs in the *Hypocreales*. Although the ascomatal wall structure is similar to that of *Hydropisphaera* in the *Bionectriaceae*, *Malmeomyces* is herein placed in the *Niessliaceae* based on the short, erect, unbranched, black setae. The *Niessliaceae* include a number of hypocrealean genera having ascomata with black setae arising from the surface (Samuels & Barr, 1998). *Malmeomyces* is similar to *Niesslia* in having setae on the ascomata and non-disarticulating ascospores but is distinguished from other members of the family in having thick-walled, ochraceous ascomata that become cupulate upon drying.

Malmeomyces pulchellus Starbäck, Bih. Kongl. Svenska Vetensk.-Akad. Handl. 25: 32. 1899.

= *Calonectria pulchella* (Starbäck) Weese, Z. Gärungsphysiol. 4: 230. 1914.

= *Chaetothyrium pulchellum* (Starbäck) Theiss., Ann. Mycol. 11: 496. 1913.

Stroma scant, hyphal. Ascomata solitary to gregarious, superficial on a basal stroma, ochraceous, becoming pale brown when dry, subglobose to doliiform with a rim 150 µm diam around the upper region, becoming deeply cupulate when dry, 190–255 µm diam, ostiole surrounded by a short, acute apex, with sparse, black, erect, septate setae developing from the rim, 115–200 µm long, 10 µm wide, with a bulbous base 13 µm diam, tapering to the pointed apex, about 3 µm thick-walled. Ascomatal wall 10–15 µm thick, of two regions: outer region 10 µm thick, of thick-walled cells 3–5 µm diam forming a *textura angularis*; inner region 5 µm thick, of elongate cells. Paraphyses evident as gelatinous strands. Asci unitunicate, 37–42 × 10–13 µm, clavate, curved, without apical apparatus, 8-spored, obliquely uniseriate or biseriolate. Ascospores 14–19 × 3–4 µm, ellipsoid, curved, hyaline, 1-septate, slightly constricted, guttulate, smooth when young, becoming striate.

HABITAT AND DISTRIBUTION.— Known only from the type specimen.

HOLOTYPE.— BRAZIL. Rio Grande do Sul, Ijuhy, on young branches of *Bambusa*, 1/4 1893, no. 316 (FH – General Herbarium).

Mattirolia Berl. & Bres., Micromycet. Trident. 55. 1889.

Type: *M. roseovirens* Berl. & Bres.

Stroma subcortical, emergent, dirty buff-gray. Ascomata immersed on the stroma, appearing like shallow

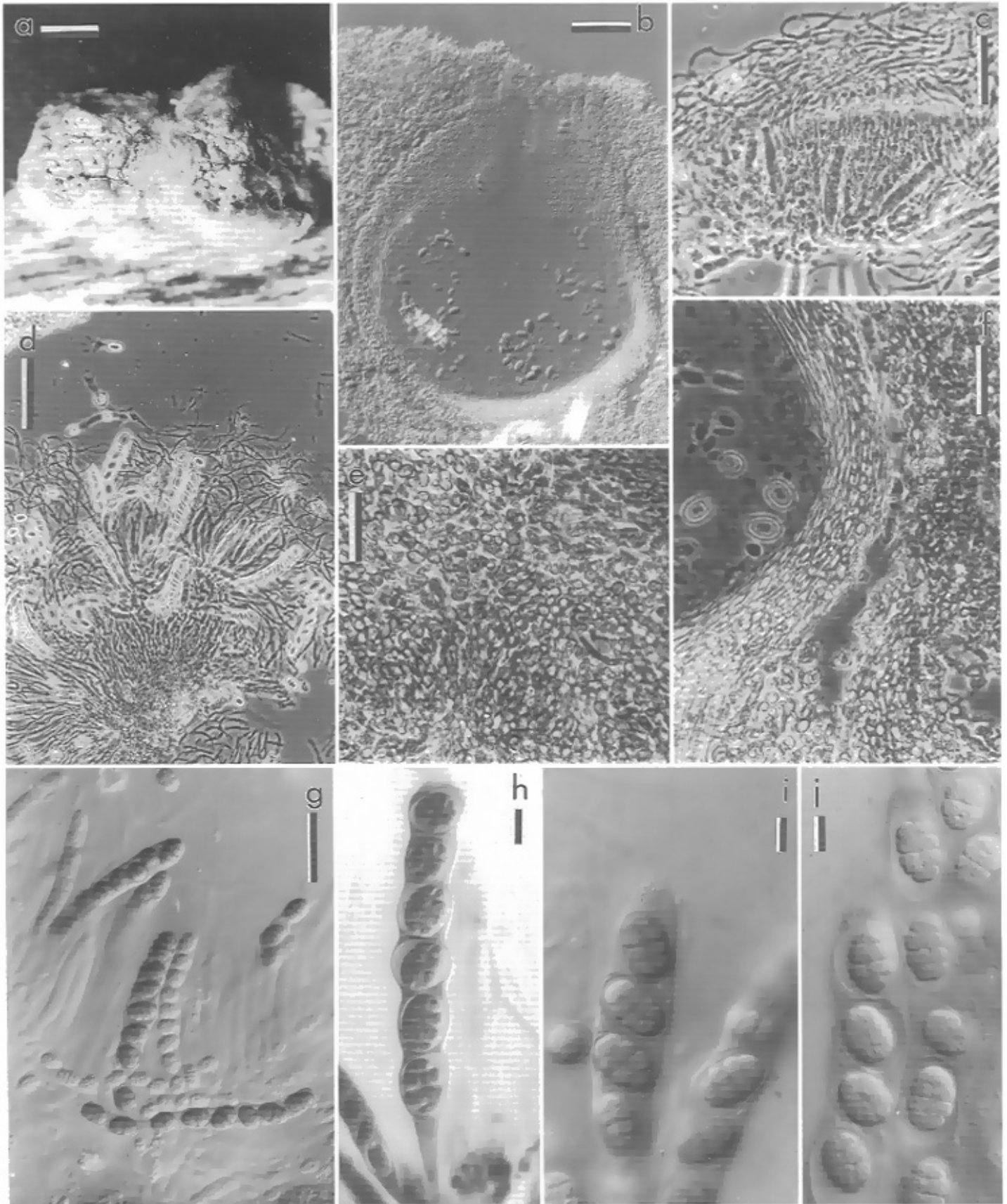


Plate 47. a–j. *Mattirolia roseovirens*. a. Habit. b. Median section of ascoma. c. Immature centrum showing interthecial elements. d. Immature asci and interthecial elements. e. Section of stroma tissue. f. Section of ascomatal wall and stroma. g. Asci with immature ascospores. h. Ascus with ascospores. i, j. Asci with sheathed ascospores. a–j. Holotype – FH. Scale bars: a = 1 mm; b, d = 100 µm; c, e–g = 50 µm; h–j = 10 µm.

tubercles, yellow with wall darkened around the ostiole, soft-textured, irregularly globose. Paraphyses abundant, septate, branched, apically free. Asci unitunicate, broadly cylindrical, sessile, with broad and simple apex. Ascospores broadly ellipsoid, gradually becoming green, muriform, walls irregularly thickened.

NOTES.—*Mattirolia* was proposed as a genus similar to *Thyronectria* but distinguished by the pigmented ascospores. The type specimen of *M. roseovirens* was divided into several pieces bearing two different fungi. The fragment housed in the general collection of the Farlow Herbarium contains a *Hypocrea* with small, green, one-septate ascospores, unlike the protologue of this species. Portions of the type specimen of *M. roseovirens* housed in the Patouillard collection of the Farlow Herbarium and in the U.S. National Fungus Collections each contain a fungus that agrees with the protologue and most certainly represents the species described by Berlese & Bresadola (1889). According to these specimens, *M. roseovirens* is similar to species of *Thyridium* in the irregular thickening of the ascospore septa but it is differentiated by the ascospores becoming green at maturity. The genus *Mattirolia* is determined to be a member of the *Thyridiaceae*, *Xylariales*.

Mattirolia roseovirens Berl. & Bres., *Micromycet. Trident.* 55. 1889. — Plate 47, a–j.

≡ *Thyronectria roseovirens* (Berl. & Bres.) Seeler, *J. Arnold Arbor.* 21: 455. 1940.

Stroma well-developed, subcortical, barely erumpent through cracks of the bark, seated directly on the wood, pulvinate, circular in outline or conforming to the contours of the substrata, when circular, having a relatively broad, sterile margin, 4–6 mm diam, surface dirty gray-buff. Ascomata aggregated, immersed in the stroma, forming shallow tubercles, broadly attached, soft-textured, yellow, with the ascomatal wall black around the ostiole, becoming darker when dry, irregularly globose due to crowding on the stroma, 492–525 μm high \times 400–410 μm diam, ostiolar canal to 200 μm long, periphysate. Ascomatal wall about 45 μm thick, of two regions: outer region about 30 μm thick, cells in section elongate, lumina 5–7 \times 1.5 μm , with 1.5 μm thick walls; inner region 20–30 μm thick, integrating with the outer region, cells elongate, 20–30 μm long \times 3–5 μm wide, walls about 1–1.5 μm thick, thinner toward the centrum. Paraphyses abundant among the mature asci, septate, branched, uniformly 3 μm wide, apically free, forming a network above the asci. Asci unitunicate, 102–137 \times 12.5–17.5 μm , broadly cylindrical, thin-walled, sessile, 4–8-spored, apex broad, simple. Ascospores broadly ellipsoid, 12–16.5(–22.5) \times

7.5–10.5(–16.5) μm , initially non-septate, hyaline; gradually becoming green, muriform, developing three transverse and one longitudinal septa, becoming irregularly thickened as individual cells appear to round up; spores enclosed in a sheath.

HABITAT.— On bark of *Cytisus laburnum*.

DISTRIBUTION.— Italy, known only from the type.

TYPE.— ITALY. Trento, on bark of a branch of *Cytisus laburnum*, Bresadola (FH - Patouillard sheet number 6749, **lecto-type**, designated herein; BPI 553005 labelled ex type, Berlese, isolectotype).

ADDITIONAL NAMES:

Mattirolia chrysogramma (Ellis & Everh.) Sacc. (= *Thyronectria chrysogramma* Ellis & Everh. = *Nectria chrysogramma* (Ellis & Everh.) Rossman) is recognized as *Thyronectrioidea chrysogramma* (Ellis & Everh.) Seaver, type of the genus *Thyronectrioidea* as discussed elsewhere in this section.

Mattirolia nivea Speg. is the type of *Leucocrea* Sacc. & Syd., a synonym of *Balzania*, as discussed elsewhere in this section.

Megalonectria Speg. is a synonym of *Nectria* in the *Nectriaceae*.

Many names in *Megalonectria* are synonyms of *Nectria pseudotrichia* (Seifert, 1985).

Melioliphila Speg., *Bol. Acad. Nac. Ci.* 26: 344. 1924.

Type: *M. graminicola* (F. Stevens) Speg. (= *Calonectria graminicola* F. Stevens), a synonym of *Melioliphila volutella* (Berk. & Broome) Rossman.

Spegazzini (1924) described *Melioliphila* as a genus close to *Calonectria* but characterized as a parasite on plant-associated fungi. Rossman (1987) examined the type specimen of *M. graminicola* and recognized this species as a later synonym of *M. volutella*. Based on the bitunicate asci and the presence of pseudoparaphyses, this genus has been placed in the *Tubeufiaceae*, *Pleosporales* (Barr, 1980; Pirozynski, 1977; Rossman, 1987). Rossman (1987) accounted for all species described in *Melioliphila*.

Metanectria Sacc., *Michelia*, 1: 300. 1878.

Type: *M. citrum* (Wallr.) Sacc. (= *Sphaeria citrum* Wallr.), recognized as *Thelocarpon citrum* (Wallr.) Rossman.

Saccardo (1878) proposed *Metanectria* for species that are like *Nectria* but have polysporous asci. The type specimen of *Metanectria citrum* was examined and determined to be a synonym of *Thelocarpon*

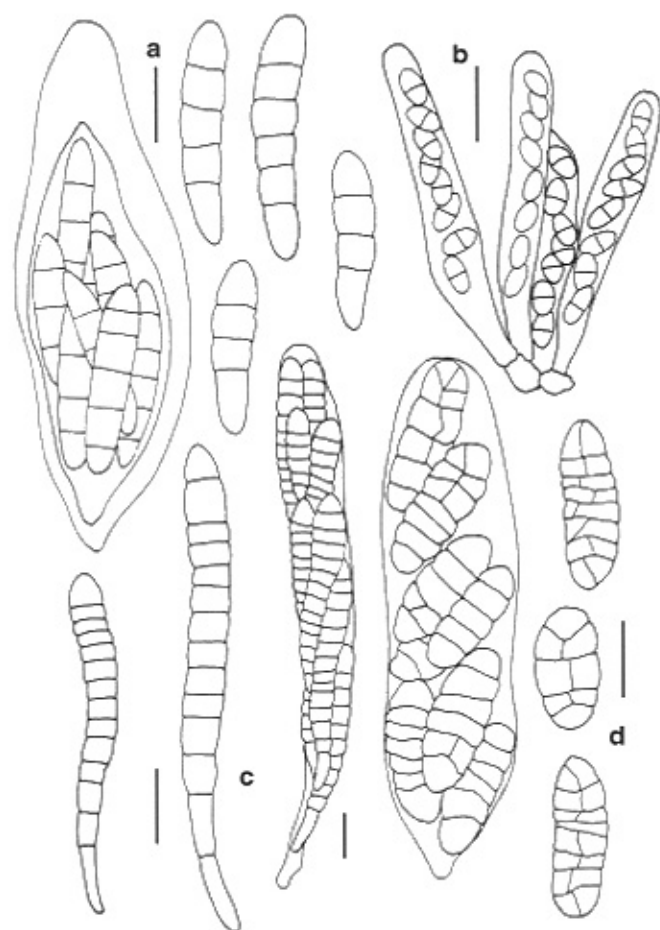


Plate 48. a. *Sphaerulina pterocarp*, ascus and ascospores. b. *Pseudonectriella ahmadii*, asci. c. *Stereocrea schizostachyi*, ascus and ascospores. d. *Thyronectria patavina*, ascus and ascospores. a. Lectotype - BPI 632902. b. Holotype - W. c. Paratype - W. d. Holotype - PAD. Scale bars: a-d = 10 μ m.

vicinellum Nyl. 1885, based on the description by Salisbury (1966). Wallroth's name provides an older epithet for this species but not an older name for the genus *Thelocarpon* Nyl. 1853 in the *Acarosporaceae*, *Lecanorales*. See discussion under *Thelocarpon* in this section.

The two additional names in *Metanectria* were not considered in this study.

Micronectria Speg., *Anales Soc. Ci. Argent.* 19: 45. 1885.

Type: *M. guaranitica* Speg.

Spegazzini (1885) considered *Micronectria* to be like *Ophionectria* but having immersed ascomata. The type specimen was examined on which pale yellow, ostiolate ascomata were found, immersed in the undersurface of leaves. Neither asci nor ascospores could be located. The drawing on the packet shows elongate ascospores, 125–150 \times 4–4.5 μ m, and asci with an apical ring. Without an adequate type specimen, this genus

cannot be characterized, but the habitat and description suggest the *Hyponectriaceae*, *Xylariales*.

HOLOTYPE.— BRAZIL. Guarapi, on decaying leaves of *Luehea divaricata*, Balansa 3427, Nov 1881, No. 1633 (LPS).

MOST ADDITIONAL NAMES have not been examined except one:

Micronectria pterocarp Racib. is the type of *Micronectriella* as discussed elsewhere in this section.

Micronectriella Höhn., *Sitzungsber. Kaiserl. Akad. Wiss., Math.-Naturwiss. Kl., Abt. 1*, 115: 1194. 1906.

Type: *M. pterocarp* (Racib.) Höhn. (= *Micronectria pterocarp* Racib.), recognized as *Sphaerulina pterocarp* (Racib.) Arx & E. Müll.

Micronectriella is a synonym of the loculoascmycete genus *Sphaerulina*, as suggested by von Arx & Müller (1975) and Müller (1977). Booth (1964) stated that the type material at FH 'has unitunicate asci and belongs to the *Hypocreales*', but this observation is in disagreement with later authors.

Sphaerulina pterocarp (Racib.) Arx & E. Müll., *Stud. Mycol.* 9: 92. 1975 — Plate 48, a.

= *Micronectria pterocarp* Racib., in Koorders, *Bot. Unters. Pilze* II. 13 (4): 176. 1907.

= *Micronectriella pterocarp* (Racib.) Höhn., *Ann. Mycol.* 16: 60. 1918.

Leaf spots angular with indistinct margin, coalescing, then covering major portions of the leaf, evident from both surfaces. Ascromata on the upper surface, immersed, developing below the epidermis, solitary, scattered, pale cinnamon to dark brick, translucent, circular in surface view, 80–110 μ m diam, ostiolate. Pseudoparaphyses abundant, anastomosing, granular 1.2–1.5 μ m diam. Asci bitunicate, broadly clavate to obclavate, globose at maturity, 48–78 \times 16–36 μ m. Ascospores clavate, 24–34 \times 5.5–6.5 μ m, 3–5(–7)-septate, hyaline, smooth-walled.

HABITAT AND DISTRIBUTION.— Known only from the type collection.

SPECIMEN EXAMINED.— INDONESIA. Java: Buitenzorg, on the upper surface of leaves of *Pterocarpus indicus*, 1900. Raciborski, Rehm: *Ascomycetes* 1898 (BPI 632902, **lectotype**, designated herein).

ILLUSTRATIONS.— Koorders (1907, Fig. 13 IV, as *Micronectria pterocarp*); Müller (1977, Pl. 1).

Many of the species included in *Micronectriella* have been placed in *Monographella* Petrak, *Hyponectriaceae*, *Xylariales*, as follows:

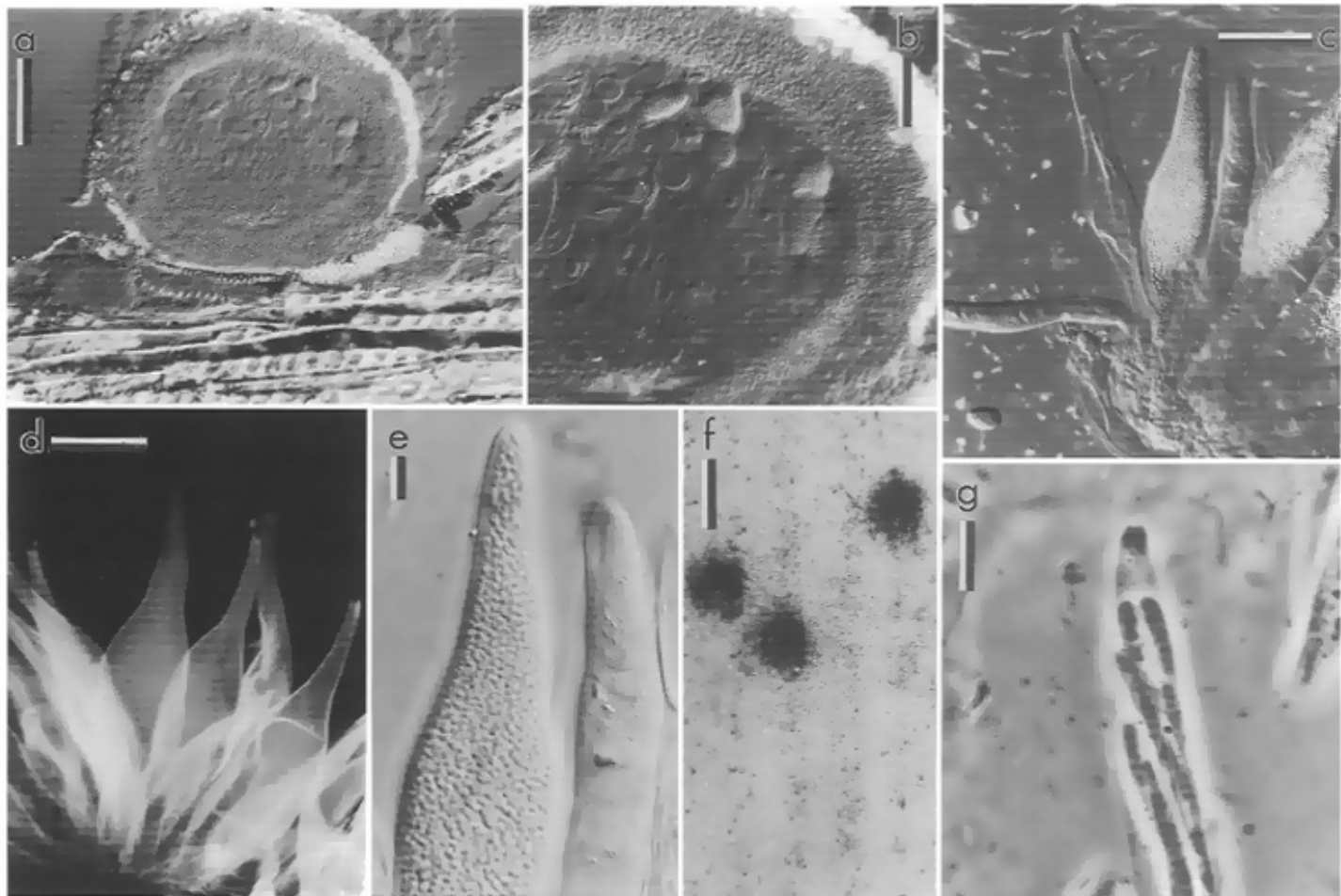


Plate 49. a–e. *Thelocarpon citrum*. a. Median section of ascoma on natural substratum. b. Close-up of median section of ascomatal wall. c. Asci. d. Asci with interthelial elements. e. Mature ascus with numerous ascospores. f, g. *Linocarpon freycinetiae*. f. Habit. g. Asci with ascospores and showing ascus apex. a–e. Holotype of *Metanectria citrum* – STR. f, g. Holotype of *Micronectriopsis freycinetiae* – FH. Scale bars: a = 100 μm ; b = 25 μm ; c, d = 50 μm ; e, g = 10 μm ; f = 500 μm .

Micronectriella stoveri C. Booth (1964) is recognized as *Monographella stoveri* (C. Booth) Samuels & Hallett, according to Samuels & Hallett (1983).

Micronectriella nivalis (Schaffnit) C. Booth (\equiv *Calonectria nivalis* Schaffnit) is recognized as *Monographella nivalis* (Schaffnit) E. Müll., according to Müller (1977).

Micronectriella pavgea R.A. Singh is a synonym of *Monographella albescens* (Thüm.) V.O. Parkinson, Sivan, & C. Booth, according to Parkinson *et al.* (1981).

***Micronectriopsis* Höhn., Ann. Mycol. 16: 59. 1918.**

Type: *M. freycinetiae* (Rehm) Höhn. (\equiv *Guignardia freycinetiae* Rehm) is recognized as *Linocarpon freycinetiae* (Rehm) K.D. Hyde.

Von Höhnelt (1918) considered the unispecific genus *Micronectriopsis* to be similar to *Micronectria* but differentiated by the numerous paraphyses, long-stalked, spindle-shaped asci, and needle-shaped ascospores.

Based on an examination of the type specimen, *Micronectriopsis* does not belong in the *Hypocreales*. The black, subepidermal, clypeate ascomata of *M. freycinetiae* are characteristic of *Linocarpon* Syd. & P. Syd. in the *Hyponectriaceae*, *Xylariales*. The type species of *Linocarpon*, *L. pandani* (Syd. & P. Syd.) Syd. & P. Syd., occurs on *Pandanus* in the *Pandanaceae*, the same family to which *Freycinetia* belongs.

***Linocarpon freycinetiae* (Rehm) K.D. Hyde, Bot. J. Linn. Soc. 123: 126. 1997. — Plate 49, f–g.**

\equiv *Guignardia freycinetiae* Rehm, Philipp. J. Sci. 8: 184. 1913.

\equiv *Micronectriopsis freycinetiae* (Rehm) Höhn., Ann. Mycol. 16: 59. 1918.

Ascomata on the upper surface of host leaves, scattered, solitary, visible as a dark, slightly raised spot, formed by black, subepidermal, circular clypeus, about 300–700 μm diam \times 100 μm tall, with indistinct margin, with diffuse blackened, smooth, thin, almost translucent peripheral cells, and a small central, peri-

physate ostiole; hymenial layer developing from a hyaline basal cell layer, about 20–30 μm thick. Paraphyses evident, filiform, 3 μm wide, branching. Asci unitunicate, narrowly clavate, 60–82 \times 8–13 μm , with distinct apical ring, 8-spored, ascospores pluriseriate, parallel in the asci in two sets of four ascospores. Ascospores within the asci 27–30 \times 3–3.5 μm , narrowly clavate, apex broadly rounded, non-septate, smooth, hyaline, oil droplets sometimes forming pseudosepta.

HABITAT AND DISTRIBUTION.— Known only from the type specimen.

TYPE.— PHILIPPINES. Luzon, Prov. Laguna, Los Baños, C.F. Baker 58, comm. Rehm 1912 (FH, lectotype, designated in Hyde, 1997).

ILLUSTRATIONS.— Hyde (1997, Figs. 20–28.).

NOTES.— *Linocarpon freycinetiae* differs from *L. pandani* in ascospore length, the latter having ascospores 70–100 \times 1.5–2 μm .

Miyakeomyces Hara, Bot. Mag. (Tokyo) 27: 248. 1913 [as ‘*Miyakeamyces*’].

Type: *M. bambusae* K. Hara (\equiv *Calonectria bambusae* (Hara) Höhn.).

Stroma of *textura intricata* of brown, encrusted hyphae. Ascomata partially to entirely immersed in the stroma, with the ostiole protruding; globose to short pyriform, dark brown, KOH+. Ascomatal wall of brown cells in the outer region and hyaline, thin-walled cells in the inner region. Asci unitunicate, narrowly clavate, 8-spored. Ascospores clavate, 3-septate, smooth-walled.

NOTES.— Hara (1913) established the unispecific genus *Miyakeomyces* as similar to *Gibberidea* differentiated by the ‘peculiar stroma and hairy perithecia’. Following Von Höhnelt (1919), Rogerson (1970) included *Miyakeomyces* in the *Hypocreales* as a synonym of *Calonectria*. Rossman (1979b, 1983) examined several parts of the type specimen issued as Sydow, Fungi exotici exsiccati no. 385 and suggested that, based on the brown ascomata and lack of interthelial elements in the mature ascomata, this genus is best placed in the *Niessliaceae*, *Hypocreales*. This agrees with the concept of the *Niessliaceae* as defined by Samuels & Barr (1998). *Miyakeomyces* is differentiated from other genera in the *Niessliaceae* by the well-developed hyphal stroma in which the ascomata are immersed, the 3-septate, non-disarticulating ascospores and the occurrence on *Phyllachora*.

Miyakeomyces bambusae Hara, Bot. Mag. (Tokyo) 27: 248. 1913.

\equiv *Calonectria bambusae* (Hara) Höhn., Ann. Mycol. 17: 119. 1919.

Ascomata solitary to densely aggregated, partially to entirely immersed in a brown to dark brown hyphal stroma. Stroma 120–170 μm thick, of two regions: basal region 30–50 μm thick, of 3 μm wide hyphae, forming a *textura intricata*, hyphal walls brown, only slightly thickened to about 0.5 μm ; upper region 90–120 μm thick, of 3–4 μm wide brown hyphae, forming a loose *textura intricata*, encrusted with brown granules that dissolve in water and become darker in KOH. Ascomata globose to short-pyriform, not collapsing when dry, 170–246 tall \times 110–210 μm diam, dark brown, external cells encrusted with brown granules, granules becoming black in KOH, with small, pointed, ostiolate papillae protruding from the stroma, papillae 25–50 μm tall \times 65–125 μm diam. Ascomatal wall 12–15 μm thick, of two regions: outer region of brown cells, 8–11 \times 3–5 μm ; inner region of hyaline, thin-walled cells. Asci unitunicate, ca 80 \times 16 μm , narrowly clavate, with simple apex, 8-spored, ascospores pluriseriate. Ascospores distinctly clavate, slightly curved, with rounded apex, tapering to a narrowly rounded base, 30–36 \times 5–6 μm , at first 1-septate, becoming 3-septate at maturity, slightly thickened to 0.5 μm , hyaline, smooth-walled.

HABITAT AND DISTRIBUTION.— Known only from the type collection.

TYPE SPECIMENS.— Japan, Mino Province, Kawauye-mura, parasitic on *Phyllachora phyllostachydis* Hara on leaves of *Phyllostachys bambusoides*, K. Hara, 11 Nov 1911. Sydow, Fungi exotici exsiccati no. 385 (NY, lectotype, designated by Rossman, 1979b; B, BPI 622983, C, CUP, DAOM, FH-General, FH-Höhnelt, NY, S, isolectotypes).

Mycaureola Maire & Chemin, Compt. Rend. Hebd. Séances Acad. Sci. 175: 321. 1922.

Type: *M. dilseae* Maire & Chemin.

Mycaureola was described as a marine ascomycete parasitic on the red alga, *Dilsea carnosus* (Schmidel) O. Kuntze. Maire & Chemin (1922) placed this genus close to *Hyponectria*, at that time considered a member of the *Hypocreales*. Porter & Farnham (1986) collected fresh material of *M. dilseae* and provided a detailed account of its biology and morphology. They discovered that this fungus is a basidiomycete with sigmoid basidiospores developing in an angiocarpic, ostiolate basidiocarp, and hyphae having dolipore septa.

Mycoarachis Malloch & Cain is an accepted unispecific genus in the *Bionectriaceae*.

Mycocitrus A. Möller is an accepted genus in the *Bionectriaceae*.

One of the additional names has been redispensed as follows:

Mycocitrus hypocrellicola (Henn.) Höhn., Sitzungsber. Kaiserl. Akad. Wiss., Math.-Naturwiss. Kl., Abt. 1, 121: 361. 1912 (\equiv *Nectria hypocrellicola* Henn, Hedwigia 41: 4. 1901) is recognized as *Nectriopsis hypocrellicola* (Henn.) Samuels in the *Bionectriaceae*.

Mycorhynchidium Malloch & Cain, *Canad. J. Bot.* 49: 850. 1971.

Type: *M. saccatum* Malloch & Cain.

Malloch & Cain (1971) considered this species to be the non-ostiolate counterpart of *Mycorhynchus*, based on the three-spored asci and large, sheathed ascospores. At that time *Mycorhynchus* and *Mycorhynchidium* were placed in the *Hypocreaceae*. Lundqvist (1980) included *Mycorhynchidium* and *Pyxidiphora* in the *Pyxidiphoraceae*, *Laboulbeniales*.

Mycorhynchus Sacc. & D. Sacc., *Syll. Fung.* 18: 418. 1906.

[\equiv *Rhynchomyces* Sacc., 1885, non Willk. 1866].

Lectotype: *M. marchalii* (Sacc.) Mig., in Thomé, *Kryptog.-Fl. Deutschl., Öst., Schweiz* 11 [Pilze 3, 4(1)]: 477. 1922 (\equiv *Rhynchomyces marchalii* Sacc., in Marchal, *Bull. Soc. Roy. Bot. Belg.* 24: 60. 1885), recognized as *Pyxidiphora marchalii* (Sacc.) Lundqvist.

Mycorhynchus was established to replace the homonym *Rhynchomyces* Sacc. and included fungi that were like *Sphaeronaemella* but had 1-septate, elongate spores that were thought to be conidia. Both genera had been placed in the *Sphaeropsideae*, deuteromycetes. Breton & Faurel (1967) examined the type specimen of *R. marchalii* and described it. They observed that this fungus was an ascomycete and placed *Mycorhynchus* in the *Hypocreales* as accepted by Rogerson (1970) and Müller & von Arx (1973). Hawksworth & Webster (1977) presented a key to 12 species in *Mycorhynchus* with descriptions and illustrations of the five species known to occur in Britain. Based on the distinctive ascomatal structure and peculiar ascospores, Lundqvist (1980) recognized *Mycorhynchus* as a synonym of *Pyxidiphora* in the *Pyxidiphoraceae*, *Laboulbeniales*.

All names previously placed in *Mycorhynchus* have been accounted for by Lundqvist (1980).

Myrmaeciella Lindau, in Engler & Prantl's *Natürl. Pflanzenfam.* 1(1): 478. 1897 [\equiv *Myrmaecium* Sacc. 1880, non Nitschke 1870].

Type: *M. endoleuca* (Sacc.) Lindau [\equiv *Myrmaecium endoleucum* Sacc., *Michelia* 2: 138. 1880, nom. illeg.].

Stroma erumpent, surface melanized, inside white, with a single layer of perithecia. Ascomata globose to ovoid, separated from the surrounding stromal tissue. Paraphyses narrow filaments to large deliquescent cells. Asci unitunicate, cylindrical, sessile, 8-spored. Ascospores ellipsoid to broadly fusiform with rounded ends, 1-septate, hyaline.

NOTES.— *Myrmaeciella* was proposed to replace the later homonym *Myrmaecium* Sacc. 1880, non Nitschke 1870. Saccardo (1880) described *Myrmaecium endoleucum* without a generic description but made reference to '*Myrmaecium* Tul.', a name that had not previously been published. In the discussion he characterized *Myrmaecium* as being similar to *Botryosphaeria* in habit but with characteristics of *Valsaria*, differing mainly in having hyaline ascospores. In the original description of *Myrmaeciella*, the genus was included in the *Melogrammataceae*. Clements and Shear (1931) included *Myrmaeciella* in the *Sphaeriaceae*, however, Müller & von Arx (1962) transferred *M. endoleucum* to *Hypocreopsis* and considered *Myrmaeciella* to be a synonym of *Hypocreopsis*, as did Rogerson (1970). *Myrmaeciella endoleuca* is not congeneric with the type species of *Hypocreopsis*, *H. lichenoides*, which has bright-colored, KOH+, extensively developed stromata occurring on other fungi. Placement of *Myrmaeciella* is difficult due to lack of definitive characteristics on the type specimen. The dark but soft-textured stroma, deliquescent paraphyses, unitunicate asci without amyloid apical ring, and hyaline, equally one-septate ascospores suggest affinities with the *Hypocreales*. Thus, *Myrmaeciella* is maintained as a unispecific genus allied with the *Niessliaceae*, *Hypocreales*.

Myrmaeciella endoleuca (Sacc.) Lindau, in Engler & Prantl's *Natürl. Pflanzenfam.* 1(1): 478. 1897. — Plate 50, a–g.

[\equiv *Myrmaecium endoleucum* Sacc., *Michelia* 2: 138. 1880, nom. illeg.]

\equiv *Hypocreopsis endoleuca* (Sacc.) E. Müll. & Arx, *Beitr. Kryptogamenfl. Schweiz* 11(2): 651. 1962.

Stroma erumpent, superficial on the substratum, pulvinate, soft-textured, 0.5–1.5 mm diam \times 0.5 mm high, surface tuberculate, irregularly rounded, cracked-rugose, non-papillate, black, KOH-, numerous ascomata in each stroma, forming a single layer; internal stromal tissue, ascomatal walls, and centrum contents white. In longitudinal section, melanized cells near the surface forming a 12–75 μ m thick layer of *textura globulosa* forming chains of globose to rectangular cells, 6–10 μ m diam with 1–1.5 μ m thick walls, melanized, cells sloughing off at the surface; outer region thinnest around the ostiolar opening; cells below the pigmented stromatal surface

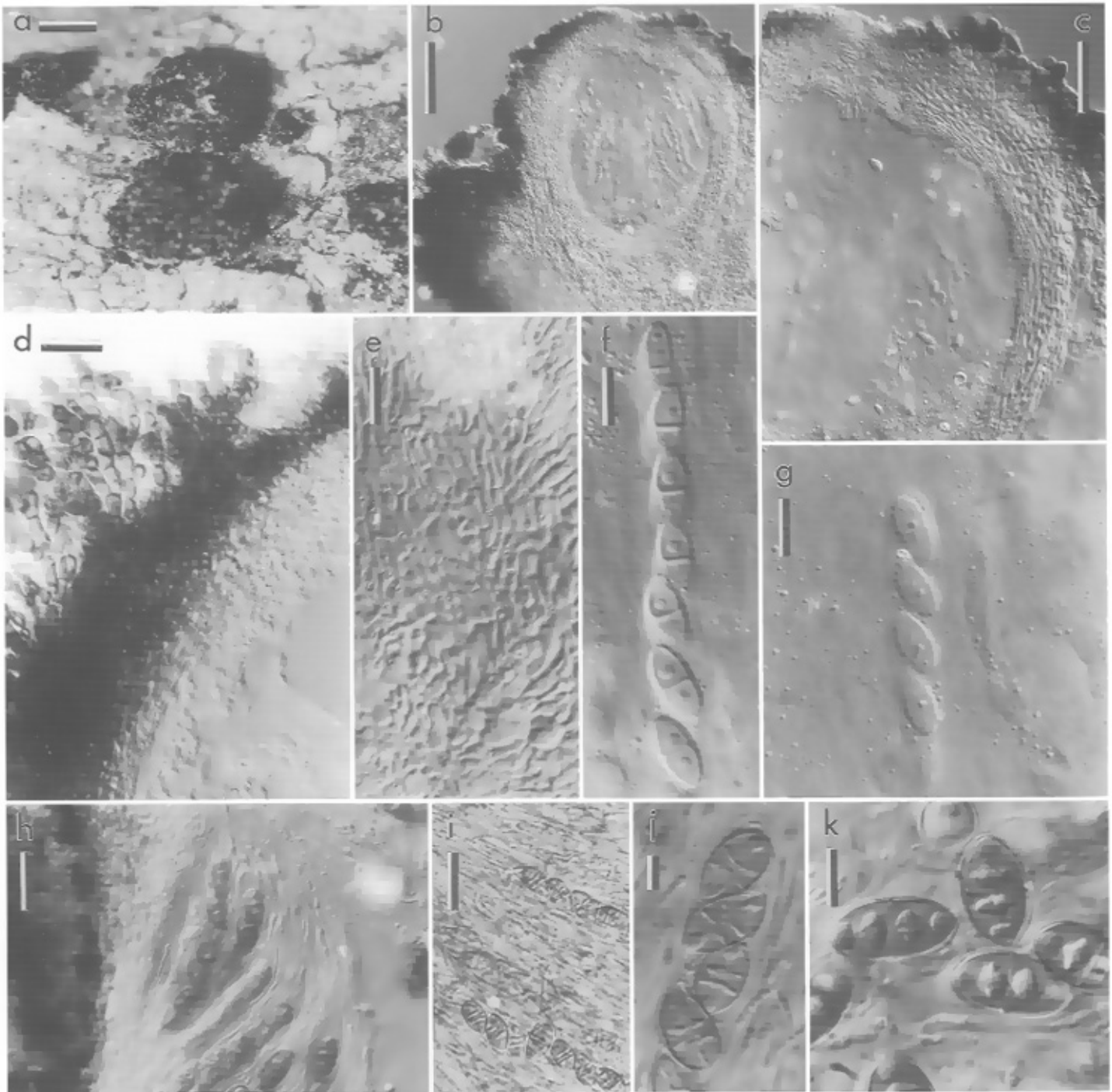


Plate 50. a–g. *Myrmaeciella endoleuca*. a. Habit. b. Median section of ascoma. c. Median section showing close-up of ascomatal wall. d. Median section of ascomatal wall showing columnar hyphal hairs. e. Section of stroma. f, g. Asci with ascospores. h–k. *Passerinula candida*. h. Median section showing ascomatal wall, asci and interthecial elements. i. Asci with ascospores and interthecial elements. j. Asci with ascospores. k. Distoseptate ascospores. a–g. Holotype – PAD. h–k. Lectotype – PAD. Scale bars: a = 1 mm; b = 100 µm; c = 50 µm; d, e, h, i = 25 µm; f, g, j, k = 10 µm.

compact pseudoparenchymatous, 6–7 µm diam, thin-walled, hyaline; internal tissue between the perithecia of hyaline, about 3 µm wide hyphae; basal stromal of *textura epidermoidea*, with hyaline, about 1.5 µm thick walls. Ascumata globose to ovoid, 475–525 µm tall × 325–425 µm diam; apex continuous with the lateral walls penetrating the stromal surface cells; ostiolar canal peri-

physate, periphyses numerous, ca 15 × 5.5 µm. Ascomatal wall separate from the surrounding stromal tissue, consisting of one region, about 25 µm thick, cells with ellipsoid to elongate lumina, 6–15 × 3–4 µm, forming a *textura prismatica*, walls 1.5 µm thick, hyaline, becoming yellow with age, cells elongate toward the centrum, becoming very thin-walled. Paraphyses evident as nar-

row filaments to large deliquescent cells that may or may not be attached at the apex. Asci unitunicate, cylindrical, 60–70 × 5–7 μm, sessile, 8-spored, forming in a hymenium along the ascotal base. Ascospores ellipsoid to broadly fusiform with rounded ends, 10.5–13.5 × 4.5–6 μm, 1-septate, hyaline, spinulose.

HOLOTYPE of *Myrmaecium endoleucum*: UNITED STATES. Texas: Corpus Cristi, on dead bark, Ravenel, April 1869 (PAD).

NOTES.— The type specimen of *M. endoleucum* consists of one piece of intact wood with bark and small foliose lichens, suggesting that the fungus occurs on living or recently killed bark.

[*Myrmaecium* Sacc., *Michelia* 2: 138. 1880, non Nitschke, 1870, nom. illeg. Art. 53.]

Type: *M. endoleucum* Sacc., recognized as *Myrmaeciella endoleuca* (Sacc.) Lindau.

This later homonym was replaced by *Myrmaeciella* Lindau as discussed elsewhere in this section.

Nectria (Fr.) Fr. is an accepted genus in the *Nectriaceae*.

Over 1,000 names have been included in the genus *Nectria*, most of which do not belong in the genus as currently circumscribed.

Nectriella Nitschke is an accepted genus in the *Bionectriaceae*.

[*Nectriella* Sacc., *Michelia* 1: 51. 1877, non Nitschke 1870.

Lectotype: *N. rousseliana* (Mont.) Sacc. (= *Nectria rousseliana* Mont.), recognized as *Pseudonectria rousseliana* (Mont.) Wollenw.

This later homonym was replaced by *Pseudonectria*. Most of the names placed in *Nectriella* Sacc. were accounted for by Lowen (1991) and Rossman *et al.* (1993).]

Nectriopsis Maire is an accepted genus in the *Bionectriaceae*.

ADDITIONAL NAMES:

Nectriopsis aureonitens (Tul. & C. Tul.) Maire is recognized as *Sphaerostilbella aureonitens* (Tul. & C. Tul.) Seifert *et al.* in the *Hypocreaceae*.

Nectriopsis berkeleyana (Plowr. & Cooke) Maire is recognized as *Sphaerostilbella berkeleyana* (Plowr. & Cooke) Samuels & Candoussau in the *Hypocreaceae*.

Nectriopsis tremellicola (Ellis & Everh.) W. Gams is recognized as *Hypomyces tremellicola* (Ellis & Everh.) Rogerson by Samuels (1976a) and Rogerson & Samuels (1994).

Neobarya Lowen, *Systema Ascomycetum* 5: 121. 1986.

[= *Barya* Fuckel, *Fungi rhenani* 991. 1864, non Klotzsch 1854.]

Type: *Neobarya parasitica* (Fuckel) Lowen, *Systema Ascomyceten* 5: 121. 1986 (= *Barya parasitica* Fuckel, *Fungi rhenani* 991. 1864).

Neobarya Lowen was established for the later homonym *Barya* Fuckel, non Klotzsch in the *Clavicipitaceae*. The type of *Neobarya*, *N. parasitica* and other species of *Barya* occur on members of the *Agaricales*. If *Berkelella byssicola*, a species that occurs on myxomycetes, is considered to be congeneric with *Neobarya* as suggested by Seifert (1986), then *Berkelella* 1891 provides an older generic name. See under *Berkelella* in this checklist.

Neocosmospora E.F. Smith is an accepted genus in the *Nectriaceae*.

EXCLUDED NAMES:

Neocosmospora arxii Udagawa *et al.*, *N. endophytica* Polishook *et al.*, and *N. diparietispora* (J.H. Miller, Giddens & A.A. Foster) Rossman, Samuels & Lowen are synonyms of *Viridispora diparietispora* (J.H. Miller, Giddens & A.A. Foster) Samuels & Rossman in the *Nectriaceae*.

Neohenningsia Koord. is a synonym of *Hydropisphaera* in the *Bionectriaceae*.

ADDITIONAL NAMES:

Neohenningsia brasiliensis Henn. is a synonym of *Hydropisphaera rufofusca* in the *Bionectriaceae*.

Neohenningsia confluens Petch is a synonym of *Hydropisphaera suffulta* in the *Bionectriaceae*.

Neohenningsia suffulta (Berk. & M.A. Curtis) Petch is recognized as *Hydropisphaera suffulta* in the *Bionectriaceae*.

Neonectria Wollenw. is accepted in the *Nectriaceae*.

ADDITIONAL NAME.— *Neonectria reteaudii* Bugnic., *Encycl. Mycol.* 11: 189. 1939, is recognized as *Calonectria reteaudii* (Bugnic.) C. Booth by Crous & Wingfield (1994).

Neorehmi Höhn., Sitzungsber. Kaiserl. Akad. Wiss., Math.-Naturwiss. Kl., Abt. 1, 111: 988. 1902.

Type: *N. ceratophora* Höhn. (= *Trichosphaerella ceratophora* (Höhn.) E. Müll.) = *Larseniella* Munk, Bot. Tidsskr. 46: 58. 1942. — Type: *L. globulisporea* Munk, a synonym of *N. ceratophora*.

In his original description, von Höhnel stated that *Neorehmi* showed relationships with the *Perisporiaceae*, *Hypocreaceae*, and *Trichosphaeriaceae*. The type species of *Neorehmi*, *N. ceratophora*, was connected to a *Tritirachium*-like anamorph by Müller & Samuels (1982) who described and illustrated this species as *Trichosphaerella ceratophora*. Based on the holoblastic, sympodial, denticulate anamorph of *N. ceratophora*, *Neorehmi* is placed in the *Trichosphaeriaceae*, *Xylariales* (Samuels & Barr, 1998). *Neorehmi* has been confused with *Trichosphaerella* in the *Niessliaceae*, *Hypocreales* (Samuels & Barr, 1998), as discussed elsewhere in this section.

Larseniella was established in the 'Sphaeriaceae' with affinities to *Hypocrea*, based on the 16-spored asci with globose part-ascospores. The type specimen of *Larseniella globulisporea* was examined. This name is a synonym of *Neorehmi ceratophora* Höhn., the type of *Neorehmi* Höhn., thus *Larseniella* is a synonym of *Neorehmi*, as previously recognized by Müller & von Arx (1962) and Munk (1948, 1953, 1957).

Neorehmi ceratophora Höhn., Sitzungsber. Kaiserl. Akad. Wiss., Math.-Naturwiss. Kl., Abt. 1, 111: 988. 1902.

= *Trichosphaerella ceratophora* (Höhn.) E. Müll., in Müller & von Arx, Beitr. Kryptogamenfl. Schweiz 11(2): 574. 1962.

= *Larseniella globulisporea* Munk, Bot. Tidsskr. 46: 58. 1942.

Anamorph: *Tritirachium*-like.

Ascomata solitary to caespitose, superficial, seated on a thin, hyphal cushion, globose, 80–175 µm diam, black, collapsed cupulate, non-papillate, ostiolar canal periphysate. Setae stout-cylindrical, erect, branched at the apex, arising as outgrowth of cells at the wall surface, 15–25 µm long, 3 µm wide, with about 0.3 µm thick, black walls. Ascomatal surface cells very small, non-descript. Ascomatal wall about 10–15 µm thick, of several layers of heavily brown-pigmented, small, elongate cells. No sterile filaments seen in the centrum among the asci. Asci unitunicate, cylindrical to narrowly clavate, 28–44 × 4–7 µm, apex broad, simple, arising in fascicles, eight-spored but appearing as 16 per ascus, ascospores uniseriate. Ascospores ellipsoid, 6–8 × 3–4 µm diam, 1-septate, disarticulating at the septum, part-spores subglobose, of equal size, hyaline, spinulose.

HABITAT.— On rotting conifers and hardwoods, possibly fungicolous.

DISTRIBUTION.— Denmark, Switzerland (Müller & Samuels, 1982); United States: Indiana (Emmons *et al.*, 1960).

HOLOTYPE of *Larseniella globulisporea*.— DENMARK. Geel Skov, 'in ligno *Piceae abietis*', 27 Oct 1940 (C).

ADDITIONAL SPECIMENS EXAMINED.— DENMARK. Sjælland, Jægersborg Dyrehave, on decorticated, conifer wood infected with a basidiomycete, 3 Nov 1964, A. Munk (C); on a small stick of *Salix*, 20 Jan 1965, A. Munk (C). The ascomata are seated on a decaying, resupinate basidiomycete under the bark.

ILLUSTRATIONS.— Müller & von Arx (1962, Fig. 226, as *T. ceratophora*); Müller & Samuels (1982, Fig. 2, as *T. ceratophora*); Munk (1942, Figs. 1–2, as *L. globulisporea*).

ADDITIONAL NAME.— *Neorehmi aurea* (Höhn.) Munk (= *Bresadolella aurea* Höhn.) is a synonym of *Trichosphaerella decipiens* E. Bommer, M. Rousseau, & Sacc., the type species of *Trichosphaerella*, as discussed elsewhere in this section.

Neoskofitzia Schulzer, Österr. Bot. Z. 30: 250. 1880.

Lectotype, designated by Clements & Shear (1931): *N. pallida* Schulzer.

Neoskofitzia was described to accommodate two species that were considered to be related to *Hypocrea* but differed in having non-stromatic ascomata. Type specimens for *N. pallida* or *N. verruculosa* Schulzer do not exist nor have the species been recorded since their original description, thus characterization of *Neoskofitzia* is impossible. Although theoretically *N. pallida* could be neotypified, the type description does not provide sufficient basis, on which to select a type specimen.

Neoskofitzia pallida was described as follows: Perithecia globose, 140–150 µm diam, barely ostiolate, smooth, completely pale ochre. Asci cylindrical, 57 × 10 µm. Spores obliquely monostichous, strongly constricted in the middle, soon separating, 7–8 × 4 µm. Paraphyses filiform, moderately thick, united (translated from Latin).

TYPE.— YUGOSLAVIA. On withered leaves of *Zea mays*. Autumn.

ADDITIONAL SPECIES:

Neoskofitzia termitum Höhn. is recognized as *Haematonectria termitum* in the *Nectriaceae*.

N. monilifera (Berk. & Broome) Höhn. is recognized as *Haematonectria monilifera* in the *Nectriaceae*.

N. hypomycoides Rick, Ann. Mycol. 3: 239. 1905. The possible isotype specimen no longer contains any asco-

mata. Based on the original description and the occurrence on a polypore, the species may belong in *Sphaerostilbella* or the *Hypocrea pallida*-group.

SPECIMEN EXAMINED.— BRAZIL. São Leopoldo, Rio Grande do Sul, on polypore, J. Rick 1907 (SP – possible isotype).

Neoskofitzia puiggariana (Speg.) Weese (\equiv *Dialhypocrea puiggariana* Speg.) is the type of *Dialhypocrea* Speg., an accepted genus in the *Hypocreaceae*.

Neuronectria Munk is a nomenclatural synonym of *Hydropisphaera* in the *Bionectriaceae*.

Notarisiella (Sacc.) Clem. & Shear is a nomenclatural synonym of *Pseudonectria* in the *Nectriaceae*.

Ochraceospora Fiore, Boll. Soc. Naturalisti Napoli 41: 90. 1930.

Type: *O. cavarae* Fiore.

Based on the description, this genus may be an earlier name for *Haematonectria* because the anamorph is said to be *Fusarium* sect. *Martiella*. However, a type specimen was not located at either NAP or POR. Without an authentic specimen, this genus must remain obscure.

Ophionectria Sacc. is an accepted genus in the *Nectriaceae*.

All names excluded from *Ophionectria* were accounted for by Rossman (1977). Although four species have been described since then by Saccas (1981), no type specimens exist for these species. Based on the descriptions and illustrations, *O. africana* and *O. lobayensis* both appear to have bitunicate asci, anastomosing pseudoparaphyses, and probably belong in *Tubeufia* (*Tubeufiaceae*, *Pleosporales*). The other two species, *O. rostellata* and *O. macrorostrata*, are of unknown disposition.

Orcadia Sutherland, Trans. Brit. Mycol. Soc. 5: 151. 1915.

Type: *O. ascophylli* Sutherland.

The genus *Orcadia* was proposed for a fungus occurring on the marine alga *Ascophyllum nodosum*. The type and only species, *O. ascophylli*, was described as being like *Trailia* Sutherland, a similar fungus on the same substratum, but differing in having septate, non-appendaged ascospores. Both genera were placed in the *Hyponectriaceae*, *Xylariales*. In a later publication, Sutherland (1915) added a second species, *O. pelvetiana* Sutherland, also occurring on a marine alga.

Kohlmeyer & Kohlmeyer (1979) considered these two names to be synonyms and included photographs of the distinctly operculate asci of *O. ascophylli*. The broadly opening ascomata, numerous interthelial elements, and operculate asci developing from the ascomata base of *O. ascophylli* suggest that *Orcadia* belongs in the *Pezizales*.

Paranectria Sacc. is an accepted genus in the *Bionectriaceae*.

ADDITIONAL NAMES in *Paranectria* were accounted for by Rossman (1987). Many have bitunicate asci and are placed in the genus *Paranectriella* (Sacc. & D. Sacc.) Höhn. and related genera in the *Tubeufiaceae*, *Pleosporales*.

Passerinula Sacc., Grevillea 4: 21. 1875.

Type: *P. candida* Sacc.

Ascomata immersed in stroma of carbonous pyrenomyces, solitary, with the white ostiolar openings visible. Ascomata ovoid, hyaline, ostiolate, wall of hyaline, thick-walled, slightly elongate cells. Pseudoparaphyses abundant, apically free, branching, septate. Asci bitunicate, cylindrical, with simple apex. Ascospores broadly ellipsoid, 1–3-distoseptate, translucent brown, smooth. NOTES.— In the original description the unispecific genus *Passerinula* was described as having pallid, soft-textured ascomata immersed in a pyrenomycetous stroma and 1–3-septate, pale brown ascospores, and was placed in the *Nectriaceae*. An examination of specimens of *P. candida* reveals that this fungus is a loculoascomycete. *Passerinula* was considered synonymous with *Dubitatio* (\equiv *Spegazzinula*) by Müller & von Arx (1962); however, unlike *Dubitatio*, *Passerinula* has uniloculate ascomata immersed in carbonous pyrenomyces, relatively broad, septate pseudoparaphyses, and symmetrical, equally one- to three-septate ascospores. *Passerinula candida*, the type species of *Passerinula*, occurs in the effete, carbonous stromata of *Valsaria*, the solitary ascomata of *P. candida* each have a thickened, white-rimmed ostiole, and they are not positioned laterally in the substratum. The ascospores of *P. candida* are equally one- to three-distoseptate. Distoseptate ascospores are unusual in non-lichenized ascomycetes. They are characteristic of *Dubitatio* in the *Massariaceae*, *Melanommatales*, as well as genera in the *Pleomassariaceae* and *Pyrenophoraceae*, *Pleosporales*. M.E. Barr (pers. comm.) suggests that *Passerinula* should be placed in the *Pyrenulaceae* or *Massariaceae*, *Melanommatales*.

Passerinula candida Sacc., Grevillea 4: 21. 1875. — Plate 50, h–k.

Ascomata immersed deeply in the carbonous stroma of the host, solitary, visible at the surface as a white ostiolar opening. Ascomata ovoid, 500 μm tall \times 450 μm diam, with the apex 250 μm tall, hyaline. Ascomatal wall 15 μm thick, of one region of hyaline, thick-walled, slightly elongate cells. Periphyses lining the ostiole. Pseudoparaphyses abundant, branching, septate, 2–2.5 μm wide. Asci bitunicate, cylindrical, 96–102 \times 9–10 μm . I–. Ascospores broadly ellipsoid with broadly pointed ends, 10.5–14 \times 6–6.5 μm , 1-septate with two additional distosepta, translucent brown, smooth.

TYPE SPECIMENS.— ITALY. Selva, Treviso, on *Valsaria insitiva*, Sep 1873 (PAD, lectotype, designated herein). Five specimens at PAD are labelled *Passerinula candida* and/or *P. eburnea*, an unpublished name. The handwriting on the labels is difficult to decipher with information crossed out or obviously added later. The specimen with data most similar to that of the protologue and with the described fungus is selected as lectotype and marked as such.

ILLUSTRATIONS.— Müller & von Arx (1962, Fig. 248).

ADDITIONAL NAME.— *Passerinula lutescens* (Arnold) E. Müll. (\equiv *Nectria lutescens* Arnold) is the type of the genus *Xenonectriella* in the *Nectriaceae*.

Patellonectria Speg., Bol. Acad. Nac. Ci. 23: 477, 1919.

Type: *P. puiggarii* Speg., a synonym of *Aspidothelium cinerascens* Vain.

Santesson (1952) examined the type specimen of *Patellonectria puiggarii* and determined it to be a synonym of the lichenized fungus, *Aspidothelium cinerascens*, thus *Patellonectria* is a synonym of *Aspidothelium* Vain. 1890 in the *Aspidotheliaceae*.

Peckiella (Sacc.) Sacc. is a synonym of *Hypomyces* in the *Hypocreaceae*.

ADDITIONAL NAMES.— Most taxa placed in *Peckiella* have been redescribed and illustrated as species of *Hypomyces* by Rogerson & Samuels (1985, 1989, 1993, 1994).

Peethambara Subram. & Bhat is an accepted genus in the *Bionectriaceae*.

Peloronectria A. Möller, Bot. Mitt. Tropen 9: 297, 1901.

Type: *P. vinosa* A. Möller.

The genus *Peloronectria* was established as a genus similar to *Calonectria* in having multiseptate ascospores but differing in the well-developed stroma encircling the bamboo stem, brown ascomata, and yellow-brown ascospores. The type specimen was not

located at B or HBG. The original description and illustration suggest that *Peloronectria vinosa* is fungicolous on the tuberculate stroma of a bamboo fungus.

TYPE (not located).— BRAZIL. Blumenauer Waldgebiete, on a cut stem of bamboo, Hellmut Brockes, 7 Sept. 1892.

Two additional names have been placed in this genus, but neither has been characterized since their original description.

Peloronectriella Doi is a synonym of *Nectriopsis* in the *Bionectriaceae*.

Pericoccis Clem., in Clem. & Shear, Gen. Fungi p. 80, 1931.

Type: *P. leptogiicola* (Cooke & Masee) Clem. (\equiv *Hypocrea leptogiicola* Cooke & Masee, *Grevillea* 19: 86, 1890 \equiv *Broomella leptogiicola* (Cooke & Masee) Sacc., *Syll. Fung.* 9: 989, 1891).

Clements & Shear (1931) listed *Pericoccis* Clem. with *P. leptogiicola* (Cooke & Masee) Clem. as the type species citing *Broomella 'lichenicola'* as the basionym, but they did not mention the author or citation for the basionym. In the same publication the name *Pericoccis* appeared in a key to the Hyalophragmiae of the *Hypocreaceae* with reference given to Saccardo (1891). The Saccardo reference is a description of *Broomella leptogiicola* (Cooke & Masee) Sacc., cited as 'Cooke & Masee'. Based on the key in Clements & Shear (1931), *Pericoccis* is distinguished by lichenicolous ascomata immersed in a stroma and septate, hyaline ascospores. Petch (1936) examined the type specimen of *Broomella leptogiicola* at K and stated that this name was based on the apothecia of the lichen *Leptogium* sp. The unispecific genus *Pericoccis* is regarded as a synonym of *Leptogium* (Ach.) Gray in the *Collemataceae*, *Lecanorales*.

Peristomialis (W. Phillips) Boud. is a synonym of *Ijuhya* in the *Bionectriaceae*.

Most names described in *Peristomialis* are recognized as species of *Ijuhya*.

EXCLUDED NAMES:

Peristomialis aquilina Rehm belongs in *Mollisia* in the *Helotiales* according to Carpenter (1981), but the epithet was never transferred to that genus.

Peristomialis lepidula (Marchal ex Sacc.) Boud. (\equiv *Cyathicula lepidula* Marchal ex Sacc.) is a species of *Lasiosobolus* Sacc. in the *Pezizales* according to Carpenter (1981); however, he was unable to locate the type specimen.

Peristomialis marchantiae (Sommerf.) Boud. (\equiv *Peziza*

marchantiae Sommerf.) is a species of *Pezoloma* Clem. in the *Helotiales* according to Carpenter (1981); he was, however, unable to locate the type specimen.

Peristomialis pulchella (Quélet) Boud. (\equiv *Mollisia pulchella* Quélet) is recognized as *Pseudohelotium pulchellum* (Quélet) Sacc. in the *Helotiales* according to Carpenter (1981).

Perrotiella Naumov is a synonym of *Hydropisphaera* in the *Bionectriaceae*.

Phaeocreopsis Sacc. & Syd., in Lindau, *Natürl. Pflanzenfam., Nachtr.* 1 (1): 541. 1900.

Type: *Hypocreopsis hypoxyloides* Speg., *Anales Mus. Nac. Hist. Nat. Buenos Aires* 6: 291. 1899 (\equiv *Phaeocreopsis hypoxyloides* (Speg.) Sacc. & Syd.), a synonym of *Valsaria rubricosa* (Fr.: Fr.) Sacc.

Phaeocreopsis Sacc. & Syd. was established as a genus similar to *Hypocreopsis* P. Karst, but for species having fuscous ascospores. Kobayasi & Doi (1969) examined the type specimen from Argentina and living material from Japan and determined that the fungus belongs in the *Pleosporales* based on the superficial, discoid ascostromata with bitunicate asci and pseudoparaphyses. In clarifying the taxonomic position of *Valsaria* Ces. & De Not., Ju *et al.* (1996) listed *P. hypoxyloides* as a synonym of *Valsaria rubricosa*, thus *Phaeocreopsis* is a synonym of the genus *Valsaria*.

ADDITIONAL NAME:

Phaeocreopsis pezizaeformis Boedijn is a synonym of

Valsaria rubricosa Ces. & De Not. according to Ju *et al.* (1996).

Phaeonectria (Sacc.) Sacc. & Trotter is a synonym of *Calostilbe* in the *Nectriaceae*.

ADDITIONAL NAME.— *Phaeonectria olivacea* (Seaver) Sacc. & Trotter, recognized as *Rubrinectria olivacea* in the *Nectriaceae*.

Phaeonectriella Eaton & E.B.G. Jones, *Nova Hedwigia* 19: 779. 1971.

Type: *P. lignicola* Eaton & E.B.G. Jones.

Ascomata solitary, immersed in the substratum, globose with the neck emerging, soft-textured, hyaline to pale brown, with an emergent, elongate, periphysate, darkened neck. Paraphyses not evident. Asci unitunicate, clavate, with a thickened apex and pore. Ascospores pale brown, 1-septate, with pores at both ends. NOTES.— This unispecific genus was established for a species similar to *Nectriella* in having immersed ascomata but with pale brown ascospores. The holotype specimen from IMI was examined. Although the ascomatal body is hyaline to pale brown with a thin, about 8 μ m thick, wall, the elongate neck varies from relatively short to quite long and becomes darkly pigmented outside the substratum. The structure of the ascomatal neck consists of thin-walled, darkly pigmented, elongate hyphae. Apical paraphyses, usually seen as gelatinous swollen cells in chains in mature ascomata in

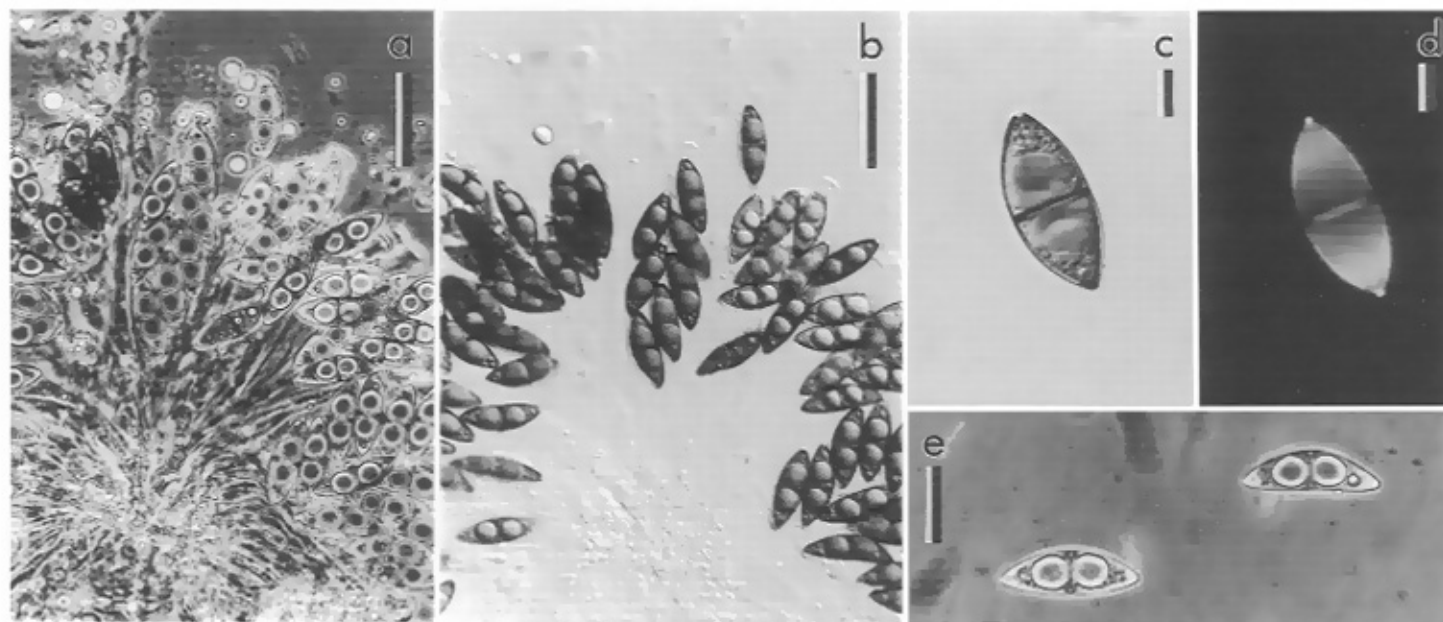


Plate 51. a–e. *Phaeonectriella lignicola*. a. Asci with ascospores in phase contrast microscopy. b. Asci with ascospores. c. Ascospore. d. Ascospore showing apical pore at each end, fluorescence microscopy. e. Ascospores in phase contrast microscopy. a–e. BPI 802581. Scale bars: a, b = 50 μ m; c, d = 10 μ m; e = 25 μ m.

hypocrealean fungi, were not evident even in the presence of young asci. Among immersed hypocrealean fungi, none are known to have long necks. Those that had been considered to be hypocrealean, such as *Sphaeronaemella*, are known to have affinities with the *Ophiostomatales* (Spatafora & Blackwell, 1994). As suggested by Eriksson & Hawksworth (1986), *Phaeonectriella* has many characteristics similar to members of the *Lasiosphaeriaceae*, *Sordariales*, and is excluded from the *Hypocreales* (Barr, 1990).

Phaeonectriella lignicola Eaton & E.B.G. Jones, *Nova Hedwigia* 19: 779, 1971. — Plate 51, a–e.

Perithecia scattered, inconspicuous, completely immersed, globose with only a short, periphysate beak emerging from the substratum, 280–575 µm tall × 100–350 µm diam, pale brown, thin, difficult to separate from the host tissue. Surface of small, thin-walled, pale brown, angular, pale brown cells. Paraphyses not seen among the maturing asci. Asci unitunicate, clavate, 100–417 × 22–35 µm, sessile, apex thickened with a pore and a fluorescent cap, 8-spored. Ascospores ellipsoid, translucent pale brown, 1-septate, with a pore at each end, smooth, outer wall about 0.5 µm thick, each end with a small protruding papilla.

HOLOTYPE.— WALES. Flintshire: Connah's Quay, on Scots pine test blocks placed for 54 weeks amongst the packing timber of a freshwater cooling tower (IMI 13465).

ADDITIONAL SPECIMEN EXAMINED.— TAIWAN. Nantou, Puli, collected on unidentified, bark-covered branchlet in a stream, 11 March 1994, Hu-shii Chang (BPI 802581).

Plectolitus Kohlm., *Nova Hedwigia* 2: 238, 1960.

Type: *P. acanthosporum* Kohlm., a synonym of *Amylocarpus encephaloides* Currey.

Kohlmeyer & Kohlmeyer (1979) recognized the synonymy of the unispecific genus *Plectolitus* with *Amylocarpus* as discussed elsewhere in this section.

Plectosphaerella Kleb., *Phytopathol. Z.* 1: 43, 1929 [1930].

Type: *P. cucumeris* Kleb., a synonym of *P. cucumerina* (Lindf.) W. Gams.

Plectosphaerella was established for the teleomorph of a very common 'Cephalosporium' associated with storage rot of cucumbers. In discussing the placement of the genus, Klebahn (1929) compared his genus to *Didymella* and *Mycosphaerella*, both having ascospores that remain immersed at maturity. He found *Plectosphaerella* to differ from *Mycosphaerella* by asci that do not develop in fascicles and from *Didymella* by the lack of thread-like (pseudo)paraphyses in *Plectosphaerella*. Rogerson (1970) included *Plectosphaerella*

in the *Hypocreales* probably based on the observations made by Gams & Gerlagh (1968) who accepted *Plectosphaerella* with *P. cucumerina* having a 'Fusarium-like' anamorph as a genus in the *Hypocreales*. Although they considered it to be similar to *Nectria*, Gams & Gerlagh (1968) differentiated *Plectosphaerella* on the basis of the dark, elongated ascospores. The type species, *Plectosphaerella cucumerina*, is well-known as the teleomorph of the very common soil fungus *Plectosporium tabacinum* (often as 'Fusarium' *tabacinum*). Uecker (1993) studied the centrum development and concluded that *Plectosphaerella* is related to *Glomerella* in the *Phyllachorales* (Uecker, 1994).

Plectosphaerella cucumerina (Lindf.) W. Gams, in Domsch & Gams, *Fungi in Agricultural Soils*, p. 160, 1972.

≡ *Venturia cucumerina* Lindf., *Meddelande Centralanst. Förskv. Jordbruksomr. Bot. Avd.* 17: 7, 1919.

≡ *Monographella cucumerina* (Lindf.) Arx, *Trans. Brit. Mycol. Soc.* 82: 374, 1984.

= *Plectosphaerella cucumeris* Kleb., *Phytopathol. Z.* 1: 43, 1929 [1930].

≡ *Micronectriella cucumeris* (Kleb.) C. Booth, *The Genus Fusarium*, p. 39, 1971.

Anamorph: *Plectosporium tabacinum* (J.F.H. Beyma) Palm, W. Gams & Nirenberg, *Mycologia* 87: 399, 1995.

≡ *Cephalosporium tabacinum* J.F.H. Beyma, *Zentralbl. Bakteriol., Abt. 2*, 89: 240, 1933.

≡ *Fusarium tabacinum* (J.F.H. Beyma) W. Gams, in Gams & Gerlagh, *Persoonia* 5: 179, 1968.

≡ *Microdochium tabacinum* (J.F.H. Beyma) Arx, *Trans. Brit. Mycol. Soc.* 83: 374, 1984.

= *Cephalosporium ciferrii* Verona, *Studio sulle cause microbiche che danneggiano la carta ed i libri*, Roma, p. 30, 1939.

[= *Cephalosporiopsis imperfecta* Moreau & V. Moreau, *Rev. Mycol. (Paris)* 6: 67, 1941, *nom. inval.*, Art. 36].

The type specimen of *Plectosphaerella cucumeris* does not exist at BREM. In addition, the type specimen of *Venturia cucumerina* Lindf. is not at UPS nor at S; the curators suggest that the material is lost. In order to ensure their long-accepted synonymy, the same specimen for both *Plectosphaerella cucumeris* and *Venturia cucumerina* is designated as **neotype**: NEW ZEALAND. Auckland: Mt. Albert Research Centre, DSIR, isolated from diseased *Nicotiana tabacum*, Oct 1984, W. F. T. Hartill, det. G. J. Samuels, culture G.J.S. 84-531 ≡ ATCC 96328 ≡ CBS 101607 (NY). This strain was used in the centrum development study by Uecker (1993) and was authenticated as the anamorph *Plectosporium tabacinum* by Palm *et al.* (1995).

ILLUSTRATIONS.— Carris & Glawe (1989, Figs. 310–316); Domsch *et al.* (1980, Fig. 290); Gams & Gerlagh (1968, Figs. 1–3, Plates 7, 8); Palm *et al.* (1995, Figs. 1–12, anamorph only); Uecker (1993, Figs. 1–34).

Pleogibberella Sacc. is an accepted genus in the *Nectriaceae*.

Two additional names have not been characterized since their original description.

Pleonectria Sacc. is a synonym of *Nectria* in the *Nectriaceae*.

ADDITIONAL NAMES:

Pleonectria antarctica Speg. and *P. vagans* Speg. are synonyms of *Nectria antarctica* (Speg.) Rossman.

Pleonectria austroamericana Speg., *P. denigrata* G. Winter, *P. guarantica* Speg., and *P. nigropapillata* Starbäck are synonyms of *Nectria austroamericana* (Speg.) Rossman.

Pleonectria berolinensis Sacc., *P. fenestrata* (Berk. & M.A. Curtis) Berl. & Vogl., and *P. ribis* P. Karst. are synonyms of *Nectria berolinensis* (Sacc.) Rossman.

Pleonectria caespitosa (Speg.) Wollenw., *P. heveana* Sacc., *P. megalospora* Speg., *P. pseudotrichia* (Schwein.) Wollenw., and *P. riograndensis* Theiss. are synonyms of *Nectria pseudotrichia* Berk. & M.A. Curtis.

Pleonectria calonectrioides Wollenw. and *P. pinicola* Kirschst. are synonyms of *Nectria balsamea* Cooke & Peck.

Pleonectria lichenicola (P. Crouan. & H. Crouan) Sacc. and *P. appendiculata* Vouaux are synonyms of *Paranectria oropensis* (Ces.) D. Hawksw. & Piroz. in the *Bionectriaceae*.

Pleonectria missouriensis (Ellis & Everh.) Sacc. is recognized as *Nectria missouriensis* Ellis & Everh.

Pleonectria pyrrochlora (Auersw.) G. Winter is recognized as *Nectria pyrrochlora* Auersw.

Podocrea Lindau is a synonym of *Podostroma* in the *Hypocreaceae*.

Several additional names have been included in *Podocrea*; most have been transferred to *Podostroma* or *Hypocrea*.

Podocrella Seaver, *Mycologia* 20: 57. 1928.

Type: *P. poronioides* Seaver.

Stromata dark green to black, capitate-stipitate, the flat cap tuberculate due to the ascomatal papillae. Ascomata ovoid. Asci long-cylindrical, capitate. Ascospores narrowly fusiform, at first septate in the mid-

dle, becoming multiseptate, disarticulating at the middle septum to form two 'lanceolate', multiseptate part-spores.

NOTES.— Seaver (1928) described the genus *Podocrella* with *P. poronioides* without discussion in a publication on the *Hypocreales* from Trinidad. Rogerson (1970) included *Podocrella* in the *Clavicipitales*; otherwise the genus has been ignored. Based on an examination of the type specimen of *P. poronioides*, *Podocrella* is placed in the *Clavicipitaceae*.

Podocrella poronioides Seaver, *Mycologia* 20: 57. 1928 (as '*poronioides*'). — Plate 52, a–f.

Stromata dark green to black, capitate-stipitate, 7–8 mm high, with a flat cap, about 3 mm diam, the stipe widening from 1 mm at the base to about 2 mm; upper surface of the cap slightly tuberculate due to numerous ascomatal papillae; stipe with some yellow-green hyphae, furrowed; cap clearly notched where it joins the stipe, KOH–; surface layer about 70 μm thick, of two regions: outer region about 35 μm thick, of pigmented pseudoparenchyma; inner region of tightly compacted narrow hyphae. Ascomata ovoid, 560–860 μm tall \times 250–300 μm diam, ostiolar canal periphysate; apex emerging through stromal surface in a fan-like fashion with rows of cells that resemble the cells of the stromal surface. Ascomatal wall narrow, formed of a single region of thin-walled, intertwined hyphae. Asci unitunicate, long cylindrical, up to 250 μm long, apex capitate, penetrated by a narrow pore, developing from a hemispherical, basal pad. Ascospores narrowly fusiform, 60–75 \times 1.5–3 μm , at first septate in the middle, then becoming multiseptate, disarticulating at the middle septum to form two 'lanceolate', multiseptate part-spores each with a subacute apex and a truncate base.

HOLOTYPE.— TRINIDAD. vicinity of Valencia, on rotten wood among mosses, 4 Mar 1921, F.J. Seaver 3017, Plants of Trinidad, British West Indies (NY).

NOTES.— The specimen consists of two packets: one glassine envelope has several pieces of moss-covered, thick bark, but no stromata of a fungus. The 'pill box' has two stromata of a fungus that agree with the protologue. It is likely that this fungus actually developed from a large insect larva buried in the wood.

Podostroma P. Karst. is an accepted genus in the *Hypocreaceae*.

Many additional names have been placed in *Podostroma*, most of which belong in the *Hypocreales* but have not been reevaluated.

Porphyrosoma Pat., *Mém. Acad. Malgache* 6: 40. 1927 (1928).

Type: *P. episphaeria* Pat. (= *Hypocreopsis episphaeria* (Pat.) E. Müll.).

The unispecific genus *Porphyrosoma* was established for a species similar to *Hypocrea* but having a violet-purple stroma and relatively large ascospores that do not separate into part-ascospores. In the introduction to the original description, Patouillard (1928) stated that all specimens were deposited in PC; however, neither Pfister (1977) nor the present authors were able to locate the type specimen at PC or FH. Müller & von Arx (1962) provided a description and illustration of the type species of *Porphyrosoma* placing it in *Hypocreopsis*. Al-

though they do not state that a type or any other specimen was examined, the description of *H. episphaeria* is expanded and altered from the original description. Because the type specimen is missing and no other extant specimens exist, *Porphyrosoma* cannot be characterized and is excluded from the hypocrealean fungi.

TYPE SPECIMEN.—MADAGASCAR, near Tananarive, Maromandia, parasitic on ascomata of *Amphisphaeria discoidea* on bark, M. R. Decary, Feb. 1923/24 (apparently lost).

Pronectria Clem. is an accepted genus in the *Bionectriaceae*.

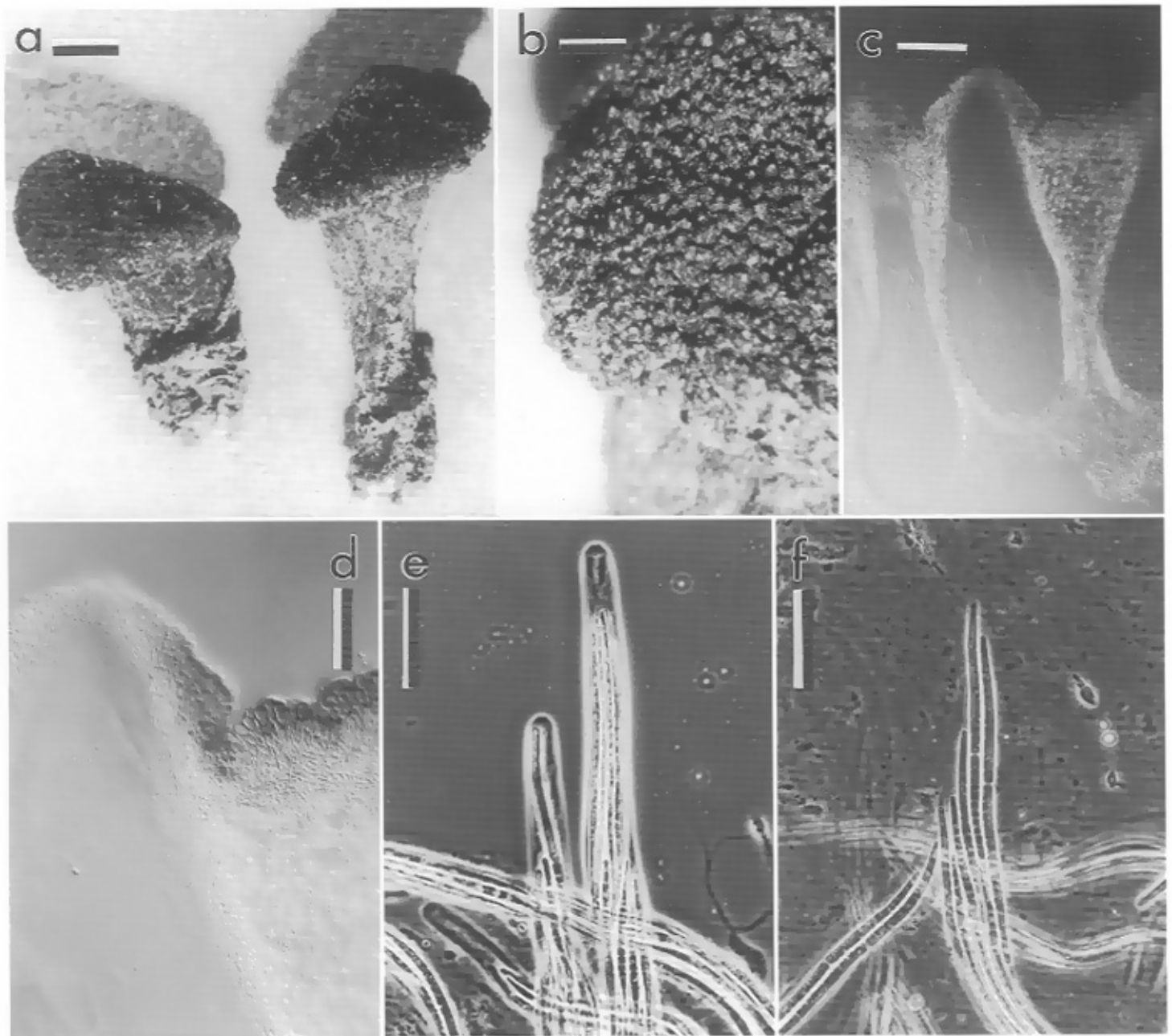


Plate 52. a-f. *Podocrella poronioides*. a. Stalked, capitulate stromata with aggregated ascomata. b. Surface of ascomata. c. Median section of elongated ascomata. d. Median section showing ascomatal wall structure. e. Asci with ascus apex and ascospores. f. Disarticulating ascospores. a-f. Holotype - NY. Scale bars: a = 1 mm; b = 0.5 mm; c = 100 μ m; d = 50 μ m; e, f = 25 μ m.

Protocrea Petch is an accepted genus in the *Hypocreaceae*.

Two additional names are redispersed as follows:

Protocrea stipata (Lib.) Petch is a synonym of *Arachnocrea stipata* in the *Hypocreaceae*.

Protocrea fungicola (Karst.) Vassilyeva, *Plantae non Vasc., Fungi et Bryopsidae, Orientis Extremi Rossica, Fungi, Pyrenomycetidae et Loculoascomycetidae* 4: 162. 1998. This species is a *Hypocrea*, recognized as *H. pulvinata* Fuckel.

Protocreopsis Doi is an accepted genus in the *Bionectriaceae*.

All additional names in *Protocreopsis* are accounted for herein.

Pseudohypocrea Doi is an accepted genus in the *Hypocreaceae*.

Pseudonectria Seaver is an accepted genus in the *Nectriaceae*.

Many additional names in *Pseudonectria* have been excluded from the genus (Rossman *et al.*, 1993). Döbbeler (1979) transferred four species occurring on bryophytes to the genus *Octosporella* Döbbeler, *Pezizales*, as follows: *Octosporella hemicrypta* (Döbbeler) Döbbeler (\equiv *Pseudonectria hemicrypta* Döbbeler); *O. jungermanniarum* (H. Crouan & P. Crouan) Döbbeler (\equiv *Nectria jungermanniarum* H. Crouan & P. Crouan); *O. perforata* (Döbbeler) Döbbeler (\equiv *P. perforata* Döbbeler); and *O. suboperculata* (Döbbeler & P. James) Döbbeler (\equiv *P. suboperculata* Döbbeler & P. James).

Pseudonectriella Petrak, *Sydowia* 13: 127. 1959.

Type: *P. ahmadii* Petrak.

Stroma erumpent through the host epidermis. Ascomata superficial on the stroma, black, subglobose to globose, becoming cupulate on drying, slightly warted, wall of thick-walled, pigmented cells, forming a *textura angularis*. Asci broadly cylindrical. Ascospores ellipsoid, 1-septate, hyaline, smooth-walled.

NOTES.— Petrak (1959) described the unispecific genus *Pseudonectriella* as a fungus similar to *Nectria*, particularly *N. cinnabarina*, but differing in dark-colored ascomata and non-septate ascospores. He was unable to find an associated anamorph on the young stromata. In characters such as the stromal structure, ascomatal wall structure and texture, centrum characteristics and habit, *P. ahmadii* resembles members of the *N. cinnabarina* group, i.e. *Nectria sensu stricto*. However, the stroma and ascomata are melanized, suggesting that *Pseudonectriella* belongs in the *Niessliaceae* (Barr, 1990; Samuels & Barr, 1998). Within the *Niessliaceae*, *Pseudonectriella* is similar to *Melanopsamma* in having glabrous ascomata that become cupulate upon drying, and non-disarticulating ascospores. *Pseudonectriella* is differentiated by the ascomata aggregated and coalescing on a well-developed stroma.

Pseudonectriella ahmadii Petrak, *Sydowia* 13: 127. 1959. — Plate 48, b (page 201); Plate 53, a–d.

Stroma well-developed, cells nearly circular to angular in outline, about 12 μm diam, with 1.2 μm thick walls, white, continuous with the outer wall of ascomata. Ascomata superficial, caespitose, forming clusters of

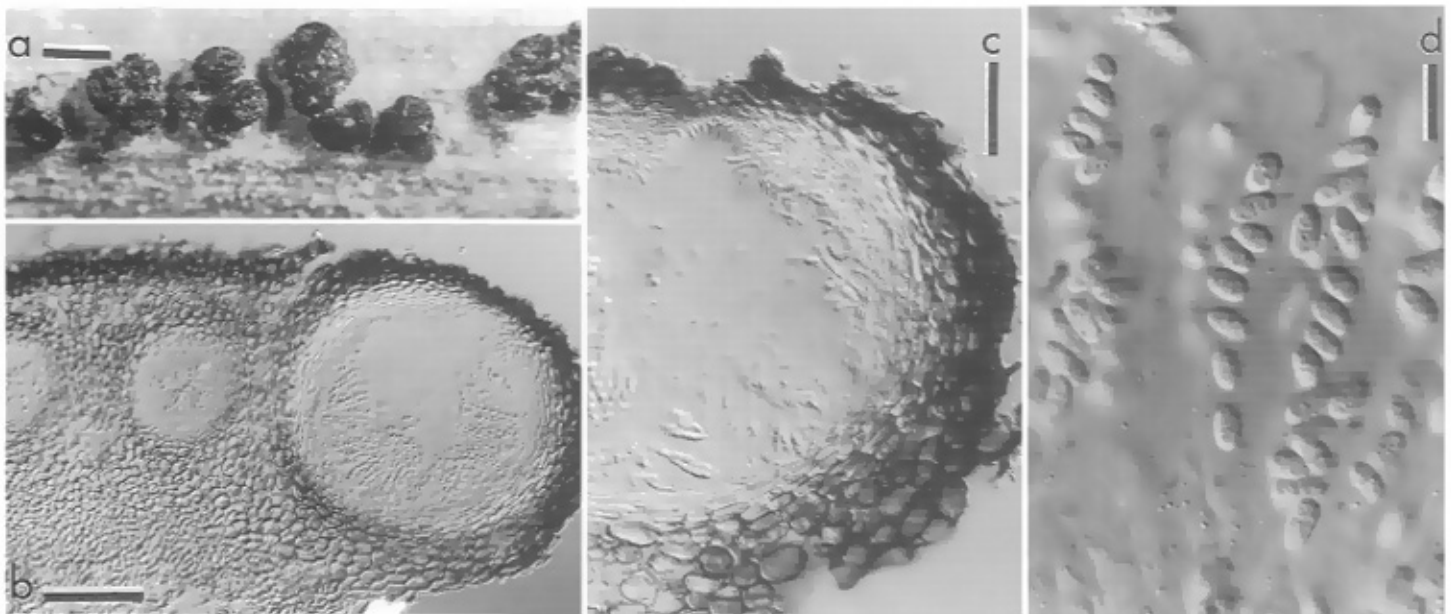


Plate 53. a–d. *Pseudonectriella ahmadii*. a. Habit. b. Median section of stroma and ascomata. c. Median section of ascoma. d. Asci with ascospores and interthecial elements. a–d. Holotype – W. Scale bars: a = 250 μm ; b = 50 μm ; c = 50 μm ; d = 10 μm .

3–10, erumpent through the epidermis, appearing immersed within a common stroma when young, eventually superficial on the stroma. Ascumata subglobose to globose, 212–225 μm diam, collapsing cupulate, wall slightly warted, black, not changing color in KOH or lactic acid, ostiolate. Ascumatal wall 50 μm thick, of two intergrading regions: outer region 25 μm thick, cells ellipsoid in outline, about $20 \times 10 \mu\text{m}$, with about 2.5 μm thick, dark brown wall; inner region 25 μm thick, cells like those in the outer region, gradually becoming more flattened and non-pigmented; cells at surface of the ascumatal wall circular in outline, 20–25 μm diam, wall about 1 μm thick, brown. Apical paraphyses seen as remains near the top of the centrum. Asci unitunicate, 27–42 \times 6–7 μm , broadly cylindrical, apex broad, simple, thin-walled, ascospores uniseriate, becoming clustered in the apex. Ascospores 5–6 \times 2.5–3 μm , oblong to ellipsoid, appearing unicellular but with a single median septum developing while still in the asci, septum obscure, more readily seen in lactic acid, smooth, hyaline.

TYPE.— PAKISTAN. Changa Manga, on thin branches of *Cadaba farinosa* (Capparidaceae), 24 Mar 1954, S. Ahmad, Petrak 540 (W – holotype); same data except collected 21 Feb 1965, Fungi of West Pakistan 18949 (BPI 737548 – topotype).

NOTES.— Kapoor & Mukerji (1970) reported *Pseudonectriella ahmadii* from India.

Pseudorhynchia Höhn. is an accepted genus in the *Niessliaceae* according to Samuels & Barr (1997).

Pseudosolidium Lloyd (as McGinty), Mycol. Writ. 7: 1206. 1923.

Type: *P. solidum* (Berk. & M.A. Curtis) Lloyd (= *Hypoxylon solidum* Berk. & M.A. Curtis = *Hypocreopsis solida* (Berk. & M.A. Curtis) Berl. & Vogl. = *Ascoporia* Samuels & Romero, Bol. Mus. Para. Emilio Goeldi, Ser. Bot. 7: 264. 1991. — Type: *A. lateritia* Samuels & Romero, a synonym of *Pseudosolidium solidum*).

NOTES.— *Pseudosolidium* was described as a new genus for *Hypocreopsis solida* in recognition of its dissimilarity with *Hypocreopsis*. Examination of a portion of the type specimen reveals that this genus and species are older names for *Ascoporia lateritia*. *Ascoporia* has been placed in the loculoascomycete family *Ascoporiaceae* (Kutorga & Hawksworth, 1997), thus *Pseudosolidium* belongs in that family.

Pseudosolidium solidum (Berk. & M.A. Curtis) Lloyd (as McGinty), Mycol. Writ. 7: 1206. 1923.

= *Hypoxylon solidum* Berk. & M.A. Curtis, J. Acad. Nat. Sci. Philadelphia, New Ser. 2: 286. 1853.

= *Hypocreopsis solida* (Berk. & M.A. Curtis) Berl. & Vogl., in Sacc., Syll. Fung. 2: 211. 1886.

= *Ascoporia lateritia* Samuels & Romero, Bol. Mus. Para. Emilio Goeldi, Ser. Bot. 7: 264. 1991.

LECTOTYPE, designated herein of *Hypoxylon solidum*: SURINAM. On mossy log. Specimen in Michener collection 32 sheet 44 (BPI). Data on specimen 'Surinam. *Rhytisma solidum* Schw. Mass. ad cortices, ex herb. Schw.' Another portion of the type specimen apparently is housed at K *vide* Miller (1961).

ILLUSTRATIONS.— Kutorga & Hawksworth (1997, Figs. 7–8, as *A. lateritia*); Lloyd (1923, Fig. 2497); Samuels & Romero (1991, Figs. 1–2, as *A. lateritia*).

Puttemansia Henn., Hedwigia 41: 112. 1902.

Type: *P. lanosa* Henn., a synonym of *P. albolanata* (Speg.) Höhn.

Puttemansia was described as a member of the *Pezizaceae* with similarities to *Erinella* Sacc. Clements & Shear (1931) included this genus in the *Hypocreaceae* as did Rogerson (1970). Based on an examination of the type specimen of *P. lanosa*, Rossman (1987) recognized *Puttemansia* with six species in the *Tubeufiaceae*, *Pleosporales*. She examined the available type and non-type specimens and discussed the disposition of all names in *Puttemansia*.

Pyxidiophora Brefeld & Tavel, Untersuch. Gesamtgeb. Mykol. 10: 189. 1891.

Type: *P. nyctalidis* Brefeld & Tavel.

Lundqvist (1980) reviewed this genus and proposed a new family, the *Pyxidiophoraceae*. Blackwell & Malloch (1989) and Blackwell (1994) presented evidence that this family belongs in the *Laboulbeniales*.

Rhynchonectria Höhn., Sitzungsber. Kaiserl. Akad. Wiss., Math. Naturwiss. Kl., Abt. 1, 111: 1023. 1902.

Type: *R. longispora* (W. Phillips & Plowr.) Höhn. (= *Eleutheromyces longisporus* W. Phillips & Plowr.).

= *Eleutherosphaera* Grove, J. Bot. 45: 171. 1907. — Type: *E. longispora* (W. Phillips & Plowr.) Grove (= *Eleutheromyces longisporus* W. Phillips & Plowr., recognized as *Rhynchonectria longispora*).

Von Höhnelt (1902) considered the genus *Rhynchonectria* to be close to *Nectria*, *Paranectria* and *Ophionectria*, but *Rhynchonectria* was differentiated from them by ascumata with rostrate beaks and one-septate, long fusiform, hyaline, ciliate ascospores. According to Lundqvist (1980) based on Petch (1941), no material of the type specimen exists at K. Lundqvist reviewed the arguments for considering *Rhynchonectria* to be related to *Pyxidiophora* based on ascospore characteristics. He suggested that the long, relatively narrow asci of *R. longispora* are atypical of *Pyxidio-*

phora sensu lato and thus considered *Rhynchonectria* unrelated to *Pyxidiophora*. Hawksworth & Webster (1977) also considered *Rhynchonectria* to be distinct from *Pyxidiophora*. Based on the description and literature, *Rhynchonectria* is excluded from the *Hypocreales* but, due to the lack of a specimen on which to characterize this name, *Rhynchonectria* and the nomenclatural generic synonym, *Eleutherosphaera*, remain obscure.

Rogersonia Samuels & Lodge is a unispecific genus in the *Hypocreaceae*.

Roumegueriella Speg. is an accepted genus in the *Bionectriaceae*.

Sarawakus Lloyd is an accepted genus in the *Hypocreaceae*.

All names in *Sarawakus* were accounted for by Samuels & Rossman (1992).

Schizoparme Shear, *Mycologia* 15: 120. 1923.

Type: *S. straminea* Shear.

Schizoparme was described for an ascomycete having dark red, immersed perithecia covered with an epistroma that splits radially at maturity exposing the papillate ostiole. Although originally thought to be related to *Physalospora* and placed in the *Sphaeriaceae* by Clements & Shear (1931), Rogerson (1970) included *Schizoparme* in the *Hypocreales*, and Eriksson & Hawksworth (1987a) listed *Schizoparme* as a synonym of *Pseudonectria*. The recent placements were probably incited by previous authors who synonymized *Schizoparme straminea* with '*Nectriella versoniana* Sacc.'; this name was described in '*Nectriella* Sacc.', a later homonym, replaced by *Pseudonectria*. Samuels *et al.* (1993) examined the type specimen of *S. straminea* and accounted for the seven species in *Schizoparme* in the *Melanconidaceae*, *Diaporthales*.

Scoleconectria Seaver is a synonym of *Nectria* in the *Nectriaceae*.

All species of *Scoleconectria* have been redisposed in *Nectria* or elsewhere by Rossman (1983).

Selinia P. Karst. is an accepted genus in the *Bionectriaceae*.

Seliniana O. Kuntze is an unnecessary replacement for *Selinia* P. Karst. in the *Bionectriaceae*.

Seliniella Arx & E. Müll., *Acta Bot. Neerlandica* 4: 116. 1955.

Type: *S. macrospora* Arx & E. Müll.

Seliniella was distinguished from *Selinia* by ascomata immersed singly in a basally thickened stroma, dark-colored ascomata, and numerous, unbranched paraphyses. The type species of *Seliniella*, *S. macrospora*, was determined to be a synonym of *Ascobolus immersus* Pers. (Müller & von Arx, 1962; van Brummelen, 1967), thus *Seliniella* is a synonym of *Ascobolus* Pers. in the *Pezizales*.

Shiraia Henn., *Bot. Jahrb. Syst.* 28: 274. 1900.

Type: *S. bambusicola* Henn.

The unispecific genus *Shiraia* was described in the *Nectriaceae* with affinities to *Mattirolia* in having muriform ascospores. The type species, *S. bambusicola*, is a relatively common and conspicuous fungus on bamboo in China and Japan (Amano, 1980; Doi, 1968; Yamamoto & Okada, 1966). Recent studies by Amano (1980, 1983) have shown that *S. bambusicola* has bitunicate asci, thus *Shiraia* is a loculoascomycete currently placed in the *Dothideales sensu lato*.

Shiraiella K. Hara is a synonym of *Mycocitrus* in the *Bionectriaceae*.

Spegazzinula Sacc., *Syll. Fung.* 2: 537. 1883.

Type: *S. dubitationum* (Speg.) Sacc., recognized as *Dubitatia dubitationum* Speg.

Spegazzinula was proposed as a nomenclatural synonym to replace *Dubitatia*, because Saccardo (1883) regarded the type species as an illegitimate tautonym. A proposal to conserve *Spegazzinula* Sacc. over *Dubitatia* Speg. was rejected, because the type species, *D. dubitationum*, was not considered to be a tautonym (Wakefield, 1940). Thus *Spegazzinula* is a superfluous nomenclatural synonym of *Dubitatia* as discussed elsewhere in this section.

ADDITIONAL NAMES:

Spegazzinula chondrospora (Ces.) Höhn. (= *Sphaeria chondrospora* Ces.) is the type of the genus *Pseudomassaria* as *P. chondrospora* (Ces.) Jacz. in the *Hyponectriaceae*, *Xylariales* (Barr, 1964; Müller & von Arx, 1962). *Pseudomassaria chondrospora* is known primarily on *Tilia*; however, Müller & von Arx (1962) suggested that it also occurs on *Juglans* and other woody dicotyledonous hosts.

SPECIMEN EXAMINED: AUSTRIA, Niederösterreich, Rekawinkel, F. Petrak, May 1940, Reliquiae Petrakianae 95 (BPI 610172).

Spegazzinula juglandina Höhn. is a synonym of *Pseudomassaria chondrospora* (Ces.) Jacz. (Barr,

1964; Müller & von Arx, 1962). The type specimen of *S. juglandina* was examined.

TYPE.—YUGOSLAVIA. Jablanzia in der Herzegowina, hotel garden, on branches of *Juglans regia*, Dr. v. Höhnle, Apr 1903 (FH, **lectotype**, designated herein; FH, isoelectotype specimen issued as Rehm: Ascomyceten 1524).

Sphaeronaemella P. Karst., *Hedwigia* 23: 17. 1884.

Type: *S. helvella* (P. Karst.) P. Karst. (= *Sphaeria helvella* P. Karst.).

Sphaeronaemella was described as a pycnidial genus having long-beaked fruiting bodies. The sexual nature of the spores was determined by Seeler (1943) who placed *Sphaeronaemella* in the *Nectriaceae* related to *Melanospora*. Since then, *S. helvella* has been allied with several different genera and orders including the *Hypocreales* (Benny & Kimbrough, 1980; Cannon & Hawksworth, 1982; Rogerson, 1970; Upadhyay, 1981). Malloch (1974a) redescribed both the anamorph and teleomorph of *S. helvella* and discussed its biology on living ascomata of *Gyromitra* spp. and *Pseudorhizina sphaerospora* (Pfister, 1982) throughout northern North America and Europe. Malloch included three other species in the genus *Sphaeronaemella*, namely *S. fimicola* Marchal with the anamorph, *Gabarnaudia fimicola* Samson & W. Gams (in Samson, 1974), and the two species originally placed in *Viennotidea*. Cannon & Hawksworth (1982) illustrated germ slits on the ascospores of *S. helvella* and restricted *Sphaeronaemella* to that species. They removed the three other species to *Viennotidea* based on the presence of a subapical germ pore in the ascospores. Vakili (1985, 1992) reported isolating '*S. helvella*' with a *Gabarnaudia* anamorph from diseased corn stalks and explored the genetics of sexual reproduction in this species. Spatafora & Blackwell (1994) demonstrated that *Sphaeronaemella fimicola* is closer to *Ceratocystis* than to members of the *Hypocreales*. Based on the presence of germ slits in the ascospores, a characteristic not known to occur in the *Hypocreales*, ascomatal morphology, and the molecular study of the non-type species, *Sphaeronaemella* is excluded from the *Hypocreales*.

Sphaeronaemella helvella (P. Karst.) P. Karst., *Hedwigia* 23: 17. 1884. — Plate 54, a–c.

≡ *Sphaeria helvella* P. Karst., *Fungi Fenniae* exs. 674. 1867.

≡ *Sphaeronaema helvella* (P. Karst.) Jacz., *Nouv. Mém. Soc. Imp. Nat. Moscou* 15: 302. 1898.

≡ *Ceratocystis helvella* (P. Karst.) Upadhyay, A monograph of *Ceratocystis* and *Ceratocystiopsis* p. 97. 1981.

= *Melanospora karstenii* Arx & E. Müll., *Beitr. Kryptogamenfl. Schweiz* 11(1): 146. 1954.

Anamorph: *Gabarnaudia* sp.

TYPE.—FINLAND. Mustiala, on *Helvella infula*, 24 Sep 1867, *Fungi Fenniae* 674 (FH, **lectotype**, designated herein).

This type specimen was also examined by Upadhyay (1981) who described and illustrated this species as *Ceratocystis helvella*. According to Cannon & Hawksworth (1982), no material of this exsiccatum number exists at H. They described and illustrated a probable isotype specimen at H under number 1106.

TWO ADDITIONAL NAMES described in *Sphaeronaemella* have been transferred to *Viennotidia* as discussed elsewhere in this section. Several others are redispersed as follows:

Sphaeronaemella macrospora Penz. & Sacc. is *Hoehnelomyces macrosporus* (Penz. & Sacc.) Boedijn, the latter genus considered a synonym of the basidiomycete genus *Atractiella* (Oberwinkler & Bandoni, 1982).

Sphaeronaemella subulata (Tode : Fr.) Grove (= *Sphaeronaema subulatum* Tode : Fr.) and *Sphaeronaemella oxyspora* (Berk.) Sacc. (= *Sphaeronaema oxysporum* Berk.) are synonyms of the pycnidial fungus *Eleutheromyces subulatus* (Tode : Fr.) Fuckel that occurs on decaying soft-textured fungi (Cannon & Hawksworth, 1982; Malloch, 1974b; Nag Raj, 1994).

Sphaerostilbe Tul. & C. Tul. is a synonym of *Nectria* in the *Nectriaceae*.

Most of the additional names described in *Sphaerostilbe* are discussed by Seifert (1985).

Sphaerostilbella (Henn.) Sacc. & D. Sacc. is an accepted genus in the *Hypocreaceae*.

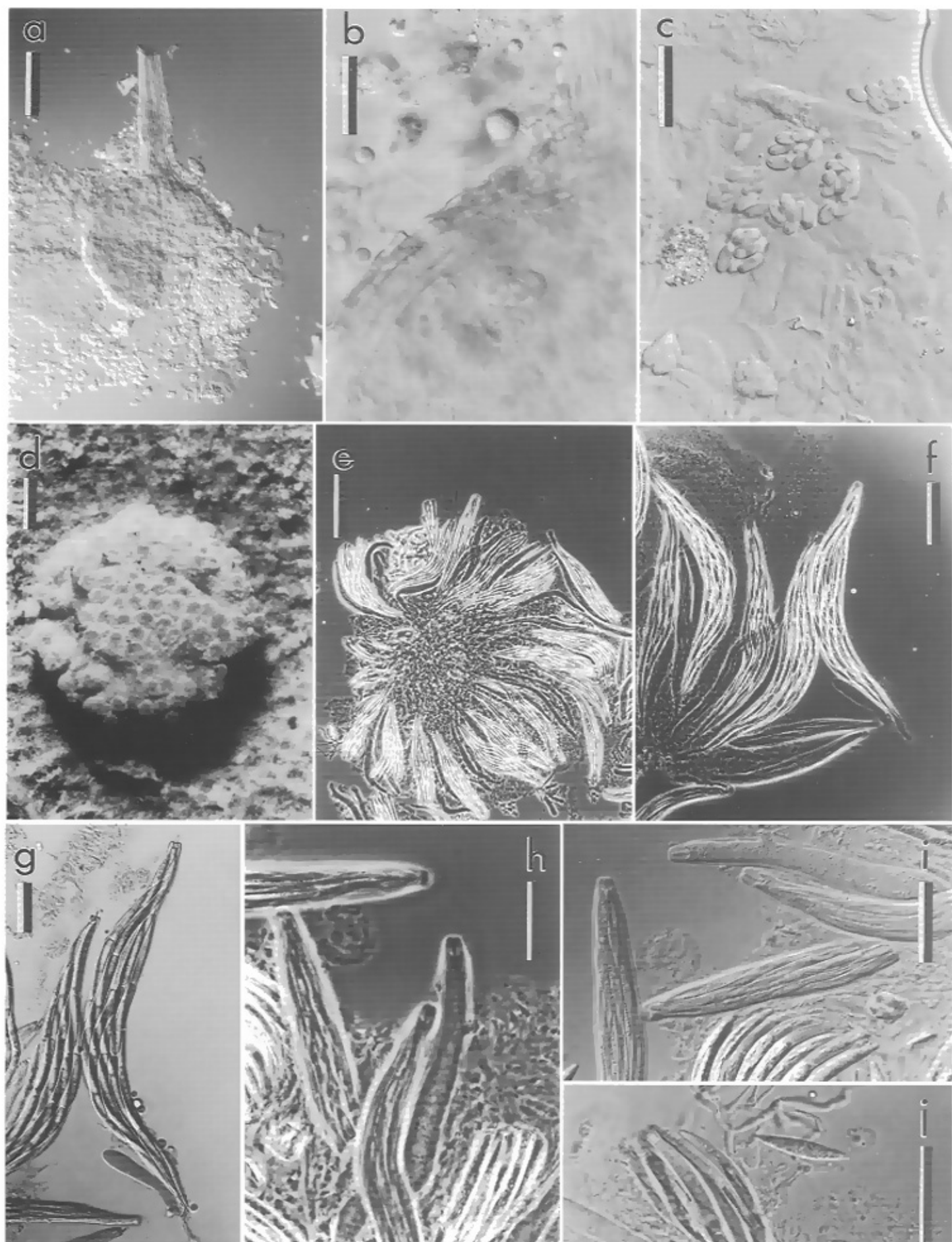
Stalagmites Theiss. & Syd. is an accepted genus in the *Nectriaceae*.

Stereocrea Syd. & P. Syd., *Ann. Mycol.* 15: 216. 1917.

Type: *S. schizostachyi* Syd. & P. Syd.

Stroma large, branched, stalked, aggregated at the base, separating into flattened, expanded heads, dark green. Ascomata immersed, soft-textured, ostiolate. Asci unitunicate, with a capitate apex, at least when immature. Ascospores elongate clavate, yellowish green, multiseptate.

NOTES.—*Stereocrea* was described as a member of the *Hypocreales* having large, flattened, stalked stromata each with numerous, immersed ascomata and elongate, multiseptate ascospores. Based on an examination of



the type and one additional specimen, this genus is determined to be a member of the *Clavicipitaceae*. The capitate ascus apex characteristic of the *Clavicipitaceae* can be seen only in immature asci. The structure of the ascumatal wall is also indicative of that family. On the type specimen, the place of attachment of the stromata is curved and smooth, suggesting that the large stroma was growing around a bamboo culm. The original authors do not mention the condition of the host or whether this fungus is parasitic.

Within the *Clavicipitaceae*, *Stereocrea* is similar to *Podocrella* Seaver in having stalked stromata but *Podocrella* occurs on wood, or more likely on insect larvae, and has ascospores that are long-fusiform and disarticulate at the mid-septum. Other clavicipitaceous genera on bamboo include *Aciculosporium*, *Ascopolyporus*, and *Mycomalus* with hyaline, filiform ascospores and *Konradia* with yellow to brown, filiform ascospores. Two obscure genera on bamboo that may belong in the *Clavicipitaceae* are *Loculistroma* and *Peloronectria*, both said to have olivaceous or yellow-brown ascospores.

Stereocrea schizostachyi Syd. & P. Syd., Ann. Mycol. 15: 216. 1917. — Plate 48 c (page 201); Plate 55, a–e.

Stroma 5–8 mm tall, stalked, aggregated at the base, 5–15 mm diam, separating into expanded, flattened, *Kretzschmaria*-like heads, 2–5 mm diam, with citrine scurf on the surface and the sides of the stroma, olivaceous-black towards the base, stroma tough but not carbonous, in section of loose *textura epidermoidea*, almost prosenchymatous, cells irregularly curved, walls slightly thickened, 3 μm diam, the surface covered with darkly pigmented, globose cells. Ascumata immersed, forming an even layer at the apex of each head, crowded, evident as dark bumps among the scurf, elongate-pyriform with short papillae, 400–480 μm tall \times 150–180 μm diam. Ascumatal wall in section of one 15–20 μm thick region, cells 5–8 \times 1.5–2 μm , forming *textura prismatica*, with about 1 μm thick walls; cells expanding toward the apex, radiating outward, the wall becoming thicker to form papillae. No paraphyses observed. Asci unitunicate, 100–145 \times 7–15 μm , cylindrical when young, becoming long-clavate, with an expanded apical cap when immature, disappearing at maturity. Ascospores long-clavate with a long, tapering base, (49–)63–73 \times 6.5–8 μm , (7–)9–15-septate, yellowish green at maturity, slightly roughened.

HOLOTYPE.— PHILIPPINES. Luzon, Prov. de Sorsogon, on *Schizostachyum*, July–Aug 1915, M. Ramos, Bur. Sci. 23735 (W, Petrak Pilzherbarium 02383, includes handwritten description).

ADDITIONAL SPECIMEN EXAMINED.— PHILIPPINES. Biliran, auf *Schizostachyum* spec., June 1914, R.C. McGregor, nr. 18403 (W – paratype, Petrak Pilzherbarium No. 11857; BPI 632468, Lloyd, sterile).

ADDITIONAL NAME:

Stereocrea aurantiaca Petch is recognized as *Hypocrella aurantiaca* (Petch) Mains as discussed elsewhere in this section.

Stilbocrea Pat. is an accepted genus in the *Bionectriaceae*.

All other names in *Stilbocrea* have been accounted for by Seifert (1985).

Stilbonectria P. Karst. is a synonym of *Nectria* in the *Nectriaceae*.

ADDITIONAL NAME.— *Stilbonectria tonquinensis* Pat., J. Bot. (Morot) 11: 369. 1897.

The type specimen was examined but could not be placed in any hypocrealean genus. The sparsely formed stilbellaceous anamorph did not appear to be associated with the *Nectria*-like ascumata.

HOLOTYPE.— VIETNAM. Tonkin, sur de vieilles écorces apportées de Huu Le, no. 5913 (FH).

Stylonectria Höhn. is a synonym of *Cosmospora* in the *Nectriaceae*.

The type specimens of the three additional names included in *Stylonectria* were not examined.

Subiculicola Speg., Bol. Acad. Nac. Ci. 26: 237. 1924.

Type: *S. ambigua* (Speg.) Speg. (\equiv *Calonectria ambigua* Speg.), a synonym of *Melioliphila volutella* (Berk. & Broome) Rossman.

The unispecific genus *Subiculicola* was described for a species of *Calonectria* having a subiculum and occurring as a hyperparasite on leaf-inhabiting fungi. Rossman (1987) examined the type specimen of *C. ambigua* and considered this species to be a synonym of *Melioliphila volutella* (Berk. & Broome) Rossman in the *Tubeufiaceae*, *Pleosporales*.

Taiwanascus Sivan. & H.S. Chang is an accepted

Plate 54. a–c. *Sphaeronaemella helvellae*. a. Crushed mount of ascum. b. Close-up of ascumatal wall. c. Asci with ascospores. **d–j.** *Hypocrella aurantiaca*. d. Stroma with ascumata covering scale insect on leaf. e. Asci and interthecial elements. f. Asci with ascospores. g. Mature asci with ascospores. h. i. Asci with ascospores showing perforate ascus apices. j. Discharged part-spores. a–c. Lectotype of *Sphaeria helvellae* – FH. d–j. Holotype of *Stereocrea aurantiaca* – FH. Scale bars: a, e = 100 μm ; b, c, g–j = 25 μm ; d = 500 μm ; f = 50 μm .

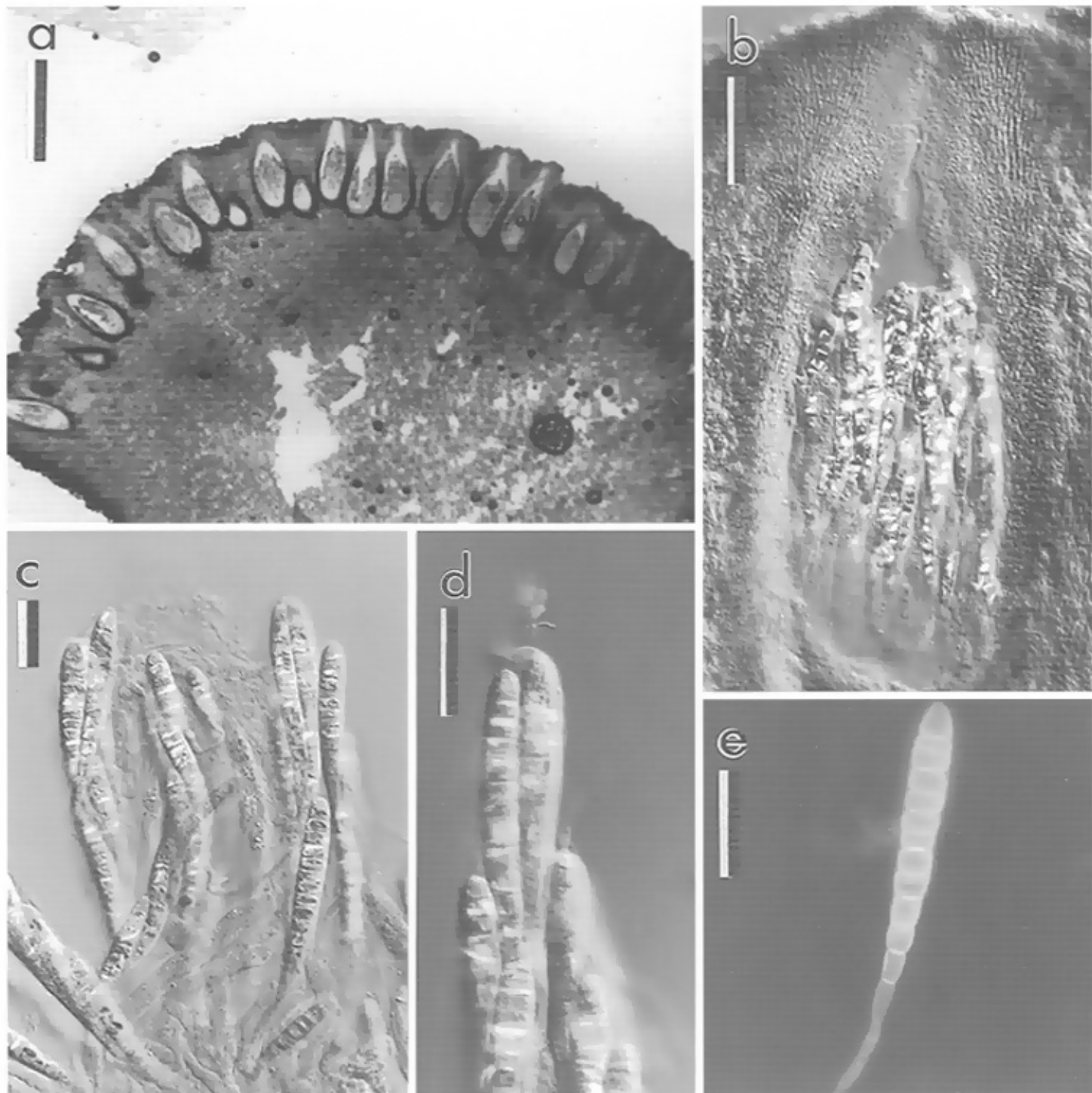


Plate 55. a–e. *Stereocrea schizostachyi*. a. Section through stroma with ascomata. b. Median section through ascoma. c. Asci with ascospores. d. Ascus with ascospores showing perforate apical apex. e. Ascospore in fluorescence microscopy. a–e. Holotype – W. Scale bars: a = 5 mm; b = 100 μ m; c–e = 25 μ m.

genus in the *Niessliaceae* according to Samuels & Barr (1997).

Thelocarpon Nyl., *Ann. Sci. Nat. Bot.*, Sér. 3, 20: 317. 1853.

Type: *T. albidum* Nyl.

= *Ahlesia* Fuckel, *Jahrb. Nassauischen Vereins Naturk.* 23-

24: 281. 1869 [1870]. — Type: *A. lichenicola* (Fuckel) Fuckel (= *Peziza lichenicola* Fuckel, *Fungi rhenani* 1169, 1864), recognized as *Thelocarpon lichenicola* (Fuckel) Poelt & Hafellner.

= *Metanectria* Sacc., *Michelia* 1: 300. 1878. — Type: *M. citrum* (Wallr.) Sacc. (= *Sphaeria citrum* Wallr.), recognized as *Thelocarpon citrum* (Wallr.) Rossman.

Thelocarpon was included in the *Hypocreales* by Clements & Shear (1931) and Rogerson (1970); however, more recent authors (Hawksworth *et al.*, 1995)

place this genus in the *Acarosporaceae*, *Lecanorales*. Poelt & Hafellner (1975) reviewed *Thelocarpon* with 18 species, including most of the species previously placed in *Ahlesia*. They referred to Salisbury (1966) in regard to thirteen of the species, including the type of *Thelocarpon*, *T. albidum* Nyl. None of the recent authors suggested a relationship to the *Hypocreales*. Although *Thelocarpon* superficially resembles hypocrealean fungi in having soft-textured, bright-colored ascomata, the genus differs significantly in centrum characteristics. The presence of true paraphyses, the ascus wall thickened along the sides, the persistence of spent asci, and the iodine reaction of asci, are characteristics that do not occur among the hypocrealean fungi. In addition, *T. albidum* has a distinct thallus with algal cells enclosed in a sheath surrounding the ascomata.

One species previously placed in *Metanectria* is herein transferred to *Thelocarpon* as an older name for *T. vicinellum*.

Thelocarpon citrum (Wallr.) Rossman, *comb. nov.* — Plate 49, a–e (see page 202).

= *Sphaeria citrum* Wallr., *Fl. Crypt. Germ.* 2: 788. 1833.

= *Nectria citrum* (Wallr.) Mont., *Ann. Sci. Nat. Bot., Sér.* 4, 9: 56. 1858.

= *Metanectria citrum* (Wallr.) Sacc., *Michelia* 1: 300. 1878.

= *Thelocarpon vicinellum* Nyl., *Flora, Regensburg* 68: 298. 1885.

Stroma lacking. Ascumata scattered, solitary, rarely 2–3 together, superficial or with the ascumatal base slightly immersed, on decorticated wood, with algal cells surrounding the basal area. Ascumata globose to subglobose, not collapsing when dry, about 250 μm diam, covered with fine granular greenish yellow pruina, insoluble in KOH, lactic acid, or water; non-papillate, without preformed ostiole but apical region distinct due to a lack of scurf. Ascumatal wall pale yellow, about 30 μm thick, of two regions: outer region *ca* 20 μm thick, of very narrow hyphae arranged perpendicular to the wall surface; inner region 10–15 μm thick of hyphae parallel to the wall surface, very small, ellipsoid. Paraphyses present as short, thin elements. Asci unitunicate, up to 3 μm thick-walled along the sides, elongate obclavate, often very narrow at the apex, about 80–120 \times 15–20 μm wide toward the base, 6 μm wide at the apex, without a distinct apical apparatus, ascus apex not fluorescent, numerous empty asci present, entire ascus wall becoming dark blue in Melzer's reagent, asci arranged in a basal hymenium, polysporous, with 256 or more ascospores. Ascospores oblong, 4.5–7 \times 2.5–3.5 μm , hyaline, smooth.

HABITAT.— Among decaying algae on rocks and bark, possibly lichenized.

DISTRIBUTION.— Germany and Italy.

HOLOTYPE of *Sphaeria citrum*.— GERMANY. Ad truncos alneos putredine exesos, Thuring. No. 3807 (STR).

NOTES.— *Thelocarpon citrum* is an inconspicuous species known from two specimens: the type specimen of *Sphaeria citrum* from Germany on rotting hardwood, and the type of *T. vicinellum* from Italy on decaying algae.

Thuemenella Penzig & Sacc., *Malpighia* 11: 518. 1898.

Type: *T. javanica* Penzig & Sacc., a synonym of *Thuemenella cubispora* (Ellis & Holway) Boedijn.

= *Chromocreopsis* Seaver, *Mycologia* 2: 63. 1910. — Type: *C. cubispora* (Ellis & Holway) Seaver (= *Hypocrea cubispora* Ellis & Holway), recognized as *Thuemenella cubispora* (Ellis & Holway) Boedijn.

The genus *Thuemenella* was originally described as being like *Hypocrea* but having dark ascospores and was placed in the *Hypocreaceae*. The type species is recognized as a synonym of *T. cubispora*. *Chromocreopsis*, based on *Hypocrea cubispora*, was described in the *Hypocreales* for species that are like *Chromocrea*, i.e. species of *Hypocrea* having green ascospores, but formed in 8-spored asci. The taxonomic position of *T. cubispora* has been the subject of considerable discussion (Boedijn, 1964; Corlett, 1985; Rogers, 1981). Single ascospores from two fresh collections of *T. cubispora* produced a *Nodulisporium*-like anamorph identical to that associated with the stroma on other collections. Samuels & Rossman (1992) presented a thorough description of the anamorph of *T. cubispora* and concluded that this species and thus the genus *Thuemenella* belongs in the *Xylariaceae*, *Xylariales*.

All additional names described in *Thuemenella* have been accounted for by Samuels & Rossman (1992).

Thyronectria Sacc., *Grevillea* 4: 21. 1875.

Type: *T. patavina* Sacc., *Michelia* 1: 325. 1878.

The genus *Thyronectria* was originally characterized as being similar to *Nectria* and *Calonectria* but having immersed ascumata and muriform ascospores similar to *Thyridium*. In none of the previous studies of *Thyronectria* was the type specimen examined (Seeler, 1940; Rossman, 1989) and it was assumed that this species was hypocrealean. Few ascumata remain on the type specimen of *T. patavina*, but the sparse specimen reveals that this type species is not hypocrealean. The dark stroma and ascumatal walls and distinct cellular, branching pseudoparaphyses exclude this species from the *Hypocreales*. The type specimen of *Thyronectria patavina* is not useful for characterizing the species except to provide a brief description and conclude that it

is not a member of the *Hypocreales*.

Thyronectria patavina Sacc., *Michelia* 1: 325. 1878. — Plate 48, d (page 201); Plate 56, a–c.

≡ *Nectria patavina* (Sacc.) Rossman, *Mem. New York Bot. Gard.* 49: 260. 1989.

Stromata black, pulvinate, partially erumpent through bark, covered with bright yellow-green powder, with 5–15 ascomata in each stroma. Ascomata immersed, aggregated in the stroma, subglobose, pale yellow, KOH–, ostiolar canal periphysate, not sectioned. Paraphyses persistent among the mature asci, branching, anastomosing, septate, 2–3 µm wide, filamentous, embedded in a gelatinous matrix. Asci possibly bitunicate, thin-walled, narrowly to broadly clavate, *ca* 60 × 12 µm, no evidence of an apical ring, 1–8-spored, ascospores crowded in the upper part. Ascospores broadly ellipsoid, 16.5–30 × 6.8–8 µm, irregularly muriform, with 5–11 transverse and 1–3 irregularly vertical septa, hyaline, smooth-walled.

ANAMORPH pycnidial, appearing similar to teleomorph; conidia allantoid, hyaline, 2.5–3 × about 1 µm.

HOLOTYPE.— ITALY. Padua, on the bark of rotten branches of *Juglans regia*, associated with *Thyridaria incrustans*, Dec 1874 (PAD).

Many of the additional names described or placed in *Thyronectria* have been transferred to *Nectria* (Rossman, 1989).

Thyronectroidea Seaver, *Mycologia* 1: 206. 1909.

Type: *T. chrysogramma* (Ellis & Everh.) Seaver.

Stroma pulvinate, with bright yellow surface, of small, pseudoparenchymatous cells; inner region of loosely intertwined, narrow hyphae. Ascomata subglobose, orange-red. Paraphyses abundant, with free, acute, branched, septate apices. Asci unitunicate, clavate, with simple apex. Ascospores broadly ellipsoid, muriform, initially hyaline, becoming yellow-brown, smooth-walled.

NOTES.— *Thyronectroidea* was described by Seaver (1909b) as 'distinguished from *Thyronectria* by the colored spores'. The type and only species, *T. chrysogramma*, was examined. Based on the presence of apically free paraphyses, soft-textured ascomata, and muriform ascospores, this genus is determined to be a

member of the *Thyridiaceae*, *Xylariales*.

Thyronectroidea chrysogramma (Ellis & Everh.) Seaver, *Mycologia* 1: 206. 1909. — Plate 56, d–h.

≡ *Thyronectria chrysogramma* Ellis & Everh., *Proc. Acad. Nat. Sci. Philadelphia* 1890: 245. 1891.

≡ *Mattirolia chrysogramma* (Ellis & Everh.) Sacc., *Syll. Fung.* 9: 993. 1891.

≡ *Thyronectria virens* Harkness var. *chrysogramma* Ellis & Everh., *North Amer. Pyrenom.* p. 93. 1892.

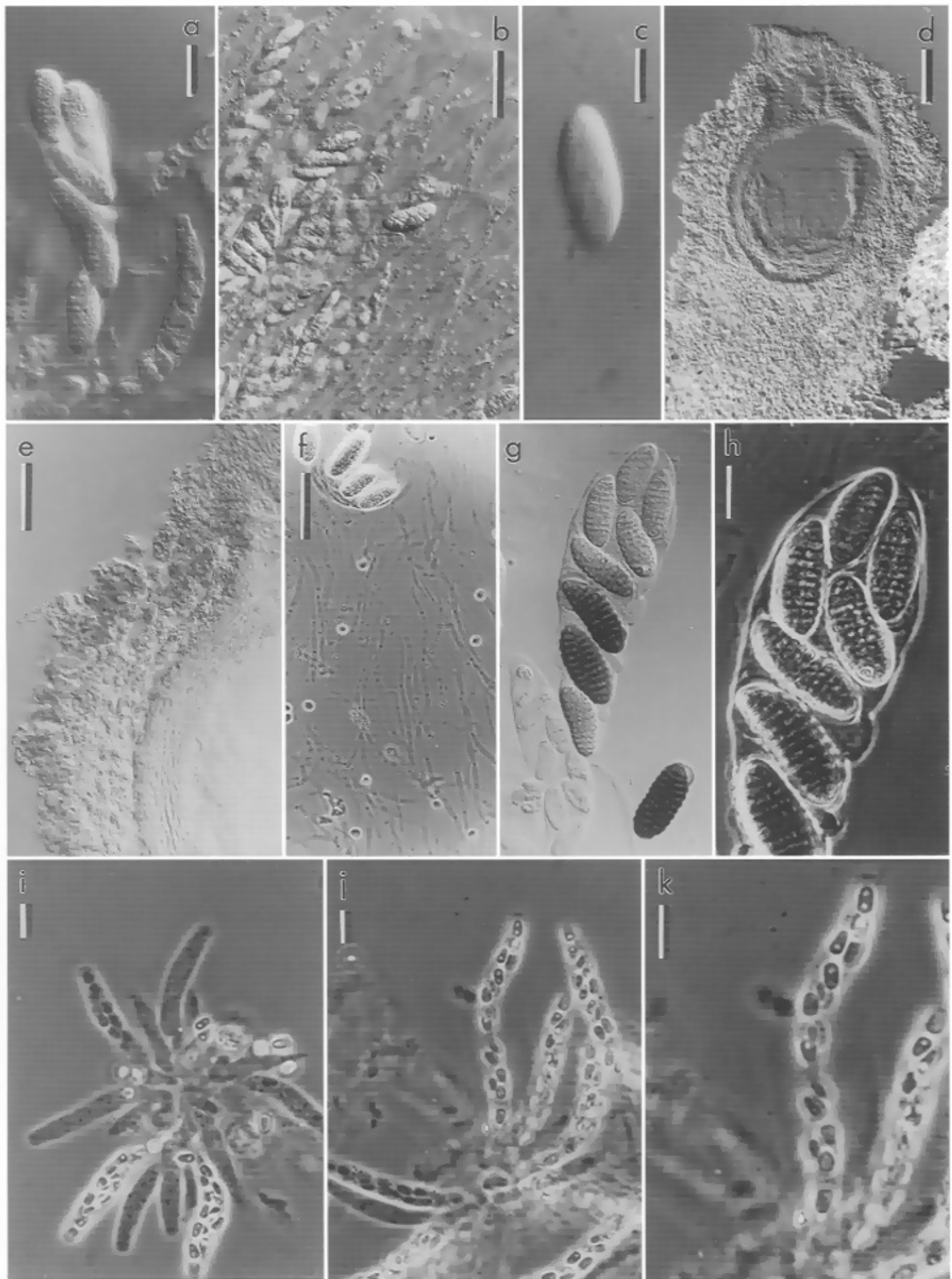
≡ *Nectria chrysogramma* (Ellis & Everh.) Rossman, *Mem. New York Bot. Gard.* 49: 260. 1989.

Stromata pulvinate, basally immersed, erumpent through the bark, outline of the ascomata evident in dried specimens, stromal surface with yellow coating, stromata of two regions: outer region of small, pseudoparenchymatous cells, 8–10 µm diam, thin-walled, embedded in amorphous material; inner region of loosely intertwined, narrow hyphae, *ca* 4 µm wide; region below the ascomata of compact, dense hyphae mingling with the substratum. Ascomata ovoid, 300–500 µm diam, dark red, KOH–, very pale yellow in lactic acid, not melanized, non-papillate, ascomatal apex of a palisade of very narrow, about 3 µm wide, hyphal elements, merging with the paraphyses. Ascomatal wall easily separated from the stromal tissue, about 40 µm thick, of one region of elongated hyphae parallel to the wall surface; at the exterior hyphae more tightly compacted than within. Paraphyses abundant, extending beyond the asci, apices free, acute, branched, septate. Asci unitunicate, clavate, 150–175 × 27–29 µm, becoming larger as the ascospores mature, apex simple, broad, I–, asci held in clusters, 8-spored, ascospores pluriseriate. Ascospores broadly ellipsoid, 32–35 × 11–17 µm, muriform, with 7–9(–11) transverse septa, slightly constricted, and one irregular longitudinal septum; many small cells forming within the outer wall of the ascospores, initially hyaline, becoming yellow-brown, smooth.

HOLOTYPE.— UNITED STATES. Kansas: Manhattan, on bark of *Ulmus americana*, Mar 1889, Kellerman and Swingle 1421 (NY); New York: Potsdam, on elm limbs, Ellis 286 (NY, paratype).

NOTES.— The holotype specimen is depauperate; however, the paratype includes numerous ascomata and is the primary basis of the above description. The muriform ascospores of *T. chrysogramma* are surrounded by an outer sheath with interior cells appear-

Plate 56. a–c. *Thyronectria patavina*. a. Asci with immature ascospores. b. Asci with ascospores and interthecial elements. c. Immature ascospore. **d–h.** *Thyronectroidea chrysogramma*. d. Median section of ascoma. e. Median section showing ascomatal wall coated with amorphous material. f. Interthecial elements. g. Immature ascus with ascospores. h. Ascus with mature ascospores. **i–k.** *Trichosphaerella decipiens*. i–k. Asci with disarticulating ascospores. a–c. Holotype – PAD. d–h. Holotype of *Thyronectria chrysogramma* – NY. i–k. Holotype of *Bresadollella aurea* – FH. Scale bars: a = 25 µm (also for g); b, e, f = 50 µm; c, h–k = 10 µm; d = 100 µm.



ing to disarticulate in a manner similar to those of *Mattiroia roseovirens*. These species may be congeneric.

Trailia Sutherland, *Trans. Brit. Mycol. Soc.* 5: 149. 1915.

Type: *T. ascophylli* Sutherland.

Sutherland (1915) placed the unispecific genus *Trailia* in the *Hyponectriaceae*, *Xylariales*, stating that the 'character of the perithecium' and 'type of spore' separated it from other members of that group. Clements & Shear (1931) included *Trailia* in the *Hypocreaceae* as did Rogerson (1970). Kohlmeyer & Kohlmeyer (1979) examined material of this fungus and suggested that *Trailia* 'should be transferred as a doubtful genus to the *Sphaeriales*, *Halosphaeriaceae*'. Jones & Moss (1987) in their review of the *Halosphaeriaceae* agreed, stating that this genus 'needs further study'. Based on the descriptions by Sutherland (1915) and Kohlmeyer & Kohlmeyer (1979), particularly the blackening of the thallus, long-necked perithecia, and lack of apical paraphyses, *Trailia* is excluded from the *Hypocreales*.

Treleasia Speg., *Revista Fac. Agron. Univ. Nac. La Plata* 2: 235. 1896.

Type: *T. sacchari* Speg.

Treleasia was established as a member of the *Hypocreaceae*, based on the structure of the ascoma and the very long ascospores. Petrak & Sydow (1935) were unable to find ascomata on the type specimen but published illustrations of *T. sacchari* based on the sketches from the type packet. They questioned the inclusion of *Treleasia* in the *Hypocreaceae*. Petch (1936, 1941) indicated that this fungus was related to *Mycorhynchus marchalii* and *Copranophilus spinuliformis*. Lundqvist (1980) included these species in the *Pxydiophoraceae* and suggested that *Treleasia* is a synonym of *Pxydiophora sensu lato* or possibly *Mycorhynchus*, if the latter is recognized as a separate genus. These genera are considered members of the *Pxydiophoraceae*, *Laboulbeniales*.

One additional name, *Treleasia musicola* Speg., was discussed by Lundqvist (1980) who examined the type specimen and suggested that 'the species looks like a member of *Pxydiophora*, except that the asci have a short, narrow stipe and a tapering tip'.

Treubiomyces Höhn., *Sitzungsber. Kaiserl. Akad. Wiss., Math. Naturwiss. Kl., Abt. 1*, 118: 1180. 1909.

Type: *T. pulcherrimus* Höhn.

Von Höhnel (1909b) considered *Treubiomyces* to be closely related to *Malmeomyces* in the *Nectriaceae*. He stated that *Malmeomyces* lacked an ostiole and had transversely septate ascospores while *Treubiomyces* has an ostiole and muriform ascospores. *Malmeomyces* is found to belong to the *Niessliaceae*, *Hypocreales*, as discussed elsewhere in this section. Pohlád & Reynolds (1974) and, later Hughes (1976), examined the type specimen of *T. pulcherrimus* and placed *Treubiomyces* in the *Chaetothyriaceae*, *Chaetothyriales*.

Trichonectria Kirschst. is an accepted genus in the *Bionectriaceae*.

One additional name, *Trichonectria bambusicola* Rehm, was determined to be a synonym of *Uredinophila erinacea* (Rehm) Rossman, according to Rossman (1987).

Trichosphaerella E. Bommer, M. Rousseau & Sacc., *Syll. Fung.* 9: 604. 1891.

Type: *T. decipiens* E. Bommer, M. Rousseau & Sacc. = *Bresadolella* Höhn., *Ann. Mycol.* 1: 522. 1903. — Type: *B. aurea* Höhn., a synonym of *Trichosphaerella decipiens* E. Bommer, M. Rousseau & Sacc.

The genus *Trichosphaerella* is placed in the *Niessliaceae*, *Hypocreales*, based on the presence of black setae on the ascomata (Samuels & Barr, 1998) and is distinguished from other genera in the family by the setose ascomata and the disarticulating ascospores.

Trichosphaerella decipiens E. Bommer, M. Rousseau & Sacc., *Syll. Fung.* 9: 604. 1891. — Plate 56, i–k.

= *Bresadolella aurea* Höhn., *Ann. Mycol.* 1: 522. 1903.
= *Neorehmiopsis aurea* (Höhn.) Munk, *Dansk Bot. Arkiv* 17 (1): 68. 1957.
= *Larseniella major* Munk, *Dansk Bot. Arkiv* 12 (11): 7. 1948.

Anamorph: *Acremonium*-like.

Ascomata scattered to gregarious, basally immersed on white to tan hyphal subiculum, globose, 60–100(–125) μm diam, collapsed cupulate, black, KOH–, non-papillate or bluntly papillate, conspicuously setose. Setae few, black, (18–)21–31(–90) μm long \times 3.5–5.5(–10) μm wide at the base. Ascotal wall 7–10 μm thick, of a single region of intertwined hyphae. Apical paraphyses arising from the top of the locule, growing downward, disintegrating or persisting as very thin-walled, disintegrating cells. Asci cylindrical, 20–30(–42) \times (4–)4.5–5.5(–10) μm , ascus apex simple, KOH–, four- or eight-spored, ascospores uniseriate or biseriate. Ascospores ellipsoid, 5.5–8.5 \times 2–4 μm , 1-septate, deeply constricted, disarticulating into subglobose to oblong part-spores, 2–3 \times 2–2.5(–3) μm or 4–5.5 \times 2–2.5 μm ,

with one large globule in each part-spores, hyaline, finely verruculose.

HABITAT.— On rotting stems, palm midribs, and wood.

DISTRIBUTION.— Widespread but infrequently reported.

TYPE.— AUSTRIA. Near Preßbaum, Viehoferin, on dead wood of *Fagus*, Sep 1903 (FH, holotype of *B. aurea*). Isotype specimens were issued as Rehm, Ascomyceten 1560 (BPI 630989).

Additional specimens examined are listed in Samuels & Barr (1998).

NOTES.— This species including the *Acremonium*-like anamorph was described and illustrated by Samuels & Barr (1998).

ADDITIONAL NAMES:

Trichosphaerella ceratophora (Höhn.) E. Müll. is recognized as *Neorehmia ceratophora* Höhn. in the *Trichosphaeriaceae*, *Xylariales* (Müller & Samuels, 1982; Samuels & Barr, 1998), as discussed elsewhere in this section.

Trichosphaerella arecae (Syd.) E. Müll. (= *Oplothecium arecae* Syd.) has an *Acremonium*-like anamorph (Müller & Dennis, 1965; Müller & Samuels, 1982) and is recognized as *Neorehmia arecae* (Syd.) Samuels & M.E. Barr, according to Samuels & Barr (1998).

Trichosphaerella inaequalis (Grove) E. Müll. (= *Melanopsamella inaequalis* Grove) has a *Chloridium* anamorph and is recognized as *Chaetosphaeria inaequalis* (Grove) W. Gams & Hol.-Jech., according to Gams & Holubová-Jechová (1976).

Uropolystigma Maublanc, Bull. Trimestriel Soc. Mycol. France 36: 36. 1920.

Type: *U. atrotestaceum* Maublanc.

This unispecific genus was placed originally in the *Nectriaceae*. Based on a macroscopic examination of the five isotype specimens at PC, this fungus appears as black, brittle crust-like stromata on the upper surface of leaves. The perithecia are described as having numerous filiform paraphyses. Stromata of this nature and true paraphyses do not occur in the *Hypocreales*, thus *Uropolystigma* is excluded from the order. According to Cannon (pers. comm.), it is most likely a member of the *Phyllachorales*.

TYPE.— BRAZIL. Minas Geraes: Ouro Preto, on living leaves of *Malpighiaceae*, 15 Sep 1913, M.A. Maublanc, no. 181 (PC-2 isotypes); same data, 16 Sep 1913, M.A. Maublanc, no. 321 (PC - isotype); Minas Geraes: Caraça, same data, Sep 1913, M.A. Maublanc, no. 342 (PC-2 isotypes).

Valetoniellopsis Samuels & M.E. Barr is an accepted genus in the *Niessliaceae* according to Samuels & Barr (1997).

Valsonectria Speng. is an accepted genus in the *Bionectriaceae*.

ADDITIONAL NAMES:

Valsonectria cinnamomi (Ces.) Huhndorf (= *Valsaria cinnamomi* Ces.) is a synonym of *Valsaria rubricosa* (Fr. : Fr.) Sacc., according to Ju *et al.* (1996).

Valsonectria hypoxyloides (Ellis & Everh.) M.E. Barr (= *Valsaria hypoxyloides* Ellis & Everh.) is a synonym of *Valsaria rubricosa* (Fr. : Fr.) Sacc. according to Ju *et al.* (1996).

Valsonectria orbiculata Syd. & P. Syd. (= *Uleoporthe orbiculata* (Syd. & P. Syd.) Petrak) is recognized as *Phylloporthe orbiculata* (Syd. & P. Syd.) E. Müll. in the *Gnomoniaceae*, *Diaporthales*, according to Barr (1978) and Monod (1983).

Valsonectria parasitica (Murrill) Rehm (= *Diaporthe parasitica* Murrill = *Endothia parasitica* (Murrill) P.J. & H.W. Anderson) is recognized as *Cryphonectria parasitica* (Murrill) M.E. Barr in the *Diaporthales*, according to Barr (1978); it is the cause of chestnut blight.

Valsonectria reticulata Loeffler & E. Müll. is a synonym of *Valsaria rubricosa* (Fr. : Fr.) Sacc., according to Ju *et al.* (1996).

Valsonectria virens Harkness is a synonym of *Nectria xanthoxyli* (Peck) Rossman in the *Nectriaceae*.

Viennotidea Negru & Verona ex Rogerson, Mycologia 62: 899. 1970.

[= *Viennotidea* Negru & Verona, Mycopathol. Mycol. Appl. 30: 306. 1966, *nom. inval.*, Art. 37].
Lectotype, designated by Rogerson (1970): *V. spermosphaerici* Negru & Verona.

Viennotidea was described in the *Hypocreales* with two species, neither of which was designated as type, thus the genus dates from the publication in which a type was designated, namely Rogerson (1970). Cannon & Hawksworth (1982) distinguished the genus *Viennotidea* from *Sphaeronaemella* by the 'markedly different ascospores,' stating that the two genera may be closely related. They included brief descriptions and a key to the two original species in *Viennotidia*, *V. raphani* and *V. spermosphaerici*, and two additional species transferred from *Sphaeronaemella*, namely *V.*

fimicola (= *Sphaeronaemella fimicola* Marchal) and *V. humicola* (= *Sphaeronaemella humicola* Samson & W. Gams). Although the distinction between *Viennotidea* and *Sphaeronaemella* is unclear, neither genus is related to the *Hypocreales*.

Wakefieldiomyces Y. Kobayasi, Bull. Natl. Sci. Mus., Tokyo, B. 7: 2. 1981.

Type: *W. peltatus* (E.M. Wakefield) Y. Kobayasi (= *Cordyceps peltata* E.M. Wakefield = *Ophiocordyceps peltata* (E.M. Wakefield) Petch).

Hawksworth *et al.* (1995) list this genus as a member of the *Hypocreaceae* but, based on the descriptions of the type species, it appears to be similar to *Podocrella* and *Stereocrea* in the *Clavicipitaceae*.

Weesea Höhn., Sitzungsber. Akad. Wiss. Wien, Math.-Naturwiss. Kl., Abt. 1, 129: 150. 1920.

Type: *W. balansiae* (A. Möller) Höhn. (= *Calonectria balansiae* A. Möller, Phycomyc. Ascomyc. 1901: 297).

The unispecific genus *Weesea* was described as being similar to *Chiajaea* in the *Nectriaceae*. *Weesea* was said to be distinct in its occurrence in old, empty locules of *Balansia* and in having brown, four-celled ascospores. As for many of Möller's species, the type specimen of *Calonectria balansiae* cannot be located at B or HBG and is apparently destroyed. The identity of *Weesea* remains obscure.

Winteria Sacc. is a nomenclatural synonym of *Selinia* P. Karst. in the *Bionectriaceae*.

Woronichina Naumov, in Naumov & Danilova, Bot. Mater. Otd. Sporov. Rast. Bot. Inst. Komarova Akad. Nauk SSSR 7: 135. 1951.

Type: *W. tranzschelii* (Woronichin) N.A. Naumov (= *Physalosporina tranzschelii* Woronichin), a synonym of *Polystigma astragali* (Lasch) Höhn.

Woronichina was listed as a questionable member of the *Hypocreaceae* by Hawksworth *et al.* (1995). Von Arx & Müller (1954) considered the type species, *W. tranzschelii*, to be a synonym of *Polystigma astragali* (Lasch) Höhn. A type specimen of *Physalosporina tranzschelii* was examined and found to agree with the description of *Polystigma astragali* given by von Arx & Müller (1954). The genus *Physalosporina* is a synonym of *Stigmatula* in the *Phyllachoraceae* according to Cannon (1991) who noted that *Polystigma astragali* 'should best be placed in the genus *Stigmatula* (Sacc.) Syd. & P. Syd.' The type specimen of *Physalosporina tranzschelii* keyed to *Stigmatula* in Cannon (1991), based on the white stromatic tissue. Thus, the genus *Woronichina* is most likely a synonym of *Stigmatula* in the *Phyllachoraceae*, and is excluded from the *Hypocreales*.

TYPE.—RUSSIA. Prov. Ufa: prope pagum Durassowo, on living branch of *Caragana frutescens*, 27 June 1907, Schirajewsky, Tranzschel & Serebriankow, Mycotheca Rossica 174 (BPI – bound, isotype of *Physalosporina tranzschelii*).

Xenonectriella Weese is an accepted genus in the *Nectriaceae*.

Zeta Bat. & Garnier, Mem. Soc. Broteriana 14: 69. 1961.

Type: *Z. viticifolii* Bat. & Garnier

Zeta was described as a genus in the *Hypocreales* with affinities to *Epicrea* Petrak but differing in having non-septate ascospores and lacking paraphyses. The type specimen of this genus was not located at IBI, INPA, or URM, and no specimen resembling this species has been encountered. Based on the original description, this fungus may belong to the *Pseudo-perisporiaceae*, *Dothideales*, a family that includes species with small, uniloculate ascomata occurring superficially on leaves.