SOME FOLIICOLOUS LICHENS FROM THE FARLOW HERBARIUM I[1]

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SUMMARY

The present paper deals with my study of the foliicolous lichens in the Farlow Herbarium (FH). New localities are reported for the first time from the following countries: USA, Guatemala, Belize (formerly British Honduras), Mexico, Cuba, Jamaica, Puerto Rico, Trinidad, Chile, China, Indonesia, New Guinea, and the Pacific Islands. *Aulaxina microphana*, *Tricharia dilatata* and *Tapellaria bilimbioides* are reported for the first time from America. *Byssoloma subdiscordans* f. *puertoricensis* is new; the taxonomic status of *Calenia triseptata* Zahlbr. is unclear at the present time; a *Lopadium* from Puerto Rico is temporarily referred to *Lopadium subpilosum* (Vain.) Zahlbr.

During a stay at the Farlow Library and Herbarium of Cryptogamic Botany of Harvard University, I examined the foliicolous lichens deposited there. This paper deals with some of the interesting results of my study. The species studied fall into the absolute and into the local eufoliicolous categories, as well as into the elective pseudofoliicolous category (Sérusiaux, 1975). Unless otherwise stated, all specimens have been observed on leaves of higher plants or on leaf-like organs (for example, cladodes).

Santesson's (1952) monograph of the foliicolous lichens has served as a basic reference for species identification. In the list which follows, reference to Santesson's monograph is indicated as follows: S:[page number].

The list contains new and unpublished taxa, comments on nomenclature, taxonomy, and reports of new localities. New localities in countries which are reported for the first time are marked with an asterisk (*). Table 1 gives a summary of them.

All specimens are in the Farlow Herbarium unless otherwise indicated, where they are filed under the name listed in the heading. If they are not filed under that name, it will be noted. In some cases, specimens bear annotations of Santesson, but he has not published these data.

Arthonia Ach. nom. cons.

Arthonia trilocularis Müll. Arg.

PHILIPPINES: Luzon, Bulacan Prov., Angat, on bamboo culms, *Ramos*, 1913, no. 21867.

[1]My work in the United States was made possible by a grant from the Rotary Foundation of the Rotary International (1975–76). Sincere thanks are extended to Drs. G. Sayre and D. H. Pfister and the entire staff of the Farlow Herbarium, and to Drs. V. Demoulin and J. Lambinon of Liège, Belgium.

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TABLE 1. SPECIES RANGE EXTENSIONS

Country	*Species–First Report*
USA	Aulaxina microphana, Lopadium fuscum
Guatemala	Porina platypoda, Trichothelium epiphyllum
Belize (British Honduras)	Mazosia melanophthalma, Porina nitidula, P. rubentior, P. leptosperma, Trichothelium minus, T. epiphyllum, Tricharia dilatata, Byssolecania fumosonigricans, Phyllophiale alba
Mexico	Porina nitidula, P. octomera, Bacidia apiahica
Cuba	Gyalectidium rotuliforme, Echinoplaca strigulacea, Tapellaria bilimbioides, Sporopodium xantholeucum, Lasioloma arachnoideum
Jamaica	Mazosia rotula, M. melanophthalma, Raciborskiella janeirensis, R. prasina, Porina phyllogena, Gyalectidium filicinum, Tricharia vulgaris, Bacidia sublecanorina, Byssoloma subdiscordans, Sporopodium xantholeucum, Phyllophiale alba
Puerto Rico	Mazosia melanophthalma, Porina rubentior, Aspidothelium fugiens, Gyalectidium aspidotum, Echinoplaca argentea, Tapellaria bilimbioides, Lasioloma arachnoideum
Trinidad	Opegrapha filicina, Chroodiscus coccineus
Chile	Byssoloma subdiscordans
China	Byssoloma subdiscordans
Indonesia (Sumatra)	Porina limbulata
New Guinea	Mazosia dispersa, Tricharia albostrigosa, Bacidia vieillardii, B. psychotriae
Pacific Islands	Catillaria bouteillei, Tapellaria nigrata

Merrill previously identified this specimen as *Arthonia myristicae* Müll. Arg. In fact, it corresponds to the description of Müller-Argoviensis (Lich. Beiträge XIII, Flora 64:233, 1881). The collection has abundant ascocarps and spores. The thallus covers large areas of the bamboo culm. *Arthonia myristicae* is considered to be a synonym of *A. trilocularis* (S:84). Ramos's number 21861 (TUR) is the holotype of *A. bambusicola* Vain. This species is also considered a synonym of *A. trilocularis* (S:84). It also came from Luzon and was found on a bamboo culm.

Distribution: pantropical.

Arthonia macrosperma (Zahlbr.) R. Sant. Fig. 1.

INDONESIA: Ambona, *Robinson*, 1913, no. 2414.

In this specimen, I observed brown spores, a fact not mentioned by Santesson (S:90). The spores are ellipsoid to claviform, typically macrocephalic, often curved, 9–10(–11) septate, slightly constricted at the septa, 50–72.5 × 12–13 μm (20 spores measured). There are eight ascospores per ascus.

Distribution: Indonesia, New Guinea.

Arthonia sp. Fig. 2.

NEW GUINEA: Idenburg River, Bernhard Camp, alt 55 m, rain forest, *Brass*, 1939, no. 13899.

This specimen was given a name by R. Santesson but the name has not been published. The material examined was scanty and it is difficult to describe the variations of the taxon correctly. Therefore, I prefer to leave it unpublished for the moment.

Thallus round, 0.5–10 mm in diam, dispersed, formed by irregular and sometimes confluent algiferous patches, greenish white to greenish brown, verrucose (verrucae very low to almost hemispherical, in this case 0.1 mm in diam, sometimes confluent, whitish). Thallus thin, 10–15 μm thick. Apothecia round or lightly irregular (0.3–)0.4–0.6 mm diam, mostly localized between the algiferous patches, disc plane, black, non-pruinose, emarginate. Excipulum totally absent, hypothecium rather indistinct, hymenium uncolored or perhaps with grayish patches, ± 20 μm thick. Asci ovoid to almost globose, thick-walled, 8-spored. Paraphysoids abundant, branched and anastomosing. Spores ellipsoid to almost claviform, 4–5 septate, with slight constrictions at the septa, distinctly macrocephalic, apparently colorless, 39–45 × 9–11 μm (10 spores measured). Hymenium J— or J+ reddish. Symbiotic alga: a *Phycopeltis* sp. with long, rectangular or somewhat irregular cells forming continuous plates arranged in ± radiated rows from the center of thallus.

Among the foliicolous *Arthonia* with multiseptate (>3) and macrocephalic spores, this species can be distinguished as follows:

A. Thallus verrucose, spores 4–5 septate, 40–45 × 10 μm ..... *Arthonia sp.*
A′. Thallus smooth ..... B.
B. Spores 3–5 septate, 16–25 × (3–)4–8 μm; South America, southeast Asia .....
..... *A. palmulacea* (Müll. Arg.) R. Sant.
B′. Spores (4–)5–7 septate, 32–44 × 7–10 μm; southeast Asia .....
..... *A. calamicola* (Syd.) R. Sant.
B″. Spores 8–12 septate, 50–90 × 12–16 μm; southeast Asia .....
..... *A. macrosperma* (Zahlbr.) R. Sant.

There are contradictions in Santesson's (1952) monograph concerning the size and septation of the spores of *Arthonia macrosperma*. On page 76 they are listed as 7–9 septate, 50–90 × 12–16 μm; on page 90 they are said to be 8–12 septate, 35–38 × 9–14 μm. I find 8–12 septa and the range to be 50–90 × 12–15 μm.

Distribution: New Guinea.

Opegrapha Ach. nom. cons.

Opegrapha filicina Mont.

BELIZE (formerly British Honduras): El Cayo dist. (Maya Mountains), Valentin, on

Brasimum sp., *Mains*, 1936, no. 3756 (filed as *Porina epiphylla* group). JAMAICA: on *Callistemon* sp., *Pessin*, 1919 (filed as *Byssoloma* sp.). TRINIDAD: Maraval Valley, *Thaxter*, 1912–13, no. 1799 (filed as *Cryptothecia candida*).

Santesson (S:102) questions the unverified reports of this species from Belize (Hedrick, 1939) and Jamaica (Plitt, 1921). Specimens in the Farlow Herbarium indicate that the species does occur in both places.

Distribution: common in tropical and subtropical America, also known in Africa and recently mentioned in India (Awasthi & Singh, 1973), *Trinidad.

Mazosia Mass.

Mazosia rotula (Mont.) Mass.

BELIZE (formerly British Honduras): El Cayo dist. (Maya Mountains), Valentin, *Mains*, 1936, no. 3559; on palm, *Mains*, 1936, no. 3679; on *Brasimum* sp., *Mains*, 1939, no. 3756 (all filed as *Porina epiphylla* group). JAMAICA: Kingston, on "Jambos jambos," *Thaxter*, 1891, no. 7252. BRAZIL: State of Pará, Acará dist., 1 km up Río Thomé Assú, alt 35 m, *Mexia*, 1931, no. 6047a (filed as *Porina epiphylla* group).

Distribution: common in tropical America, rare in other tropical areas.

Mazosia melanophthalma (Müll. Arg.) R. Sant.

BELIZE (formerly British Honduras): El Cayo dist. (Maya Mountains), Valentin, on palm, *Mains*, 1936, no. 3679 (filed as *Porina epiphylla* group). JAMAICA: Kingston, on "Jambos jambos," *Thaxter*, 1891, no. 7252. PUERTO RICO: Río Piédras, on "Eugenia jambos," *Fink*, 1915, no. 482; Fink, 1915, no. 500 (filed as *Porina epiphylla* group). PHILIPPINES: Luzon, Bulacan Prov., Angat, on bamboo culms, *Ramos*, 1913, no. 21867.

The report of the collection from the Philippines as being bambusicolous is apparently the first for this species.

Distribution: pantropical, *Jamaica, *Puerto Rico.

Mazosia dispersa (Hedrick) R. Sant.

NEW GUINEA: Idenburg River, Bernhard Camp, alt 55 m, rain forest, *Brass*, 1939, no. 13899.

Distribution: tropical America, Africa, *New Guinea.

Microtheliopsis Müll. Arg.

Microtheliopsis uleana Müll. Arg.

COLOMBIA: Cauca River, *Denton*, 1894. NEW GUINEA: Idenburg River, Bernhard Camp, alt 55 m, rain forest, *Brass*, 1939, no. 13899.

Nowak and Winkler (1975) mention *Microtheliopsis* cfr. *uleana* in their study on substrate abundances of foliicolous lichens in Colombia. This is the first unquestionable report of the species in that country.

Distribution: pantropical.

Raciborskiella von Höhnel, non Speg. nec Wislouch

Raciborskiella janeirensis (Müll. Arg.) R. Sant.

JAMAICA: Kingston, hypophyllous, *Thaxter*, 1891, no. 7243.

Distribution: pantropical, *Jamaica.

Raciborskiella prasina (Müll. Arg.) R. Sant.

JAMAICA: Kingston, *Thaxter*, 1891, no. 7243 and 7252, hypophyllous in 7243, hypophyllous and epiphyllous in 7252.

Distribution: pantropical, *Jamaica.

Porina Müll. Arg. nom. cons., non Ach.

Porina phyllogena Müll. Arg.

JAMAICA: *Thaxter*, 1891.

Distribution: pantropical, *Jamaica.

Porina platypoda Müll. Arg.

GUATEMALA: [label almost illegible] Alta Verapaz dep., Cubilguitz, *Tuerckheim*, 1903 (filed as *Porina epiphylla* group). COLOMBIA: Cauca River, *Denton*, 1894. INDONESIA: Java, Batavia, "Panperango" Mountain, alt ± 1000 m, on *Pinanga* sp., *Schiffner*, 1894, no. 3464 (filed as *Phyllobathelium nudum* Zahlbr.).

Distribution: tropical America, southeast Asia,[3] Philippines, *Guatemala.

Porina multipunctata R. Sant.

PHILIPPINES: Mindanao, Butuan, *Weber*, 1911, no. 1415 (filed as *Mazosia melanophthalma*).

Recently Vězda (1975b) described a new variety of this taxon as follows: "Sporae mox fissae, duas diasporas separatus simplices formantes." In the specimen I examined, most of the mature spores were broken into two parts. Thus, it should be referred to *P. multipunctata* var. *schizospora* Vězda.

Distribution: Philippines, New Guinea, Polynesia.
cently discovered in Tanzania (Vězda, 1975b).

[3]Southeast Asia includes Indonesia and Indochina.

Porina corruscans (Rehm) R. Sant.

PHILIPPINES: Batan (N. Luzon), Sabtang, *McGregor*, 1909, no. 10192.

Distribution: Philippines, New Guinea, Polynesia.

Porina nitidula Müll. Arg.

BELIZE (formerly British Honduras): El Cayo dist. (Maya Mountains), Cobune Ridge, on *Acacia* sp., *Mains*, 1936, no. 3812 (filed as *Porina epiphylla* group). MEXICO: Tamasopo, S.L.P., *Pringle*, 1891 (filed as *Porina epiphylla* group).

Distribution: pantropical, *Belize, *Mexico.

Porina conica R. Sant.

MALAYSIA: Malacca, *Yvan* (filed as *Porina epiphylla* group). PHILIPPINES: Negros, Canlaon Volcano, *Merrill*, 1919, no. 6884 (filed as *Porina multiseptata*).

Distribution: common in tropical Asia, also found in Polynesia, New Guinea, Australia.

Porina multiseptata Müll. Arg.

PHILIPPINES: Negros, Canlaon Volcano, *Merrill*, 1910, no. 6884.

Distribution: southeast Asia, Philippines, New Guinea.

Porina homala R. Sant.

INDONESIA: Java, Batavia, "Panperango" Mountain alt ± 1000 m, on *Pinanga* sp., *Schiffner*, 1894, no. 3464 (filed as *Phyllobathelium nudum* Zahlbr.).

Some spores are larger and wider than mentioned by Santesson (S:246) e.g., 69× 10 μm.

Distribution: Indonesia, New Guinea. Rare.

Porina limbulata (Krempelh.) R. Sant.

INDONESIA: Sumatra, Pisopiso (at Lake Toba), alt 1200 m, *Palm*, 1926, no. 30 (this number added by Santesson) (filed as *Trichothelium annulatum*).

Distribution: pantropical, *Indonesia, Sumatra. Common.

Porina rubentior (Stirt.) Müll. Arg.

BELIZE (formerly British Honduras): El Cayo dist. (Maya Mountains), Cobune Ridge, on *Acacia* sp., *Mains*, 1936, no. 3812; Valentin, on *Brasimum* sp., *Mains*, 1936, no. 3756 (both filed as *Porina epiphylla* group). PUERTO RICO: Río Piédras, on "Eugenia jambos," *Fink*, 1915, no. 482 (filed as *Mazosia melanophthalma*); *Fink*, 1915, no. 500 (filed as *Porina epiphylla* group).

This species has been found in association with *Porina limbulata* (Krempelh.) Vain. in the Puerto Rican collections. They differ in the size

of the perithecia as follows:

Porina limbulata: 0.21–0.40(–0.50) mm
Porina rubentior: 0.11–0.19(–0.22) mm

Distribution: tropical America (sometimes reported in subtropical areas), *Belize, *Puerto Rico. Rare elsewhere.

Porina leptosperma Müll. Arg.

BELIZE (formerly British Honduras): El Cayo dist. (Maya Mountains), Cobune Ridge, on *Acacia* sp., *Mains,* 1936, no. 3812 (filed as *Porina epiphylla* group).

Distribution: pantropical, *Belize.

Porina octomera (Müll. Arg.) Schilling

MEXICO: Tamasopo, S.L.P., *Pringle,* 1891 (filed as *Porina epiphylla* group).

Compared with the reddish-brown perithecia of the African specimens previously examined, the perithecia of this Mexican collection are redder, but within the range of variation for this species.

Distribution: pantropical, *Mexico. Only common in Brazil.

Trichothelium Müll. Arg. emend. R. Sant.

Trichothelium minus Vain.

BELIZE (formerly British Honduras): El Cayo dist. (Maya Mountains), Cobune Ridge, on *Acacia* sp., *Mains,* 1936, no. 3812; Valentin, on palm, *Mains,* 1936, no. 3679 (both filed as *Porina epiphylla* group).

Distribution: limited to tropical America, *Belize.

Trichothelium alboatrum Vain.

INDONESIA: Java, Zandbai [locality not found on maps], on *Cynometra* sp., *Nyman,* 1897, no. 12a (filed as *Lopadium fuscum*).

Distribution: Africa, Asia. Common.

Trichothelium epiphyllum Müll. Arg.

GUATEMALA: [label almost illegible] Alta Verapaz dep., Cubilguitz, *Tuerckheim,* 1903 (filed as *Porina epiphylla* group). BELIZE (formerly British Honduras): El Cayo dist. (Maya Mountains), Cobune Ridge, on *Acacia* sp., *Mains,* 1936, no. 3812 (filed as *Porina epiphylla* group).

The perithecia may be almost black, but more often are brown with hairs which are often translucent at their tips, evidently through bleaching. These specimens belong to *Trichothelium epiphyllum* var. *pallescens* Müll. Arg. but do not represent an autonomous taxonomic unit (S:273–274). All spores examined were found to be more than 40 μm long.

Distribution: pantropical, *Guatemala, *Belize. Common in America.

Trichothelium annulatum (Karst.) R. Sant.

PHILIPPINES: Mindanao, Butuan, *Weber*, 1911, no. 1413 (filed as *Byssolecania fuscolivida* Vain. [= *B. fumosonigricans* (Müll. Arg.) R. Sant.]).

Distribution: pantropical.

Aspidothelium Vain. emend. R. Sant.

Aspidothelium fugiens (Müll. Arg.) R. Sant.

PUERTO RICO: Río Piédras, *Fink*, 1915, no. 470 and 499 [both numbers on the same label] (filed as *Lopadium* sp.). NEW GUINEA: Idenburg River, Bernhard Camp, alt 850 m, rain forest, *Brass*, 1939.

Distribution: pantropical, *Puerto Rico.

Aulaxina Fée

Aulaxina microphana (Vain.) R. Sant.

USA. FLORIDA: Sanford, on palmetto leaves, *Rapp*, 1914.

Originally described from the Phillippines, this species is also known from Africa (Vězda, 1974). This is the first report of the species from North America. The specimen examined has a dispersed brownish thallus and 3-septate spores, 12–14 × 3–4 μm. Further material should be examined to definitely establish the range of distribution.

Aulaxina epiphylla (Zahlbr.) R. Sant.

INDONESIA: Sumatra, Pisopiso (at Lake Toba), alt 1200 m, *Palm*, 1926, no. 30 [this number added by Santesson] (filed as *Trichothelium annulatum*).

Distribution: Africa, southeast Asia, Philippines, New Guinea, Australia.

Chroodiscus (Müll. Arg.) Müll. Arg.

Chroodiscus coccineus (Leight.) Müll. Arg.

TRINIDAD: Maraval Valley, *Thaxter*, 1912–13, no. 1799 (filed as *Cryptothecia candida*). BRAZIL: State of Minas Gerais, dist. Casca, "Fazenda de Cocco de Orro, near Lagoa Cocco de Orro" [probably N. Belo Horizonte], *Mexia*, 1930, no. 5012a (filed as *Porina epiphylla* group).

Distribution: pantropical, very common in tropical America (rare elsewhere), *Trinidad.

Chroodiscus mirificus (Krempelh.) R. Sant.

NEW GUINEA: Idenburg River, Bernhard Camp, alt 55 m, rain forest, *Brass*, 1939, no. 13899.

This specimen is very similar to the illustration of *Chroodiscus mirificus* shown in Fig. 1 of Santesson (S:30). It has abundant, appressed, squamiform isidia. The delimitation of the taxon and its variability need further investigation. The previously studied specimens from Africa differ as follows: they lack isidia; they have a continuous thallus which is not dispersed in radiate strips and which is verrucose rather than slightly rugose. The African specimens are usually referred to *C. mirificus* (S:314; Vězda, 1973 and 1975b).

Distribution: pantropical.

Calenia Müll. Arg. emend. R. Sant.

Calenia graphidea Vain.

NEW GUINEA: Idenburg River, Bernhard Camp, alt 55 m, rain forest, *Brass*, 1939, no. 13899.

This species is similar to *Calenia depressa* Müll. Arg. from which it can be distinguished by the orange to brown color of the disc and by its irregular apothecia. In *C. depressa* the disc is dark, mostly gray.

Distribution: pantropical, common in tropical Asia.

Calenia thelotremella Vain.

NEW GUINEA: Idenburg River, Bernhard Camp, alt 55 m, rain forest, *Brass*, 1939, no. 13899.

Distribution: common in tropical Asia.

Calenia trispetata Zahlbr.

BRAZIL: São Paulo, I. de S. Amaro near Santos, alt 5–50 m, *Schiffner*, 1901.

The specimen examined is obviously an isotype. Santesson (S:344) has searched for authentic specimens in vain. He said: "it may be *C. submaculans* but certain statements in the diagnosis do not coincide with this species." The specimen is a typical *Calenia* species. Zahlbruckner's description of the external morphology (Zahlbruckner, 1909; 121–122) is correct: "Thallus . . . uniformis, submembranaceous, tennuissimus . . . continuus, gilvovirescens . . . densissime granulis minutis adspersus, . . ." Unfortunately, the specimen examined is young and neither asci nor spores had yet formed. Therefore, a decision on its taxonomic status cannot be made on the material now available.

Distribution: Brazil.

Gyalectidium Müll. Arg.

Gyalectidium filicinum Müll. Arg.

USA. FLORIDA: Ocala National Forest, Juniper Springs, on needle palm, *Thomson*, 1954, no. 4448 (filed as *Byssoloma leucoblepharum*). JAMAICA: Kingston, on "Jambos jambos," *Thaxter*, 1891, no. 7252. PUERTO RICO: Río Piédras, *Fink*, 1915, no. 470 and 499 [both numbers on same label] (filed as *Lopadium* sp.); *Fink*, 1915, no. 500 (filed as *Porina epiphylla* group).

Distribution: pantropical, *Jamaica. Common in tropical America.

Gyalectidium rotuliforme Müll. Arg.

CUBA: Monte Verde, probably Wright (filed as *Tapellaria nana*).

Distribution: pantropical, *Cuba.

Gyalectidium aspidotum (Vain.) R. Sant.

PUERTO RICO: Río Piédras, *Fink*, 1915, no. 470 and 499 [both numbers on same label] (filed as *Lopadium* sp.). FIJI ISLANDS: Vitu Levu, southern slopes of Nausori Highlands, in drainage of Namosi Creek above Tumbenasolo, alt 300–450 m, dense forest, *Smith*, 1947, no. 4598a.

Distribution: pantropical, *Puerto Rico.

Echinoplaca Fée

Echinoplaca strigulacea (Müll. Arg.) R. Sant.

CUBA: Monte Verde, *Wright*. COLOMBIA: Cauca River, *Denton*, 1894 (filed as *Microtheliopsis uleana*).

Distribution: limited to tropical America, *Cuba.

Echinoplaca pellicula (Müll. Arg.) R. Sant.

PUERTO RICO: Río Piédras, *Fink*, 1915, no. 470 and 499 [both numbers on same label] (filed as *Lopadium* sp.).

Distribution: pantropical.

Echinoplaca argentea (Mont.) R. Sant.

PUERTO RICO: Río Piédras, *Fink*, 1915, no. 470 and 499 [both numbers on same label] (filed as *Lopadium* sp.).

Among the species of *Echinoplaca*, this species and *E. epiphylla* Fée are distinguished by their muriform spores and unisporal asci. The two species are close but can be separated as follows:

Echinoplaca argentea: apothecia brown to blackish-brown, hymenium K–, spores 30–48 × 18–30 μm according to Santesson (S:374). This speci-

men measures 25–41 × 15–28 μm.

Echinoplaca epiphylla: apothecia yellowish-brown to pale brown, hymenium K+ yellow, spores 36–70 × 20–48 μm according to Santesson (S:375). In the specimens from East Africa I have examined previously, the spore measurements are 42–66 × (18–)23–46 μm.

The species is present in tropical America where it is both corticolous and foliicolous.

Distribution: tropical America, mentioned from Guinea[4] and Tanzania (Vězda, 1975b), *Puerto Rico.

Tricharia Fée emend. R. Sant.

Tricharia vainioi R. Sant.

INDONESIA: Sumatra, Marapi Mountain, alt 1400–1600 m, *Schiffner,* 1894.

Distribution: Africa, Asia, Australia.

Tricharia urceolata (Müll. Arg.) R. Sant.

TRINIDAD: Maraval Valley, *Thaxter,* 1913.

Distribution: common in tropical America, recently discovered in Tanzania (Vězda, 1975b).

Tricharia carnea (Müll. Arg.) R. Sant.

BELIZE (formerly British Honduras): El Cayo dist. (Maya Mountains), Valentin, on *Prypetes* sp., *Mains,* 1936, no. 3552.

The presence of this species in Belize mentioned by Hedrick (1939) has been unverified (S:387).

Distribution: common in tropical America. Also reported from Vietnam, Tanzania (Vězda, 1975b).

Tricharia albostrigosa R. Sant.

NEW GUINEA: Milne Bay dist., Goodenough Islands, east slopes, alt 1500–1600 m, banks of a stream in a forest, *Brass,* 1953, no. 24595A (filed as *Byssoloma leucoblepharum*).

Distribution: pantropical, *New Guinea.

Tricharia vulgaris (Müll. Arg.) R. Sant.

JAMAICA: *Wright,* 1909; Port Antonio, *Wright,* 1903. PUERTO RICO: vicinity of

[4]It should be noted that, in his exhaustive studies on the foliicolous lichens of W. Guinea, Vězda (1973, 1974, 1975a) does not mention this species. However, in his paper on the genus *Gyalidea* (Vězda, 1966) he does report it growing in W. Guinea together with *G. epiphylla.*

Útado, *Wheeler,* 1906, no. 992a [probably associated with *Tricharia carnea*].

Distribution: common in tropical America, *Jamaica.

Tricharia dilatata Vězda Fig. 3.

BELIZE (formerly British Honduras): El Cayo dist. (Maya Mountains), Valentin, on palm, *Mains,* 1936, no. 3679 (filed as *Porina epiphylla* group).

This material is typical but scanty. It is the first collection of this species reported from America.

Distribution: Africa (Vězda, 1973, 1975b), *Belize.

Gyalidea Lett. emend. Vězda

Gyalidea sp. Fig. 4.

BELIZE (formerly British Honduras): El Cayo dist. (Maya Mountains), Cobune Ridge, on *Acacia* sp., *Mains,* 1936, no. 3812 (filed as *Porina epiphylla* group).

Thallus ± dispersed, very thin, grayish green. Apothecia not abundant, 0.1 mm diam, urceolate, distinctly constricted at the base, disc concave, very pale orange-brown, almost translucent, margin prominent, concolorous with disc. Excipulum colorless or very pale brown, almost without structure, gelatinous. Ascus clavate, 6–8 spored. Paraphyses simple, 1 μm thick, not thickened at the apices, ± gelatinous. Spores 3-septate, ellipsoid, strongly constricted at the septa, 17–29 × 5–9 μm (in IKI). Hymenium J—. Algae ovoid to ellipsoid, green.

This species is close to *Gyalidea epiphylla* Vězda, but differs in spore size. It is probably a new species. Unfortunately, the material is too scanty to allow a correct delimitation of this taxon.

Species of the genus *Gyalidea* never have been reported before as foliicolous in America.

Distribution: Belize.

Dimerella Trevis.

Dimerella epiphylla (Müll. Arg.) Malme Fig. 5.

BELIZE (formerly British Honduras): El Cayo dist. (Maya Mountains), Cobune Ridge, on *Acacia* sp., *Mains,* 1936, no. 3812 (filed as *Porina epiphylla* group).

The spore shape ranges from ellipsoid to fusiform but it is sometimes bacilliform or boomerang-like. The spores are 11–14 × 2.5–3.5 μm.

Distribution: pantropical, also temperate (e.g., Chile).

Dimerella lutea (Dicks.) Trevis.

BRAZIL: State of Minas Gerais, Fazenda do Deserte, Varje [Varjaõ ?], alt 690 m, on lemon tree, *Mexia,* 1930, no. 5243b (filed as *Byssoloma leucoblepharum*).

This specimen is similar to Santesson's description (S:402). It is generally corticolous.

Distribution: nearly cosmopolitan.

Semigyalecta Vain.

Semigyalecta paradoxa Vain.

INDONESIA: Java, Batavia, "Panperango" Mountain, alt ± 1000 m, on *Pinanga* sp., *Schiffner,* 1894, no. 3464 (filed as *Phyllobathelium nudum* Zahlbr.).

This is the only species in the genus and it is endemic to Indonesia and the Philippines.

Catillaria Mass. emend. Th. Fr. nom. cons. prop.[5]

Catillaria bouteillei (Desm.) Zahlbr.

USA. NORTH CAROLINA: Cranberry, on *Rhododendron* sp., *Thaxter,* 1896. FLORIDA: Sanford, on palmetto, *Rapp,* 1915, no. 610. BRAZIL: State of Minas Gerais, Viçosa (N. Río Janeiro), Fazenda de Aguada, *Mexia,* 1930, no. 4927b (filed as *Lopadium* sp.). TAHITI: (Society Islands) Fautaua Valley, on *Persea americana, Setchell & Parks,* 1922, no. 5096 pro parte (filed as *Byssoloma chlorinum*).

A poor but typical specimen of this species has been found in the Sbarbaro Herbarium. The label reads: "National Museum, Ireland. Botanical Collections. On Box trees, Ranfurley Park, Co. Iqrone [or Co. Iprone ?], Aug., 1926. Coll. R. W. Poingham." There is a question as to whether the specimen really comes from Ireland.

Distribution: nearly cosmopolitan, known only as foliicolous in tropical areas, *Society Islands.

Bacidia de Not. emend. Zahlbr.

Bacidia apiahica (Müll. Arg.) Zahlbr.

MEXICO: Cordoba, Vera Cruz [collected by ?], 1885.

The species is very close to *Bacidia ziamensis* Vězda but can be distinguished by the color and the K reaction of the hypothecium as follows:

Bacidia ziamensis: hypothecium brown, K+
Bacidia apiahica: hypothecium colorless, K−.

[5]This genus is more commonly known as *Catillaria* (Ach.) Th. Fr. Further work is needed to resolve the nomenclatural problems.

Distribution: pantropical, sometimes subtropical, *Mexico.

Bacidia olivaceorufa Vain.

PHILIPPINES: Luzon, Camarines prov., Adiagano, *Robinson,* 1908, no. 6387 (filed as *Porina virescens*).

Distribution: emdemic to Indonesia and the Philippines.

Bacidia fuscatula (Müll. Arg.) Zahlbr.

BRAZIL: State of Minas Gerais, Viçosa (N. Río Janeiro), Fazenda de Aguada, *Mexia,* 1930, no. 4927b (filed as *Lopadium* sp.).

Distribution: probably pantropical, rare in Asia.

Bacidia vieillardii (Müll. Arg.) R. Sant.

NEW GUINEA: Idenburg River, Bernhard Camp, alt 55 m, rain forest, *Brass,* 1939, no. 13899.

This species is very close to *Bacidia lecanorina* (Zahlbr.) R. Sant., but there are minor differences in the verrucae of the thallus (S:468–469).

Distribution: Philippines, New Caledonia, *New Guinea.

Bacidia psychotriae (Müll. Arg.) Zahlbr.

NEW GUINEA: Idenburg River, Bernhard Camp, alt 55 m, rain forest, *Brass,* 1939, no. 13899.

Distribution: Venezuela, Brazil, *New Guinea.

Bacidia sublecanorina (Nyl.) Zahlbr.

JAMAICA: Kingston, *Thaxter,* 1891.

Distribution: pantropical, rare in Asia, *Jamaica.

Byssoloma Trevis.

Byssoloma tricholomum (Mont.) Zahlbr. sensu R. Sant.

USA. FLORIDA: Sanford, on palmetto, *Rapp,* 1910, no. 2.

This is a typical specimen with a brown excipulum, K+ red.

Distribution: pantropical, rare in Asia.

Byssoloma leucoblepharum (Nyl.) Vain. sensu R. Sant.

USA. SOUTH CAROLINA: corticolous, *Ravenel,* 1851, Reliquiae Tuckermanianae, no. 17. FLORIDA: Jacksonville, corticolous, *Calkins* [number illegible]; *Calkins,* 1888; Ocala National Forest, Juniper Springs, on needle palm, *Thomson,* 1954, no. 4447, 4448; on

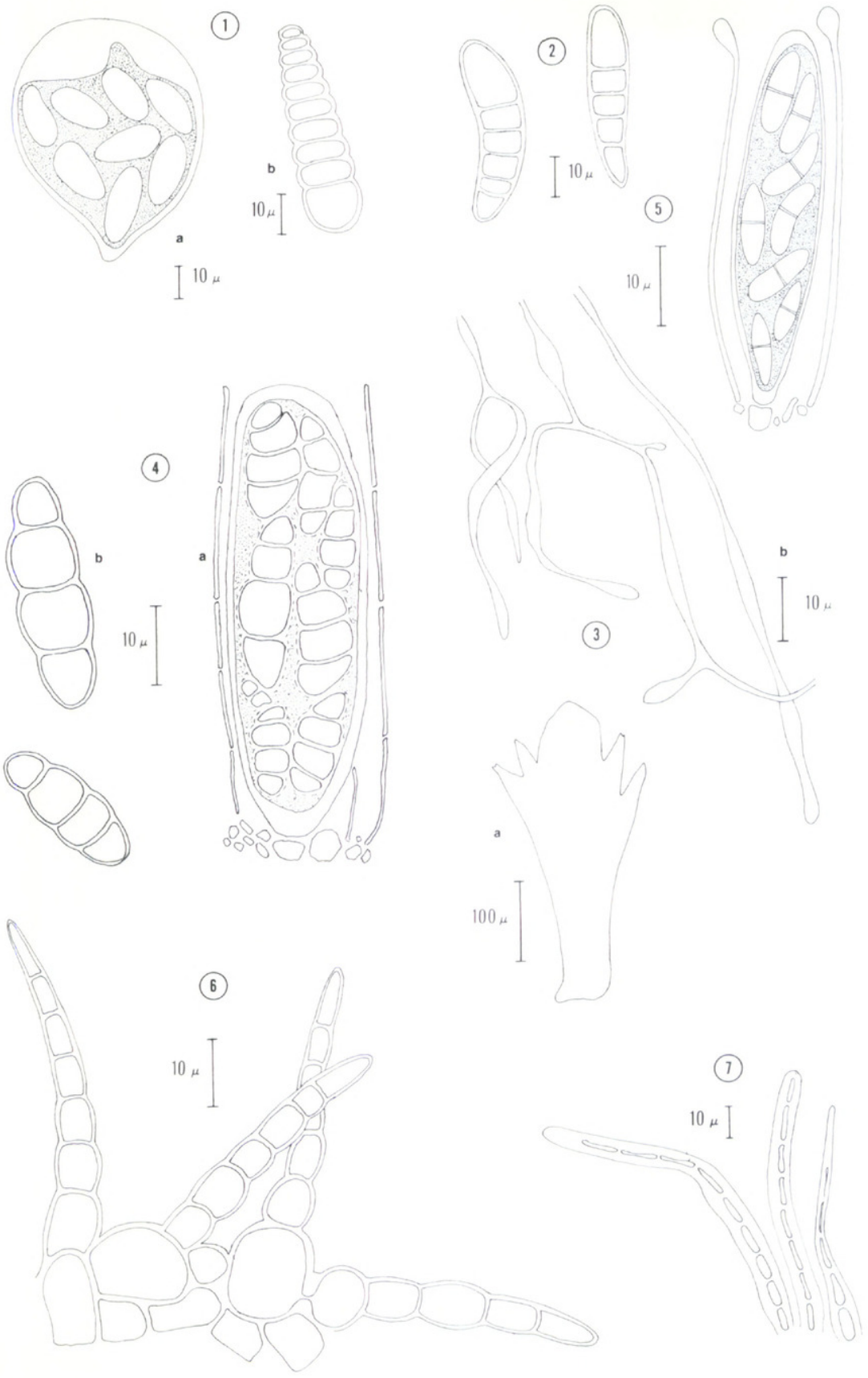

FIG. 1–7. 1. *Arthonia macrosperma* (Zahlbr.) R. Sant.: a. ascus with immature spores; b. spore. 2. *Arthonia sp.*: spores. 3. *Tricharia dilatata* Vězda: a. habit of an hyphophore [sensu Vězda, 1973]; b. hyphae present on the lower surface of the hyphophore. 4. *Gyalidea sp.*: a. ascus with immature spores; b. spores. 5. *Dimerella epiphylla* (Müll. Arg.) Malme: ascus with spores. 6. *Lopadium* cfr. *subpilosum* (Vain.) Zahlbr.: hairs of the apothecial margin. 7. *Lasioloma arachnoideum* (Krempelh.) R. Sant.: hairs of the apothecial margin.

Ilex sp. and *Leucothoë* sp. in palm hummock, no. 4452 (filed as *Lopadium puiggarii* except 4448); Sanford, corticolous, *Rapp;* on stems, *Rapp*, 1907; corticolous on *Magnolia glauca*, *Rapp*, 1911, 1912, 1914, 1915. PUERTO RICO: Mayagüez, woods, on palm, *Fink*, 1915, no. 934; open place, on *Theobroma cacao*, *Fink*, 1915, no. 953; Río Piédras, *Fink*, 1915, no. 470 and 499 [both numbers on same label] (filed as *Lopadium* sp.). BRAZIL: State of Minas Gerais, Fazenda do Deserte, Varje [Varjaõ ?], alt 690 m, on lemon tree, *Mexia*, 1930, no. 5243b. NEW GUINEA: Milne Bay dist., Goodenough Islands, east slopes, alt 1500–1600 m, banks of a stream in a forest, *Brass*, 1953, no. 24595A.

Distribution: pantropical (common), temperate. Only foliicolous in tropical areas.

Byssoloma subdiscordans (Nyl.) P. James [=*B. rotuliforme* (Müll. Arg.) R. Sant.]

USA. NORTH CAROLINA: Cranberry, *Thaxter*, 1896. GEORGIA: vicinity of Tallulah Falls, deep ravine of Tallulah Lodge, *Seymour & Moss*, 1901 (two specimens); deep ravine e. of Tallulah College, *Seymour & Moss*, 1901. FLORIDA: several collections without locality; Grand Island, *Underwood*, 1891, no. 1507; Ocala National Forest, Oklawaka River, on cabbage palm, *Thomson*, 1954, no. 4443; Sanford, on palmetto, *Rapp*, 1915, no. 137; *Rapp*, 1917, no. 3. BAHAMAS: Crooked Island, Stopper Hill, on "Eugenia," *Brace*, 1906, no. 4838. JAMAICA: *Cummings*, 1905, 1915, no. 175; on ginger, *Pessin*, 1919 (filed as *Lopadium puiggarii*); *Plitt*. PUERTO RICO: Río Piédras, *Fink*, 1915, no. 470 and 499 [both numbers on same label] (filed as *Lopadium* sp.). GUADELOUPE: transverse road, 40 km from Basse-Terre, alt 586 m, on bamboo culm, *Pfister, Carpenter & Sherwood*, 1974, no. P834. CHILE: Concepcion, *Thaxter*, 1906, no. 2388. GERMANY: Carinthie, ad ramulos Abietis pectinatae in declivibus occidentalibus montis Falkenburg prope Klagenfurt, c.a. 400 s.m., leg. *Steiner*, Kryptogamae Exsiccatae, no. 865b; Flora Exsiccata Austro-Hungarica, no. 3129; Lichenes Karinthiae exsiccatae [no number]. [All three German collections are on twigs and needles of *Abies*, together with *Catillaria bouteillei*]. AUSTRIA: [locality illegible], Wiener Kryptogamen Taudschanstalt [on twigs and needles of *Abies*, together with *Catillaria bouteillei*]. CHINA: Fukien Prov., Kuliang near Foochow, alt 500–600 m, *Chung*, 1926, no. F457, F561.

One spore with 5 septa was seen from Plitt's Jamaican specimen. This species is reported as bambusicolous in Guadeloupe.

Distribution: pantropical, rare in Asia, common in some European forests, °Chile, °China.

Byssoloma subdiscordans (Nyl.) P. James forma *puertoricensis* Sérusiaux forma nova

A typo differt sporis 1-septis et 7–12 × 2.5 –3.5 μm. Holotypus: Puerto Rico, *Britton*, 1914, numerus 1562, FH.

PUERTO RICO: vicinity of Mayagüez, Agricultural Station, on tea, *Britton*, 1914, no. 1563. Holotype: FH.

The general appearance of this new taxon is exactly the same as *Byssoloma subdiscordans* but microscopic examination reveals some differences in the size and septation of the spores. They are as follows:

Byssoloma subdiscordans f. *subdiscordans:* spores 3-septate, 10–17 × 3–5 μm (S:491), 12–20 × 3–5 μm in the material I have examined from East Africa.

Byssoloma subdiscordans f. *puertoricensis:* spores 1-septate, 7–12 × 2.5–3.5 μm.

This taxon cannot be considered a young stage of *Byssoloma subdiscordans* since the thallus is well-developed and otherwise typical, apothecia are abundant, 0.2–0.5 mm diam, with a byssoid margin 0.05 mm wide. More than 200 mature spores have been examined. No spores having 3 septa or which measure more than 12.0 μm have been found.

Fink's 1916 collections from Manatí, Puerto Rico, have been described as *Calenia albonigra* Zahlbr. (no. 2121, W) (Zahlbruckner, 1930) and as *Biatorina leucoblepharoides* Merrill (no. 2127, MICH) (Hedrick, 1930). Although these species have different numbers, both have been established as being found in exactly the same locality. They could represent portions of the same collection. They are synonyms of *Byssoloma subdiscordans* according to Santesson (S:490). He also claims that Fink's collection has 1-septate spores, occasionally 3-septate, 7–11(–14) × 2–3 (–4) μm. I have examined an isotype of *Biatorina leucoblepharoides* and arrive at the same conclusion. I believe that the occurrence of smaller and 1-septate spores is a minor variation which does not warrant the recognition of a distinct species. The Fink material is rather scanty and because it has some 3-septate spores, I do not accept the name it has been described under and I do not consider it the holotype of this new form.

Tapellaria Müll. Arg. emend. R. Sant.

Tapellaria bilimbioides R. Sant.

CUBA: Isles of Pines, La Cunagua, on *Hirtella* sp., *Britton, Britton & Wilson*, 1916, no. 14593; Sierra de las Cassas, on "Jambos," *Britton & Wilson*, 1916, no. 15768a. PUERTO RICO: Martín Peña, *Stevenson*, 1916, no. 3709.

Martín Peña is the only information of the Puerto Rican locality which appears on the label. This is the name of a canal in Puerto Rico and it seems certain that the specimen comes from that locality, as the collector is a specialist of the fungus flora of that area (see Stevenson, 1918 and 1975). These are the first collections reported from America.

The specimens examined are typical and well-developed *Tapellaria bilimbioides* R. Sant. Some characteristics of the Puerto Rican specimen follow: 4–8 spores per ascus (with the remains of the aborted spores when 4); spores 3(–4) septate, ellipsoid, slightly but distinctly constricted at the septa, 16–20 × 4–5 μm (average 17–4.5 μm).

Distribution: India (Awasthi & Singh, 1973), Indonesia, Philippines, *Cuba, *Puerto Rico.

Tapellaria nigrata (Müll. Arg.) R. Sant.

TAHITI: (Society Islands) Fautaua Valley, on *Persea americana*, *Setchell & Parkes*, 1922, no. 5096 pro parte (filed as *Byssoloma chlorinum*).

A typical *Tapellaria* species with apothecia 0.2–0.4(–0.5) mm diam and (4–)6–8 spores per ascus, ascospores (3–)5–6(–7) septate, ellipsoid, slightly constricted at the septa, sometimes distinctly tapering towards one end, 16–33 × 4–6 μm. This collection is considered to be a young specimen of *Tapellaria nigrata*.

Distribution: South America, Africa, *Tahiti.

Tapellaria epiphylla (Müll. Arg.) R. Sant.

USA. FLORIDA: Ocala National Forest, Juniper Springs, on needle palm, *Thomson*, 1954, no. 4447 (filed as *Lopadium puiggarii*); on *Ilex* sp. and *Leucothoë* sp. in palm hummock, *Thomson*, 1954, no. 4452 (filed as *Lopadium puiggarii*); on needle palm, *Thomson*, 1954, no. 4448 (filed as *Byssoloma leucoblepharum*).

Distribution: tropical America, Africa, Hawaiian Islands, sometimes subtropical and temperate.

Tapellaria nana (Fée) R. Sant.

CUBA: Monte Verde, *Wright*. BRAZIL: State of Minas Gerais, Viçosa (N. Río Janeiro) Fazenda de Aguada, *Mexia*, 1930, no. 4927b (filed as *Lopadium* sp.).

Distribution: Cuba, Brazil, Hawaiian Islands.

Sporopodium Mont. emend. R. Sant.

Sporopodium xantholeucum (Müll. Arg.) Zahlbr.

CUBA: *Wright*. JAMAICA: *Thaxter*, 1891; *Pessin*, 1919, no. 19–I.

Distribution: pantropical, *Cuba, *Jamaica.

Lopadium Körb. nom. cons.

Lopadium fuscum Müll. Arg.

USA. FLORIDA: Aucilla River, on cabbage palm, *Sharp*, 1952, no. 4451; Ocala National Forest, Juniper Springs, on needle palm, *Thomson*, 1954, no. 4447; on *Ilex* sp. and *Leucothoë* sp. in palm hummock, *Thomson*, 1954, no. 4452 (last two filed as *Lopadium puiggarii*). BRAZIL: State of Minas Gerais, Viçosa (N. Río Janeiro), Fazenda de Aguada, *Mexia*, 1930, no. 4927b; Chacha Valley slope, alt 690 m, *Mexia*, 1930, no. 4708a (both filed as *Lopadium* sp.).

Distribution: pantropical, *USA.

Lopadium puiggarii (Müll. Arg.) Zahlbr.

CUBA: Monte Verde, *Wright*. JAMAICA: on "ginger," *Pessin*, 1919. PUERTO RICO: *Stevenson*, 1916, no. 3788. BRAZIL: State of Minas Gerais, Viçosa (N. Río Janeiro), Chacha Valley slope, alt 690 m, *Mexia*, 1930, no. 4708a (filed as *Lopadium* sp.).

Distribution: pantropical.

Lopadium flammeum Müll. Arg.

NEW GUINEA: Milne Bay district, Goodenough Island, east slopes, alt 1500–1600 m, banks of a stream in a forest, *Brass*, 1953, no. 24595A (filed as *Byssoloma leucoblepharum*).

Distribution: pantropical.

Lopadium cfr. *subpilosum* (Vain.) Zahlbr. Fig. 6.

PUERTO RICO: Manatí, in an orchard, on grapefruit, *Fink*, 1916, no. 2124.

Santesson (S:535–536) considers *Lecidea subpilosa* a typical *Lopadium puiggarii* (Müll. Arg.) Zahlbr. However, Santesson said ". . . in the type, there are no hairs on the margin of the apothecia; the excipulum surface is smooth." Vainio's original description says: "Excipulum grosse parenchymaticum, extus pilis brevissimis, 0.002–0.003 millim. crassis instructum. . ." The excipular surface of the Puerto Rican specimen is furnished with whitish hairs, 60–70 μm long. These tapering hairs are composed of 5–8 cells, 6–10 μm thick, with a globose cell at the base. The margins of the apothecia are slightly downy. Otherwise, the specimen has all the characters of *Lopadium puiggarii*.

I accept temporarily the name *Lopadium subpilosum* for the Puerto Rican specimen. Further studies are necessary to delimit the taxon correctly, including a reexamination of the type material. It should not be confused with *Lasioloma arachnoideum* (Krempelh.) R. Sant. which has a gray, woolly, thick, loosely woven hypothallus composed of thick-walled hyphae. The hairs on the apothecial margins of *L. arachnoideum*, unlike those of *Lopadium subpilosum*, are composed of thick-walled hyphae as found in the hypothallus. These hairs are illustrated for comparison in Fig. 7 (Africa, Burundi, *Lambinon*, 1974, no. 74/911, LG).

The synonymy of *Lopadium subpilosum* follows:

Lecidea subpilosa Vain., J. Bot. 34:105. 1896. ≡ *Sporopodium subpilosum* (Vain.) Vain., Ann. Acad. Sci. Fenn., Ser. A., 15(6):98. 1921. ≡ *Lopadium subpilosum* (Vain.) Zahlbr., Cat. lich. univ. 4:315. 1926–27. Holotype from the lesser Antilles (TUR).

Lasioloma R. Sant.

Lasioloma arachnoideum (Krempelh.) R. Sant. Fig. 7.

CUBA: Monte Verde, *Wright*. Another from the same locality under *Echinoplaca strigulacea*. PUERTO RICO: Río Piédras, *Fink*, 1915, no. 470 and 499 [both numbers on

same label] (filed as *Lopadium* sp.).

Distribution: pantropical, especially common in Asia, *Cuba, *Puerto Rico.

Byssolecania Vain.

Byssolecania fumosonigricans (Müll. Arg.) R. Sant.

BELIZE (formerly British Honduras): El Cayo dist. (Maya Mountains), Cobune Ridge, on *Acacia* sp., *Mains*, 1936, no. 3812 (filed as *Porina epiphylla* group).

Distribution: pantropical, *Belize.

Phyllophiale R. Sant.

Phyllophiale alba R. Sant.

BELIZE (formerly British Honduras): El Cayo dist. (Maya Mountains), Valentin, on palm, *Mains*, 1936, no. 3679 (filed as *Porina epiphylla* group). JAMAICA: *Thaxter*, 1891, no. 7439; Kingston, *Thaxter*, 1891 (filed as *Chroodiscus coccineus*).

Distribution: perhaps pantropical, *Belize, *Jamaica.

Remarks on Nomenclature

Byssoloma javanicum Zahlbr., Ann. Crypt. exot. 1(2):159. 1928.

= *B. tricholomum* (Mont.) Zahlbr. sensu R. Sant. Cat. lich. univ. 2:569. 1923.; sensu Santesson, Symb. Bot. Upsal. 12:480–482. 1952.

Basionym: *Biatora tricholoma* Mont., Ann. Sci. Nat. Bot., Ser. 3, 16:52. 1851.

Other synonyms are given in Santesson (S:480). Unlike Santesson (S:483), who considers *Byssoloma javanicum* a synonym of *B. leucoblepharum* (Nyl.) Vain. sensu R. Sant., I believe that it is a synonym of *B. tricholomum*. I have examined the following isotype: Indonesia, Java, Batavia, in monte Salak, in silvis primigeniis ad latus septenti, alt 800 m, *Schiffner*, 1893, no. 3458d. The excipulum is yellowish, K+ intensely yellow and is strongly encrusted with yellow to green granular crystals. These elements are typical of *B. tricholomum*. The specimen often has lobate and agglomerate apothecia with almost black discs.

Sporopodium pilosellum Vain., Ann. Acad. Sci. Fenn., Ser. A, 15(6):98. 1921. = *Lopadium pilosellum* (Vain.) Zahlbr., Cat. lich. univ. 4:313. 1926–27.

= *Sporopodium xantholeucum* (Müll. Arg.) Zahlbr., Cat. lich. univ. 2:681. 1924.

Basionym: *Gyalectidium xantholeucum* Müll. Arg., Flora 64:101. 1881.

I have examined the following isotype of *Sporopodium pilosellum* Vain.: Philippines, Luzon, Sorsogon prov., Irosin, Bulusan Mount., 1915, no. 14671, Philippine Islands plants dist. by Elmer.

On that specimen I found the following: *Lasioloma* sp. (sterile), *Gyalectidium aspidotum* (Vain.) R. Sant. and *Sporopodium xantholeucum* (Müll. Arg) Zahlbr. Obviously, the original description of Vainio deals with the last species. The apothecial hairs mentioned in the text (". . . pilis instructum sat increbris, 0.1–0.05 mm longis, 0.006–0.005 mm crassis, sat pachydermaticis, cavitatibus cellularum 0.005–0.003 mm latis, oblongis.") are the woolly and ± pruinose cover of the margin, typical of the species. The disc is or is not covered with a thick pruina. Neither Vainio nor Santesson mentioned the epithecial algae which are rather sparse but present.

In his description, Vainio insists on the strong affinities of *Sporopodium pilosellum* with *Lecidea subpilosa* (≡ *Sporopodium subpilosum* ≡ *Lopadium subpilosum*, see p. 19). Since *S. pilosellum* is reduced to synonymy with *S. xantholeucum* and if *Lecidea subpilosa* can actually be used to name the Puerto Rican specimen cited on page 19 the two taxa belong to close but different genera.

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