

## NOTES ON MYXOMYCETES. II

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(With 1 Text-figure)

*Stemonitis foliicola* is described as a new species. Further records of rare species and a list of twenty new British species are given.

***Stemonitis foliicola* sp. nov.** (Fig. 1 C-E)

Sporangia stipitata, aggregata in colonias ad 30 mm in diam, disiuncta, subcylindrica, obtusa, atro-purpureo-fusca, 3-3.5 mm alta, 0.8 mm diam. Peridium fugax, cum exceptione pellicularum paucarum tenacum in reticulo. Stipes brevis, ad 1 mm altum, niger, haud pellucidus. Columella nigra, crassa, extendens prope apicem sporangii, acuminata. Capillitium nexus filorum tenuium emergentum ex ramis parallelis paucis columellae, cum expansionibus membranaceis, finem habentum in reticulum superficiale perfectum, sed cum finibus paucis liberis acuminatis. Maculae reticuli 10-15  $\mu$  diam. Sporae in cumulo atro-fuscae, evanescentes ad 'chocolate-brown', ferrugineae sub lente, globosae, 7.5-8  $\mu$  in diam, reticulatae cum spinis parvis, saltem 20 maculis per hemisphaeram. Plasmodium album.

Typus in Herbario B. Ing. no. 63176, in foliis putridis *Quercus roboris*, in area humida silvae, Copse Wood, Ruislip, Middx. England, 31. viii. 1963, lectus a B. Ing.

Sporangia stalked, in a tight colony up to 30 mm across, sporangia distinct, short cylindrical, obtuse, dark purple-brown, 3-3.5 mm high, 0.8 mm in diameter. Peridium evanescent except for a few small flakes adhering to the surface net. Stalk short, up to 1 mm high, black, opaque. Columella black, stout, almost reaching the apex of the sporangium, ending in a short point. Capillitium a tangle of slender threads arising from a few parallel branches of the columella, with membranous expansions, ending in a surface net of small meshes, 10-15  $\mu$  across, well developed throughout, but with a few pointed free ends. Spores blackish brown in mass, fading to chocolate, reddish brown by transmitted light, 7.5-8  $\mu$  diam, closely reticulated with small spines with at least twenty meshes to the hemisphere.

The type specimen developed normally from white plasmodium collected from decaying oak leaves in a wet area of the wood. It was originally recorded as *S. trechispora* (Torr.) Macbr. (Ing, 1965*b*) but differs in its longer stalk, smaller spores and lack of the pseudo-aethalial habit of that species. It resembles *S. inconspicua* Nann.-Brem. but is larger, with quite different spores and a finer net. This species, described by Nannenga-Bremekamp (1966), is recorded as being collected from Wiltshire, but the specimen cited was collected by Wiltshire from Bettws-y-Coed (see p. 560).

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***Arcyria major*** (G. Lister) comb.nov. (Fig. 1 A, B)

Basionym: *Arcyria insignis* Kalch. & Cooke var. *major* G. Lister, *Mycetozoa*, ed. 3, p. 236, 1925.

Sporangia stalked, clustered closely in large colonies up to 50 mm diam, cylindrical stalked not drooping, 2.5–3 mm tall, 5 mm when capillitium is expanded, brilliant scarlet with shades of orange-red in older specimens.

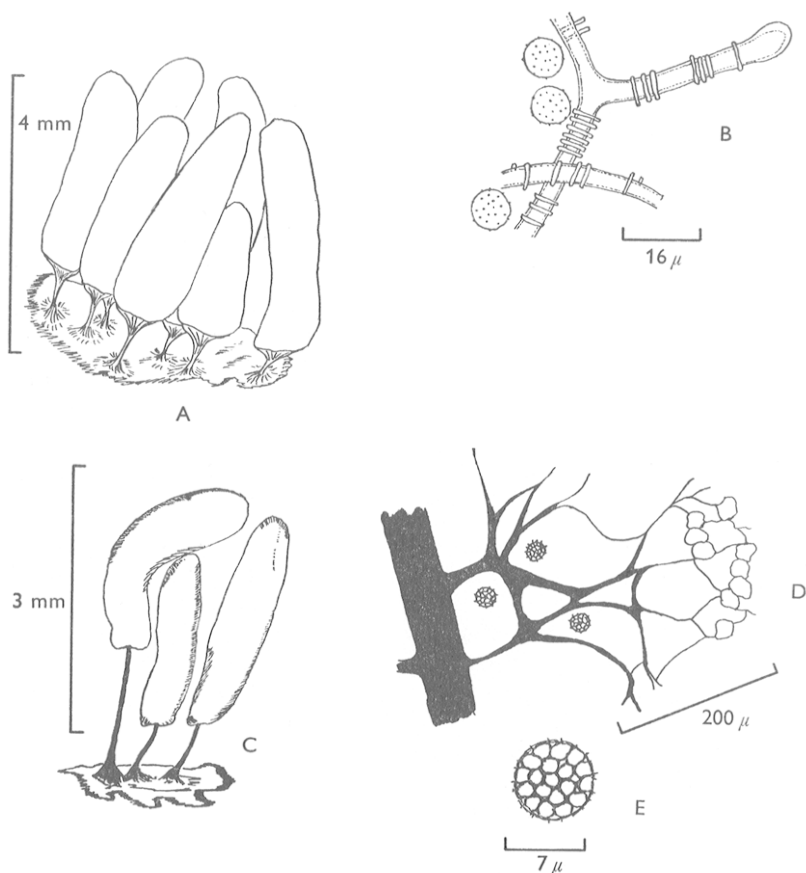


Fig. 1. *Arcyria major*: A, group of sporangia; B, portion of capillitium with spores. *Stemonitis foliicola*: C, group of sporangia; D, portion of columella and capillitium, with spores; E, spore.

Peridium disappearing, not seen. Calyculus coloured as the rest of the sporangium, sulcate. Stalk short, up to 0.8 mm diam, dark brown, opaque, filled with spore-like cells. Capillitium an elastic net, firmly fixed to the cup, with small meshes, 75–90  $\mu$  across; the threads 2.5–3  $\mu$  diam and marked uniformly with parallel ridges arranged in a loose spiral, the ridges up to 1  $\mu$  high, giving a total diameter for the threads of up to

5  $\mu$ . Spores bright scarlet in mass, pale rose by transmitted light, marked with a few scattered small warts, 7.5–8.5 (–9)  $\mu$  diam. Plasmodium unknown.

The type specimen is **BM** 3215, collected by Miss K. Higgins on rotten wood near Luton, Beds., England, on 31 August 1916. It bears no relationship to other forms of *A. insignis*, and material from other parts of the world maintains its specific identity. In general appearance it is intermediate between *A. oerstedtii* Rost. and *A. denudata* (L.) Wettst. and resembles the latter in the form capillitial attachment to the cup. The capillitial ornament differs from that of *A. denudata* and *A. incarnata* (Pers.) Pers. in the lack of variety; there are no spines or warts. Apart from the type collection, material has been studied from Ceylon, Rumania, Brazil, Nigeria and Long Island, U.S.A.

**Trichia fimicola** (Marchal) comb.nov.

Basionym: *Trichia varia* (Pers.) Pers. var. *fimicola* Marchal, *Bull. Soc. r. Bot. Belg.* **34**, 133, 1895.

This minute species does not appear to have been collected since the original description by Marchal. I have been unable to trace any specimens and there is no material in Marchal's herbarium at **BR**. The material on which the new combination is based developed in moist chamber culture on rabbit dung collected among the dunes at Tentsmuir National Nature Reserve, Fife, Scotland, on 18 January 1966. Together with species of Acrasiae some small pink plasmodia were observed on 28 January and these matured on 10 February. A second, more abundant, fruiting matured on 1 March. The description which follows differs little from Marchal's (1895) except that the spores of the Tentsmuir material are larger.

Sporangia scattered or in small clusters, stipitate, 0.25–0.4 mm diam; peridium thin and glossy, without enclosed waste material, bright ochraceous; stipe stout, black, 0.1–0.16 mm high; elaters up to 4.5  $\mu$  thick, short, up to 120  $\mu$  long, branched and forked, marked with two spiral bands, not more prominent on one side, not bearing spines; spores ochraceous in mass, pale yellow by transmitted light, spinulose, 12–15  $\mu$  diam (7–9.5  $\mu$  according to Marchal). Plasmodium bright rose pink. Lectotype in Herb. Ing no. 66040, Tentsmuir National Nature Reserve, 1 March 1966 collected by B. Ing, on rabbit dung, in moist chamber culture.

Lister (1925, p. 208) suggests that this is not *T. varia* and it differs from that species in habitat, size, colour of plasmodium and nature of capillitium. The elaters are reminiscent of *T. contorta* (Ditm.) Rost. It may be a widespread species and should be sought in moist cultures of rabbit dung. The Acrasiae associated with it at Tentsmuir are *Guttulina rosea* Cienk. (normally found on acid bark) and *Polysphondylium violaceum* Bref. In the same culture, but on decaying pods of *Lotus corniculatus* L. and stems of *Cladonia impexa* Harm., a fine development of *Acrasis rosea* Olive & Stoianovitch was found on 26 February. This appears to be new to the British list.

**Trichia flavicoma** (Lister) comb.nov.

Basionym: *Trichia botrytis* (Gmel.) Pers. var. *flavicoma* Lister, *Mycetozoa*, p. 172, 1894.

It is surprising that this species has been known for so long without its constant differences being recognized by specific rank. It differs from *T. botrytis* in its small size, up to 1 mm total height, usually black peridium with occasional thin yellow lines of dehiscence, petaloid dehiscence, bright golden yellow spores and elaters, and its habitat of dead leaves in woodland litter, especially under holly. It is widespread in Britain and is often associated with *Lamproderma scintillans* (Berk. & Br.) Morgan, *Craterium minutum* (Leers) Fr. and *Didymium nigripes* (Link) Fr. The type specimen is that of Lister's variety, **BM** 1475, Lyme Regis, leg. A. Lister.

**DIACHEOPSIS INSESSA** (G. Lister) B. Ing

More material of this species has been collected which reaffirms its specific identity and its position in *Diacheopsis*. The first specimen to come to hand developed in moist chamber on the lichen *Parmelia sulcata* Tayl. on bark taken from a living beech, Auchenbreck, Argyll, Scotland, by B. Ing. The bark was collected on 6 December 1965 and on 24 December a grey plasmodium emerged and fruited on 26 December. The gathering consists of five closely appressed, sessile sporangia, the group being 2 mm diam. The peridium is strongly iridescent, as is the purple capillitium. The spores are dark purple brown, heavily spinulose, 15.5–18.5  $\mu$  diam. The second gathering, kindly sent by Prof. G. W. Martin, developed on living *Pseudotsuga* bark from Rosland, British Columbia, in the absence of lichens. This is a beautiful specimen, although worn, and the iridescence of the capillitium, not noted by Miss Lister, is very marked. The spores are very dark and smaller than usual, 14–15  $\mu$  diam. This may be due to the different substrate. The range of spore size in this species is no more than that in several species in the Stemonitaceae.

**ECHINOSTELIUM ROSEUM** B. Ing

Since the original description of this species (Ing, 1965*a*) it has been collected in moist chamber culture of mossy oak bark from Glen of the Downs, Co. Wicklow, February 1966 and in Germany (N. E. Nannenga-Bremekamp, 1966, *in litt.*) In the original description there is an error: *Echinostelium elachiston* Alexopoulos was incorrectly spelled throughout.

## NEW BRITISH RECORDS

Collected and determined by B. Ing unless otherwise stated. Numbers all refer to specimens in Herb. Ing.

1. **LICEA KLEISTOBOLUS** G. W. Martin, *Mycologia* **34**, 702, 1942.

Syn. *Kleistobolus pusillus* Lippert, *Verh. zool. bot. Ges. Wien.* **44**, Abh. 70, 1894.

Developed in moist chamber on 19 September 1965 on bark of *Sorbus*

*aucuparia* L. collected on North Ronaldsay, Orkney, by E. Balfour. A second collection developed on 6 February 1966 on bark of *Vitis vinifera* L. in an unheated greenhouse at Kindrogan Field Centre, Perthshire (nos. 65127 and 66018). This minute species differs from the widespread *L. parasitica* (Zukal) G. W. Martin in its smaller, pale shiny sporangia and slightly smaller spores. It is known from Austria, Poland and North America.

2. *LICEA PEDICELLATA* (H. C. Gilbert) H. C. Gilbert in G. W. Martin, *Mycologia*, **34**, 702-1942.

Syn. *Hymenobolina pedicellata* H. C. Gilbert, *Stud. nat. Hist. Iowa Univ.* **16**, 153, 1934

Developed in moist chamber on 6 February 1966 on bark of *Ulmus glabra* Huds. collected in the grounds of Kindrogan Field Centre, Perthshire (no. 66019). This is a minute, stalked *Licea* quite different from any other species. It has been recorded from Austria and North America.

3. *RETICULARIA INTERMEDIA* Nann.-Brem., *Acta bot. neerl.* **7**, 773, 1958.

On rotten wood of *Rhododendron ponticum* L. in the woodland around Brooklands Technical College, Weybridge, Surrey, 25 June 1961; on rotten base of coppiced *Castanea sativa* Mill., Devil's Punch Bowl, Hindhead, Surrey, 15 July 1962; on oak twigs, Virginia Water, Berkshire, 10 September 1965, E. E. Green. (nos. 61066, 62074, 65125). Differs from *R. lycoperdon* Bull. in its fine thread-like pseudocapillitium and frail, evanescent cortex. Known elsewhere only from the Netherlands.

4. *CRIBRARIA MINUTISSIMA* Schw., *Trans. Am. phil. Soc.* **2** (4), 260, 1832.

On rotten pine wood amongst *Cribraria macrocarpa* Schrad., Inchcailloch, Loch Lomond National Nature Reserve, Stirlingshire, 14 August 1966, collected by M. Smith. There are only three sporangia in this gathering but they are typical of the species. It is probable that the species, because of its minute size, has been overlooked; it is widely distributed in North America and has been found in France and Switzerland (no. 66080).

5. *LISTERELLA PARADOXA* Jahn *Ber. dt. bot. Ges.* **24**, 540, 1906.

First discovered in Britain by R. Santesson on stems of *Cladonia impexa* Harm. among low *Prunus spinosa* L. scrub on shingle at Dungeness, Kent, 27 April 1961. Found to be widespread at Dungeness in similar sites in November 1963 by B. Ing. Despite intensive search of *C. impexa* and related species in many parts of Britain no further localities have been found. This minute myxomycete is known from Germany on *C. arbuscula* (Wallr.) Rabenh. and *C. gracilis* (L.) Willd.; from Sweden on *C. rangiferina* (L.) Web. *C. arbuscula* and *C. tenuis* (Florke) Harm., and from Denmark on *C. tenuis*. Specimens are in **BM** and in Herb. Ing nos. 61198, 63290. Details of the biology and distribution of this species are given by Santesson (1948, 1964).

6. *TRICHIA FIMICOLA* (Marchal) B. Ing (see p. 557).
7. *ECHINOSTELIUM ROSEUM* B. Ing (see p. 558 and Ing, 1965a).
8. *ECHINOSTELIUM FRAGILE* Nann.-Brem., *Acta bot. neerl.* **10**, 65, 1961.

Three colonies developed in moist chamber cultures of bark from oak trees on an exposed site, on 24 February 1966. The bark was collected earlier in the month from Dundrum, Co. Down, Roundwood and Glendalough, Co. Wicklow. Further developments from the same bark samples were collected on 1 March. Bark collected from Haggerston, Northumberland, on 10 March also from an exposed oak tree, yielded the species on 24 March (nos. 66031, 66032, 66037, 66038). *E. fragile* may be recognized by its minute size, half that of the common and widespread, *E. minutum* de Barry, its brownish grey colour, the well-developed columella with no capillitium and the grey spores 12–15  $\mu$  diam.

9. *STEMONITIS VIRGINIENSIS* Rex, *Proc. Acad. nat. Sci. Philad.* **1891**, 391, 1891.

First found on dead sycamore wood at Woodwick, Orkney, in December 1964, by M. Smith. Other gatherings are from Warren Row, Berks., 27 June 1965, J. B. Hall; on sycamore, Kindrogan Field Centre, Perthshire, 20 August 1965; and on dead beech wood, Chipstead, Surrey, 13 June 1965, P. C. Holland (nos. 64089, 65057, 65076, 65216). This species may be distinguished from the common *S. fusca* Roth by its much smaller size, looser clusters of sporangia, pale lilac-brown colour and spore reticulation of raised bands rather than rows of spines.

10. *STEMONITIS FOLIICOLA* B. Ing (see p. 555)

11. *STEMONITIS INCONSPICUA* Nann.-Brem., *Proc. K.ned. Akad. Wet. C.* **69**, 350, 1966.

On dead leaves, Bettws-y-Coed, Caernarvon, 25 September 1924, leg. S. P. Wiltshire. **BM** 3334. Small scattered sporangia on leaves. Spores 7–8  $\mu$  diam with three or four meshes in a reticulation of raised bands, giving a noticeable margin. Differs from *S. foliicola* in its smaller sporangia and coarser spore marking and from *S. microsperma* B. Ing. in its larger spores and different markings. Also found in the Netherlands.

12. *COMATRICHA LONGA* Peck, *Rep. N.Y. St. Mus. nat. Hist.* **43**, 70, 1890.

On wood in pots in the Orchid House, Royal Botanic Gardens, Kew, 2 June 1938, specimen in **K**. The long, drooping sporangia with no anastomoses in the capillitium give a fluffy appearance and the reticulate spores, 8–10  $\mu$  diam, serve to distinguish this species, which is common in tropical and subtropical regions. An introduced species.

13. *COMATRICHA FRAGILIS* Meylan, *Bull. Soc. vaud. Sci. nat.* **56**, 70, 1925.

Found in moist chamber culture of sycamore bark collected from Grimsetter airfield, Orkney, by M. Smith, 14 December 1965. Sporangia developed in small groups on 31 May, 3 and 28 June 1966 (no. 66061). The species differs from *C. nigra* (Pers.) Schroet. in its smaller spores which are only 4–5  $\mu$  diam. The sporangia are short cylindrical and slender on very long stalks. Elsewhere the species is known from Switzerland.

14. *COMATRICHA SOLITARIA* Nann.-Brem., *Acta bot. neerl.* **11**, 31, 1962.

Developed in moist chamber on bark of oak collected in Hayley Wood, Cambs., 26 March and 2 April 1963. Also developed on oak bark from Kindrogan Field Centre, Perthshire, 30 September 1964 and on birch bark from by Lochan an Daim, Kinloch Rannoch, Perthshire, 25 May 1965 (nos. 63033, 63041, 64061). This tiny bark species may be distinguished from *C. cornea* G. Lister & Cran by its darker stipe and capillitium, fibrous stipe and larger spores.

15. *FULIGO MEGASPORA* Sturgis, *Colo. Coll. Publs. Sci. Ser.* **12**, 443, 1913.

Found on leaf litter under *Quercus ilex* L. by tennis courts, Kew, Surrey, by David Reid, communicated by D. A. Reid, 22 July 1965. Specimens in **K** and Herb. Ing. no. 65062. Characterized by its small, compact aethalia with a thick spongy cortex and dark, rough spores 15–20  $\mu$  diam. The only other European record is from France.

16. *BADHAMIA GRACILIS* (Macbr.) Macbr., in Macbride & Martin, *Myxomycetes*, p. 35, 1934.

Found on tobacco waste dumped at Freshfield, Lancs., by S. S. Bates, 21 July 1959. Specimens in **BM**, **LIV** and Herb. Bates. The sporangia are globose, grey, with delicate straw coloured stalks. The spores are free, dark, with a coarse network of warts, 12–16  $\mu$  diam. The Freshfield record, verified by Prof. G. W. Martin, is the first for Europe.

17. *BADHAMIA ALPINA* G. Lister, *J. Bot., Lond.*, **52**, 99, 1914.

On mossy wood, Kindrogan Field Centre, Perthshire, 27 August 1965, N. E. Nannenga-Bremekamp and B. Ing, altitude 850 ft. Specimen in Herb. Nannenga-Bremekamp. This alpine species, like several others, seems capable of surviving at lower altitudes and in other habitats than the montane grasslands. It differs from *B. foliicola* Lister in the increased lime in the peridium, more hemispherical sporangia which are sessile, the paler, smoother spores which are not clustered and a paler plasmodium.

18. *PHYSARUM MUCOSUM* Nann.-Brem, *Acta bot. neerl.* **7**, 782, 1958.

Kindrogan Field Centre, Perthshire, 20 August 1965, on cut stems of *Spiraea salicifolia* L., and *Rubus idaeus* L. in a decaying heap on garden soil. Specimens in **BM** and Herb. B. Ing no. 65077. The habitat is very

similar to that described for the type in the Netherlands. Also recorded from Sweden on horse dung from a spruce forest (Santesson, 1964). Separated from *P. contextum* (Fr.) Rost. by the thin margin on the flattened tops of the closely appressed sporangia, by the peridium which becomes slimy when moistened, by the thick pseudocolumella and the darker, more strongly spinulose spores.

19. *PHYSARUM LIMONIUM* Nann.-Brem., *Proc. K. ned. Akad. Wet. C*, **69**, 357, 1966.

Mountstuart, Rothesay, Bute, on ash bark, in moist chamber, 21 January 1966. Slide in Herb. Ing. The gathering consists of three sporangia which are almost identical with those on a slide of the Dutch type kindly sent by Mme. Nannenga-Bremekamp. The new species is similar in appearance to *Badhamia viridescens* Meylan but the capillitium resembles that of *P. murinum* Lister except in colour.

20. *LEPIDODERMA CARESTIANUM* (Rab.) Rost, *Monografia*, p. 188, 1874.

On dead grasses, rushes and other herbaceous material at edge of melting snow in the Yellow Corrie, Ben Lawers, Perthshire, 11 June 1947, collected by A. W. and M. D. Stelfox (no. 47005). This is one of the characteristic species of the summer snowline in alpine grassland and may be expected to occur wherever snow patches remain through to early summer in suitable sites above 3000 ft in Scotland. Unfortunately, rain showers rapidly destroy the fruit-bodies, so this find is particularly good. In general appearance this species is like a large plasmodiocarpous *Didymium* with a purplish brown cartilaginous peridium clothed with deciduous crystalline plates of lime.

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