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THE GENUS PIRICAUDA (DEUTEROMYCETES)

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In a previous paper (9) the genus *Piricauda* was emended and set in sharp contradistinction to other genera that had been immixed under the names, sensu Saccardo, *Sporidesmium* and *Stigmella*. This current report is limited to a monographing of those species that are considered to fall within this reestablished concept of *Piricauda*. The nearly 250 fungi that have been given the name of *Sporidesmium* range from ?insect eggs or feces (*Sp. epicoccoides*) to a Phycomycete (*Sp. aurantiacum*) to a lichen (*Sp. scutellare*) to a very heterogeneous mixture of Deuteromycetes. Of this last named group the species of *Sporidesmium* and allied Phragmosporae have been monographed by Ellis (1). These and a number of other species can readily be excluded from *Piricauda*, but there are certain forms that require close scrutiny in order to be distinguished. These include the similitudes of the closely appressed conidia of *Cheiromyces* and *Dictyosporium*, the sorosporoid "conidia" and bulbils of such *Mycelia Sterilia* as *Papulospora*, disrupted, intercalary chlamydospores of old somatic hyphae, certain alternarioid fungi, and the genus and subgenus *Stemphylium* and *Pseudostemphylium*[1] respectively, but which are unique in their manner

[1] ". . . The subgenus *Pseudostemphylium* of *Stemphylium* . . . is not a true *Stemphylium* in the original sense. Continued growth of the conidiophore after production of the first spore is *not* up through the first scar (as in *Stemphylium*) but laterally so that the older conidiophores are geniculate with a spore-scar more or less at the side of each bend." (E. G. Simmons, personal communication.)

of conidiation (*e.g.*, cf. Fig. 14). Further, colony morphology is paramount and serves to distinguish *Piricauda* from *Berkleasmium* and *Steganosporium*. However, these considerations have already been extensively dealt with and here we are concerned only with the genus *Piricauda*. Of the about 160 species of *clavisporum* for *P. stigia* and *Hysterium karstenii* for *P. nitens;* ined, only 32 are considered to properly belong within *Piricauda,* and to this number are added six new species. Perfect stages are known for only two of the species presented here: *Glonium clavisporum* for *P. stigia* and *Hysterium kastenii* for *P. nitens;* Lohman (6) also figures a *Piricauda* sp. stage for *Hysterium hyalinum*.

Several additional, general, remarks should be made about the genus. Unlike *Stemphylium, Alternaria, Sporidesmium* and *Papulospora* there appear to be no real parasites in the genus. In the few instances where parasitism is suggested it is very mild and the fungus may very well be acting only as an epimycete. Another distinguishing feature is that in most of the species the conidia are formed as modified hyphal termini and in contradistinction to the above and other similitudinous genera an abscission septum is not formed, but rather the conidia break off irregularly and not infrequently are subtended by a remnant of fertile hypha. A notable exception to this is observed in *P. serendipita* in which the side walls of the penultimate cell of the conidiophore break down and the discharged spore bears with it the ultimate conidiophore cell. While *Piricauda* is of little terrestrial economic importance, it is "very abundant in the northern marine area"[2] and may be another of those Deuteromycetes that are believed to be primary in the initial softening of woods prior to marine borer invasion, (but also cf. Ray and Stuntz (11)).

This monograph has been divided into three main sections:

I. A key to species that provides in its flow a complete description of each species and to which is appended a glossary providing the interpretation of certain terms as used in the key.

[2] S. P. Meyers, personal communication.

II. In this part is to be found the formal taxonomy, figure references and any additional notes or comments. In brackets on the line below each species name is a formula setting forth the key steps that encompass the description of the species so that for any given species the description may be read through with ease. For further convenience the species have been compiled alphabetically. It is worth noting here that three of the new and several of the other species are in culture and grow and sporulate readily on a number of media. One can not but feel a sense of loss that other species are not also in culture, particularly such exquisite forms as *P. ulmicola, P. paraguayensis* and *P. curvata.* Since most are saprobes and the few, at most, weak parasites, it is believed that most could be established in culture. Further, living material of *P. fusus* would provide a most interesting study to determine whether the crystals are indigo. There are only, to my knowledge, four other instances of fungi producing similar crystals: *Helicoma asperothecum, Helicoma recurvum, Helicosporium elinorae* and a mutant strain each of *Schizophyllum commune* and *Sch. umbrinum,* belonging to the collections of Prof. J. R. Raper. Only in the last two species is it known for a fact that the metabolite is indigo, the other three species being represented solely by herbarium specimens.

In an appendix to this section, *Species Inquirendae,* are listed those species of *Sporidesmium* and *Stigmella* which have not been available for study and whose final taxonomic placement is not, therefore, possible at this time.

III. This part is limited to the plates of figures. Attention is drawn to the fact that these are all to the same scale, serving to emphasize the wide divergency in specific morphology, particularly size, and, further, it stresses the previously made observation (9) that the overall taxonomy of this group is best served by a unitary approach. Most of these photomicrographs were taken with an Exa camera using a Bellowscope attachment and Kodak Panatomic-X film with several different filters. Further, a number of the slides were stained with phloxine or lacto-fuchsin to emphasize hyaline structures. Therefore, one is cautioned

that the apparent degree of darkness observed in the plates is not necessarily a true index of the degree of pigmentation.

I. KEY TO SPECIES

1. Mature conidia, by transmitted light, translucent, melleous to fuscous 19
1. Mature conidia, by transmitted light, opaque to subopaque 2
2. Conidia up to about 15-celled 12
2. Conidia multi-cellular, sessile 3
3. Conidial profile crenulate 11
3. Conidial profile regular 4
4. Conidia subglobose to elliptical to obovate to ovate to oblong to oblong-ellipsoid, glabrous to asperate, never striate 8
4. Conidia spherical to globose, laevigate, or, if obovate to oval, striate 5
5. Conidia with hyaline basal cells or with translucent subtending cells 7
5. Conidial base consistent with the rest of the spore 6
6. Conidia laevigate, spherical, opaque, 44.5–58 (–63) μ diameter ..... *P. globifera*
6. Conidia closely covered with raised longitudinal wavy and dark ridges, obovate to oval, subopaque, 23.5–35 × 44.5–52.5μ ..... *P. striata*
7. Conidia with hyaline basal cells, globose to subglobose to pyriform, subopaque, 16–20 × 20–26.5μ ..... *P. suffulta*
7. Conidia subtended by a few to several translucent, supernumerary cells; primary portion spherical to globose, opaque, (15.5–) 18.5–23.5μ diameter ..... *P. melanopus*
8. Conidia scabrous, cellulation imperceptible, regular in form though the bilateral halves may be subequal, umbilicus stout, centric 10
8. Conidia laevigate or asperate, conspicuously cellular, tending to be irregular of form, subglobose to elliptical to oval to obovate, umbilicus stout, may be obcentric 9
9. Conidia glabrous, oblong to elliptical to obovate to subglobose, umbilicus frequently obcentric, 15.5–36.5 × (25.5–) 29–39.5 (–42–52.5) μ ..... *P. putredinis*
9. Conidia and umbilicus papillose to subtuberculate, subglobose to oval (to obovate to pyriform), (23.5–) 29–43 (–47.5) × (26–) 33.5–58 (–71) μ ..... *P. aspera*
10. Conidia 52–83 × 104–155 (–192) μ, (X71.2 × 135.2μ), (obovate to) oblong to oblong-ellipsoid (to ovate) ..... *P. stygia*
10. Conidia (23.5–) 31.5–36.5 (–53) × 31.5–79μ, (X 35.1 × 50.5μ),

(globose to) ovate to oval ..... *P. bogoriensis*

11. Basal and distal ends truncate, conidia oval, deep fuscous to opaque, cells very consistent, 23.5–35 × (34–) 44.5–50μ *P. elliptica*

11. Basal and distal ends rounded, conidia globose to oval, cells quite variable in size, 23.5–68.5 × 26.5–79 (–108) μ, (X 45.5 × 59.2μ) ..... *P. composita*

12. Conidia borne on prominent conidiophores, glabrous 18

12. Conidia sessile or nearly so 13

13. Conidia not at all constricted at the septa, tending to be polymorphic 17

13. Conidia in some degree constricted at the septa, regular and consistent in shape 14

14. Mature conidia differentially pigmented, pyriform, the upper, spherical portion opaque to subopaque, the lower or basal cells fuscous; colonies at maturity with both sessile conidia and those which are borne on conidiophores of several cells; marine 16

14. Mature conidia uniformly pigmented, depressed or subglobose, not pyriform; terrestrial 15

15. Conidia depressed, composed generally of 4–6 radially arranged cells, early dark-translucent and 18.5–26.5μ diameter, at maturity opaque, up to 40μ diameter and not infrequently somewhat laterally compressed, borne acrogenously upon short laterals of the net-like somatic mycelium which also produces peltate hyphopodia ..... *P. manilensis*

15. Conidia subglobose, not depressed, composed of about 10–15 cells, dark-translucent, 18.5–26.5 × (21–) 24–34μ .. *P. vernoniae*

16. Somatic hyphae thin walled, subhyaline with a greenish-gray cast, producing abundant intercalary chlamydospores, phragmous to dictyous; conidia 5–10 celled, opaque to subopaque in the globose portion, fuscous below, 12.5–20 × 21–24.5 (–27.5) μ ..... *P. arcticoceanorum*

16. Somatic hyphae thick walled, fuscous, without chlamydospores; conidia 5–10 celled, opaque except for the basal, fuscous cells, (17–) 19–22 (–31) × (34–) 36–41 (–44) μ ..... *P. pelagica*

17. Somatic mycelium fuscous, monilioid with cells spherical or bacilliform to regular, walls smooth to scrupose to, in places, up to 2μ thick and scrobiculate; conidia opaque to dark-translucent, reddish-brown by strong transmitted light, subglobose to suboval, 10.5–18 × 13.5–19μ, (X 14.4 × 16.7μ); growing saprobically on old coniferous wood ..... *P. nodosa*

17. Somatic mycelium hyaline, regular, thin walled (in the hair cells) or (on the leaf surface) forming rough, thick walled, intercalary chlamydospores that are a translucent gray-green

(Storm Gray of Ridgway); conidia opaque to a dark-translucent, dull green (Deep Slate-Green of Ridgway) by strong transmitted light, subglobose to obovate to oblong (to clavate), frequently subtended by a single proliferating cell, borne on a short conidiophore of a couple of cells, or sessile, 9.5–13.5 (–17) × (10.5–) 12–25 (–30) μ, (X 12.2 × 17.7μ); hollowing out, and conidiating profusely on, the leaf hairs of *Anona cherimolia,* on which it is a ?casual parasite ..... *P. trichophila*

18. Conidiophores long-flexuous, 50–90μ high, tapering from about 5μ thick distally to about 2.5μ basally; conidia globose to pyriform, paucicellular, 18.5–24 × 24–31.5μ .. *P. paraguayensis*

18. Conidiophores 21–31.5μ high, about 5μ broad throughout their length; conidia somewhat obovate, multicellular, the basal one or two tiers of cells tending to remain translucent until maturity, 13–18.5 × 21–26.5μ, disjuncting by the dissolution of the penultimate cell of the conidiophore .... *P. serendipita*

19. Conidia multicellular, glabrous 33

19. Conidia paucicellular, up to 15 cells 20

20. Conidia laevigate 29

20. Conidia asperate 21

21. Conidia staphyloid, each cell partially spherical 28

21. Conidia regular, with very little or no constriction 22

22. Conidia with single distal and basal cells, walls thick, may be produced on conidiophores 27

22. Conidia without distinct terminal cells, sessile 23

23. Conidia generally bearing distally 3 prominent hyaline papillae, the rest of the spore glabrous, up to about 15 cells, globose to broadly oval, 10.5–14 × 11.5–16(–19)μ, width may exceed length ..... *P. trigonella*

23. Conidia uniformly asperate 24

24. Conidia fuscous, composed generally of up to 5 or 6 quite regular cells, walls thin and aculeolate or thick and papillate, umbilicus centric 26

24. Conidia melleous, composed of up to 10 or so somewhat irregular cells, walls scrupose 25

25. Conidia subglobose, 17–25 (–33) × 17–28.5 (–39) μ, breadth may exceed length, umbilicus left variously on the thick walls ..... *P. quadrata*

25. Conidia subglobose to obovate to suboval, 8.5–12 × (10.5–) 12.5–18μ, linear, umbilicus seldom present, walls thin. .... *P. tumulosa*

26. Conidial walls thin, aculeolate; conidia obovate to subovate

to oval to subglobose, 11.5–17 × 16–24.5μ, initially aseptate, becoming phragmous and late paucidictyous ..... *P. sarkara*

26. Conidial walls becoming very thick, papillate; conidia pyriform, early dictyous, 21–32 × 26–40μ ..... *P. damonis*

27. Conidiophores absent; conidia globose to oval, subfuscous, scrupose, tending to become glabrous with age, 6–8 cells, may be undulant at the septa, walls up to 5.5μ thick and may in places be perimetrically cracked, 17–27.5 × 22.5–30μ ..... *P. sacchari*

27. Conidiophores present, hyaline, up to 4 cells long, 2–4μ broad, stoutly attached to the tending-to-be-somewhat-squarish basal cell; conidia oval, submelleous, aculeolate, 5–8 cells, tending to become notched at the septa, particularly the mesial, walls up to 3μ thick, 10.5–15 × 21–28.5μ ..... *P. chartarum*

28. Conidia strongly tuberculate, subglobose to pyriform, about 5 cells, tapering into the fertile hyphae, 9.5–16 × 6.5–20μ, width may exceed length ..... *P. exasperata*

28. Conidia spiculate to papillose, subglobose, 5–10 cells, not basally tapered but rounded, umbilicus often obcentric, 12.5–19 × 12.5–24.5μ, width may exceed length ..... *P. funerea*

29. Conidia broadly oval, or fusiform, seldom constricted at the septa 32

29. Conidia subglobose, or elliptical to oval to clavate, generally constricted at the septa 30

30. Conidia subglobose, about 3–5 cells, (7.5–) 10.5–14 × 12.5–17 (–23.5) μ ..... *P. apheles*

30. Conidia oval to elliptical to clavate, 6–10 cells 31

31. Conidia basally and distally didymous, centrally dictyously quadri-, rarely hexa-, partite, elliptical to slightly clavate, (13.5–) 18.5–21 × (34.5–) 47.5 (–52.5) μ ..... *P. scorobylos*

31. Conidia elliptical to oval to clavate, may be partially curved, 6–8 cells, 8.5–16 × (13.5–) 21–24.5 (–32) μ ..... *P. viticola*

32. Conidia fusiform; terminal cells difficult to distinguish, conic, hyaline; 15.5–18.5 × 60.5–76.5μ, 10–15 cells ..... *P. pulchella*

32. Conidia broadly oval, median septum most prominent, 3–5 cells, 6–8.5 (–9.5) × (7.5–) 9.5–13μ, uni- and bi-cellular spores common ..... *P. subcuticularis*

33. Length up to half again the width, generally less; conidia glabrous, globose to oval-ellipsoid, melleous to fuscous, perimetric cells tending to be integumentoid and somewhat constricted at the septa, 18.5–37 × 26.5–45μ. (X 25.2 × 35.6μ) ..... *P. nitens*

33. Conidia elongate, length no less than twice the width 34

34. Conidia conspicuously constricted at one or more of the prominent horizontal septa, cylindrical-ellipsoid to oblong-ellipsoid, frequently with a slight distal tapering, may be slightly curved, strongly undulate to constricted at the up to 6 primary horizontal septa, 18.5–26.5 × (44.5–) 58–68.5μ ..... *P. heteromera*

34. Conidia not conspicuously constricted at the septa, though profile may be slightly undulate 35

35. Conidia fusiform 37

35. Conidia lageniform or oblong, sessile 36

36. Conidia tending to be lageniform, the wider, muriform base developing first, followed by the growth of the slenderer rostrum that may become paucidictyous and strongly bent, up to 80–110 × 10.5–18.5μ at the base, 7.5–10.5(–13) μ distally. ..... *P. curvata*

36. Conidia oblong, multicellular, 18.5–21 × 55–60.5μ ..... *P. itochna*

37. Conidia sessile, covered by a thin separable layer of purplish iridescent crystals, 29–34.5 × (73.5–) 84–97.5μ ..... *P. fusus*

37. Conidia borne on slender conidiophores, 15–30μ high, that enlarge continuously into the spore base, without crystals, tapering terminally into a short, hyaline rostrum, initially hyaline, phragmous, upon maturation expanding from the width of the fertile hyphae to broadened, fuscous, dictyous, 13.5–16 × 44.5–76μ ..... *P. ulmicola*

GLOSSARY

asperate — bearing projections or points; (n.b: all terms applying to the conidial surface are applied as that surface is seen by oil-immersion magnification, × 1500).
  aculeolate — having somewhat spine-like processes.
  papillose — having minute nipple-shaped projections.
  scrupose — covered with very small points.
  spiculate — bearing minute slender pointed projections.
  tuberculate — bearing wart-like processes.
-ellipsoid — sides parallel and ends almost hemispherical.
lageniform — (florence) flask-shaped.
scrobiculate — pitted, furrowed.
staphyloid — resembling a compact bunch of grapes.
umbilicus — the attachment or remnant of the fertile hyphae of sessile conidia.
X — the statistical mean.

II. TAXONOMY

PIRICAUDA Bubák.

Stigmella sensu Saccardo, Michelia 1: 264. 1878.

Sporidesmium sensu Saccardo, Michelia 2: 23. 1882.
Monodictys Hughes, Can. Jour. Bot. 36: 785. 1958.

Piricauda apheles sp. nov. Fig. 28

[1, *19*, 20, *29*, 30]

Conidia in mycelio sessilia, cellulis paucis (circ. 3–5) composita, subglobosa, mellea, ad septa saepe nonnihil constricta, (7.5–) 10.5–14.0 × 12.5–17.0 (–23.5) μ.

In ligno putrido, Herb. K. Holotypus; preparatio microscopica RTM I:195[d1], Isotypus.

(Etym. αφελης — even, smooth, simple, in reference to the conidia.)

Herb. K has a number of specimens labeled *Sporidesmium Lepratia,* none of which is labeled or recognizable as the type. These collections are composed of a great variety of fungi—Dematiaceous, acervulate with monacrogenous conidia, and sporodochial with catenate conidia. However one collection, probably a Cooke specimen, is on a small card and bears two pieces of wood. It carries as its only notation *"Sporidesmium Lepraria,"* and, between the two pieces, sketches of a few spores. Of these two pieces the lower bears only what appears to be old hyphae, but the upper bears a good *Piricauda.* This is given a separate name because 1) the figure of *Sp. Lepraria* var. *nigerrima* (which is stated to differ only in its darker color) is multicellular, 2) *Sp. Lepraria* Berkeley is a *nomen confusum* and 3) this material is not part of the typification of *Sp. Lepraria.*

Piricauda arcticoceanorum sp. nov. Fig. 47

[*1*, 2, *12*, *13*, 14, 16]

Coloniae nigrae; hyphae praesertim subterficiales, parietibus tenuibus, sed chlamydosporeas intercalares copiose proferentes quae primum parietibus incrassatis indutae sunt; mycelium fuscescens, e cellulis subglobosis deinque phragmoideis, dictyoideis et subopacis; conidia pyriformia, primum fuscidula, e cellulis 5–10 composita, maturitate parte terminali sphaerica opaca et parte basali fuscescenti, saepe e cellula singula inflata oriunda; 12.5–20.0 × 21.0–24.5 (–27.5) μ, sessilia aut ad conidiophoros paucicellulares enata.

In ligno putrido in mare immerso, Argentia, Terra Nova. Cultura dessicata et preparationes microscopicae in Herb. FH, Holotypus; cultura viva, S. P. Meyers F-30 et preparatio microscopica RTM I:259, Isotypi.

(Etym. *arcticus* + *oceanorum* — of the northern seas, in reference to its habitat.)

This species was communicated by Dr. S. P. Meyers and it is considered to be conspecific with three other cultures communicated from him: F-23 from Nanaimo, British Columbia, F-65 from Kodiak, Alaska and F-73 from Halifax, Nova Scotia. All were isolated from submerged wood taken from the sea.

Piricauda aspera (Corda) comb. nov. Fig. 24
[*1*, *2*, *3*, *4*, *8*, *9*]

Sporidesmium asperum Corda, Icones Fung. 2: 6. 1838.

Clasterosporium asperum (Corda) Saccardo, Syll. Fung. 4: 383. 1886.

Stemphylium phaeosporum de Notaris, Comm. Soc. Crit. Ital. 2 (1) : 81. 1864. [Ex descript.; non vidi.]

Sporidesmium phaeosporum (de Not.) Saccardo, Syll. Fung. 4: 497. 1886.

Material examined: PR, 155653, (Corda coll.), Type, on fallen twigs of *Fagus silvatica*, Brezina, Czechoslovakia, (slide RTM I:144). PAD (Saccardo coll. 1448), on defunct wood of *Populus tremula*, Riva, Valdobbiadene, Italy, (slide RTM I:216).

Piricauda bogoriensis (Penz. & Sacc.) comb. nov. Figs. 30, 31
[*1*, *2*, *3*, *4*, *8*, *10*]

Sporidesmium bogoriense Penzig & Saccardo, Malpighia 15: 248. 1901.

Monodictys bogoriensis (Penz. & Sacc.) Hughes, Can. Jour. Bot. 36: 785. 1958.

Also present, but rare, on this material are clavate phragmospores (Fig. 31); from the evidence of this mount the hypothetical relationship that suggests itself is that the abundant spores described and figured by Saccardo are actually pedicelled sclerotia of a *Sporidesmium* type fungus.

Material examined: PAD (Saccardo coll.), Type, Bogor, Java, on defunct petioles and blades of palm (slide RTM I:211).

Piricauda chartarum (B. & C.) comb. nov. Figs. 19, 20
[1, *19*, *20*, *21*, 22, *27*]

Sporidesmium chartarum Berkeley & Curtis, apud Berkeley in Grevillea 3: 50. 1874.

Sporidesmium bakeri [var. *bakeri*] H. & P. Sydow, Ann. Myc. 12: 204. 1914.

The combination *Sporidesmium bakeri* var. *maydicum* [*Clasterosporium maydicum* Sacc.] was made by Hughes (3) and he cites C. F. Baker's *Fungi Malayana* 217 as the type. However,

the type cited by Saccardo is material collected by Baker from Los Baños, Philippines, and numbered 3733. Hughes does not mention this collection and whether 217 is a part of it is not known. Hughes's drawings, though, of conidia of 217 in his Fig. 38A are virtually identical with those sketched by Saccardo on his packet. Both are uniformly biseptate, but Saccardo records his conidia as 14–15 × 6μ while Hughes records those of 217 as being 15–20 × 6–10μ. It is very disconcerting, then, that numerous mounts of 3733 have totally failed to elicit any conidia of this type. The material does have a fair quantity of amerospores of the type Hughes depicts in his Fig. 38B & C and very rarely these are didymous. These spores are about half the size noted by Saccardo, but they could be immature. Also present on this material are 1) long, dark, mycelial processes, ?conidiophores, emerging from the stomata, 2) an immersed, fuscous, pycnidial fungus that produces abundant, melleous, acerous phragmospores, and 3) small patches of a *Curvularia*. If 217 is part of 3733 these latter fungi should also be present. While 217 as reported by Hughes bears only tricellular conidia, Hughes considered it a *Sporidesmium* (sensu Saccardo) because other collections that bore comparable conidia upon aging become dictyous by a single, medial, vertical septum. Further, Hughes based the conspecificity of var. *maydicum* with var. *bakeri* on the characteristics of two 1949 collections identified as var. *bakeri* on leaves of *Bridelia ferriginea* (Euphorbiaceae) and *Zea mays* from Hohoe and Bisba respectively. But the type collection, made in 1913, is on leaves of *Musa sapientum* from Los Baños, Philippines. Examination of the Sydows' type material presents a fungus quite different from that figured by Hughes and Saccardo, both in its larger size and different shape. Further, it is not satisfactorily distinct from the earlier *Sporidesmium chartarum* with which it is here synonymized. While a disposition of *Cl. maydicum* is not presently possible, it can not be maintained with *Piricauda chartarum*. Hughes (4) in his recent paper transfers this species as *Scheleobrachea maydica*.

Material examined: FH (Curtis coll, Car. Sup. 6419), Type, on decayed paper, Hillsborough, N. C. (slide RTM I:11). S (Sydow coll.)

on defunct leaves of *Musa sapientum*, Los Baños, Philippines, C. F. Baker 1728, type of *Sp. bakeri* (slide RTM I:105). PAD (Saccardo coll. 3733), on defunct leaves of *Zea mays*, Los Baños, Philippines, type of *Cl. maydicum* (slide RTM I:217). QM numbers QM7051, QM7102 and QM7140 are identified as *P. chartarum*.

Piricauda composita (Berk. & Rav.) comb. nov. Fig. 44
[*1, 2, 3, 11*]

Sporidesmium compositum Berkeley & Ravenel, apud Berkeley in Grevillea 3: 17. 1874.

Sirodesmium compositum (Berk. & Rav.) Saccardo, Syll. Fung. 4: 517. 1886.

Material examined: FH (Curtis coll.), on defunct wood of *Catalpa cordifolia*, Santee Canal, S. C. (Rav. 1801); on defunct wood of oak, Cotoos Springs, Hendersonville, N. C. (Rav. Car. Sup. 4441): Syntypes (slides RTM I:13a/b resp.).

Piricauda curvata (B. & C.) comb. nov. Figs. 32, 33, 34
[1, 19, *33, 34, 35,* 36]

Sporidesmium curvatum Berkeley & Curtis, apud Berkeley in Grevillea 3: 50. 1874.

Clasterosporium curvatum (B. & C.) Saccardo, Syll. Fung. 4: 385. 1886.

Hughes (2) has designated material in Herb. K. labeled by Currey "*Sporidesmium curvatum* B. & C. — on *Crataegus* — Ex herb. Berkeley" as the specific lectotype. His examination of this material showed it to produce 2-armed conidia representative of *Hirudinaria macrospora*. However, examination of holotypic material evidences lageniform conidia basally attached which clearly places the species in *Piricauda*.

Material examined: FH (Curtis coll.), car. Sup. 2561, Holotype, on *Crataegus* leaves, mountains of North Carolina (slide RTM I:14).

Piricauda Damonis sp. nov. Fig. 25
[1, *19, 20, 21, 22, 23,* 24, *26*]

Conidia fuscidula, papillata, ovoidea, obovoidea vel pyriformia, e cellulis circ. 6 composita, parietibus crassis (usque ad 3μ), sessilia et e mycelio prostrato copiose prolata, 21–32 × 26–40μ.

In cultura (agar-agar) contaminata in Herb. QM. Cultura dessicata et preparatio microscopica in FH, Holotypus; cultura viva QM 646 et preparatio microscopica RTM I:255, Isotypi.

(Etym. In honor of Samuel C. Damon, Deuteromycetologist.)

Piricauda elliptica (Cke.) comb. nov. Fig. 21

[*1, 2,* 3, 11]

Sporidesmium ellipticum Cooke, Grevillea 12: 28. 1883.

Sirodesmium ellipticum (Cke.) Saccardo, Syll. Fung. 4: 517. 1886.

As noted by Cooke, the production of conidia is concentrated around the eruptions of *Diatrype disciformis,* perhaps because the wood is more degradated in these areas. I would not say that the one is the imperfect stage of the other.

Material examined: NY, on defunct wood of *Magnolia glauca,* Pinopolis, S. C., Rav. *Fung. Amer. exs.* 562, Isotype (slide RTM I:32).

Piricauda exasperata (Ellis & Barth.) comb. nov. Fig. 42

[1, *19, 20,* 21, 28]

Sporidesmium exasperatum Ellis & Bartholomew, Erythea 4:29. 1896.

Material examined: BPI, on wood from an oak barrel-bottom in a cellar, Rockport, Kansas, Barth. 1461, Type (slide RTM I:63).

Piricauda funerea (Ellis & Langl.) comb. nov. Fig. 9

[1, *19, 20,* 21, *28*]

Sporidesmium funereum Ellis & Langlois, apud Ellis and Everhart in Jour. Myc. 4: 124. 1888.

Material examined: BPI, on rotten pieces of an old coffin taken from a brick tomb, Pointe a la Hache, Louisiana, Langl. 1456, Type (slide RTM I:64).

Piricauda fusus (B. & C.) comb. nov. Fig. 35

[1, 19, *33, 34,* 35, 37]

Sporidesmium fusus Berkeley & Curtis, apud Berkeley in Grevillea 3: 50. 1874.

Material examined: FH (Curtis coll. 3322), Type, on defunct wood of *Magnolia acuminata,* Virginia mountains (slide RTM 1:16).

Piricauda globifera (B. & C.) comb. nov. Fig. 10

[*1, 2, 3, 4, 5,* 6]

Sporidesmium globiferum Berkeley & Curtis, apud Berkeley in Jour. Linn. Soc., London 10: 354. 1869.

Material examined: FH (Curtis coll.), on rotten logs, Cuba, C. Wright 566 (=B. & C. Fung. Cuba 579), Type (slide RTM I:21).

Piricauda heteromera (Kirsch.) comb. nov. Figs. 17, 18

[1, 19, *33,* 34]

Sporidesmium heteromerum Kirschstein, Hedwigia 81: 202. 1944.

Material examined: B, on *Juncus filiformis,* upper valley of the Eder near Lützel, Siegen County, Germany, Type, (slide RTM I:84).

Piricauda itochna sp. nov. Fig. 27

[*1, 19, 33, 34, 35, 36*]

Conidia in mycelio sessilia, oblonga, cellulosis numerosis composita, laevigata, mellea, 18.5–21.0 × 55.0–60.5μ.

In ligno putrido una cum *Helicoma acrophalerium* Moore, Porto Rico, 24 January ad 5 April 1923, Fred J. Seaver et Carlos E. Chardon 580, Typus, in Herb. NY; preparatio microscopica RTM I:128, Isotypus.

(Etym. ιτον + χυος — fungal porous substance, in reference to the conidia.)

Piricauda manilensis (Sacc.) comb. nov. Fig. 29

[*1, 2, 12, 13, 14, 15*]

Stigmella manilensis Saccardo, Ann. Myc. 11: 320. 1913.

Stigmella palawanensis H. & P. Sydow, Philip. Jour. Sci. Bot. 9: 189. 1914.

The Sydows state that *palawanensis* differs from *manilensis* "by the thinner and longer hyphae provided with numerous hyphopodia, and net-like mycelium on black, patch-like colonies that translucent it is probable that it is not as mature as *manilensis* which has opaque conidia. As further evidence of this the conidia of *palawanensis* are not observed to have more than 5 lobes per spore while there are conidia on *manilensis* with 6 lobes. Both collections produce morphologically comparable conidia, hyphopodia, and net-like mycelium o nblack, patch-like colonies that are readily separated from the substrate as small plaques.

Material examined: PAD (Saccardo coll. 256), FH (Bartholomew coll., Sydow — *Fung. Exotici exs.* 198), Syntypes, on dead pods of *Cassia tora*, Manila, Luzon (slides RTM I:214, I:215 resp.). S. on living leaves of *Celastrus paniculatus*, Taytay, Palawan, Merrill 8832, Type of *St. palawanensis* (slide RTM I:103).

Piricauda melanopus (B. & Br.) comb. nov. Fig. 36

[*1, 2, 3, 4, 5, 7*]

Sporidesmium melanopum Ach. ex Berkeley & Broome, Ann. & Mag. Nat. Hist. 5 (2 ser.): 459. 1850.

Spiloma melanopa Acharius, Methodus qua omnes detectos Lichenes, p. 10. 1803.

The Herb. K folder has two sheets bearing seven collections each that in all consist of one acervulate and several different Dematiaceous fungi. The type, though, is limited to one identi-

fiable collection on apple bark on the label of which appears the name of W. Borrer, corresponding, thus, to the type description's statement that the fungus is "Common on the bark of Apple-trees" and further to the mention that "We are indebted to Mr. Borrer for authentic specimens." Finally, the several sketches accompanying this material agree with the characteristics set forth in the type description. The sheet bearing the type has two additional collections that are comparable, both on apple bark and identifiable by their collection localities — "Kings Cliff" and "Essex" respectively. The second sheet likewise has two comparable collections, also on apple bark, and identifiable by their respective collector and locality — "Bloxam" and "Orchard Gopsal."

Material examined: K, on apple bark from Sussex, leg. W. Borrer, Type; on apple bark, Kings Cliff, England; on apple bark, Essex; "fungus 23" from hills above Port Louis, Mauritius; specimen labeled "*Lepraria nigra* E. B."; Car. Sup. 4448 identified as *Halysium atrum* Corda; specimen numbered 5829, on apple wood, New England, (slides RTM I:191a-g resp.). K, on apple bark, leg. Bloxam, England; on apple bark, leg. Bloxam, England; on apple bark, Gopsal, Leicestershire; "fungus 23" from hills above Port Louis, Mauritius; specimen labeled "*Sporidesmium melanopum* M/B"; two collections of Ravenel's Fungi — North America 3051, on rotting pine logs, Aiken, S. C.; specimen labeled "69 Victoria," (slides RTM I:192a-g resp.).

Piricauda nitens (Schw.) comb. nov. Figs. 11, 13

[1, 19, 33]

Sporidesmium nitens Schweinitz, Amer. Phil. Soc. Trans. II 4: 306. 1832.
Clasterosporium nitens (Schw.) Saccardo, Syll. Fung. 4: 392. 1886.
Monodictys nitens (Schw.) Hughes, Can. Jour. Bot. 36: 786. 1958.
Sporidesmium paradoxum Corda, Icones Fung. 2: 6. 1838.
Stemphylium paradoxum (Corda) Fuckel, Fung. Rhen. 1515, 1865.
Coniosporium paradoxum (Corda) Mason & Hughes, CMI Myc. Pap. 37: 16. 1951.
Monodictys paradoxa (Corda) Hughes, Can. Jour. Bot. 36: 786. 1958.
Stigmella nemopanthis Dearness, Mycologia 16: 174. 1924.

The three species placed together here present the following ranges in spore sizes:

nitens	18.5–21.5 × 29.0–39.5μ, X 20.4 × 34.4μ;
paradoxum	18.5–25.0 × 26.0–34.0μ, X 21.8 × 29.8μ;
nemopanthis	21.5–37.0 × 26.5–45.0μ, X 28.8 × 38.3μ.

Considering that the collections are from different substrates and that they were inevitably subjected to different environmental conditions, *e.g.*, moisture and temperature, it is felt that the combined measurements of 18.5–37 × 26.5–45μ, X 25.2 × 35.6μ are more meaningful than trying to establish dubious criteria for maintaining them separately. Hughes (4) has not examined the type of *Sp. paradoxum* but bases his judgment on Fuckel's material and lists *St. nemopanthis* among its synonyms. He maintains *nitens* and *paradoxum* separate in Subgenus 2 of his *Monodictys* for reasons unstated, though on the type material of the former species, in Herb. PH, he has written the following comment: "This is congeneric with *Sporidesmium paradoxum* Corda and only critically distinct from it."

Lohman (8) in his elaboration of *Hysterium karstenii* mentions and figures a conidial stage, then assigned as *Sporidesmium* species. Using the measurements and characteristics apparent in his Fig. 2A to run the species through the key we readily arrive at *P. nitens;* a particular confirmatory character that shows up in these drawings is the integumentoid nature of the perimetric cells.

Material examined: PH (Schweinitz Syn. Fung. 3082), Type, on the denuded stems and branches of *Spirea opulifolia,* Bethlehem, Penn., (slide RTM I:72). PR, 515145, (Corda coll.), type of *Sp. paradoxum,* on old birch bark, Brezina, Czechoslovakia, (slide RTM I:138). DAOM (Dearness coll. 3825), type of *St. nemopanthis,* on bark of defunct branches of *Nemopanthes mucronata,* (slide RTM I:82 (=slide E. G. Simmons IX-45)).

Piricauda nodosa (Preuss) comb. nov. Fig. 43

[*1,* 2, *12,* 13, 17]

Sporidesmium nodosum Preuss, Linnaea 24: 103. 1851.

Material examined: B, 4294, Preuss 1475, Type on wood of *Abies* from near Hoyerswerda, Silesia. FH, Klotzsch *Herb. Viv. Myc.,* (authentic), from near Hoyerswerda, Silesia. (Slides RTM 1:89, 1:204 resp.)

Piricauda paraguayensis (Speg.) Moore (9).

[*1,* 2, 12, 18]

Piricauda pelagica Johnson (5).
[*1*, 2, *12*, *13*, 14, *16*]

Piricauda pulchella (Sacc.) comb. nov. Fig. 22
[1, *19*, 20, 29, 32]

Sporidesmium pulchellum Saccardo, Atti, Accad. Sci. Veneto-Trent-Istr. 10: 87. 1919.

Material examined: PAD (Saccardo coll. 4445), on defunct branches of *Sapindus saponaria*, Los Baños, Philippines, (slide RTM I:208).

Piricauda putredinis (Wallr.) comb. nov. Fig. 37
[*1*, *2*, *3*, 4, *8*, 9]

Melanconium putredinis Wallroth, Fl. Crypt. German. 2: 181. 1833.
Monodictys putredinis (Wallr.) Hughes, Can. Jour. Bot. 36: 785. 1958.
Sporidesmium polymorphum Corda, Icones Fung. 1: 7. 1837.
Stemphylium polymorphum (Corda) Bonorden, Handb., p. 83. 1851.
Sporidesmium fumagineum Saccardo, Nuovo Giorn. Bot. Ital. 24: 42. 1917.

Material examined: STR, on worked wood on *Abies*, Type, (slide RTM I:256). PR, 155661, (Corda coll.), type of *Sp. polymorphum*, on defunct wood of *Betula alba*, Reichenberg, Czechoslovakia, (slide RTM I:140). PAD (Saccardo coll.), type of *Sp. fumagineum*, on dying branches of *Populus tremula*, Piccolo, S. Bernardo, Italy, (slide RTM I:221).

Piricauda quadrata (Atk.) comb. nov. Figs. 45, 46
[1, *19*, *20*, *21*, *22*, *23*, *24*, 25]

Sporidesmium quadratum Atkinson, Cornell Univ. Bull. 3: 40. June, 1897.
Scheleobrachea quadrata (Atk.) Hughes, Can. Jour. Bot. 36: 802. 1958.
Stigmella crataegi Ellis & Everhart, Torrey Bot. Club Bull. 24: 475. October, 1897.
Stemphylium crataegi (E. & E.) Höhnel, Ber. deutsch. Bot. Ges. 36: 316. 1918.

Material examined: CUP (Atkinson coll.), two collections on *Crataegus* leaves, Highland Park, Montgomery, Ala., Holotype (*scr.*), and Isotype (*typ.*) respectively, (slides RTM I:234b/a resp.). NY (Ellis coll.), on leaves on *Crataegus parvifolia*, Newfield, N. J., type of *St. crataegi*, (slide RTM I:61).

Piricauda sacchari (Speg.) comb. nov. Fig. 15
[1, *19*, *20*, *21*, 22, 27]

Stigmella sacchari Spegazzini, Rev. Facultad Agron, y Veterin., La Plata 2: 251. 1896.

Sporidesmium bakeri Syd. var. *sacchari* (Speg.) Hughes, CMI Myc. Pap. 50: 69. 1953.

Material examined: LPS, 13054, (Spegazzini coll.), Type, on leaves of *Saccharum officinarum*, Tucumán, Argentina, (slide RTM I:98).

Piricauda sarkara nom. nov. Figs. 6, 7

[1, *19*, *20*, *21*, *22*, *23*, 24, 26]

Sporidesmium sacchari Spegazzini, Anal. Museo Nacion. Buenos Aires 20: 443. 1910.

Scheleobrachea sacchari (Speg.) Hughes, Can. Jour. Bot. 36: 802. 1958.

(Etym. *sarkara* — Sanskrit paronym of *sacchari*.)

Material examined: LPS, 13006, (Spegazzini coll.), Type, on old culms of *Saccharum officinarum*, in fields near Ledesma, Argentina, (slide RTM I:97).

Piricauda scorobylos Moore (10).

[1, *19*, 20, *29*, *30*, 31]

Piricauda serendipita sp. nov. Figs 3, 4

[*1*, 2, 12, *18*]

Conidia cellulis numerosis composita, nonnihil obovata, laevigata, maturitate opaca vel subopaca (praeter series basales 1–2, quarum cellulae hyalinae manent), 13.0–18.5 × 21.0–26.5μ, singulatim ad extremitates conidiophorum longit. 21.0–31.5μ prolata, et solutione cellulae penultimae conidiophori disjuncta.

In cauli putrido *Zea mays*, in vasculo humido, Iowa City, Iowa, G. W. Martin 6454a, Holotypus, in Herb. IA; preparatio microscopica RTM I:257 et cultura viva QM 7165, Isotypi.

(Etym. Serendipity — the finding of valuable things not specifically sought for, in recognition that the desire for a specific determination led to, among other things, the ordering of its congeners.)

Piricauda striata (Petch) comb. nov. Fig. 26

[*1*, *2*, *3*, *4*, *5*, *6*]

Sporidesmium striatum Petch, Ann. Royal Bot. Gard. Peradeniya 6: 249. 1917.

Material examined: K, on *Hevea brasiliensis* from Peradeniya, Ceylon, Cotype, (slide RTM I:246).

Piricauda stygia (B. & C.) comb. nov. Figs. 2, 5

[*1*, *2*, *3*, 4, 8, 10]

Sporidesmium stygium Berkeley & Curtis apud Berkeley in Grevillea 3: 17. 1874.

Perfect stage: *Glonium clavisporum* Seaver, (Lohman (7)).

Material examined: FH (Curtis coll. 3972), from a maple log, Pennsylvania, Michener 1243, Type, (slide RTM I:28).

Piricauda subcuticularis (McAlp.) comb. nov. Fig. 38
[1, *19*, 20, 29, *32*]

Sporidesmium subcuticulare McAlpine, Fungus diseases of stone-fruit trees in Australia, and their treatment. Agric. Dept. Victoria, p. 116. 1902.

Material examined: Dept. Agric. Victoria, on defunct twigs of apricot, Armadale, Victoria, Australia. Type, (slide RTM I:107).

Piricauda suffulta (Pound & Clem.) comb. nov. Fig. 1
[*1*, *2*, *3*, *4*, 5, 7]

Sporidesmium suffultum Pound & Clements, Bot. Surv. Univ. of Nebraska, p. 6. 1896.

Material examined: NEB, on decorticated cottonwood, Memphis, Neb., Type, (slide RTM I:254).

Piricauda trichophila (H. Syd.) comb. nov. Fig. 12
[*1*, 2, *12*, 13, *17*]

Sporidesmium trichophilum H. Sydow, Ann. Myc. 23: 428. 1925.

Material examined: CUP, FH (Bartholomew coll.), Sydow, *Fung. exotici exs.* 716, on leaves of *Anona cherimolia*, La Caja near San José, Costa Rica, Lectosyntypes, (slides RTM I:1, I:205 resp.).

Piricauda trigonella (Sacc.) comb. nov. Fig. 16
[1, *19*, *20*, *21*, *22*, 23]

Sporidesmium trigonellum Saccardo, Michelia 2: 641. 1882.

Material examined: PAD (Saccardo coll.), on defunct bark of *Ailanthus*, Libert 432, Type, (slide RTM I:212).

Piricauda tumulosa (Sacc.) comb. nov. Fig. 23
[1, *19*, *20*, *21*, *22*, *23*, *24*, *25*]

Sporidesmium scutellare B. & Br. subsp. *tumulosum* Saccardo, Michelia 2: 289. 1881.

Material examined: PAD (Saccardo coll.), Type, on defunct wood of *Fagus sylvatica*, woods, Cansiglio, Italy, (slide RTM I:213).

Piricauda ulmicola (Sacc.) comb. nov. Figs. 39, 40
[1, 19, *33*, *34*, 35, *37*]

Sporidesmium ulmicolum Saccardo, Syll. Fung. 4: 501. 1886.

Saccardo states that this is supposed to be the "*Cucurbitariae ulmicola* stat. conid. Fkl. Symb. [Myc., p.] 172" that Fuckel refers to in his diagnosis. However, *F. rh.* 2170, which Fuckel cites as the type, has been examined (Herb. FH) and this particular

exsiccatum shows neither an Ascomycete nor *P. ulmicola,* though at least two other Deuteromycetes are present. Though Saccardo's fungus seems to fit the "fungus conidiophorous" described by Fuckel, there remains considerable doubt if they are related.

Material examined: PAD (Saccardo coll.), Type, on dry elm twigs, Rhenogovia, Italy, (slide RTM I:220). FH, *F. rh.* 2170, syntype of *Cucurbitaria ulmicola,* on dry branches of elm, Reichartshausen, (slide RTM I:227).

Piricauda vernoniae (Dearn. & Barth.) comb. nov. Fig. 8
[*1, 2, 12, 13, 14, 15*]

Stigmella vernoniae Dearness & Bartholomew apud Dearness in Mycologia 21: 330. 1929.

Material examined: DAOM (Dearness coll. 5384, (Barth. 8474)), Type, on leaves of *Vernonia gigantea,* Williamsville, Missouri, (slide RTM I:78).

Piricauda viticola (Sacc.) comb. nov. Fig. 41
[1, *19,* 20, *29, 30, 31*]

Sporidesmium viticolum Saccardo, Michelia 2: 289. 1881.

Material examined: PAD (Saccardo coll.), on defunct ?grape stems, Selva, Italy, (slide RTM I:223).

SPECIES INQUIRENDAE

There are 47 species of *Sporidesmium* and one species of *Stigmella* which have not been definitively examined, either in this present study or by other recent workers. These can be assigned to three categories:

[–] those which are not to be found in the expected and known herbaria housing collections of the respective authors, or belong to collections that were destroyed by war;

[?] those described by authors the location of whose collections is unknown;

[!] species of the first two categories but which from the presumptive evidence of the published figures most probably belong to other genera.

SPORIDESMIUM

-agapanthi Thuem.
?alytospori Richon
?bulbophilum West.
-carpineum Schulzer
-caulincola Fries
?cavernarum Laub.
-celastri Thuem.
!celatum Welw. & Curr.
-cellulosum Fries
-ciliatum Fries

[3] Abbreviations of author names are as listed by Wright and Lois (12).

-clavaeforme Preuss
!clavatum Lév.
-congestum Preuss
?cucumis Niessl
-dolichopus Pass.
?effusum P. Henn
-elegans Corda
!epiphyllum Lév
!eremita Corda
-fasciculare Preuss
-fuscum Bon.
-fusiforme Fries
-griseum McAlp.
-hyalopus Pat.
-hydrangeae Thuem.
-ignobile Karst.
?lambottei Roum.
-linguaeforme Preuss
?lycii Niessl
-melongenae Thuem.
-microscopicum Bon.
-phytolaccae Thuem.
-populi Crouan
-pulvinatum Fries
-punctatum Lév.
?punctatum Woron.
?sclerotícola P. Henn.
!scorzonerae Aderh.
!sparsum Fres.
-sporotrichi Corda
-sterculiae Tassi
?syntrichiae Racov.
-tenellum Penz. & Sacc.
!tripartitum Bagnis
-triseptatum McAlp.
!vermiforme Riess.

STIGMELLA

?rubicola Bres.

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— DEPARTMENT OF BIOLOGY, HARVARD UNIVERSITY.

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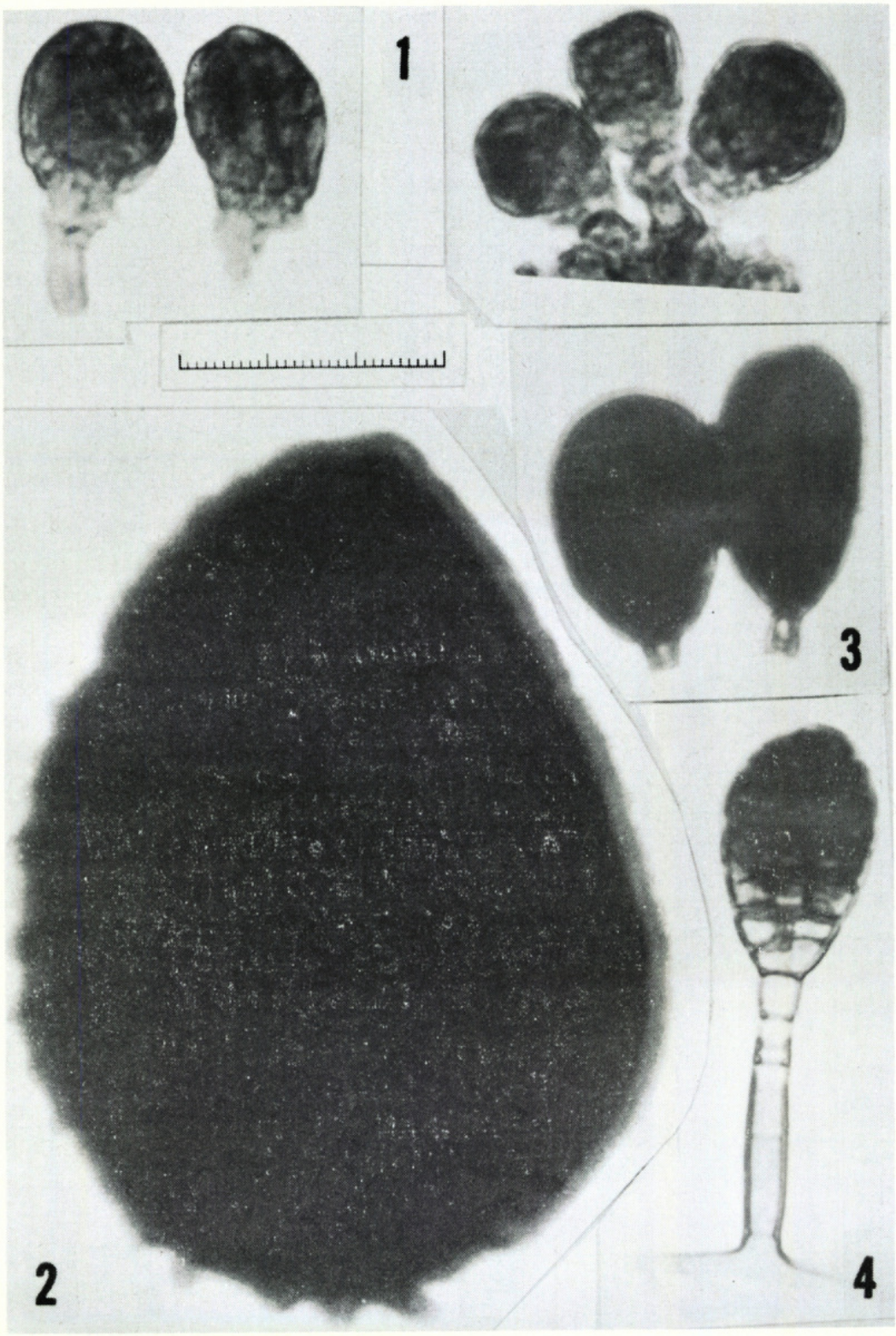

PLATE 1237. PIRICAUDA. Fig 1. *P. suffulta*, conidia and habit. Fig. 2. *P. stygia*, conidium. Figs. 3, 4. *P. serendipita*: 3. Discharged conidia bearing attached ultimate conidiophore cells. 4. Habit, note how the wall of the penultimate conidiophore cell is partially dissolved. Scale in micra.

PLATE 1238. PIRICAUDA. Fig. 5. *P. stygia*, conidium. Figs. 6, 7. *P. sarkara*, conidia. Scale in micra.

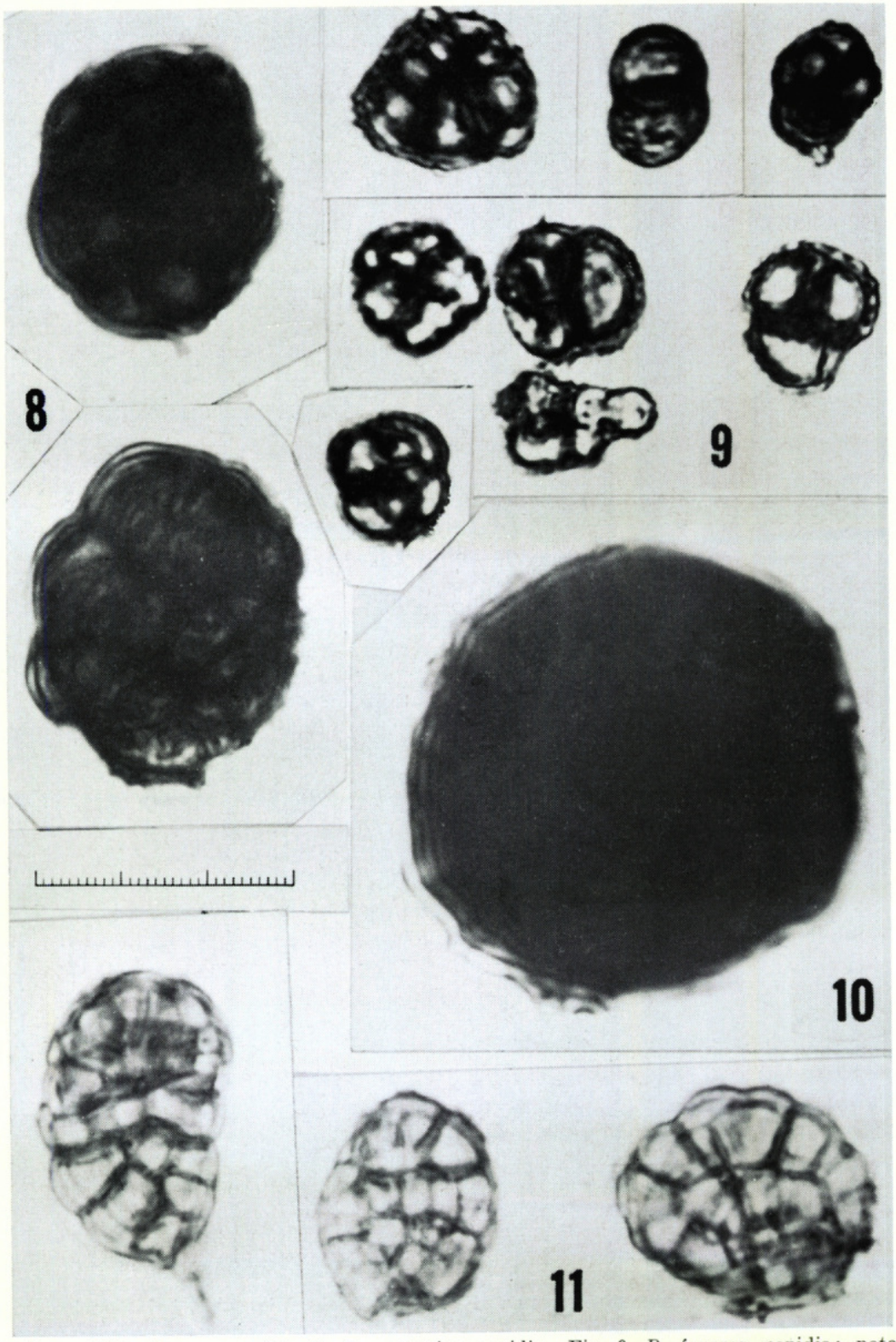

PLATE 1239. PIRICAUDA. Fig. 8. *P. vernoniae*, conidia. Fig. 9. *P. funerea*, conidia; note the asperate nature of the cell wall. Fig. 10. *P. globifera*, conidium. Fig. 11. *P. nitens*, conidia; note the integumentoid nature of the perimetric cells, (RTM I:138). Scale in micra.

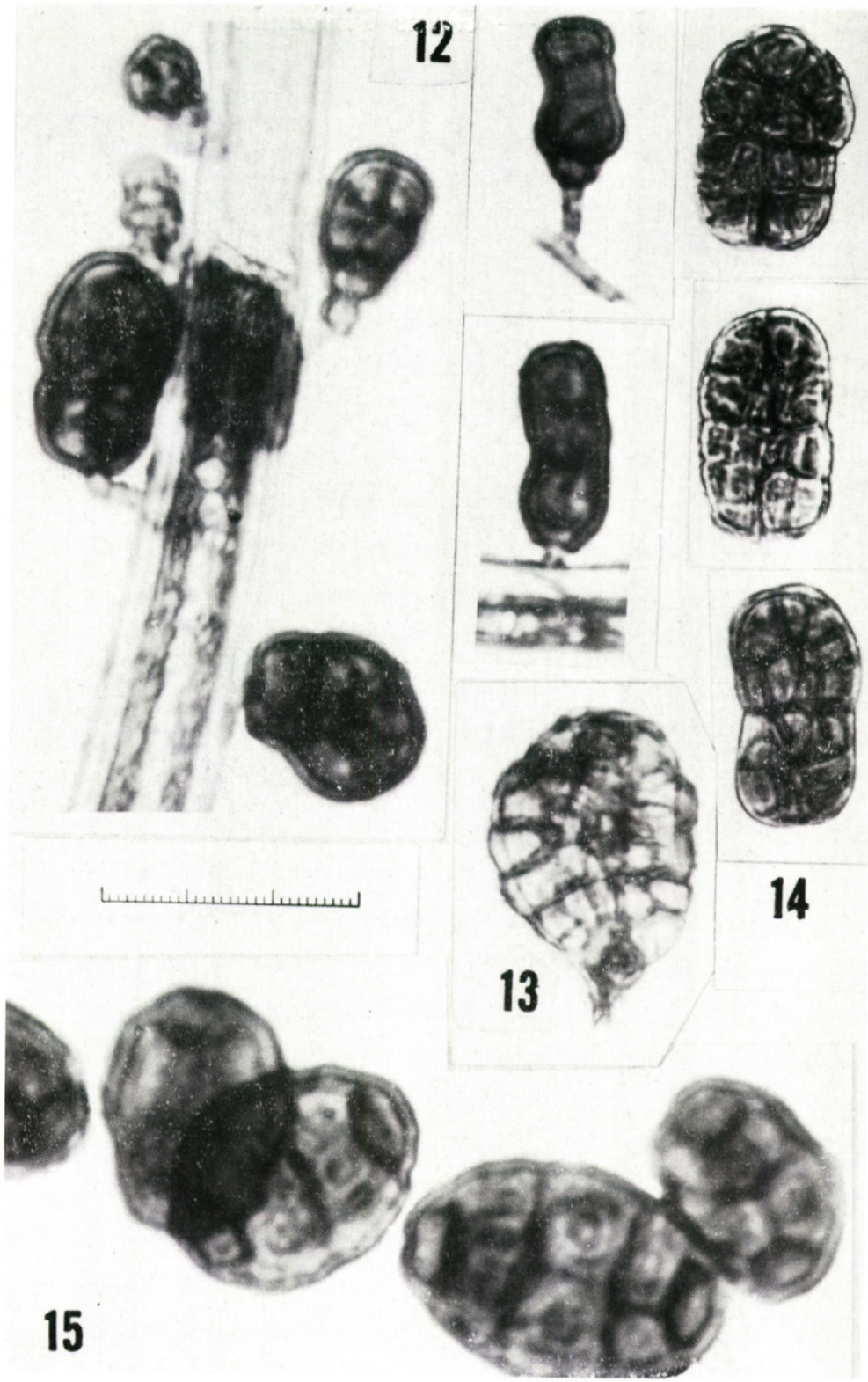

PLATE 1240. PIRICAUDA AND STIGMELLA. Fig. 12. *P. trichophila*: Left, habit on leaf hair of *Anona cherimolia*; note how the lower hair cell has been attacked. Right, two conidia, lower on a leaf hair. Fig. 13. *P. nitens*, conidium, (RTM I:138). Fig. 14. *Stigmella martagonis* Oud., conidia typical of the genus *Stemphylium*. Note the prominent constriction at the primary horizontal septa, the approximately oval to sub-angular shape, and the continuous base, dimpled at the point of attachment of the protoplasmic thread. In the lowermost conidium the characteristically prominent basal scar is discernible. (Herb. GRO, Type, on *Lilium Martagon* leaves, slide RTM I:94). Fig. 15. *P. sacchari*, conidia; note the extensive thickening of the walls. Scale in mera.

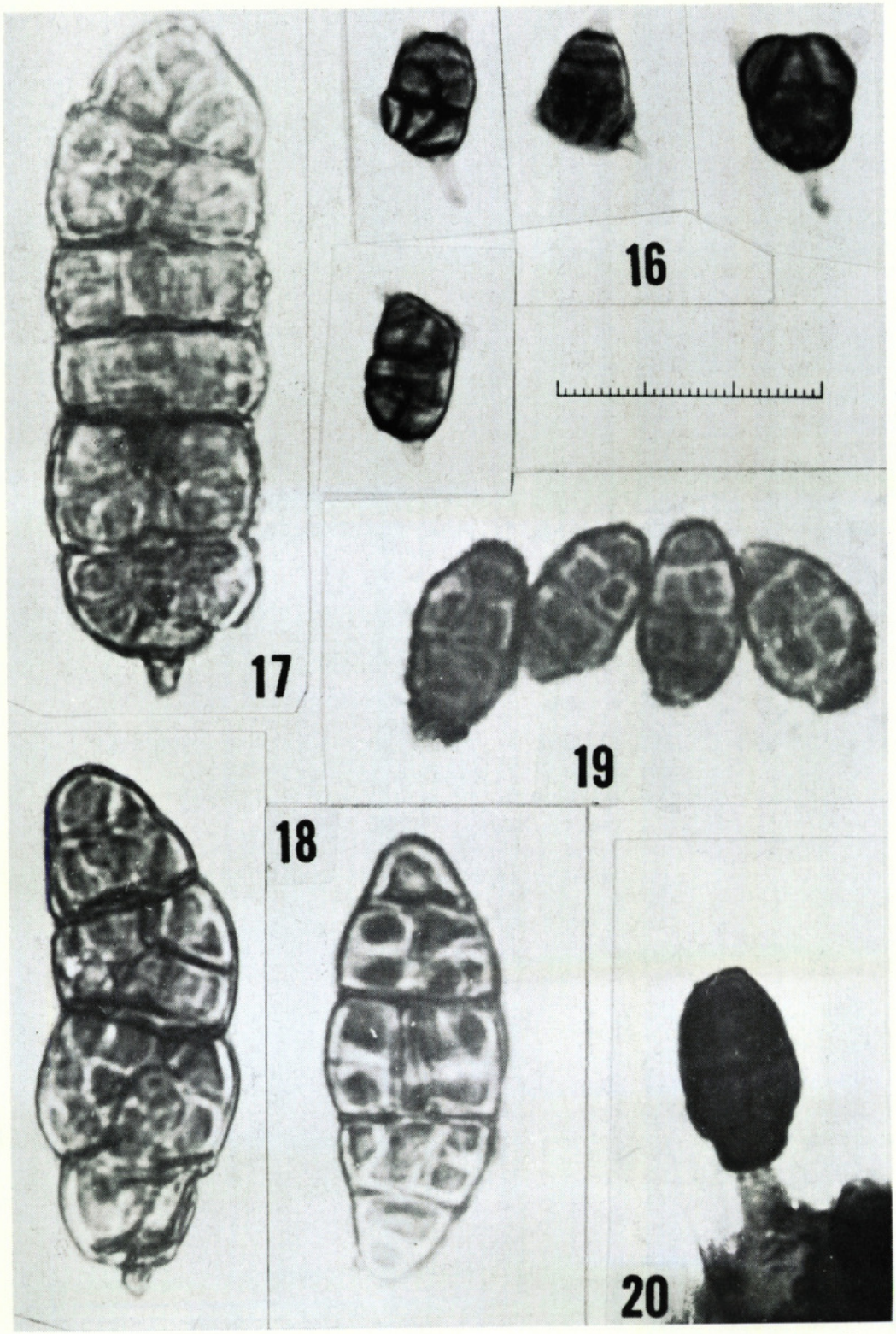

PLATE 1241. PIRICAUDA. Fig. 16. *P. trigonella*, conidia; note the hyaline appendages. Figs. 17, 18. *P. heteromera*, conidia. Figs. 19, 20. *P. chartarum*: 19. Conidia, (RTM I:105). 20. Habit, (RTM I:11). Scale in micra.

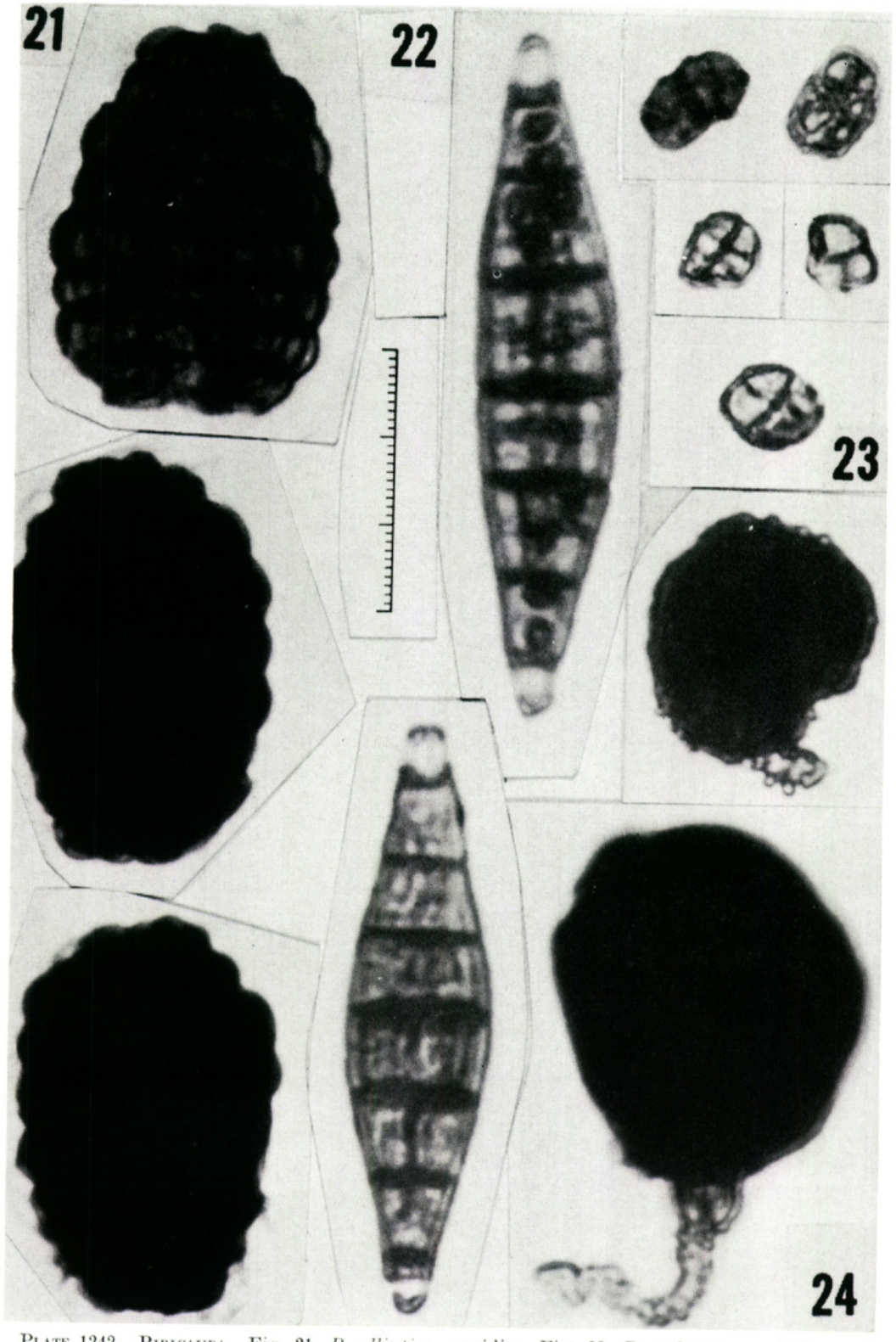

PLATE 1242. PIRICAUDA. Fig. 21. *P. elliptica*, conidia. Fig. 22. *P. pulchella*, conidia; note the light colored terminal cells. Fig. 23. *P. tumulosa*, conidia asperate. Fig. 24. *P. aspera*, conidia; note the conspicuous asperate condition. Scale in micra.

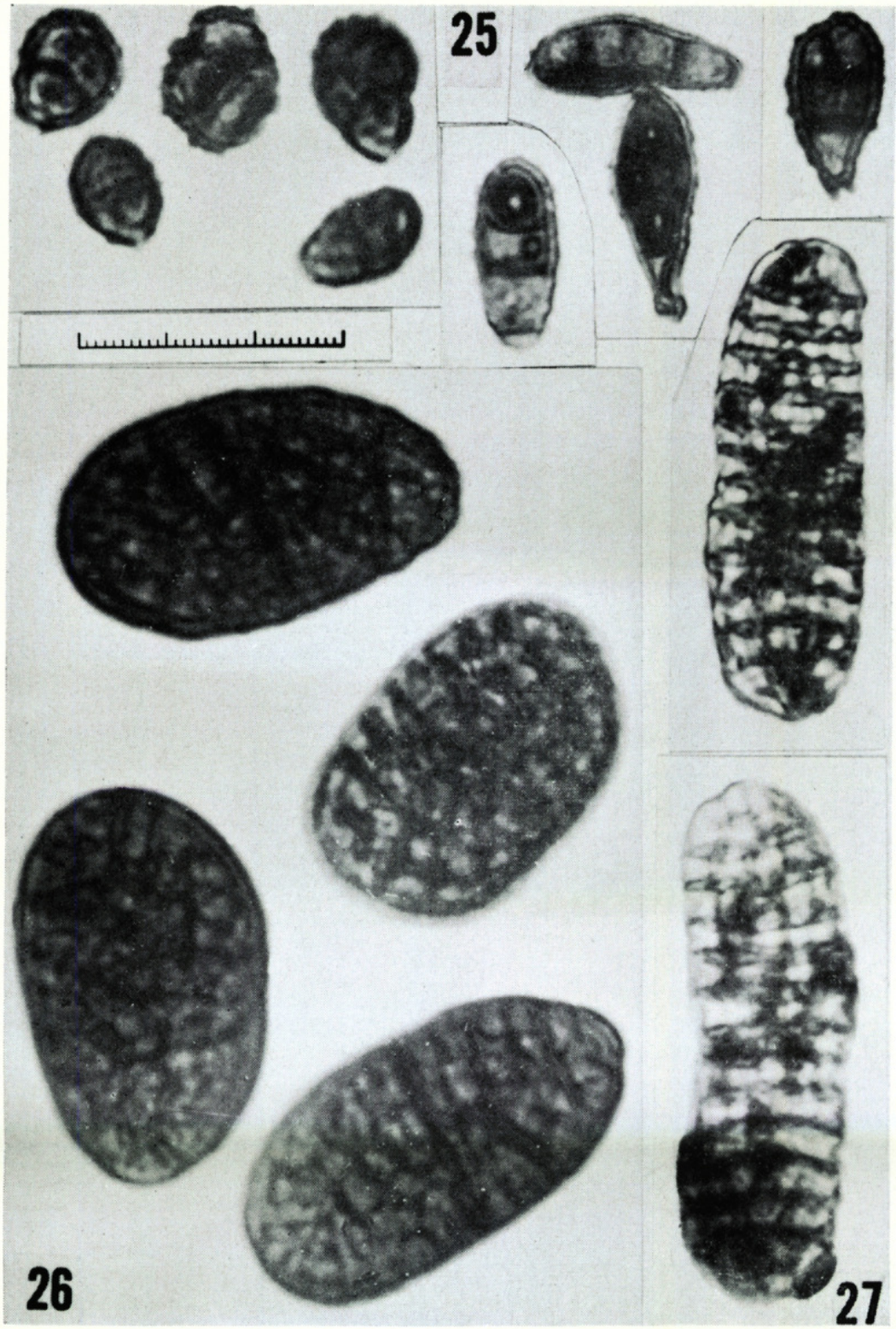

PLATE 1243. PIRICAUDA. Fig. 25. *P. damonis*, conidia. Fig. 26. *P. striata*, conidia. Fig. 27. *P. itochna*, conidia. Scale in micra.

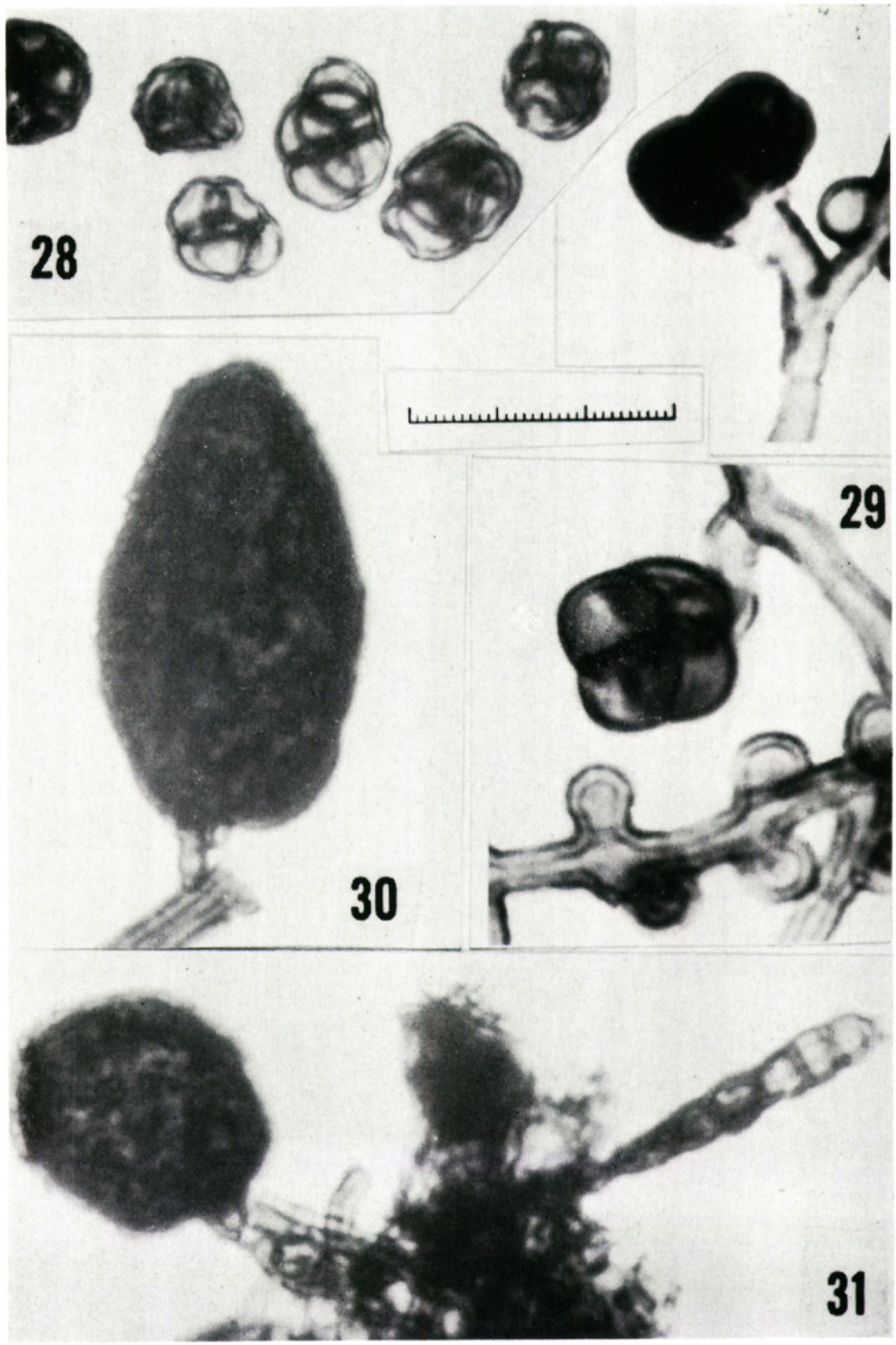

PLATE 1244. PIRICAUDA. Fig. 28. *P. apheles*, conidia. Fig. 29. *P. manilensis*, habit; note the peltate hyphopodia, (RTM 1:103). Figs. 30, 31. *P. bogoriensis*, habit; note in Fig. 31 the *Sporidesmium*-like ?conidium. Scale in micra.

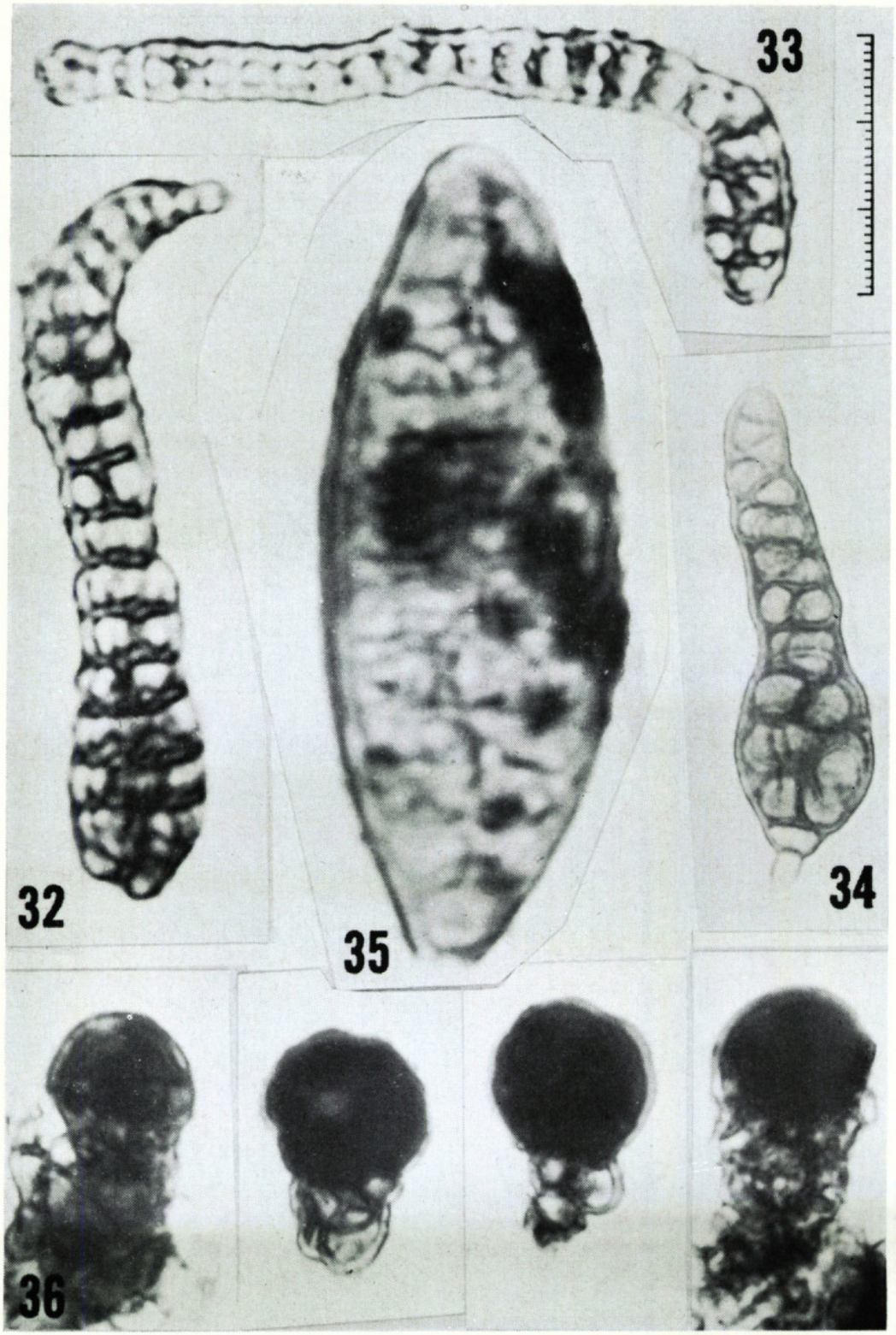

PLATE 1245. PIRICAUDA. Figs. 32, 33, 34. *P. curvata*, conidia; note, all are oriented base downwards. Fig. 35. *P. fusus*, conidium; note the remnants of the crystalline sheath. Fig. 36. *P. melanopa*, conidia with subtending cells, (second from the left RTM I:192b, rest RTM I:191a). Scale in micra.

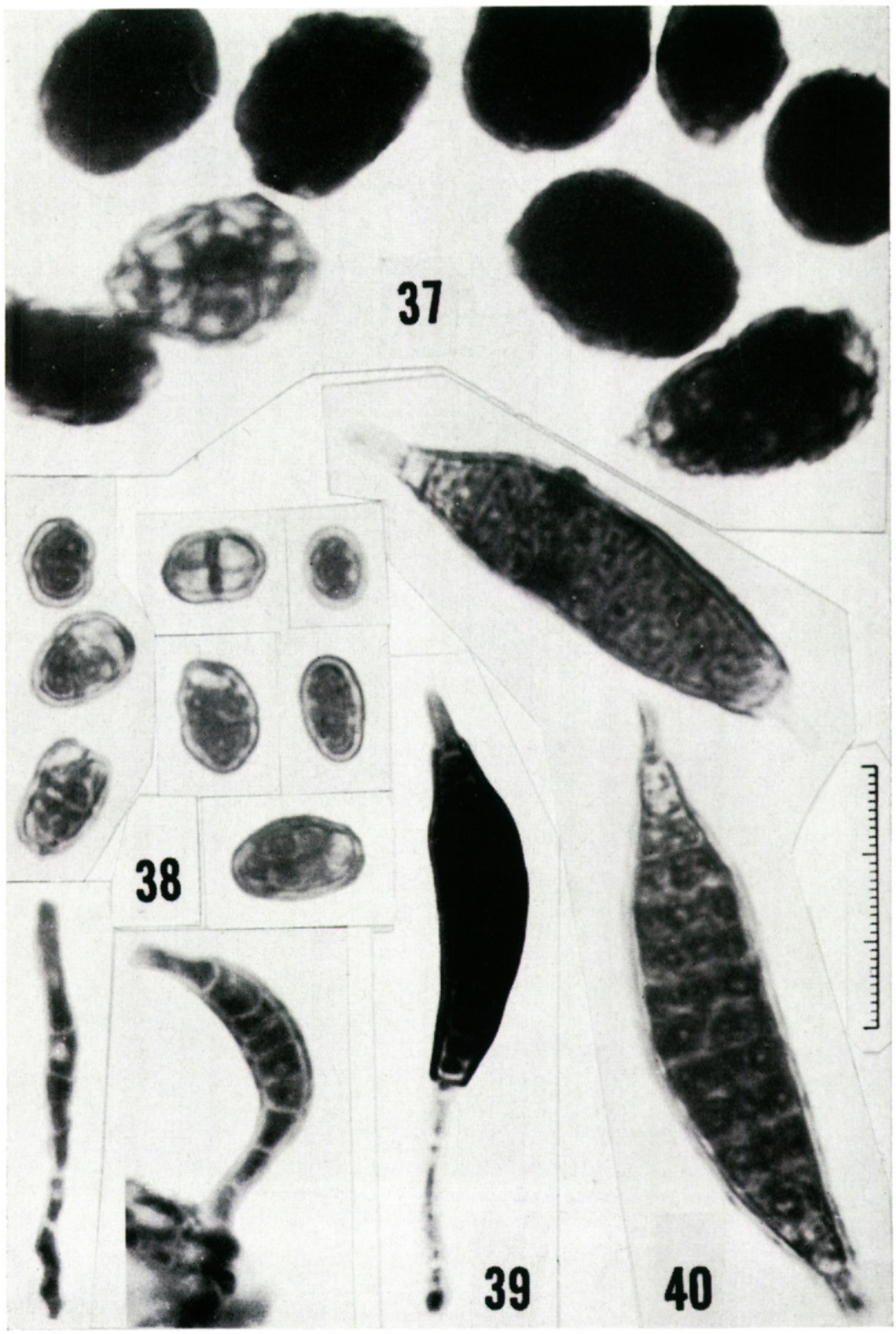

PLATE 1246. PIRICAUDA. Fig. 37. *P. putredinis*, conidia, (RTM I:256). Fig. 38. *P. subcuticularis*, conidia. Figs. 39, 40. *P. ulmicola*: 39, left to right, conidial ontogeny. 40. Mature conidia. (RTM I:220). Scale in micra.

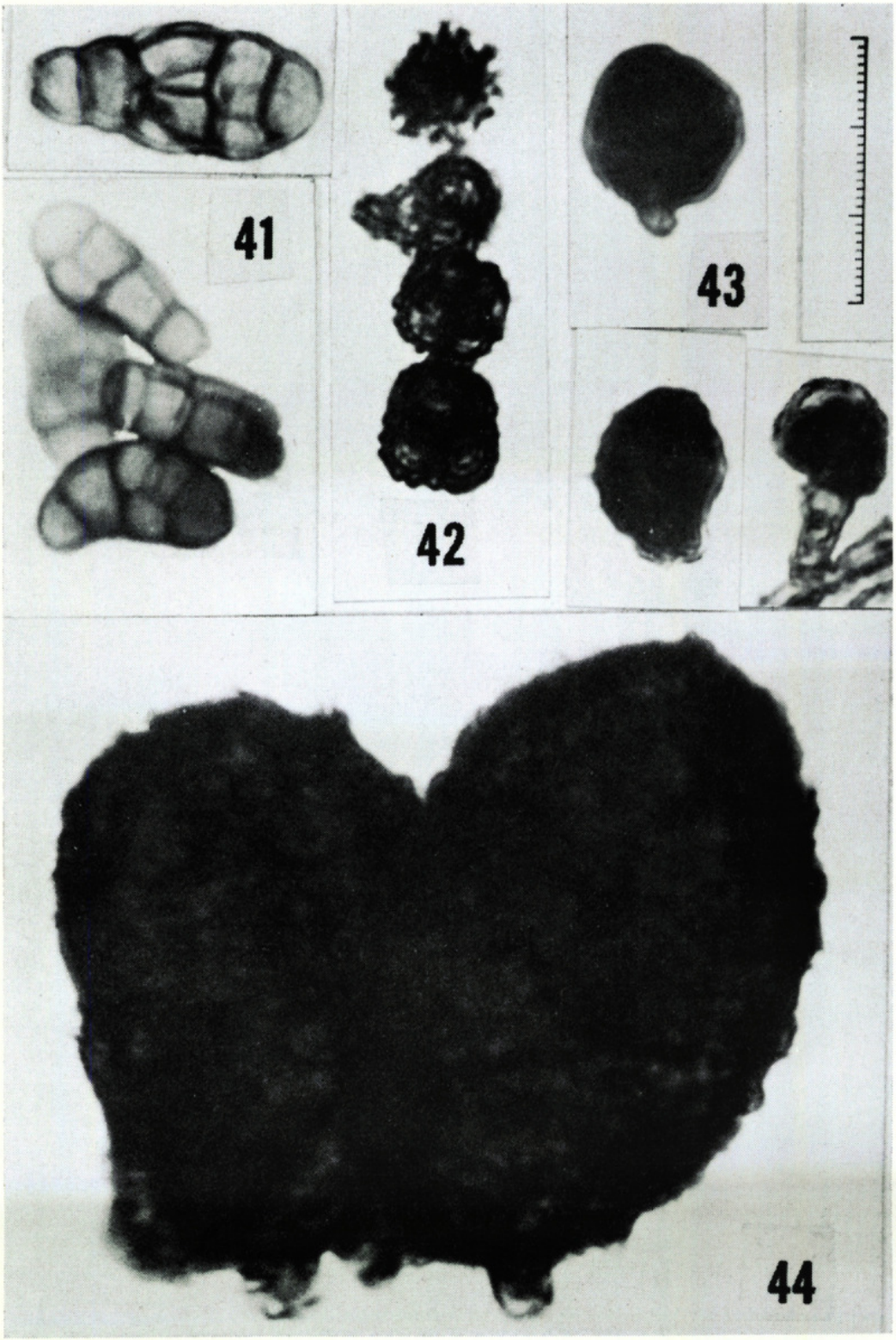

PLATE 1247. PIRICAUDA. Fig. 41. *P. viticola*, conidia. Fig. 42. *P. exasperata*, conidia; note the asperate condition. Fig. 43. *P. nodosa*, conidia, (RTM I:89). Fig. 44. *P. composita*, conidia, (RTM I:13a). Scale in micra.

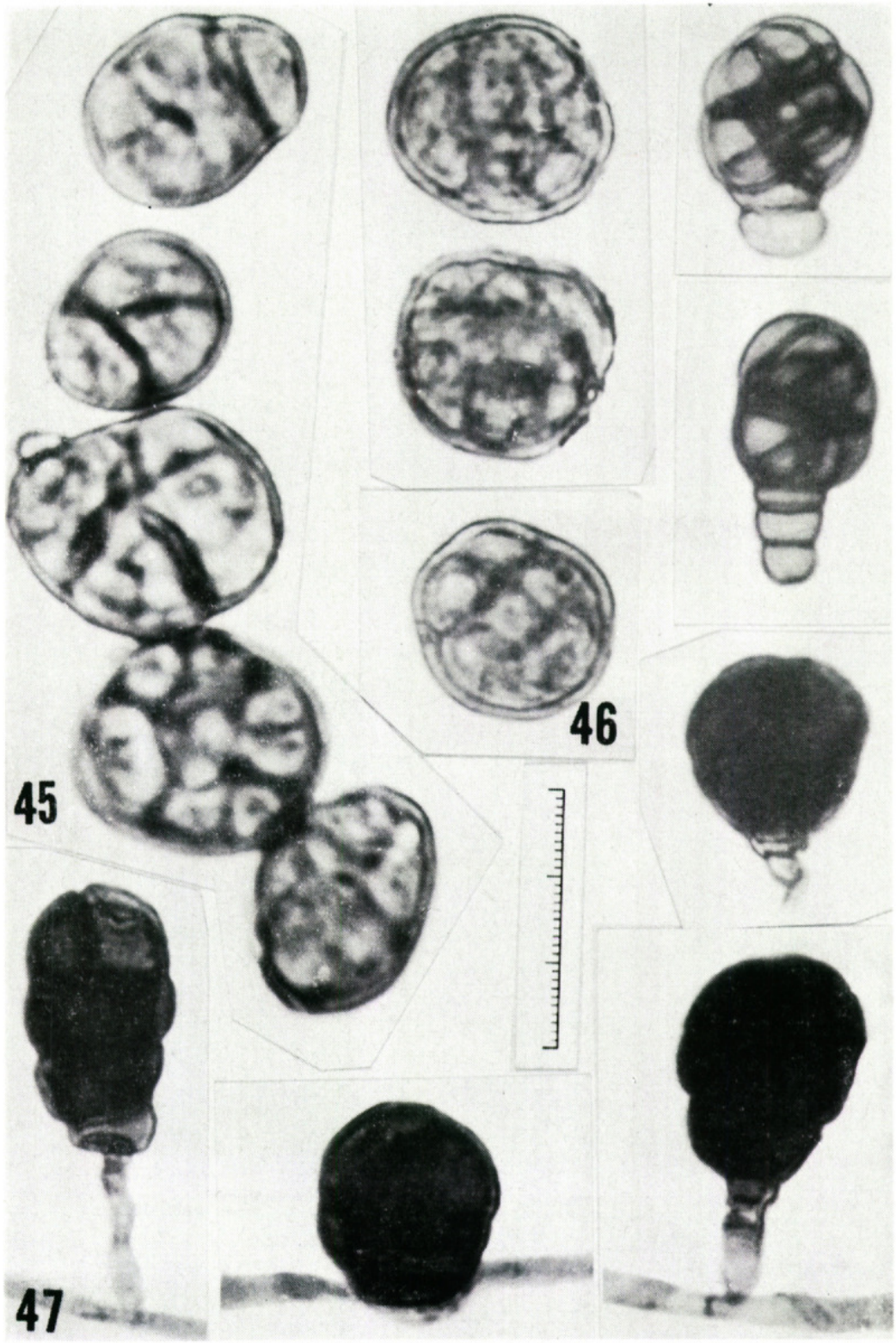

PLATE 1248. PIRICAUDA. Figs. 45, 46. *P. quadrata*, conidia, (RTM I:61, I:234b respectively. Fig. 47. *P. arcticoceanorum*, conidia, (bottom and right margin). Scale in micra.