

NOTES ON WISCONSIN PARASITIC FUNGI. XXVI

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The collections referred to in this series of notes were, unless indicated otherwise, made during the season of 1959 which was, owing to a persistent combination of high temperature and high humidity, the most favorable in many years in southern and central Wisconsin for the development of fungi of all sorts.

Powdery mildews, unidentified as to species, have been noted on the following hosts, not previously reported as bearing these fungi in Wisconsin: *Callistephus chinensis* (cult.) Dane Co., near Cross Plains, November 1, 1958; *Rosa heliophila*. Dane Co., Madison, November 4, 1958; *Amelanchier canadensis*. Dane Co., Madison, October 15, 1958; *Asarum canadense*. Sauk Co., Ferry Bluff, August 10.

MICROSPHAERA ALNI (Wallr.) Wint. is quite common on *Corylus americana* in Wisconsin, but a specimen on this host, collected in Gov. Dodge State Park, Iowa Co., July 21, is highly atypical both in its development on the host and in its microscopic characters. In most of the Wisconsin specimens, which have usually been collected in September or October, there is very little superficial mycelium and the small cleistothecia are quite uniformly distributed over the leaf surface. In the recent collection there is quite profuse and noticeable, but highly localized, superficial mycelium, mostly in areas spanning the principal veins, around and along which the closely clustered fruiting bodies are developed. The specimen seems well matured, insofar as production of asci and ascospores is concerned, for in fact most of the asci have broken down, freeing the spores. The appendages are long and lax, with only the most rudimentary suggestion of the elaborate dichotomy so characteristic of *M. alni*. Measurements of cleistothecia indicate that they run larger, about on the order of 4 to 3, than in the typical specimens. J. J. Davis placed in the herbarium, as questionable *M. alni*, a similar specimen on *Corylus americana*, collected July 22, 1900 at Madison.

MYCOSPHAERELLA sp., collected at Madison, September 1, occurs on dead distal portions of leaves of *Andropogon scoparius* that were still green at the base. On the same leaves, mingled with the perithecia, and of similar size and shape, are pycnidia of a *Phyllosticta*. The *Mycosphaerella* perithecia are somewhat lenticular, opening widely, about 65–75 μ in breadth, dark olivaceous, wall cells pseudo-

parenchymatous; asci hyaline, broadly clavate, often somewhat curved, about $40 \times 12 \mu$; ascospores hyaline, broadly fusoid, with a submedian isthmus-like constriction, about $15-16 \times 6-6.5 \mu$. The *Phyllosticta* pycnidia are about $55-65 \mu$ wide, noticeably flattened, fuscous, wall cells pseudoparenchymatous, conidia hyaline, ellipsoid, broadly ellipsoid, or subfusoid, biguttulate, $9-14 \times 4-5 \mu$. It seems likely the *Mycosphaerella* and *Phyllosticta* are stages of the same fungus.

MYCOSPHAERELLA sp. is amphigenous on tiny, angled, reddish spots along the midribs of living leaflets of *Desmodium canadense*, collected near Swan Lake, Columbia Co., July 2. The perithecia are approx. 100μ diam., somewhat flattened, widely ostiolate, deep sooty gray, with the individual wall cells relatively thin-walled, large and pseudoparenchymatous; asci curved-obclavate, short-stipitate, $35-42 \times 10-12 \mu$; ascospores hyaline, slightly constricted at the approximately median septum, with one cell slightly broader than the other, $11-13 \times 4.5-5 \mu$. Perhaps parasitic.

MYCOSPHAERELLA sp., appearing parasitic, occurs in small amount on conspicuous, pale brown, orbicular lesions, about 1-1.5 cm. diam., on leaves of *Helianthus strumosus*, collected near Verona, Dane Co., July 26. The epiphyllous, globose, black perithecia are about 125μ diam., and scattered on the spots; ascospores fusoid, hyaline with a faint greenish tinge, $11-13 \times 3-4 \mu$; asci clavate, $45-50 \times 7-9 \mu$.

LEPTOSPHAERIA sp. occurred on living leaves of *Muhlenbergia tenuiflora*, collected at the New Glarus Woods Roadside Park, Green Co., September 21. The ellipsoid spots are approx. 1-2 cm. long, brownish-ashen with dark brown border. Perithecia scattered, black, subglobose, slightly beaked, somewhat erumpent, about 125μ diam.; paraphyses hyaline, slender, thread-like; asci clavate, straight or somewhat curved, $48-50 \times 11-13$; ascospores fusoid, olivaceous, 3-septate, $20-22 \times 4 \mu$. Evidently not *Leptosphaeria muhlenbergiae* Rehm, said to have asci $140 \times 15 \mu$.

Leaves of *Iris virginica* var. *shrevei*, collected at Madison, September 10, bear an interesting Ascomycete, so far unidentified as to genus, which appears to belong in the Hemisphaeriales. The almost completely superficial disciform to subglobose ascostromata are blackish with a thin-walled, imperfectly closed, upper area. The cells comprising the walls are pseudoparenchymatous in the central portion and elongate and radiately arranged at the margins, as shown when the rounded fruiting structures are crushed flat in a microscopic mount. The ascostromata are amphigenous, scattered to gregarious along the central portion of the elongate host leaves, and are approx. $75-200 \mu$. Paraphyses are fairly numerous, hya-

line, slender, flexuous, slightly capitate. The asci are broadly clavate or subcylindric, straight or moderately curved, approx. 60–65 x 14–16 μ , the ascospores hyaline, continuous, ellipsoid or verging on allantoid, 20–22 x 5–5.5 μ . Although the host leaves were dead at the time of collection, there are no other fungi present, and it seems quite likely the organism in question developed parasitically.

CENANGIUM ACUUM Cooke & Peck, which occurs on needles of *Pinus strobus*, is perhaps correctly considered a saprophyte, but a massive development of this fungus on a ten year old white pine in a plantation in the University of Wisconsin Arboretum at Madison, September 28, suggests a possible parasitic relationship. All the terminal needle tufts were affected, with the upper two-thirds of the individual needles dead and straw-colored and bearing the innate-erumpent fruiting bodies, while the lower third remained green and fresh.

MELAMPSORELLA CARYOPHYLLACEARUM Schroet., occurring on *Stellaria longifolia* near Kempster, Langlade Co., June 9, had produced the telial stage along with the uredia. G. B. Cummins, who determined the presence of the telia, states that in his experience they are very rarely collected, and that he had difficulty finding telial material to use in illustrating his *Illustrated Genera of Rust Fungi*. In the Wisconsin specimen the teliospores have germinated, producing a fuzzy white overlay on the sori.

PHOMA sp. (?) occurred on languishing twigs of *Salix petiolaris*, collected at Madison, June 13. The twigs are blackened and buds aborted for several inches below the tip on which there is often, nevertheless, a terminal cluster of leaves. The black hue is owing to closely crowded, black, applanate, widely ostiolate, rather imperfect pycnidia, approx. 50–75 μ diam., which are quite superficial. The pycnidia are composed of small, dark, angled, thick-walled cells. The conidia are hyaline, short-cylindric, 3–4 x 1.5–2 μ . Of uncertain status, but possibly parasitic. In any event it would seem that the closely appressed fungus must be in some degree detrimental to the host.

PHOMA sp. (?) was collected on twigs of *Celtis occidentalis* at Wyalusing State Park, Grant Co., May 12. The pycnidia are brownish, subglobose, about 80–100 μ diam., rather thin-walled, somewhat erumpent, more or less closely clustered on the yellowish, dead tips of otherwise living, foliage-bearing twigs. Conidia are very numerous, hyaline, biguttulate, cylindric, suballantoid, or subfusoid, 5–8 x 2.5–3 μ . Very conspicuous on the numerous small trees infected, where almost all the twigs were affected.

Phyllostictae undetermined as to species have been collected on a number of hosts. Descriptive notes are as follows 1) On the

spermogonial surface of aecia, presumably those of *Uromyces acuminatus*, on *Polygonatum biflorum*, collected near Cambria, Columbia Co., July 2. The rather large and prominent pycnidia are closely clustered, sordid pallid brownish, thin-walled, with hyaline conidia about 12–18 x 4–5 μ . The conidia are in the approximate range of those of *Phyllosticta cruenta* (Fr.) Kickx., but the pallid pycnidia do not seem characteristic. The relation, if any, to the rust is obscure; 2) On *Tradescantia subaspera* (cult.) collected at Madison, August 29. Infection proceeds from the leaf tip inward until the entire leaf becomes dead and brown. The pycnidia are numerous, clustered or scattered, amphigenous, subglobose, pallid brownish, ostiolate, approx. 90–150 μ diam. Conidia hyaline, cylindrical to subfusoid, frequently biguttulate, (10–) 12–15 (–20) x 3.5–5 μ , continuous so far as observed. A number of mounts were examined, but no septa were noted. Nevertheless, the aspect of the specimen suggests *Ascochyta*, in the nature of the lesions and in the relatively large thin-walled pycnidia, as well as in relation of spore width to length. 3) On *Smilax herbacea* collected at Gibraltar Rock County Park, Columbia Co., July 31. This seems intermediate between *Phyllosticta pallidior* Peck and *P. cruenta* (Fr.) Kickx., with a suggestion of *Stagonospora smilacis* (E. & M.) Sacc. The lesions are orbicular to irregularly subdendritic, sordid whitish with narrow dark brown margins, approx. 1–2 cm. diam., in contrast to the sharply defined circular lesions characteristic of *S. smilacis*. The conidia are spherical, broadly ovate to ellipsoid or occasionally subcylindrical, contents granular, 8–11 (–14) x 6–8 μ . A very few of the subcylindrical spores show an imperfectly defined median septum. This seems to be but one more in the large and often puzzling series of Phyllostictae on Liliaceae of the tribes Uvularieae, Polygonateae, and Smilacaceae. 4) On juvenile leaves of *Populus grandidentata* collected August 12 in the Aldo Leopold Memorial Tract, Sect. 1, Town of Honey Creek, Sauk Co. The orbicular blackish-brown lesions are large, up 4 cm. diam., and markedly zonate. Pycnidia are relatively few, epiphyllous, clustered, fuscous, subglobose, approx. 150–165 μ diam. Conidia are hyaline, fusoid, subfusoid, ellipsoid, or broadly ellipsoid, (5.5–) 6.5–10 (–11) x 2–2.5 (–3) μ . This does not correspond well with any of the other species described on *Populus*. 5) Sparingly on large, up to 2 cm., conspicuous, orbicular, blackish-purple lesions on leaves of *Ulmus rubra*, collected September 1 near Cross Plains, Dane Co. The epiphyllous, flesh-colored, scattered, flattened pycnidia are mostly about 100 μ diam. by about 60 μ high. The hyaline, short-cylindrical conidia are 3–5 x 1.5–2 μ , borne on slender, closely ranked conidiophores produced mostly from the floor of the pycnidium. Possibly closely related to *Phyllosticta ulmicola* Sacc., but certainly not typical of that species. 6) On *Rumex*

obtusifolius, collected near Verona, Dane Co., May 24. The spots are rather small, rounded or irregular, with narrow dark purple margins. The pycnidia are sordid flesh-colored, very inconspicuous, epiphyllous and clustered, subglobose, approx. 100–150 μ diam., the conidia hyaline, short-cylindric to broadly ellipsoid, (1.5–)2–2.5 (–3) x 3.5–6.5 (–7.5) μ . A good many of the spots also bear the conspicuous black fruiting bodies of a *Discosia*-type saprophyte. I have found no report of any *Phyllosticta* on this host, nor does the fungus in question correspond with any of the few *Phyllostictae* so far described on *Rumex*. 7) In association with *Phytophthora thalictri* Wils. & Davis on leaflets of *Thalictrum dasycarpum* collected at Wildcat Mt. State Park, Vernon Co., August 5. The thin-walled, translucent, subglobose pycnidia are pallid brown, rather widely ostiolate with a ring of darker cells about the ostiole, scattered on the *Phytophthora* spots, approx. 75–125 μ diam. The numerous hyaline conidia are broadly ellipsoid to cylindrical, 3.5–5 x 1.5–2 μ . Whether the *Phyllosticta* preceded the *Phytophthora* is unknown. 8) On *Mitella diphylla*, collected at the Marathon County Park at the Dells of the Eau Claire River, Town of Easton, June 10. This is evidently the same thing which Davis (Trans. Wis. Acad. Sci. Arts Lett. 19(2) :711. 1919) assigned provisionally to *Phyllosticta mitellae* Peck in a collection on the same host made at Melvina, Monroe Co. The Davis specimen is not in the Wisconsin Herbarium, but according to his note the pycnidia were light brown and the conidia oblong to elliptical, 4–6 x 2–3 μ . In the Marathon Co. specimen the conidia are of about the same size and the pycnidia are up to 125 μ diam., as opposed to the minute black pycnidia, 60–75 μ diam. of Peck's description, together with subglobose conidia 5–6.5 μ . It thus seems doubtful that the Wisconsin specimens are Peck's *P. mitellae*, although Seaver accepted the Davis report in his compilation of the *Phyllostictae* for the *North American Flora*. 9) On *Fragaria virginiana*, collected near Cross Plains, Dane Co., October 15. The rounded or broadly elliptic lesions are most conspicuous, with zonate banding in various shades of yellow or orange through reddish to light brown to purplish-brown or deep purplish, from about 1–4 cm. diam. Pycnidia are erumpent, black, subglobose, markedly rostrate, amphigenous but mostly epiphyllous, approx. 150–250 μ , tending to be rather evenly and remotely scattered over the lesions. The conidiophores are moderately crowded, approx. 20–25 x 1.5 μ , somewhat wider at their bases and tapering at the tip, hyaline, and lining most, if not all, the inner surface of the pycnidium. Conidia are hyaline, subelliptic or short rod-shaped, indistinctly biguttulate, 4.5–6.5 x 1.5–2 μ . It may be that this is *Phyllosticta fragaricola* Desm. & Rob., but such European exsiccata as are available for study have proved to be sterile, so adequate comparison with

authentic material has not been feasible. 10) On *Prunus virginiana*, at Madison, July 25. The conspicuous, orbicular, purplish-brown spots are distinctly zonate, approx. .5–1.5 cm. diam., often confluent; pycnidia epiphyllous, tending to be zonately arranged, subglobose, pale brown, erumpent and almost superficial, approx. 75–125 μ diam., or rarely somewhat larger; conidia hyaline, ellipsoid to cylindrical, 5–7 x 2–2.5(–3) μ . This is definitely not *P. virginiana* (Ell. & Halst.) Seaver, nor does it seem to match any of the other species described on *Prunus*. What appears to be an immature specimen of this same fungus was found on the same host near Daleyville, Dane Co., in early June. 11) Epiphyllous and usually solitary on small, angled, whitish spots on *Ceanothus americanus*, from Blue Mounds State Park, Iowa Co., September 21. The smoky-brown pycnidia are subglobose, about 125–150 μ diam. The conidia are hyaline, slender, rod-like or subballantoid, 4–5 x 1 μ . Not *P. ceanothi* Miles which has globose conidia, 6–8 μ . 12) On newly developed leaves of *Plantago rugelii* at Madison, September 10. Tehon and Daniels, in their notes on parasitic fungi, discuss several Phyllostictae on species of *Plantago*, and offer a key in which the Madison specimen cannot be fitted. The spots are mostly rounded, 1.5–3 mm. diam., centers pallid brownish or ashen, very thin and translucent, margins elevated, with the whole surrounded by a comparatively wide dark purplish halo. The large, subglobose pycnidia, up to 200 μ diam., or perhaps slightly more, are scattered to gregarious, smoky yellowish-brown, the ostiole marked by a conspicuous ring of darker cells, amphigenous, so far as can be judged on such thin spots. The numerous hyaline conidia are ellipsoid or short-cylindrical, 3.5–5 x 1.5–2 μ . *Phyllosticta rugelii* Tehon & Stout (Mycologia 21:184. 1929) has very small pycnidia, only 35–65 μ diam., with a "long-papillate ostiole". 13) On *Helianthus strumosus* at Wildcat Mt. State Park, Vernon Co., September 9. This may possibly be an immature development of *Ascochyta rudbeckiae* (Ell. & Ev.) Greene, but does not correspond well with other specimens that I have so referred. The conspicuous spots are reddish-brown, orbicular to angled, subzonate, with imperfectly defined darker margins, approx. .5–1.5 cm. diam., occasionally confluent; pycnidia epiphyllous, scattered, black, globose, approx. 100–140 μ diam., almost completely superficial, but nevertheless quite firmly attached to the substratum, the wall of small, more or less isodiametric, thick-walled, dark cells; conidia hyaline, often biguttulate, broadly ellipsoid to cylindrical, 7–13 x 2.5–3 μ . 14) In association with *Sep-toria nabali* B. & C. on *Prenanthes alba* at Ferry Bluff, Sauk Co., August 10. The *Phyllosticta* seems to be present, principally at least, on spots which are lighter in color than those bearing *S. nabali* only. The *Phyllosticta* pycnidia are sooty-brown, about 80–

90 μ diam., the conidia are hyaline, subfusoid to cylindrical, approx. 3–5 x 1.5–2 μ .

PHYLLOSTICTA BACTERIOIDES Vuill. was reported (erroneously as *P. bacteriospora* Vuill.) by J. J. Davis as occurring on *Tilia americana* from Mellen, Ashland Co. Vuillemin describes this species as having pycnidia usually about 50 μ diam. (extremes 42–73 μ) and spherical. Conidial dimensions are given as 3.4–3.8 x 0.6 μ . The Mellen specimen does not correspond to this description, but does match two so far undetermined specimens collected by the writer in 1959. On the other hand, a specimen collected by Davis at Haugen, Barron Co., August 28, 1923 does in the main correspond to Vuillemin's description and remains filed as *P. bacterioides*.

CONIOTHYRIUM sp., which may well have been parasitic, occurs on leaves of *Poa pratensis*, collected near Cross Plains, Dane Co., September 1. The elongate lesions, mostly about 5–25 mm., are whitish to straw-colored, involving the entire leaf width and usually delimited at each end by a narrow, bright reddish-brown margin, the whole strikingly conspicuous in contrast to the deep green of the rest of the leaf, which is frequently strongly curved at the point of the lesion. The pycnidia are scattered to gregarious, subglobose, approx. 90–150 μ diam., under low magnification appearing blackish against the pallid lesion, but by transmitted light pale brownish, except around the rather wide ostiole where the cells are somewhat thicker and darker. The olivaceous conidia are narrowly ellipsoid to ellipsoid or subfusoid, occasionally subcylindric, (5–) 6.5–8 (–8.5) x 2.2–3 μ .

CONIOTHYRIUM (?) sp., which in its pycnidia simulates those of *Phyllosticta minima* (B. & C.) Ell. & Ev., occurs with and outnumbers pycnidia of the latter species, whose spores have been only imperfectly differentiated, on spots characteristic for *P. minima* on leaves of *Acer saccharinum*, collected at Wildcat Mt. State Park, Vernon Co., September 9. In mass the conidia show considerable color, but viewed individually they are subhyaline with a greenish tinge, so that they might almost equally well be considered as belonging to *Phyllosticta*. They are broadly ellipsoid, ovoid, or short-cylindric, 4–5 x 2.5–3 μ , as opposed to 8–9 x 5–6 for *P. minima*.

CONIOTHYRIUM sp. occurred in a possibly parasitic relationship on leaves of *Prunus virginiana*, collected near Verona, Dane Co., August 23. The spots are rounded, (1.5–)2–3 (–5) mm. diam., with rather wide dull purplish margins and paler centers. The epiphyllous, black, subglobose pycnidia are scattered and are about 125–150 μ diam., the dilutely smoky conidia ellipsoid or short-cylindric, 4–6.5 x 2.5–3 μ .

ASCOCHYTA pycnidia are hypophyllous and scattered on rounded to elongate, dead, purplish areas on leaves of *Anemone cylindrica* collected at Madison, August 4. Relationship to the host is uncertain as *Puccinia anemones-virginianae* Schw. is also present on most of the spots. The pycnidia are dark brown, subglobose, about 100–125 μ diam., the conidia pallid greenish, 8–13 x 2.5–3, uniformly septate.

ASCOCHYTA AQUILEGIAE (Rabh.) Hoehn., as it occurs on European species of *Aquilegia*, both in Europe and cultivated in America, has two classes of spores, typical *Ascochyta* about 10–15 x 3–5 μ , and *Phyllosticta*-type about 5–8 x 2–3.5 μ . These evidently are produced within the same pycnidia. In two specimens collected on the native *Aquilegia canadensis* in Wisconsin, one by J. J. Davis at Sturgeon Bay in 1929, the other by the writer near Jonesdale, Iowa Co., in June 1959, only the *Phyllosticta* spores are present. As indicated in my Notes XV (*Amer. Midl. Nat.* 48:45. 1952), the lesions are so characteristically those of *Ascochyta* that there seems little doubt of the identity or close connection of the forms on European *Aquilegia* and on the native *A. canadensis*.

Solidago flexicaulis leaves, collected September 21 at Blue Mounds State Park, Iowa Co., bear conspicuous, orbicular, zonate, grayish-brown lesions on which large pycnidia (presumably), completely reminiscent of those of *Ascochyta compositarum*, are sparingly scattered. However, all that were examined were empty.

Fruiting structures which simulate those of *Phyllachora* and are, perhaps, in some cases stages of it, are often found on various grasses. Very commonly these bodies contain phragmospores of the *Stagonospora* type, but in a specimen on *Andropogon gerardi*, collected near Swan Lake, Columbia Co., September 18, some of these structures were found to be producing, in vast abundance, slender, continuous, hyaline scolecospores, about 12–15 x .7 μ , which are perhaps microconidia connected with an ascigerous stage. Other such structures contained phragmospores of the type mentioned. The relationships remain obscure.

SEPTORIA on *Sporobolus asper*, collected at Nelson Dewey Memorial Park near Cassville, Grant Co., June 23, was sent to R. Sprague for determination. He has tentatively assigned it to *Septoria andropogonis* J. J. Davis, although he states it is not typical. In mass the spores are bright yellow-brown, but individually appear almost hyaline. It was thought the fungus was a species of *Phaeoseptoria*, a genus on which Sprague is the acknowledged authority, but as indicated he does not consider it so, and points out further that the obviously parasitic nature of this specimen is in contrast to all species of *Phaeoseptoria* described up to now. He finds that the spores

measure 48–68 x 3.3–4.1 μ , longer than for typical *S. andropogonis*. Length of spores may, of course, be strongly influenced by environmental conditions.

SEPTORIA (?) sp. is present in large dead areas on leaves of *Desmodium acuminatum*, collected near Verona, Dane Co., July 26. The scattered to clustered pycnidia are thin-walled, pallid-brownish, epiphyllous, subglobose, approx. 125–175 μ diam. The hyaline conidia are long-clavate (subacuminate at one end, obtuse at the other), more or less curved and irregular, 1–3 (–4) septate, 20–37 x (2.5–)3–3.5 (–4) μ . Very likely a parasite, but obvious saprophytes are also present, so the relation to the host of the fungus described is not clear. It could, without doing violence, be about as well referred to *Stagonospora*.

SEPTORIA sp. occurs in scanty amount on small, rounded, translucent spots on leaves of *Circaea latifolia*, collected near Verona, Dane Co., July 3. The single pycnidium examined is flesh-colored, thin-walled but fully formed, narrowly ostiolate, subglobose, 150 μ diam. The spores are obtuse at one end, tapering gradually to a point at the other, from almost straight to curved or flexuous, hyaline, indistinctly 2–3 or more septate, (17–)25–40 x (2–)2.5–3 μ (at thickened end). I have found no report of *Septoria* on *Circaea*.

SEPTORIA sp. is present on dead areas on leaflets of *Aralia racemosa* collected near Verona, Dane Co., August 23. The pycnidia, closely gregarious in small groups, are epiphyllous, black, globose, about 55–65 μ diam., thick-walled, widely ostiolate, with a definite short beak. The hyaline spores are straight to slightly flexuous or curved, appear continuous, and are approx. 13–20 x .8–1 μ . Pathogenicity is uncertain, as the leaves also bear *Ramularia repens* Ell. & Ev.

SEPTORIA sp., collected on *Aster laevis* at Janesville, Rock Co., June 27, is centered directly on a lesion which also bears an aecial fructification of *Puccinia stipae* Arth. The *Septoria* is obviously not *S. atropurpurea* Peck, the only species up to now reported from Wisconsin on *Aster laevis*. The fungus is amphigenous on a pallid brownish area of the lesion, the pycnidia surrounding and among the pore-like aecia of the rust. The pycnidia are light brown, thin-walled, subglobose, about 100 μ diam., and rather widely ostiolate and imperfect. The spores are filiform-acicular, mostly strongly curved, occasionally distinctly spirally so, hyaline, 30–45 x 1 μ . It is taken for granted that rusts are parasitic, but the relation of *Septoria* and host here is unclear.

GLOESPORIUM Desm. & Mont., one of the longest-established and most widely applied fungus generic names, is dropped by J. A. Von

Arx in a monographic paper entitled "Revision der zu *Gloeosporium* gestellten Pilze" (Verh. K. Nederl. Akad. Wetensch. Naturk. Tweede Reeks, Deel LI, No. 3, 153 pp. 1957). Von Arx finds the type species, *Gloeosporium castagnei* Desm. & Mont., to be identical with *Marssonina populi* (Lib.) Magn. *Marssonina* is proposed for conservation and the species of *Gloeosporium* are assigned to various genera, mostly erected by European authors, notably the prolific Fr. Petrak, in the fairly recent past. Von Arx is to be congratulated for his restraint in describing only the two new genera of his own. The paper purports to list all hitherto described species of *Gloeosporium*, whether critically dealt with or not, but several omissions have been noted, as is probably inevitable in a work of this magnitude. The author has obviously made a serious and intensive effort and his work deserves careful attention and study. It seems regrettable that it was not possible to preserve the name *Gloeosporium*, in however restricted a sense.

COLLETOTRICHUM sp. on *Smilax ecirrhata*, from near Cross Plains, Dane Co., July 20, appears strongly parasitic, but the circular, pale brown lesions, with narrow darker brown border, are similar to those produced by *Stagonospora smilacis* (Ell. & Mart.) Sacc. and it may have been primary, although no pycnidia were formed. The hyaline, cylindro-fusoid conidia of the *Colletotrichum* are pinkish in mass, 14–17 x 3–4 μ , while the setae are dark brown, slender, subacute, variable in length from acervulus to acervulus, and tend to be marginal. There is much uncertainty about *Colletotrichum* on Liliaceae, both as to specific identities and as to parasitism.

COLLETOTRICHUM sp., collected on leaves of *Carya ovata* near Pine Bluff, Dane Co., July 24, is perhaps parasitic. The small acervuli are epiphyllous, about 60–90 μ diam., clustered on small, immarginate, dull greenish-purple areas and are consistently present on a number of leaves, but the picture is obscured by evidence of insect activity on the reverse side of the leaves. The setae are few per acervulus, dark brown, thick-walled, from almost straight to slightly curved, acuminate, once or twice septate, 60–125(–170) x 2.5–5 μ , the conidia hyaline, falcate, 17–20 x 3–3.5 μ .

COLLETOTRICHUM URTICAE H. C. Greene (Amer. Midl. Nat. 50: 507. 1953) was described on *Urtica dioica* and later collected on *Laportea canadensis*. On both hosts the spots are small (1–2.5 mm.), rounded, ashen to grayish, and very sharply defined. On the latter host, near Cleveland, Manitowoc Co., August 19, there was collected an extremely inconspicuous fungus which may perhaps be a manifestation of *C. urticae*. The lesions, however, are large and conspicuous, blackish-brown, indeterminate, appearing to orig-

inate at the leaf tip, and involving from the upper one-third to almost the entire leaf. Epiphyllous on these lesions are tiny acervuli, approx. 30–40 μ diam., with usually a single seta, occasionally two, 40–65 x 3–4.5 μ , clear brown, continuous, apex subotuse to acuminate, base somewhat inflated. The conidia are cylindrical or subfusoid, appearing at times to be produced several simultaneously from a single conidiophore, rarely showing a tendency to catenulation, 13–18 x 3–3.5 μ . The dimensions are not far from those of *C. urticae*, but the gross aspect of the infection is completely different.

MARSSONIA POTENTILLAE (Desm.) Magn. has been reported for Wisconsin on *Potentilla norvegica* var. *hirsuta* (*P. monspeliensis*) on the basis of two collections by J. J. Davis at Spooner, Washburn Co., in 1911, identified at that time as *Gloeosporium fragariae* (Lib.) Mont., which is now considered as synonymous with *M. potentillae*. A re-examination of these specimens raises doubt as to their identity with *M. potentillae*. They are characterized by large, orbicular, grayish-brown blotches, up to 2 cm. diam., on which the acervuli are clustered, whereas in collections on other species of *Potentilla* there is little or no spotting and the acervuli are scattered. The conidia in the specimens on *P. norvegica* var. *hirsuta* are slender-cylindric or subfusoid and almost straight, with no septation noted in any spores. In specimens on other hosts, however, the conidia are strongly curved, boomerang-shaped, acute at one end, blunt at the other, and distinctly uniseptate.

MARSSONINA sp. occurs consistently on gall spots on living leaves of *Acer negundo*, collected at Madison, June 24, 1951. The orbicular spots, about .2–.5 cm. diam., are pallid with reddish borders, and with considerable hypertrophy of vein tissue on the under side. The acervuli are amphigenous, subcuticular, scattered to gregarious, sordid carneous to pallid brownish, approx. 100–150 (–200) μ diam.; conidiophores hyaline, closely ranked, simple, about 5–7 x 2 μ ; conidia hyaline, straight to slightly curved, subcylindric, long-obovoid, subfusoid, or occasionally definitely fusoid, 7–14 x 2.5–4.5 μ . Parasitism is questionable, but it seems likely. The occurrence of characteristic fungi on leaf galls is of considerable interest and might well repay intensive study.

Quercus alba leaves, collected at Madison, September 28, and near Verona, September 30, bear a fungus which it seems may possibly be an imperfectly developed *Marssonina*, although it seems very different from *M. martini* (Sacc. & Ell.) Magn., commonly found on this host and characterized by very sharply defined, small, rounded, pallid spots. In this specimen the hypophyllous acervuli are subepidermal and moderately sunken, about 200–250 μ diam., scattered

to loosely clustered on immarginate, extensive, dull pinkish areas. The conidia vary from rarely obclavate, to cylindric, broadly cylindric, or ellipsoid, or occasionally curved *Marssonia*-like, hyaline, continuous so far as observed, 18–36 x 6.5–9 μ .

BOTRYTIS, perhaps *B. vulgaris* Fr., occurred on the fruit, in all stages of development, of red raspberry, *Rubus strigosus*, observed near Verona, Dane Co., July 26. Entire clones were devastated, with almost no fruit escaping. At least a weak degree of parasitism would seem indicated.

Anemone canadensis leaves in the fall are often closely studded on the under surface with prominent, black, subglobose, non-fruiting structures suggesting immature perithecia. Such leaves were collected at the Faville Prairie near Lake Mills, Jefferson Co., in September 1958, and overwintered out-of-doors in a wire cage. When this material was examined in late May 1959, characteristic conidia and conidiophores of *Didymaria didyma* (Ung.) Schroet. were being produced in profusion from the apices of the above-mentioned subglobose black structures, providing another instance of what seems to be a rather widespread type of adaptation to overwintering of various fungi, with early infection of the emerging shoots of the host plants. No evidence of an accompanying perfect stage was detected.

CLADOSPORIUM sp., appearing parasitic, occurs on telia of *Coleosporium asterum* (Diet.) Syd. on *Solidago altissima*, collected at Madison, September 21, 1958. The scattered conidiophores are dilute brown, several-septate, from simple and flexuous to mildly geniculate and tortuous, about 65–100 x 3–4 μ ; conidia grayish-olivaceous, smooth, subcylindric, broadly ellipsoid or subfusoid, 1-septate or continuous, catenulate, 10–13 (–20) x 4–5 μ .

CLADOSPORIUM sp. which appears definitely parasitic occurs on leaves of *Muhlenbergia frondosa*, collected at Poynette, Columbia Co., September 18. The sharply defined spots are narrowly elongate, mostly about .5–1 cm. long by .5–.7 mm. wide, the central portion cinereous with relatively wide tan margins. The conidiophores are amphigenous, scattered or very loosely clustered, clear brown, ranging from almost straight and without geniculation to tortuous and strongly geniculate, 1–5 septate, approx. 45–100 x 3.5–5 μ ; conidia pallid olivaceous-gray, subcylindric or subfusoid, apices conic with noticeable scar, sometimes at both ends, indicating catenulation, mostly appearing slightly roughened, 18–25 (–28) x 5–6 μ . A few of the longest spores have 3 septa, but the uniseptate condition appears normal.

HETEROSPORIUM sp. occurs on leaves of *Populus deltoides*, collected at Madison, September 7, 1958. The orbicular spots, approx.

.5 cm. diam. are dull cinereous to grayish-brown with very narrow blackish-brown borders and the fungus is amphigenous on the central part of the spots. The cylindrical conidia, when mature, are 3 septate, slightly constricted at the septa, closely and finely echinulate, smoky olivaceous, 14–20 x 5–7 μ . The clear-olivaceous conidiophores are fairly closely fascicled, continuous to 1–2 septate, simple and straight, or mildly geniculate, short, approx. 25–50 x 4–5 μ . The spots are somewhat reminiscent of those caused on this and related host species by *Septoria musiva* Peck, and thus it seems possible that they represent a suppressed development thereof, with the *Heterosporium* secondary.

CERCOSPORELLA, collected on *Eupatorium altissimum* at Madison, August 31, suggests, in its macroscopic aspect and in the nature of its conidiophores, CERCOSPORELLA CANA Sacc., common on species of *Erigeron*. The conidia, however, are quite different. I find no report of *Cercospora* on *Eupatorium* and this may be distinct, but as the *Cercosporae* on Compositae are in a state of considerable confusion, for the present no formal description is offered. The conidiophores are fascicled, amphigenous but mostly hypophyllous, hyaline, septate, thick-walled, often curved below and diverging, narrowing usually toward tip which is often noticeably geniculate-denticulate, approx. 40–60 x 5–6.5 μ ; conidia hyaline, narrowly obclavate to almost acicular, 4–6 septate, approx. 80–115 x 3–4 μ , base obconic.

CERCOSPORA sp. occurs on drab bluish areas, often involving entire leaves of *Isopyrum biternatum*, collected near Antigo, Langlade Co., June 9. The conidiophores are scattered to loosely fasciculate, appearing continuous, grayish, mostly distinctly and rather closely geniculate, about 40–55 x 4–6 μ . The conidia are hyaline, slender, tapering obclavate, markedly flexuous, with subacute tip, base truncate with prominent scar, 8–10 septate, 150–175 x 5–6 μ . *Cercospora merrowi* Ell. & Ev., reported from Wisconsin on *Isopyrum*, has, according to Chupp, conidia which are cylindro-obclavate to cylindrical, subhyaline to pale olivaceous-brown, plainly 1–6 septate, straight to mildly curved, occasionally catenulate, subtruncate base, tip obtuse, 20–60 x 4–7 μ . *Cercospora isopyri* Hoehn., the only other species reported on *Isopyrum*, is considered to be probably a species of *Helminthosporium*.

CERCOSPORA sp. on *Epilobium adenocaulum*, collected at Blue Mounds State Park, Iowa Co., September 21, is quite unlike *Cercospora epilobii* Schneider, the only species listed by Chupp as occurring on *Epilobium*, and which he considers to be actually a *Didymaria*. The current specimen has rounded pallid spots, somewhat sunken, with narrow, brownish border, small, mostly not over 1

mm. diam. The fungus is epiphyllous, the fascicles few per spot, rather compact, with half a dozen or so conidiophores which are deep brown, several-septate, somewhat tortuous, several times geniculate near the tip, 75–115 x 5 μ ; conidia hyaline, subflexuous, acicular to slender-obclavate, multiseptate, truncate at base which is 3–4 μ wide.

CERCOSPORA sp., present in small amount on dead areas on leaflets of *Aralia racemosa*, collected near Verona, Dane Co., August 23, does not correspond closely to any of the eight species listed in Chupp's key to *Cercosporae* on Araliaceae, but bears considerable similarity to *C. araliae-cordatae* Hori, as described. In the Wisconsin specimen the hyaline, very slender-obclavate (almost acicular) conidia are flexuous, obscurely multiseptate, about 5 μ wide at the truncate base, and up to 325 μ in length; conidiophores dilute clear brown, straight, simple or once geniculate, often somewhat wider at the blunt, truncate tip (up to 6 μ), several times septate toward base, diverging in loose fascicles of about 4–6, approx. 75–150 μ in length.

CERCOSPORA sp. occurs on *Myosotis virginica*, collected at Red Rock, south of Darlington, Lafayette Co., June 4. There are no sharply defined spots. The conidiophores are scattered over indeterminate reddish-brown areas which often involve the entire leaf. Conidiophores are mostly epiphyllous, scattered, as noted, mildly-several-geniculate, 1–2 septate, with subconic tip, grayish, arising from a small cluster of pseudoparenchymatous cells of similar hue, mostly very short, but exceptionally up to 35 x 3 μ ; conidia slender and acicular, indistinctly multiseptate with contents somewhat granulose, 30–75 x (2–)2.5(–3) μ . Chupp in his *Monograph of Cercospora* does not report anything on *Myosotis*. The present material, while seemingly quite distinct, is hardly profuse enough for formal descriptive purposes.

CERCOSPORA sp., collected in small quantity on *Rudbeckia triloba* at Madison, October 1, is not *Cercospora tabacina* Ell. & Ev., the only species named by Chupp as occurring on *Rudbeckia*. In *C. tabacina* the fungus is in effuse patches, whereas in the present specimen it is hypophyllous on small purplish spots. The conidia are hyaline (colored in *C. tabacina*), slender-obclavate, multiseptate, base truncate with prominent scar, approx. 75–115 x 4–4.5 μ . The conidiophores lack the tortuous, constricted aspect of those of *C. tabacina*. Those measured are about 90–175 x 3.5–4.5 μ , clear brown, several-septate, once or twice geniculate, few in the fascicle and tending to diverge widely.

Carex albursina leaves, collected July 9 near Albany, Green Co., bear an interesting and plainly parasitic sporodochium-producing

fungus which I am unable to place as to genus. The spots are one to several per leaf, where several, often clustered, small (1–) 1.5–3 mm., rounded, variously angled, or elongate, centers pallid brownish, margins relatively wide and reddish-brown. The spots are thin and translucent, with the tissue often rupturing. Sporodochia one to several per spot, amphigenous, mostly hypopyllous, pulvinate, pale flesh-colored when freshly collected, later turning somewhat darker, composed of closely compacted, but discrete hyphae which are more or less vertically oriented to the substratum, 40–95 μ wide at base by approx. 25–50 μ in height above the substratum; conidia hyaline, broadly ellipsoid or subfusoid, 5–7(–8.5) \times 3.5–4 μ , produced on the surface of the sporodochia without presence of differentiated conidiophores.

Muhlenbergia schreberi, collected near Cross Plains, Dane Co., October 15, bears a highly unusual fungus which appears superficial, but which may be parasitic. The general aspect is that of a member of the Perisporiales, but microscopic examination belies this. The conspicuous feature is the presence of numerous rounded, disciform, black, perithecium-like structures, mostly about 150–250 μ diam., from which are produced many radiating appendages. The aforementioned structures are non-ostiolate and thick-walled, the individual cells of the wall being in themselves thick-walled and dark, rounded to squarish, approx. 8–10 μ diam. When crushed, the fully developed bodies are seen to be filled with what appear to be thick-walled, subglobose or broadly ovoid, hyaline chlamydospores, 7–17 \times 8–14 μ , more or less readily separable from one another. The hyaline walls are mostly about 2.5–3 μ thick. The profusely produced appendages are deep brownish at the more or less bulbous base, fading to almost hyaline at the long-attenuate apex, multiseptate, about 5–6 μ at base and 3 μ wide throughout most of their length, more or less flexuous or tortuous, up to 525 μ long. The whole appears attached to the host by a delicate subiculum, the cells of which are organized into strands irregular in appearance and difficult to describe satisfactorily. There are also present in most of the mounts examined, brownish, coarsely echinulate, 1–3 septate, subcylindric phragmospores, about 18–30 \times 7–10 μ and reminiscent of *Heterosporium*. None have been seen attached, however, so their possible connection remains conjectural.

SCLEROTIOMYCES COLCHICUS Woronichin, a probably non-parasitic, but still detrimental fungus, was collected on leaves of *Polymnia canadensis* at Wildcat Mt. State Park, Vernon Co., September 9, adding another to the already large list of Wisconsin plants observed bearing this fungus. As in all previous specimens, it is strictly epiphyllous.

ADDITIONAL HOSTS

The following hosts have not been previously recorded as bearing the fungi mentioned in Wisconsin.

ALBUGO BLITI (Biv.) O. Ktze. on *Amaranthus powellii*. Dane Co., Madison, August 19, 1956. Also on *Amaranthus powellii* X *retroflexus* (det. J. D. Sauer). Sauk Co., Devils Lake State Park, September 16.

SYZYGITES MEGALOCARPUS Ehrenb. ex Fr. (*Sporodinia grandis* Link) on *Calvatia gigantea*. Dane Co., Madison, September 11. Coll. R. Bere.

MICROSPHAERA ALNI (Wallr.) Wint. on *Carya ovata*. Dane Co., near Pine Bluff, September 23.

UNCINULA SALICIS (DC.) Wint. on *Salix cordata*. Columbia Co., Poynette, September 18.

PHLLACTINIA CORYLEA (Pers.) Karst. on *Corylus cornuta* (*rostrata*). Vernon Co., Wildcat Mt. State Park, September 9.

PHYLLACHORA PUNCTA (Schw.) Orton on *Panicum wilcoxianum*. Dane Co., near Cross Plains, September 1.

CRONARTIUM RIBICOLA Fisch. II, III on *Ribes missouriense*. Dane Co., Madison, August 25.

COLEOSPORIUM VIBURNI Arth. II, III on *Viburnum prunifolium* (cult.). Dane Co., Madison, October 18.

COLEOSPORIUM ASTERUM (Diet.) Syd. ii, III on *Aster puniceus*. Columbia Co., Poynette, September 18.

MELAMPSORA PARADOXA Diet. & Holw. II, III on *Salix babylonica*. Dane Co., Madison, September 28.

MELAMPSORA ABIETI-CAPREARUM Tub. II, III on *Salix bebbiana*. Dane Co., Madison, October 13.

TRANZSCHELIA PRUNI-SPINOSAE (Pers.) Diet. III on *Prunus maritima* (cult.). Dane Co., Madison, October 19.

PHRAGMIDIUM AMERICANUM (Peck) Diet. III on *Rosa heliophila* (*pratincola*). Dane Co., Madison, November 4, 1958.

PHRAGMIDIUM SUBCORTICINUM (Schr.) Wint. II, III on Hybrid Tea Rose (Condesa de Sestago). Dane Co., Madison, October 1958. Coll. D. L. Coyier. Although the taxonomy of *Phragmidium* as it now stands leaves much to be desired, this specimen corresponds quite closely to the description given in Arthur's Manual.

PUCCINIA CARICINA DC. I on *Ribes lacustre*. Forest Co., near Alvin, June 26, 1957. Coll. H. Gale and M. Christensen. On a phanero-gamic specimen in the University of Wisconsin Herbarium.

PUCINIA DIOICAE P. Magn. I on *Aster ericoides*. Trempealeau Co., Perrot State Park at Trempealeau, June 17. At same station on *Solidago sciaphila*, June 16.

PUCINIA DIOICAE P. Magn. ii, III on *Carex assiniboinensis*. Bayfield Co., Mason, September 3. Coll. J. H. Zimmerman.

PUCINIA ATROFUSCA (Dudl. & Thomp.) Holw. I on *Artemisia caudata*. Burnett Co., Crex Meadows near Grantsburg, July 14.

PUCINIA ASTERIS Duby on *Aster lateriflorus*. Iowa Co., Gov. Dodge State Park near Dodgeville, September 11.

UROMYCES PERIGYNIUS Halst. III on *Carex assiniboinensis*. Bayfield Co., Mason, September 3. Coll. J. H. Zimmerman.

CINTRACTIA CARICIS (Pers.) Magn. on *Carex emoryi* Dewey. Trempealeau Co., Perrot State Park at Trempealeau, June 16.

CERATOBASIDIUM ANCEPS (Bres. & Syd.) Jacks. on *Galium triflorum*. Vernon Co., Wildcat Mt. State Park, August 5. On *Verbena urticaefolia*. Same station and date.

PHYLLOSTICTA PALLIDIOR Peck on *Polygonatum biflorum*. Columbia Co., near Cambria, July 2. So far as I am aware this is the first collection of this globose-spored species on *Polygonatum* in Wisconsin. As I indicated earlier (Amer. Midl. Nat. 41:741. 1949) *Polygonatum* usually bears *Phyllosticta cruenta* (Fr.) Kickx. which has elongate spores on the order of 15–20 x 4–6 μ . There has been much confusion concerning *Phyllostictae* on *Polygonatum*, *Smilacina* and *Uvularia* and my 1949 discussion was aimed at clarification of the situation. The conidia in the present specimen run slightly smaller than the 10 μ diam. they often display in well-developed specimens on *Smilacina*, but they are definitely larger than the 5–7 μ diam. of *Phyllosticta discincta* J. J. Davis, occurring on *Uvularia*.

PHYLLOSTICTA NEBULOSA Sacc. on *Silene cserei*. Green Co., near Albany, May 30.

PHYLLOSTICTA SUCCINOSA H. C. Greene on *Ribes missouriense*. Dane Co., near Pine Bluff, July 24.

PHYLLOSTICTA VIOLAE Desm. on *Viola incognita*. Iowa Co., Gov. Dodge State Park near Dodgeville, June 2.

PHYLLOSTICTA SOLIDAGINIS Bres. on *Solidago sciaphila*. Sauk Co., Ferry Bluff, Town of Prairie du Sac, August 10. The pycnidia are quite inconspicuous.

ACTINONEMA ROSAE (Lib.) Fr. (*Diplocarpon rosae* Wolf) on *Rosa blanda*. Rock Co., Janesville, June 27.

ASCOCHYTA SILENES Ell. & Ev. on *Silene cserei*. Marquette Co., near Roslin, June 9.

ASCOCHYTA NEPETAE J. J. Davis on *Leonurus cardiaca*. Columbia Co., Gibraltar Rock County Park, July 31. Also, two specimens from Madison, August 7, 1952 and July 13, 1957, and a specimen from near Poynette, Columbia Co., September 3, 1952. The 1952 collections were very small and inadequate, but the later specimens are much more ample and seem referable to Davis' species. Davis based his description on a single rather small specimen and does not specify the range of pycnidial diameter, which I find to be quite variable, from about 80–150 μ or rarely more. He states the conidia are 10–14 x 3 μ , which, with extensions, is the general range of the conidia on *Leonurus* and in other specimens on *Nepeta*, collected by me.

ASCOCHYTA COMPOSITARUM J. J. Davis on *Solidago ulmifolia*. Dane Co., Madison, August 26. On *Aster azureus*. Dane Co., near Cross Plains, September 1. On *Aster shortii*. Green Co., New Glarus Woods Roadside Park, July 21. On *Helenium autumnale*. Gov. Dodge State Park near Dodgeville, July 21. (The specimen on *Helenium* is the small-spored form originally designated as var. *parva* by Davis, but later included under the species proper in his emended concept). On *Prenanthes alba*. Dane Co., Madison, August 25.

DARLUCA FILUM (Biv.) Cast. on *Puccinia punctata* Link var. *troglydites* (Lindr.) Arth. II on *Galium triflorum*. Columbia Co., Gibraltar Rock County Park, July 31. On *Uromyces phaseoli* (Pers.) Wint. II on *Phaseolus vulgaris*. Dane Co., Madison, September 8.

STAGONOSPORA SIMPLICIOR Sacc. & Berl. f. ANDROPOGONIS Sacc. on *Andropogon scoparius*. Dane Co., Madison, September 1. There are no sharply defined lesions, but the large phragmospores, about 40 x 10 μ , are characteristic.

STAGONOSPORA ALBESCENS J. J. Davis on *Carex grayii*. Rock Co., Avon, September 3. Here the spores are about 9–11 μ , and mostly 7, but occasionally 9 septate. On *Carex interior*. Langlade Co., near Kempster, June 9. The spores run somewhat smaller than the 45–65 x 10–13 μ of the original description, but otherwise seem characteristic. Also on *Carex prairiea* Dewey. Dane Co., Madison, June 14. Here the spores are 45–55 x 10–12 μ and are uniformly 6 septate. Associated with the *Stagonospora* on *C. prairiea* is a mature *Mycosphaerella* with perithecia about 80 μ diam., broadly clavate asci about 30 x 12 μ and hyaline ascospores about 13 x 5 μ with septum median and lower cell slightly smaller. Spots may or may not be well defined in specimens of *Stagonospora albescens*, tending not to be on filiform leaves, such as those of *C. prairiea* and *C. interior*, where the entire upper leaf is involved. It seems likely that *S. albes-*

cens and *S. caricinella* Brun. intergrade. Davis (Trans. Wis. Acad. Sci. Arts Lett. 18:264. 1915) discusses the latter species at some length.

SEPTORIA CARICIS Pass. on *Carex emoryi* Dewey. Trempealeau Co., Perrot State Park at Trempealeau, June 16.

SEPTORIA NEMATOSPORA J. J. Davis on *Carex interior*. Langlade Co., near Kempster, June 9.

SEPTORIA DENTARIAE Peck on *Dentaria diphylla*. Marathon Co., County Park at Dells of Eau Claire River, Town of Easton, June 10. The infected leaves also bear oospores of *Albugo* in astonishing profusion, with only slight evidence of the preceding conidial stage.

SEPTORIA CRATAEGI Kickx on *Crataegus mollis*. Rock Co., Avon, September 3.

HAINESIA LYTHRI (Desm.) Hoehn. on *Oenothera rhombipetala*. Sauk Co., Spring Green, September 11.

COLLETOTRICHUM GRAMINICOLA (Ces.) Wils. on *Agropyron smithii*. Iowa Co., near Arena, September 9.

COLLETOTRICHUM LUCIDAE H. C. Greene on shoot leaves of *Populus tremuloides*. Dane Co., Madison, July 5. The fungus is identical microscopically with the type which occurred in the same locality on *Salix lucida* (Trans. Wis. Acad. Sci. Arts Lett. 45:190. 1956) and, with allowance for host difference, the lesions are very similar. The fungus appears very strongly parasitic on both these salicaceous hosts.

SPHACELOMA MURRAYAE Jenkins & Grodzinsky on *Salix alba* var. *vitellina*. Dane Co., Madison, September 14.

CERCOSEPTORIA CRATAEGI (Ell. & Ev.) Davis on *Crataegus mollis*. Rock Co., Avon, September 3.

RAMULARIA VARIATA J. J. Davis on *Mentha spicata*. Iowa Co., Gov. Dodge State Park near Dodgeville, June 2.

Ramularia minax J. J. Davis on *Solidago gigantea*. Vernon Co., Wildcat Mt. State Park, August 5. In the virtual absence of trichomes on this host the fungus loses somewhat of its characteristic appearance on other species of *Solidago*, where ascension of the trichomes is a feature.

CERCOSPORA CARICIS Oud. on *Carex cephalophora*. Trempealeau Co., Perrot State Park at Trempealeau, June 17. On *Carex sparganioides*. Iowa Co. Gov. Dodge State Park near Dodgeville, July 21.

CERCOSPORA DESMODIICOLA Atk. on *Desmodium illinoense*. Dane Co., Madison, September 10.

TUBERCULINA PERSICINA (Ditm.) Sacc. on *Puccinia atrofusca* (Dudl. & Thomp.) Holw. I on *Artemisia caudata*. Burnett Co., Crex Meadows near Grantsburg, July 14. On the uredinoid aecia of *Uropyxis amorphae* (Curt.) Schroet. on *Amorpha fruticosa*. Trempealeau Co., Perrot State Park at Trempealeau, June 16. Additional evidence, if any is needed, of the truly aecial nature of these fructifications, as I do not know of any case where *Tuberculina* has been reported on other than the aecial stage of a long cycle rust.

PSEUDOCEOSPORA VITIS (Lev.) on *Vitis aestivalis*. Dane Co., near Verona, September 4. A very distinctive fungus with strikingly coremoid conidiophores.

ADDITIONAL SPECIES

The fungi mentioned have not been previously reported as occurring in the state of Wisconsin.

ALBUGO IPOMOEAE-PANDURANAE (Schw.) Swingle on *Ipomoea purpurea* (cult.). Dane Co., Madison, June 25.

NECTRIA EPISPHERIA (Tode) Fr. on *Xylaria polymorpha*. Dane Co., Brigham County Park near Blue Mounds, October 18. Coll. & det. J. L. Cunningham.

PUCINIA PLUMBARIA Peck I on *Phlox divaricata*. Columbia Co., Muir Park near Poynette, May 8.

SOROSPORIUM EVERHARTII Ell. & Gall. on *Andropogon scoparius*. Sauk Co., near Spring Green, September 11. Also on *Andropogon gerardi*. Dane Co., Madison, September 9, 1946. This was erroneously reported on *A. gerardi* as *Sphacelotheca occidentalis* G. P. Clint which thus appears not to have been collected in Wisconsin so far.

Phyllosticta eminens sp. nov.

Maculis orbicularibus, pallido- vel rufo-brunneis cum marginibus modice latis et fuscis supra, sordido-carneis cum marginibus dilutis purpureis infra, conspicuis, confluentibus interdum, ca. .5-2 cm. diam., plerumque ca. 1 cm.; pycnidiis nigris, subglobosis vel globosis, ostiolatis, superficialibus vel fere, amphigenis, plerumque hypophyllis, sparsis vel gregariis, ca. (60-)100-200 μ diam.; conidiis hyalinis, obtusis, cylindraceis vel ellipsoideis late, 3.5-5 x (1.5-) 2-2.5 μ .

Spots orbicular, pallid- to reddish-brown with fairly wide fuscous border on upper leaf surface, sordid pinkish with dull purplish border below, conspicuous, some times confluent, approx. .5-2 cm. diam., mostly about 1 cm.; pycnidia black, subglobose to globose,

ostiolate, superficial or nearly so, amphigenous but mostly hypophyllous, approx. (60–)100–200 μ diam., scattered or gregarious; conidia hyaline, obtuse, cylindrical to broadly ellipsoid, 3.5–5 x (1.5–)2–2.5 μ .

On living leaves of *Salix* (the host appears to be a hybrid of *Salix amygdaloides* and some other species, perhaps *S. fragilis*). Bank of Wisconsin River at Walnut Eddy, Wyalusing State Park, Grant County, Wisconsin, U. S. A., September 24, 1959.

A very interesting species, in which the pycnidia vary from almost entirely superficial and seated on an inconspicuous whitish subiculum, to pycnidia in which, at most, the lower quarter is imbedded in the substratum. The latter condition seems more frequent in epiphyllous pycnidia which are many fewer in number than those on the lower surface.

Phyllosticta erysimi sp. nov.

Maculis parvis, 1.5–3 mm. diam., pallido-brunneis, depressis, marginibus fuscioribus, elevatis, suborbicularibus vel irregularibus, confluentibus aliquoties, saepe marginatis; pycnidiis fuscis, subglobose vel planioribus nonnihil, erumpentibus, amphigenis, ostioliis prominentibus, ca. 175–225 μ diam. sparsis vel gregariis; conidiis numerosis, parvis, hyalinis, bacilliformibus, rectis vel curvis leniter, 3–5 x 1–1.5 μ .

Spots small, 1.5–3 mm. diam., one to several per leaf, pallid brownish, sunken with elevated margins, margins somewhat darker, suborbicular to irregular in shape, sometimes confluent, often marginal on the narrow leaves; pycnidia sordid blackish-brown, subglobose or somewhat more flattened, erumpent, amphigenous, ostiole prominently marked by a ring of darker cells, about 175–225 μ diam., scattered to gregarious; conidia very numerous, small, hyaline, rod-shaped, straight or slightly curved, 3–5 x 1–1.5 μ .

On living leaves of *Erysimum inconspicuum* (S. Wats.) MacMill. (*E. parviflorum* Nutt.). Prairie remnant along Wisconsin Highway 39, Sect. 4, Town of York, Green County, Wisconsin, U. S. A., June 4, 1959. I have not found any report of *Phyllosticta* on *Erysimum* or closely related hosts.

PHYLLOSTICTA DEARNESSII Sacc. on *Rubus strigosus*. Vernon Co., Wildcat Mt. State Park, August 5 and near Verona, Dane Co., September 4. On this host the conspicuous reddish-brown orbicular spots are about 1 cm. diam., with the pycnidia usually borne individually on tiny lighter areas within the spot. Pycnidia are from about 125–160 μ diam., the bacilliform conidia 3.5–5 x 1.2–1.5 μ . Also on *Rubus parviflorus* (cult.). Dane Co., Madison, October 15.

PHYLLOSTICTA MINOR Ell. & Ev. on *Vinca minor* (cult.). Dane Co., Madison, May 28. Apparently a well-marked species, with globoid conidia about 5 μ in diam.

PHYLLOSTICTA TUBEROSA Ell. & Mart. on *Asclepias tuberosa*. Sauk Co., Ferry Bluff, Town of Prairie du Sac, August 10. The specimen corresponds closely with the description and with N. Amer. Fungi No. 1161. *Phyllosticta tuberosa*, *Septoria asclepiadicola* Ell. & Ev., and *Stagonospora zonata* J. J. Davis all produce remarkably similar lesions on this host.

PHYLLOSTICTA TARAXACI Hollos on *Taraxacum officinale*. Dane Co., Madison, July 8. Sufficiently similar to Hollos' description to warrant inclusion, in my opinion. In the Madison specimen the spots are orbicular, .3-1 cm. diam., brownish, somewhat zonate with wide purplish margins; pycnidia epiphyllous, brownish, subglobose, thin-walled, approx. 60-80 μ diam., scattered; conidia hyaline, ellipsoid, 3.5-5 x 2-2.5 μ . Hollos gives a pycnidial diameter of 80-90 μ , and 5-6 x 1.5-2 μ for the conidial dimensions.

Ascochyta solidaginis sp. nov.

Maculis orbicularibus, conspicuis, subzonatis, cinereis vel brunneo-cinereis obscuris, marginibus angustis, fuscis, .7-2.5 cm.; pycnidiis epiphyllis, sparsis, fuscis, subglobois, ca. 250-300 μ diam.; conidiis hyalinis, angusto-cylindraceis, guttulatis, (6-)8-10 x 1.5-2 μ , uniseptatis.

Spots orbicular, conspicuous, subzonate, cinereous to dull brownish-cinereous, with narrow dark margin, .7-2.5 cm.; pycnidia epiphyllous, scattered, fuscous, subglobose, about 250-300 μ diam.; conidia hyaline, narrow-cylindric, guttulate, (6-)8-10 x 1.5-2 μ , uniseptate.

On living leaves of *Solidago altissima*. Parfrey's Glen, Town of Merrimac, Sauk County, Wisconsin, U. S. A., September 16, 1959.

Because of the narrow leaves, not over half an inch wide, the spots are seldom full orbs, but usually impinge on the margins and occasionally occupy the full leaf width. The very large pycnidia are a distinctive feature of this species. They are not translucent, as are those of many *Ascochytae*.

Stagonospora cypericola sp. nov.

Maculis nullis, foliis pallido-brunneis superne; pycnidiis fuscis, ostiolatis, globosis, immersis, sparsis, 90-125 μ diam.; conidiis hyalinis, obtusis, cylindraceis vel curvis leniter, guttulatis, (20-)25-30 (-33) x 6-7.5(-8) μ , (1-)2-3(-4) septatis.

No sharply defined spots, distal portions of leaves pale brownish and dead; pycnidia dark brown, ostiolate, globose, deeply imbedded in leaf tissue, scattered, 90–125 μ diam.; conidia hyaline, ends obtuse, cylindrical or slightly curved, guttulate, (20–)25–30(–33) x 6–7.5(–8) μ , (1–)2–3(–4) septate.

On leaves of *Cyperus filiculmis* var. *macilentus*. University of Wisconsin Arboretum at Madison, Dane County, Wisconsin, U. S. A., July 30, 1959.

The fungus is in excellent maturity and seems distinct and well-characterized. The basal portions of the host leaves are still green and living and there appears to be no doubt as to active parasitism. This is similar to, but does not seem to be identical with, an undetermined *Stagonospora* reported on dead leaves of this host in my Notes XVIII (Trans. Wis. Acad. Sci. Arts Lett. 42:71. 1953), since the conidia of *S. cypericola* are wider and longer, and the pycnidia of somewhat less diameter. *Stagonospora cyperi* Ell. & Tracy, as described, has conidia 12–16 x 2.5–3 μ .

Stagonospora lactucicola sp. nov.

Maculis orbicularibus, rufo-brunneis, marginibus angustis fuscis, conspicuis, .5–2.5 cm. diam., zonatis plus minusve; pycnidiis amphigenis, pallido-brunneis, muris tenuibus, ostiolatis, subglobois, sparsis vel gregariis, ca. 125–180 μ diam.; conidiis hyalinis, obtusis, cylindratis, guttulatis, (12–)15–20 x (4–)5–6.5 μ , 1, 2, plerumque 3 septatis.

Spots orbicular, reddish-brown with narrow fuscous margin, conspicuous, .5–2.5 cm. diam., more or less zonate; pycnidia amphigenous, pallid brownish, thin-walled, ostiolate, subglobose, scattered or gregarious, approx. 125–180 μ diam.; conidia hyaline, obtuse, cylindrical, guttulate, (12–)15–20 x (4–)5–6.5 μ , 1, 2, or mostly 3 septate.

On living leaves of *Lactuca biennis*. Wildcat Mountain State Park near Ontario, Vernon County, Wisconsin, U. S. A., August 5, 1959. Earlier, smaller specimens were collected at Parfrey's Glen, Sauk Co., August 24, 1956, and at Gov. Dodge State Park, Iowa Co., July 24, 1957.

SEPTORIA MISSISSIPPIENSIS R. Sprague on *Muhlenbergia tenuiflora*. Grant Co., Wyalusing State Park, September 24. Det. Sprague, who states that the specimen appears somewhat stunted.

SEPTORIA AMPELINA B. & C. on *Vitis riparia*. Dane Co., Madison, July 27; Sauk Co., Ferry Bluff, August 10; Dane Co., near Verona, August 23; Dane Co., near Pine Bluff, August 24. These specimens all correspond closely with No. 1166, issued by the former Division

of Vegetable Physiology & Pathology of the U. S. D. A., collected on cultivated grape at Manhattan, Kas. in 1889.

***Melasmia samaricola* sp. nov.**

Maculis nullis; fructificationibus intraepidermidibus, nigris, applanatis, rotundis, plerumque .2-.6 mm. diam., saepe confertis et confluentibus; peridiis exilibus fragilibusque, brevi rumpentibus, acellularibus, punctato-striatulis, fusco-olivaceis; conidiophoris virido-olivaceis, cylindraceutis, confertis in ordinibus basilaribus, plerumque simplicibus, ca. 15 x 3 μ , ramosis aliquoties et longioribus nonnihil; conidiis hyalinis, late ellipsoideis, obovoideis, subfusoides, vel cylindraceutis, 7-11 x 2.5-5 μ .

Spots none; fruiting bodies developing intraepidermally, black, applanate, rounded, mostly about .2-.6 mm. diam., frequently crowded and confluent on both surfaces of fruits; peridium very thin and fragile, soon rupturing, acellular, punctate-striatulate, smoky-olivaceous by transmitted light; conidiophores greenish-olivaceous, cylindric, closely compacted in a basal layer mostly simple, about 15 x 3 μ , occasionally branched and then somewhat longer overall; conidia hyaline, broadly ellipsoid, obovoid, subfusoid, or occasionally cylindric, 7-11 x 2.5-5 μ .

On still green samaras of *Ulmus carpinifolia* Gleditsch (cult.) University of Wisconsin Campus, Madison, Dane County, Wisconsin, U. S. A., May 19, 1959.

The spores of *Melasmia ulmicola* B. & C., occurring on the leaves of various elms, are much smaller and of the micro bacilliform type. Dr. J. A. Stevenson was kind enough to compare this specimen with others in the National Fungus Collections and he informs me that they have nothing like it, and it appears to be new and hitherto undescribed.

***Cylindrosporella conspicua* sp. nov.**

Maculis magnis et conspicuis, obscuro-brunneis supra, obscuro-purpureis infra, cum acervulis hypophyllis, confertis, sordidofuscis; acervulis subcuticularibus, elevatis leniter, ca. 150-225 μ diam.; conidiophoris hyalinis, non ramosis, confertis prope, 10-12 x 1.5 μ ; conidiis hyalinis, angusto-cylindraceutis, subfusoides, vel allantoideis raro, 5-9 x 1.5-2(-2.5) μ .

Lesions large and conspicuous, dull sordid brownish above, dull purplish on the under surface which is thickly beset with the sordid-fuscous acervuli; acervuli subcuticular, only moderately elevated, approx. 150-225 μ diam.; conidiophores hyaline, simple, closely crowded, 10-12 x 1.5 μ ; conidia hyaline, narrow-cylindric, subfusoid, or rarely allantoid, 5-9 x 1.5-2(-2.5) μ .

On living leaves of *Salix glaucophylloides* Fern. (or a variety thereof). On Milwaukee Railroad right-of-way, $\frac{1}{4}$ mi. N of Swan Lake, Pacific Township, Columbia County, Wisconsin, U. S. A., September 18, 1959.

The lesions usually extend from margin to margin of the relatively wide leaves and frequently involve up to three-fourths of the leaf. The leaf tissue adjacent to the numerous acervuli mostly has a rusty-reddish cast, so that, although the lesion is basically dull purplish, as indicated, it has a reddish overlay.

A less well matured specimen of the same fungus on the same host was briefly described as an undetermined *Gloeosporium* in my Notes XXIV, and was collected in the same general area near Cambria, Columbia Co., September 10, 1957. The generic designation here used follows the treatment of Von Arx in his revision of the fungi assigned to *Gloeosporium*.

COLLETOTRICHUM PYROLAE (Trel.) Parmelee (Can. Jour. Bot. 36: 872. 1958) replaces *Ovularia pyrolae* Trel. for the fungus whose type was collected in 1884 near Stoughton, Dane Co., with subsequent Wisconsin collections at Manitowish, Iron Co., and near Verona, Dane Co. Setae are absent, but Parmelee is following Von Arx's recent treatment, in which species assigned to *Colletotrichum* may have setae or not.

***Cercoseptoria andropogonis* sp. nov.**

Foliis sordido-brunneolis; conidiophoris obsoletis vel fere, hypophyllis; conidiis ex pulvinulis substomatibus flavo-brunneis, ca. 20–25 μ diam.; conidiis hyalinis, flexuosis leniter, attenuatis, indistincte 3–4 septatis, ca. 35–60 x 2–2.5(–3) μ .

Leaves sordid brownish in affected areas which may be extensive; conidiophores obsolete or nearly so, hypophyllous; conidia essentially produced from compact yellow-brown substomatal tubercles about 20–25 μ diam.; conidia hyaline, moderately flexuous, tapered at both ends, indistinctly 3–4 septate, approx. 35–60 x 2–2.5(–3) μ .

On living leaves of *Andropogon scoparius*. Perrot State Park at Trempealeau, Trempealeau County, Wisconsin, U. S. A., June 17, 1959.

Since there is some ambiguity in applying the terms "hypophyllous" and "epiphyllous" to grasses, it should be noted that the infection in this case is on the abaxial side of the leaf. Numerous still attached, more or less mature, conidia are present on the substomatal tubercles and radiate out through the stomata, superficially resembling conidiophores, but there are no scars marking points of

attachment of dispersed conidia, geniculations, or other characteristic features of conidiophores.

CURVULARIA SPICATA (Bainier) Boedijn on *Triplasis purpurea*. Iowa Co., near Arena, September 11. Det. R. A. Shoemaker. The fungus is on dead areas, but it seems likely it developed parasitically.

CERCOSPORA PTERIDIS Siemaszko on *Pteridium aquilinum* var. *latiusculum*. Dane Co., near Verona, August 23. This fits Chupp's expanded conception of the species. The yellowish, obclavate conidia, only moderately tapered, are multiseptate, 6–7.5 μ at the base, which is often somewhat constricted and extended, approx. 140–165 μ long. The straight, simple, long-cylindric, rarely once-geniculate conidiophores are fascicled, about 50–65 x 5–6 μ , continuous to 1–2 septate.

CERCOSPORA DEUTZIAE Ell. & Ev. on *Deutzia lemoemoinei* (cult.). Dane Co., Madison, October 19.

Cercospora nyssae-sylvaticae sp. nov.

Maculis circulis vel elongatis nonnihil, 2–5 mm. diam., centris cinereis, marginibus latis comparate, fusco-purpureis; conidiophoris amphigenis, plerumque fasciculatis arcte, stromatibus nullis vel parvis; conidiophoris pallido-brunneis, 1–2 septatis, plerumque geniculatis admodum, raro ramosis supra, ca. 65–100 x 4–5 μ ; conidiis hyalinis, angusto-obclavatis vel subacicularibus, multiseptatis, basibus truncatis, cicatricibus prominentibus, (65–)80–165 x 3–4.5 μ .

Spots rounded or somewhat elongate, 2–5 mm. diam., centers cinereous with rather wide dark purplish margins; conidiophores amphigenous, mostly closely fascicled and tufted, stromata lacking or only moderately developed; conidiophores pale brown, once or twice septate, usually markedly geniculate throughout much of their length, rarely branched near apex, approx. 65–100 x 4–5 μ ; conidia hyaline, narrowly obclavate to subacicular, long-tapering, multiseptate, base truncate with prominent scar, (65–)80–165 x 3–4.5 μ .

On living leaves of *Nyssa sylvatica* (cult.). University of Wisconsin Arboretum at Madison, Dane County, Wisconsin, U. S. A., October 18, 1959.

The conidial tip is very narrowly tapered, as opposed to sub-obtuse in *Cercospora nyssae* Tharp, which differs in many other particulars from *C. nyssae-sylvaticae* and is, so far as I have been able to determine, the only other species described on this host.

Some of the conidia present in mounts of this fungus are relatively short and narrowly subcylindric. In line with observations made in previous seasons on other Cercosporae, these short conidia are believed to be due to the retarding effect of a brief period of cold weather which occurred shortly before the collection was made.

CERCOSPORA VIBURNICOLA Ray on *Viburnum carlesii* (cult.). Dane Co., Madison, September 13. Some of the hyaline, acicular conidia measure as much as 170 μ in length. On this host the fungus is mostly, if not entirely, hypophyllous and very difficult to detect among the stellately branched hairs with which the host leaves are thickly beset.

PETRAKIA ECHINATA (Pegl.) Syd. on *Acer saccharinum*. Vernon Co., Wildcat Mt. State Park, September 9. The Wisconsin specimen corresponds closely to European material on *Acer pseudoplatanus*.

