INDIANA FUNGI—VIII.

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The present paper brings our total list of fungi to 837. The actual number of species, however, is somewhat fewer, as some duplication is necessary in adding new counties and new hosts. Yet, many are not only new to the state, but some are new to the United States. Our chief aim is not to make a mere list, but to make available descriptions more complete, or in some cases to entirely rewrite them. Much of new species data, aside from being too brief, is based upon a single field collection. Good descriptions can not usually be written from such material. Characteristics of both host and parasite often vary not only with different seasons, but also vary within those seasons. We have long observed that a particular fungus will produce spots quite characteristic, but entirely different in two consecutive years. Many things may contribute to this. Moisture and heat undoubtedly are two of the greatest factors. In dry seasons, some spots are often more limited and definite, while in seasons of much rain, the same fungous species will produce spots much less limited with the centers sloughing away or falling out. In our collections, we have examples of such variations, which the field observer would not recognize as caused by identical fungi.

BASIDIOMYCETES.

Gymnosporangium Juniperi-Virginianae Schw. On leaves and fruit of Ben Davis apple, July 4, 1924. Malott. 4022. Very severe.

Lenzites vialis Pk. On ash pole (*Fraxinus americana* L.), Hamilton County, September 8, 1909. F. L. Pickett. 4009.

Microstroma juglandis (Bereng.) Sacc. On living leaves of *Carya ovata* (Mill.) K. Koch., Monroe County, July 16, 1924. F. M. Andrews. 4018. Putnam County, June 17, 1922. Blaydes. 4054. This has been reported on hickory from West Virginia. Although it injures the leaves rather severely, we do not notice the "Witches Broom" effect which accompanies it.

Phragmidium speciosum Cke. *Earlea speciosa* (Fr.) Arth. On low growing species of rose, river bank, Crawford County, May 16, 1924. J. M. V. 4011. The teliospores were abundant on old stems which had been killed.

ASCOMYCETES.

Claviceps purpurea (Fr.) Tul. On *Elymus virginicus* L., Monroe County, September, 1924. Russell Kennell. 4031. On *Festuca elatior* L., July 16, 1924. Glenn Blaydes. 4019. On *Dactylis glomerata*

"Proc. Ind. Acad. Sci., vol. 34, 1924 (1925)."

L., July 17, 1924. Blaydes. 4020. This grass was growing near cultivated rye which was also heavily ergotized. On *Agropyron repens* (L.) Beauv., July 10, 1924. Blaydes. 4028. On *Elymus striatus* Willd., September, 1924. Kennell. 4032.

Lachnea scutellata L. On bark of root of *Fagus grandifolia* Ehrb., Monroe County, May 20, 1924. Gasper Loughridge. 4010.

Leptosphaeria irrepta Niessl. On living leaves of *Cycas revoluta* Thunb., I. U. botanical conservatory, November 20, 1924. Stacy Hawkins. 4039. This was first described from material collected at Fiume. It grew on plants out of doors in the botanic garden. This agrees unusually well with the description, and should be easily identified by its spores which are at first continuous, usually 4-guttulate, becoming 4-celled. These spores are swollen on either side of the middle septum, and have appended at either end a lump of mucus.

Nectria cinnabarina (Tode) Fr. On twigs of *Aesculus glabra* Willd., Hamilton County, September 8, 1909. Pickett. 4007. On dead twig of *Quercus Rubra* L. 4006. On dead canes of *Ribes rubrum* Linn. 4005.

Phyllachora Graminis (Pers.) Fckl. On living leaves of *Elymus canadensis* L., Monroe County, August 6, 1924. Blaydes. 4029.

FUNGI IMPERFECTI.

SPHAEROPSIDALES.

Phyllosticta Grossulariae Sacc. On living leaves of *Ribes aureum* Pursh., summer of 1923, Monroe County. J. M. V. 4056.

Phyllosticta Hamamelidis Pk. On living leaves of *Hamamelis virginiana* L., Monroe County, June 19, 1924. J. M. V. 4015. We add the following to the description: spots often extending along the midrib, sometimes its entire length. The pycnidia are wholly epiphyllous and not amphigenous as described by Peck, though one might mistake this with a hand lens. They are scattered thickly all over the spots, but tend to be congested along the veins. They are 85 to 110 microns (mostly about 100) and have a definite pore 12 to 15 microns in diameter. (This species was noted in Indiana Acad. Sci., 1915. In the description, the term Phyllosticta and Pestalozzia should be reversed in lines 2 and 3 on page 145.)

Phyllosticta macrospora E. & E. On living leaves of *Liriodendron tulipifera* L., summer of 1923, Monroe County. 3978. It has been suggested that the spores are merely immature asci of the perfect stage (*Sphaerella Liriodendri* Cke.) Our *spores?* are from 15 to 25 by 5 to 9 microns, granular and guttulate, hyaline, oval, ovate, naviculate, to cylindrical. Perithecia large, about 125 microns with a pore about 30.

Phyllosticta minima (B. & C.) E. & E. On living leaves of *Acer rubrum* L., Greene County, July 14, 1923. Hawkins. 3996. On *Acer Negundo* L., Monroe County, July 1, 1923. J. M. V. 3998.

Phyllosticta Paviae Desm. On living leaves of *Aesculus glabra* Willd., Putnam County, June 8, 1924. Blaydes. 4012. This is the pycnidial stage of *Guignardia Aesculi* (Pk.) V. B. Stewart. It was reported as very severe on young trees.

Phyllosticta rubicola Rabh. On living leaves of wild black raspberry (*Rubus occidentalis* Linn.), Monroe County, October 25, 1924. Hawkins. 4035. This species which occurs in Europe on *Rubus caesius* and *R. Idaeus* agrees exactly with our specimens. We add the following: spots 1 to 4 mm. Pycnidia 55 to 75 microns, subglobose, located near the veins. Spores 4 to 5 by 2 to 3 microns. No Phyllosticta seems to have been reported on this species. A *Phyllosticta sp.* has been reported from Florida in the "Plant Disease Reporter" for 1924.

Pestalozzia Cycadis Allesch. On living leaves of *Zamia floridana* D. C., I. U. Botanical conservatory, December 1, 1924. Hawkins. 4053. Reported on *Cycas revoluta* Thunb. in the Royal Botanic Garden of Munich. (See Hedwigia, vol. 34, p. 219. 1895.)

Septoria Helianthi Ell. & Kell. On living leaves of *Helianthus sp.*, Monroe County, July 1, 1923. J. M. V. 3993. Agrees, except spots irregular or angular.

Septoria Ribis Desm. The pycnidial stage of *Mycosporella Grossulariae* (Fr.) Lind. On living leaves of *Ribes aureum* Pursh., Monroe County, July 18, 1924. J. M. V. 4034. Reported on both currant and gooseberry; also on *Ribes odoratum* Wendl. in Ill. Circ. 241, p. 127. Pycnidia in our specimens are 35 to 145 microns, globose or sub-globose. The spores are 37 to 75 by 2 to 3 microns and continuous to 3-septate. The pycnidia are thin above, opening with a very broad mouth.

HYPHOMYCETES.

Botrytis Bassiana Bals. On dead insect fast to living leaf of cultivated strawberry, Monroe County, July 28, 1924. J. M. V. 4023.

Cercospora beticola Sacc. On living leaves of *Beta vulgaris* Linn., Putnam County, August 14, 1922. Blaydes. 4030.

Ramularia concomitans Ell. & Holw. On living leaves of *Bidens frondosa* L., Monroe County, July 26, 1924. J. M. V. 4024. Agrees well, except that some spores are somewhat thicker, measuring from 15 to 25 by 3 to 5 microns. They are quite uniformly 1-septate and are borne in chains. Spots are brown.

Ramularia Plantaginea Sacc. & Berl. On living leaves of *Plantago Rugelii* Dcne., Monroe County, October 14, 1924. Hawkins. 4033. Spots dark brown above, often becoming pale in the center; somewhat lighter in color below, one-half to one and one-half cm. in diameter, circular or irregular, sometimes confluent and indeterminate. Conidiophores amphigenous, but occurring, for the most part, below, resembling a downy mildew, fasciculate, hyaline, 50

to 125 by 3 to 7½ microns, tapering upward to 2 to 3, wavy or nodulose, much bent where spores are attached, the basal cell much greater in diameter than the part above which is usually continuous. Spores 2 to 8 on each conidiophore, borne both terminally and laterally, hyaline, one to four-celled, constricted at the septa, sometimes with one cell of less diameter, long elliptical or oblong to cylindrical, 15 to 48 by 5 to 7½ microns.

Cercospora Violae Sacc. On living leaves of *Viola cucullata* Ait., Monroe County, September 30, 1923. Mrs. W. T. Hicks. 3985. We have listed this species before with variations in conidiophores. The spots here are small, circular, 1 to 2 mm. Spores are 100 to 160 by 3½ microns, and up to 14-septate. The conidiophores are long as in 2650, brown, light-colored at tips.