

type rather than longitudinal, and in the greater number of scales, which in this species are ctenoid instead of cycloid, on the cheeks and opercles.

Type No. 9785. Museum Indiana University.

Cotype No. 9786. Museum Indiana University.

Cotypes have also been deposited in the U. S. National Museum, U. S. Fish Commission, Museum of Stanford University and British Museum of Natural History.

d. MYXOMYCETES OF LAKE WINONA.

FRED MUTCHLER.

With the advice and consent of Dr. C. A. King, I decided to take the time not required in teaching during the Station Session of 1902 in making a systematic study of the Myxomycetes of the lake neighborhood and this report shows the result of the work.

The season was one especially favorable for such a study, inasmuch as the frequent warm rains were very conducive to a luxuriant growth of all kinds of fungi.

This list is by no means complete, though I feel sure that it contains the majority of the forms indigenous to the region. Had it been possible to continue the study for another month I feel sure that the list would have been very materially increased, for myxomycetes were as plentiful at the close as they were at the opening of the station work.

Quite a number of specimens were collected on special excursions to Turkey Lake, Tippecanoe River, and North Manchester. I have included in this list species found on those trips that I did not find at Winona. The locality of such species is indicated in every case. All others were collected in the immediate neighborhood of the lake.

Didymium nigripes I found growing October 20, on Sphagnum that I brought to Clark University from the lake. On November 21 I noticed the same species growing on rabbits' dung that I had also brought from there.

My first attempt was to follow the classification and nomenclature as given in Lister's Mycetozoa. I soon found, however, that there are species here not given in that work, and I therefore used McBride's Myxomycetes of North America in connection with it.

The list including eighty-six species belonging to twenty-one genera is as follows:

1. *Ceratomyxa porioides* (Alb. and Schw.) Schroeter. Very common on decayed wood from July 1 to August 10. Frequently found covering almost the entire surface of decaying trunks.

2. *Physarum viride* Pers. Collected at least on three different trips, June 27, July 13, and July 20. On bark of fallen trees.

3. *P. pulchripes* Peck. Found in one collection, July 3. On bark of an old oak stump.

4. *P. nutans* Pers. Collected in considerable quantities from bark of fallen elm, July 9.

5. *P. polymorphum*. Found spreading in large patches over bark of a beech stump and on blades of grass and leaves of briars nearby, July 14. Turkey Lake.

6. *P. nefroidum* Rost. Brought into the laboratory several times. Collected from bark of fallen cottonwood, July 17.

7. *P. galbeum* Wingate. On oak bark, July 18.

8. *P. auriscalpium* Cooke. On decaying leaves. Turkey Lake, July 14.

9. *P. nucleatum* Rex. Not common. Bark of fallen ash, July 20.

10. *P. maculatum* McBr. On decaying wood in considerable quantity, July 24.

11. *P. didermoides* Rost. A single specimen collected on a decaying sycamore stump, July 21.

12. *P. nodulosum* Cooke and Balfour. On fallen trunks, July 15.

13. *P. globuliferum* Pers. July 31. Decayed wood.

14. *P. obrussum* Berk and Curtis. Collected from a fallen poplar trunk near North Manchester, August 3.

15. *P. melleum* Mass. Found in small quantity on decaying leaves in woods near North Manchester, August 3.

16. *P. citrinum* Schumacher. Collected along with *P. melleum*, North Manchester, August 3.

17. *P. cinereum* Pers. Found on a growing fern frond in woods near Tippecanoe River, August 5.

18. *Physarella mirabilis* Peck. Found literally covering the inside of a hollow sycamore stump near the biological laboratory, July 7.

19. *Tilmadoche compacta* Wingate. One specimen collected on oak bark, July 30. Does not seem to be plentiful.

20. *Spumaria alba* D. C. Very common on stems and leaves of herbaceous plants throughout the month of July.

21. *Fuligo septica* Gmelin. Most common of any species collected. Could be found any day throughout the season.

22. *F. violacea* Pers. Rare, collected from decayed oak stump, July 19.

23. *Leocarpus vernicosus* Link. Only a small quantity collected from the bark of an oak log, July 29.

24. *Tubulina fragiformis* Pers. Quite common on decaying wood during the month of July.

25. *T. stipitata* Rost. Only a single specimen. Collected from decayed oak stump, July 18.

26. *Craterium leucocephalum* Ditmar. Found frequently on bark of twigs, July 20 and 29.

27. *C. minimum* Berk. and Curt. Found only once. Blades of grass, July 31.

28. *Didymium crustaceum* Fries. On green blades of grass and leaves. Turkey Lake, July 14.

29. *D. nigripis* Fries. Found growing on Sphagnum and rabbit dung collected at Winona Lake.

30. *Stemonitis fusca* variety *genuina* Roth. Collected in abundance from decaying wood, July 4.

31. *S. fusca* variety *rufescens* Roth. A single specimen from decayed oak stump, June 25.

32. *S. splendens* Rost. Quite common on all kinds of decaying wood, June, July and August.

33. *S. Smithii* McBr. Found in great tufts at base of decaying oak stump, June 26.

34. *S. maxima* Schweinitz. Quite common. July.

35. *S. pallida* Wingate. Collected in small quantity on bark of fallen oak, July 10.

36. *S. Morgani* Peck. Collected in plentiful quantities on decayed oak trunk, July 16.

37. *S. Carolinensis* McBr. Found growing, July 17, on the stump where *S. Smithii* had been collected June 26. *S. Smithii* was not found at this time.

38. *S. herbatica* Peck. Single specimen. Blades of grass. July 17.

39. *S. Virginicensis* Rex. Collected from oak bark along with *S. nigrescens*, July 14. Turkey Lake.

40. *S. nigrescens* Rex. Turkey Lake, July 14.
41. *S. Webberi* Rex. On fallen elm. July 14. Turkey Lake.
42. *S. confluens* Cooke and Ellis. Collected in considerable quantities from bark of fallen oak trunk, July 20. Probably rare.
43. *Comatricha stemonitis* Sheldon. Quite common on decaying wood. Collected frequently during July.
44. *C. irregularis* Rex. On fallen cottonwood trunk, July 17.
45. *C. Subsdorfi* Ellis and Everhardt. Single specimen collected July 30, on an old rail fence.
46. *C. typhoides* Rost. Found quite plentiful on dead wood near North Manchester, August 3.
47. *C. equalis* Peck. Not common. Collected from a board fence July 30.
48. *Dictydium umbilicatum* Schrader. Collected in great abundance on various kinds of decaying wood during the month of July.
49. *Cribraria tenella* Schrader. Collected in large quantities on very badly decayed wood, June 25 to July 28.
50. *C. dictydioides* Cke. and Balf. Very common. Quite a large decaying oak trunk was found by the elementary students, while collecting. July 17, that was literally covered with this species.
51. *C. microcarpa* Pers. Taken in substantial quantities from decaying wood at Turkey Lake, July 14. Also near Tippecanoe River, August 5.
52. *C. macrocarpa* Schrader. On rotten wood, July 30.
53. *C. minutissima* Schweinitz. This species taken only once but in considerable quantity then. On a lichen covered oak trunk, July 20. On account of its smallness it is probably often overlooked by collectors.
54. *Areyria incarnata* Pers. Very common. Collected many times on all kinds of decayed wood, June 26 to August 20.
55. *A. cinerea* Pers. Found abundantly during July on decayed wood.
56. *A. flava* Pers. On decaying maple, July 4.
57. *A. punicea* Pers. Perhaps the most common of the *Areyrias*. Collected on almost every trip during the entire time the station work was going on.
58. *A. ferruginea* Sauter. Found growing on old decaying cornstalks. July 4.
59. *A. incarnata nodulosa* McBr. On decaying birch, July 10.

60. *A. digitata* Pers. Quite common on decaying maple. The sporangia are usually collected in tufts of from four to twelve. July 10.
61. *A. pomiformis* Rost. Found along with *A. digitata*, July 10.
62. *A. vitellina* Phillips. Turkey Lake, July 14.
63. *A. Ørstedtii* Rost. Growing on decayed wood—maple and cottonwood, July 23.
64. *A. magna* Rex. On decaying trunks, Tippecanoe River, August 5.
65. *A. albida* Pers. Very common on dead wood of various kinds. July, August.
66. *Hemitrichia clavata* Rost. Collected from decaying watery trunks, July 3.
67. *H. rubiformis* Lister. Very common. Usually found growing on the watery decaying wood under the bark of fallen trunks. Sporangia are often sessile.
68. *H. intorta* Lister. On decaying oak, July 17.
69. *H. stipitata* Mass. Only a small specimen collected from water soaked wood, July 21.
70. *H. serpula* Rost. Found in abundance in the inner bark of water soaked wood. Tippecanoe River, August 5.
71. *Ophiotheca chrysosperma* Currey. Collected July 20 and 28, on inner bark of fallen willow trunks.
72. *O. Wrightii* Berk. and Curt. Collected in considerable quantity on inner bark of fallen elm trunks July 23.
73. *Oligonema nitens* Rost. Collected in small quantity in decaying wood near North Manchester, August 3.
74. *O. flavidum* Mass. Found along with *O. nitens*, North Manchester, August 3.
75. *Perichæna corticalis* Rost. Collected in small quantity on fallen elm trunk under outer bark, July 30.
76. *P. variabilis* Rost. On inner bark of willow trunk, July 30.
77. *Trichia contorta* Rost. Collected only in small quantity, July 8, in decayed wood of oak stump.
78. *T. affinis* DeBary. Found in considerable quantity in decaying maple, July 8.
79. *T. fallax* Pers. Quite common on various decaying woods, July 10.
80. *T. favoginea* Pers. Collected quite frequently on various woods during the month of August. More abundant than any other member of the genus.

81. *T. scabra* Rost. Collected from decayed wood near Tippecanoe River, August 5.

82. *T. persimilis* Karst. Single specimen collected July 26. Decayed elm.

83. *T. lowensis* McBr. Found growing in rotten wood near Tippecanoe River, August 5.

84. *Lycogala criguum* Morg. Not common. Collected only once. June 26.

85. *L. flavo fuscum* Rost. Several specimens collected from water soaked decaying wood. Turkey Lake, July 14.

86. *L. minutum* Pers. Very common on all kinds of decaying trunks. This species was found on almost every collecting trip.

c. THE PLANKTON OF WINONA LAKE.

CHANCEY JUDAY.

Winona Lake is one of the numerous lakelets found in northern Indiana. It is located in Kosciusko County about one mile (1.6 kilometers) southeast of the city of Warsaw. Concerning the physical features of the lake but little need be said as two hydrographic maps showing many of these points, have been published; one by Large in 1896 (Proc. Ind. Acad. Sci., 1896) and another by Norris in 1901 (Proc. Ind. Acad. Sci., 1901). The lake is irregular in outline and has an average length north and south of about one and an eighth miles (1.8 kilometers) and an average width east and west of about seven-tenths of a mile (1.1 kilometers) with a large bay extending westward from the north end. It has an area of about 0.9 of a square mile (2.3 square kilometers) and a maximum depth of eighty-one feet (twenty-five meters). Two small creeks flow into the southeastern portion of the lake and there are several large springs along the east side.

The data for this paper were collected at the Indiana University Biological Station during the summer of 1901. I wish to acknowledge my indebtedness to Dr. C. H. Eigenmann, Director of the Station, for many courtesies shown me. I am also much indebted to Mr. Clarence Kennedy and Mr. Heilman C. Wadsworth for their valuable assistance both in making the observations and in the tedious work of counting the material.