

NOTES ON THE ODONATA OCCURRING IN THE
VICINITY OF SILVER LAKE, LOGAN COUNTY,
OHIO, FROM JUNE 25 TO SEPTEMBER 1, 1930.

DONALD J. BORROR,
Department of Zoology and Entomology,
Ohio State University.

Most of the collecting during the summer was done on or around Silver Lake (also called Lake Mac-O-Chee), a lake of about 75 acres located three miles west of Bellefontaine, at an elevation of 1090 feet. The highest point in the state, 1550 feet, is located about five miles northeast of this lake. Collections were made at other points as follows: Black Lake, a smaller lake two miles southeast of Degraff (one trip, July 15); along Buckongahelas and Bluejacket Creeks northeast of Degraff (several trips); in numerous swampy woods and ponds within a radius of four or five miles of Silver Lake (several trips); along the North Fork of the Miami near Indian Lake and in the marshes at the northeast of Indian Lake (one trip, July 24); along Mad River just south of Zanesfield (one trip, July 18); at Cedar Swamp, about five miles south of Urbana in Champaign County (two trips, July 22 and August 13); and along Mad River just south of Urbana (one trip, August 13). In spite of the fact that several trips were taken along the creeks west of Silver Lake and along Mad River, no gomphines were observed or taken. Apparently the trips were made too late in the season for these species.

There follows an annotated list of the species taken or observed:

Family AESCHNIDÆ.

Subfamily AESCHNINÆ.

1. **Anax junius** Drury. Fairly common near ponds and lakes throughout the summer. Last observed in tandem July 4.
2. **Aeschna umbrosa** Walker. Common throughout the summer on small ponds and in woody swamps. A few specimens were taken around the lake (Silver Lake).

Family LIBELLULIDÆ.

Subfamily CORDULINÆ.

3. **Epicordulia princeps** Hagen. Fairly common up to about the middle of July. It flies over the open water of the lake near the shore.

Subfamily LIBELLULINÆ.

4. **Nannothemis bella** Uhler. All the specimens of this species were taken at Cedar Swamp, where it was quite abundant. These little libellulines occur in the marsh grass in the open part of the swamp, rarely if ever flying above the top of the grass. They hover in the midst of the grass a foot or two above the ground, and then very suddenly—sometimes so quickly that the eye can scarcely follow the movement—they dart away and hover over another spot a few feet distant.
5. **Perithemis tenera** Say. Abundant throughout the summer. This species was most abundant around patches of yellow pond lilies, and one female was observed ovipositing in the water contained in a little pool formed by a lily leaf. Another was observed ovipositing on a piece of submerged vegetation. Though most abundant over water and around the lily pads, where they apparently never fly more than a foot or two above the water, they were occasionally taken in the marsh grass near the edge of the lake.
6. **Celithemis eponina** Drury. Only one specimen of this species was seen during the summer; it was observed flying over an open field about a mile northeast of Indian Lake, July 24.
7. **Celithemis elisa** Hagen. This species was observed occasionally during the summer, flying over the open water two or three feet above the surface, and sometimes alighting on cattails or bushes at the water's edge. A few were observed in tandem, but none ovipositing.
8. **Libellula luctuosa** Burmeister. Quite common on lakes and ponds throughout the summer.
9. **Libellula pulchella** Drury. Quite common throughout the summer near lakes, ponds, and streams, and occasionally observed three or four miles from water.
10. **Plathemis lydia** Drury. Quite common throughout the summer, occurring in situations similar to those in which the preceding species was found.
11. **Sympetrum obtrusum** Hagen. Three males were taken during the summer, June 28, July 1, and July 24, in swamp grass and swampy woods near the lake.
12. **Sympetrum rubicundulum** Say. Abundant throughout the summer. Occurs almost everywhere except over the open water of the lake.

13. **Sympetrum semicinctum** Say. Fairly common throughout the summer in fields near the lake.
14. **Sympetrum vicinum** Hagen. The first specimens were taken July 28. From that time on they were quite common, occurring most abundantly at the outer edge of the swamp and in fields near the lake.
15. **Leucorrhinia intacta** Hagen. This species was fairly common up until July 4, when the last specimen was taken. Most of the specimens were taken in cattails at the edge of the lake.
16. **Pachydiplax longipennis** Burmeister. This species was quite abundant up until August 1. It was most abundant in the cattails at the edge of the lake, but specimens were occasionally taken in the woods and fields some distance from the lake.
17. **Mesothemis simplicicollis** Say. This species was quite abundant up until about August 1. Most of the specimens were taken in fields near the lake and at the outer edge of the weeds around the lake, but this species is also quite common in the cattails at the water's edge.
18. **Tramea lacerata** Hagen. This species was observed occasionally up until July 4. It flies several feet above the surface of the water or land.

Family AGRIONIDÆ.

19. **Agrion maculatum** Beauvais. Abundant throughout the summer along small streams or ditches which are edged by or filled with thick vegetation.
20. **Hetaerina americana** Fabricius. Quite common from July 8 on, along small streams containing ripples. It flies close to the water and alights on the vegetation overhanging the water. The flight is very quick and rather irregular. Two males will frequently fly across the ripples, flying in circles around each other.

Family COENAGRIONIDÆ.

Subfamily LESTINÆ.

21. **Lestes eurinus** Say. One male, July 3, taken in a swampy woods.
22. **Lestes congener** Hagen. Several specimens, July 3 and 8, chiefly in swampy woods. One specimen was taken at the edge of a fairly dry (oak-hickory) woods some distance from water.
23. **Lestes unguiculatus** Hagen. Fairly common from the middle of July on. The specimens were taken in grassy swamps.
24. **Lestes forcipatus** Rambur. Specimens were taken occasionally during the summer in marsh grass or in woods near the marsh.
25. **Lestes rectangularis** Say. Quite common up until August 1 in the marshes and woods around the lake. This was the most abundant species of *Lestes* observed during the summer.

26. **Lestes uncatus** Kirby. Several specimens taken from July 1 to 8 in swampy woods.

Subfamily COENAGRIONINÆ.

27. **Argia apicalis** Say. Numerous specimens of this species were taken at Indian Lake July 24. Some were taken in tandem flying at the water's edge close to the surface, or alighting on the vegetation bordering the water. Others were taken alighting on bare ground, fallen logs, and the like not far from the water. In the open, away from the water, their flight seems to be quicker, and they are rather difficult to capture.
28. **Argia bipunctulata** Hagen. This species was taken at Cedar Swamp. It was quite abundant in the marsh grass in the open part of the swamp on the first trip, July 22, and much less abundant August 13. The flight is rather weak; they are not at all difficult to capture. Their flying is confined to the marsh grass; they never seem to fly above it.
29. **Argia tibialis** Rambur. One pair in tandem taken July 24 at Indian Lake.
30. **Argia violacea** Hagen. Specimens were taken from July 8 to August 5. It was fairly common along Buckongahelas and Bluejacket Creeks, where it seemed to prefer the vegetation along the edge of the stream. One male was taken in the marsh grass at Black Lake, July 15.
31. **Amphiagrion saucium** Burmeister. Numerous specimens of this species were taken at Cedar Swamp, where it was quite common, especially in the grassy part of the swamp.
32. **Nehalennia irene** Hagen. Fairly common up until August 1 in the grassy part of the swamps surrounding the lake. One female was taken at the edge of a fairly dry (oak-hickory) woods about half a mile from the lake.
33. **Enallagma hageni** Walsh. Two males, June 26 and 28, taken in the cattails at the edge of the lake.
34. **Enallagma geminatum** Kellicott. Two males, July 24, at Indian Lake, and numerous specimens in the bulrushes at the water's edge at Silver Lake the last week in August.
35. **Enallagma signatum** Hagen. Quite common throughout the summer, occurring over the open water of the lake, and occasionally back in the marshes. It is most abundant flying a rod or so from the edge of the cattails or marsh grass, a few inches above the surface of the water. Oviposition, on submerged vegetation, occurs in tandem. The female alights on the vegetation and the male holds itself up at an angle of about 45 degrees while the female lays her eggs.
36. **Enallagma vesperum** Calvert. A few specimens were taken during July. This is quite similar to *signatum*, but seems to occur more frequently in the grassy part of the swamp. One male was taken on a shrubby hillside on the south side of the lake.

37. **Enallagma exsulans** Hagen. Quite common throughout the summer, occurring in the cattails and bulrushes at the edge of the water, and occasionally in the fields and woods near the lake.
38. **Enallagma antennatum** Say. This species was quite common along Buckongahelas and Bluejacket Creeks, where it was found flying over the vegetation at the water's edge.
39. **Enallagma carunculatum** Morse. Quite abundant throughout the summer. It occurs in the cattails and bulrushes at the edge of the lake, back farther in the marshes, and occasionally in the woods and fields near the lake. Oviposition occurs in submerged vegetation near the water's edge.
40. **Enallagma doubledayi** Selys. Two males, June 26, taken on a grassy and shrubby hillside near the lake.
41. **Enallagma aspersum** Hagen. One male, July 3, in a swampy woods.
42. **Enallagma traviatum** Selys. Fairly common up until about July 3, occurring in situations similar to those in which *exsulans* and *carunculatum* are found.
43. **Ischnura posita** Hagen. Found occasionally throughout the summer in the grassy parts of the swamps around the lake, and in the swampy vegetation along streams.
44. **Ischnura verticalis** Say. Very abundant throughout the summer, occurring everywhere any other species was found. This was the most abundant damselfly observed during the summer.
45. **Anomalagrion hastatum** Say. One male, August 9, taken in a swampy woods.

Of these 45 species, four are new records for the state: *Aeschna umbrosa* (No. 2), *Nannothemis bella* (No. 4), *Argia bipunctulata* (No. 28), and *Enallagma vesperum* (No. 36). I am sure that *A. umbrosa* and *E. vesperum* have been taken in the state before, though I can find no published records to that effect. The record of *N. bella*, however, is certainly new, and that of *A. bipunctulata* appears to be the first record of its capture west of the Appalachian Mountains.

BOOK REVIEWS.

A DICTIONARY OF GREEK AND LATIN COMBINING FORMS USED IN ZOOLOGICAL NAMES. By EDMUND C. JAEGER. Charles C. Thomas, Publisher, Springfield, Ill.

Students in Biology will welcome this assemblage of technical terms showing the derivation and combining forms which are applicable in many different branches of Biology.

This book of one hundred pages includes the root form for more than one thousand words of common technical use.

KINETIC SPACE AND ITS SPECULATIVE CONSEQUENCES. By DR. R. W. MANLEY. Published by the author at Cleveland, Ohio.

Includes a discussion of the problems of space and contains a tribute to the work of Johann Kepler.

REACTIONS AND SYMBOLS OF CARBON COMPOUNDS. By T. CLINTON TAYLOR. Published by the Century Co., New York.

This work is a detailed presentation of the reactions and symbols used in organic chemistry, the aim of the book being to simplify the study of symbols by emphasizing the reaction and explaining fully the steps taken to formulate the symbol.

BLATCHLEYANA: A LIST OF THE PUBLISHED WRITINGS OF W. S. BLATCHLEY, A. B., A. M., LL. D., Together with a Chronology of His Life; The Fixation of Types of New Genera and Species Described by Him.

Doctor Blatchley has here brought together a complete list of titles of his papers and record of the new genera and species described by him with statement of their present location. It also includes a number of quotations from his various published books.

THE GALL WASP GENUS CYNIPS, A STUDY IN THE ORIGIN OF SPECIES. By ALFRED C. KINSEY. Waterman Institute for Scientific Research, Publication No. 42; Contribution from the Department of Zoology, Indiana University, No. 220 (Entomological Series No. 7).

This volume of 577 pages, including over four hundred figures, is much more than a monograph of the genus as it treats in a very exhaustive manner of problems of distribution, affinities and especially the lines of evolution for the different species with special reference to the American fauna. It is the outcome of twelve years of travel, research, and taxonomic studies and may well serve as a model for other taxonomic studies.

H. O.