

Pectodictyon and Other Unusual Algae from Indiana

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Lake Salinda is the water supply reservoir for Salem in Washington County, Indiana. Water samples collected over a period of several months by Earle Brown, Superintendent of the water treatment plant, have contained a number of unusual and interesting algae. One of these was a *Scenedesmus*, present in fair abundance in early May, that contained a single spine on each terminal cell. It represents a variant of *S. opoliensis*. In the same water sample was a colonial green alga belonging to the genus *Tetrallantos*. Other better known algae present in the reservoir at the time included *Dictyosphaerium pulchellum*, *Kirchneriella contorta*, *Wes-tella linearis*, *Phacus pyrum*, *Ankistrodesmus falcatus*, *Pediastrum duplex*, and *Crucigenia quadrata*.

Certain algae found in Lake Salinda at other times were even more unusual, such as the blue-green alga *Borzia*, the colonial desmid *Cosmo-cladium*, and the colonial green alga *Pectodictyon*. These are described in some detail below.

Tentative identification of the algae from Lake Salinda was made at the laboratory of the water treatment plant in Salem and the samples were then forwarded to Cincinnati for further study.

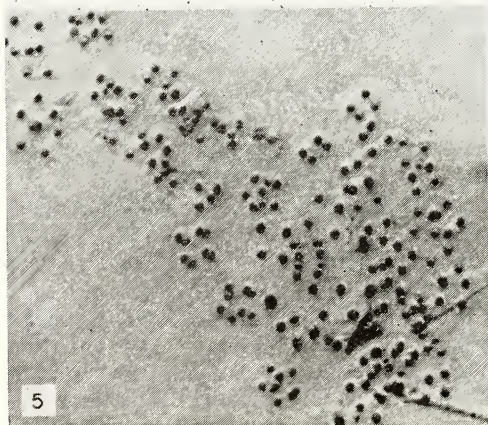
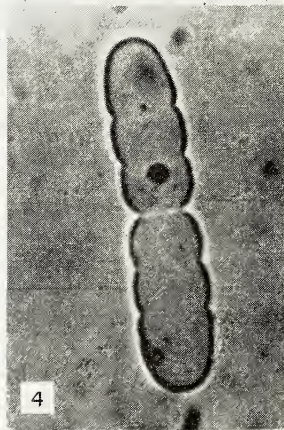
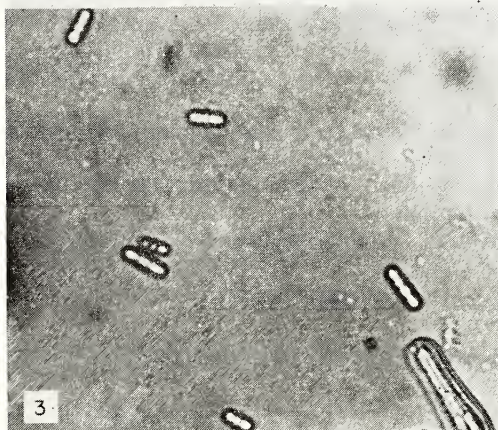
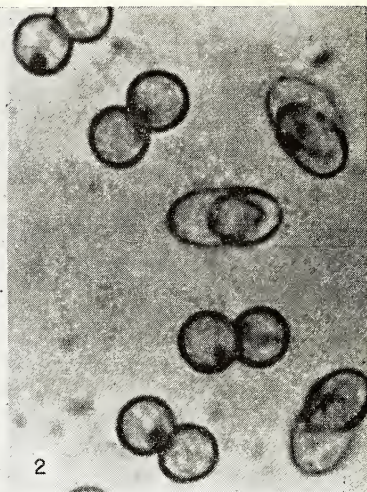
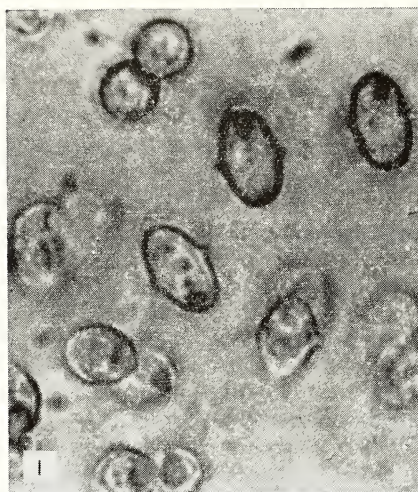
In February 1959, an unusual alga was observed on a pond in Dubois County by Grover Cook, Stream Biologist, Indiana Stream Pollution Control Board. A preserved sample containing specimens of this organism was sent to Cincinnati, where the alga was identified as the pigmented flagellate, *Hymenomonas*.

A comparatively rare blue-green alga *Pseudanabaena* that was collected in Cincinnati in March, is also included in the description which follows:

Cosmo-cladium tuberculatum Prescott. Figures 1, 2.—Collected by Earle Brown, May 22, 1959, and during June and July, in Lake Salinda, Salem, Indiana. Each cell has a deep, wide sinus almost dividing the cell in two. Two lateral protuberances are present on each semi-cell. A mucilaginous strand fastened to the isthmus, and with occasional branches, unites the cells to form a colony. This desmid as a genus has been reported only a few times in this country. The species, originally described from Michigan (8) has been recorded also for Mississippi (9).

Borzia trilocularis Cohn. Figures 3, 4.—Collected by Earle Brown, June 1, 1959, in Lake Salinda, Salem, Washington County, Indiana. All of the American reports for this alga are limited to Indiana, it having previously been reported for Montgomery Co. (10) and Cass Co. (2).

Pseudanabaena catenata Laut. Collected by A. E. Lemke, March 27, 1959, in a fish aquarium, Sanitary Engineering Center, Cincinnati, Ohio. It is a planktonic organism forming a visible blackish blue-green growth. Dried herbarium mounts are light purplish. Dr. Francis Drouet examined



mounts made from the dried herbarium material and considers the organism to be bacterial and not algal. At Cincinnati, when inoculated into an inorganic algal culture medium, the organism developed an abundant growth with a blackish blue-green color and settled to the bottom of the flask. This genus probably has no previous record for this country (3).

Pectodictyon cubicum Taft. Figures 5, 6.—Collected by Earle Brown, February 2, 1959, in Lake Salinda, the water supply reservoir for Salem, Washington County, Indiana. The alga was first recognized on February 16 in the sample which had been kept indoors since collection. The spherical cells are held at the corners of a cube formed by colorless, gelatinous strands. In older colonies several cubes are joined together. Each cell is capable of dividing and developing to form a new cubical colony. The original description for this genus and species was reported by C. E. Taft for Ohio in 1945 (11). Prescott indicates that it has been reported once since that time (7).

Hymenomonas roseola Stein. Collected by Grover Cook, February 25, 1959, from a pond on Purdue Forage Farm, Dubois County, Indiana. The organism had been present in large numbers for six weeks. Specimens sent to the senior author for identification were preserved in formalin. As previously noted by Lackey (6), these organisms are changed in color and shape by the preservative. This pigmented flagellate has oval "coccoliths" surrounding the protoplast. It belongs to the Class Chrysophyceae and in this country has been reported previously only from Ohio (5).

Literature Cited

1. CONRAD, W. 1928. Sur les Coccolithophoracees d'eau douce. Archiv für Protistenkunde 63:58-66.
 2. DAILY, W. A. 1943. First reports for the algae *Borzia*, *Aulosira* and *Asterocytis* in Indiana. Butler Univ. Bot. Stud. 6:84-86.
 3. GEITLER, L. 1925. Cyanophyceae. Heft 12 in Die Süßwasser-flora Deutschlands, Osterreichs und der Schweiz, by A. Pascher. Jena, (Germany).
 4. HEIMANS, J. 1935. Das Genus *Cosmoeladium*. Pflanzenforschung 18:1-132.
 5. LACKEY, J. B. 1939. Notes on plankton flagellates from the Scioto River. Lloydia 2:128-143.
 6. LACKEY, J. B. 1938. The manipulation and counting of river plankton and changes in some organisms due to formalin preservation. Public Health Repts. 53:2080-2093.
 7. PRESCOTT, G. W. 1954. How to know the fresh-water algae. W. C. Brown Co., Dubuque, Iowa.
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1. *Cosmoeladium tuberculatum* Prescott. End view showing lateral protuberances on semi-cells. (x 1500).
 2. *Cosmoeladium tuberculatum* Prescott. Front view showing isthmus and sinus. (x 1500).
 3. *Borzia trilocularis* Cohn. Several colonies showing range in number of cells (x 250).
 4. *Borzia trilocularis* Cohn. Single colony of six cells. (x 1500).
 5. *Pectodictyon cubicum* Taft. Compound colony of numerous cubical coenobia. (x 150).
 6. *Pectodictyon cubicum* Taft. Small colony stained to show gelatinous strands arranged as a cube. (x 300).

8. PRESCOTT, G. W. and A. MAGNOTTA. 1935. Notes on Michigan desmids, with descriptions of some species and varieties new to science. Papers Michigan Acad. Sci., Arts and Letters 20 :157-169.
9. PRESCOTT, G. W. and A. M. SCOTT. 1942. The fresh-water algae of southern United States. I. Desmids from Mississippi, with descriptions of new species and varieties. Trans. Amer. Microscop. Soc. 61 :1-29.
10. SMITH, B. H. 1932. The algae of Indiana. Proc. Indiana Acad. Sci. for 1931. 41 :177-206.
11. TAFT, C. E. 1945. Pectodictyon, a new genus in the Family Scenedesmaceae. Trans. Amer. Microscop. Soc. 64 :25-28.