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THE ILLINOIS BIOLOGICAL STATION.

BY L. S. ROSS.

In Europe there are twenty-seven or more marine biological stations, one in Japan and five in the United States. The attention of biologists has been given mostly to the study of marine life, but some of the inland scientists are taking to the fresh water, leaving the marine life to be salted down by those near at hand. But it is only of late years that a few zoologists have bethought themselves to halt in their rush to the marine stations and cast a microscopic squint at the myriads of forms dashing and crowding through the water of the lakes and streams, and even inviting the hauls of a net in order to relieve the pressure of an overabundant surplus of population.

Germany possesses two fresh water biological stations, one on Lake Plön in the northern part of the country, and the other upon Müggel lake, near Berlin. There is one station in France and a peripatetic one in Bohemia. The Allis private laboratory at Milwaukee was the first fresh water station in this country. The University of Minnesota had for several years a summer station at Gull lake, and for the past two years the University of Indiana has maintained a summer school of biology at Turkey Lake. The Michigan Fish Commission and the University of Michigan have been studying the waters of the state for several years with special reference to fish culture.

The station established at Havana, Ill., on the Illinois river, is the first fresh water university biological station with adequate equipment and working force in the country, and is the only station in the world having as its subject of investigation the life of a river system. The region about Havana has long been noted as a sportsman's paradise because of the wide bottom lands of the river and the many sloughs and swamps; and it has proved to be equally the paradise of hunters of water fleas and the like more minute game than water fowl. The amount of microscopic animal life of the water is much more

in individuals than in any other water in the world examined to determine quantity. And the number of forms of life is nearly twice as great as that in an equal amount of water from the great lakes or from the lakes of northern Germany.

The station is located at the foot of Quiver lake, a sheet of water separated from the channel of the river by a low bar, about two miles up the river from Havana. A rented house-boat was used for two years from the time the station was opened in the spring of 1894. Last spring the laboratory was moved into a new boat specially designed and built for the station at a cost of \$1,260. The new boat has a deck 20 by 60 feet, on which is a cabin 16 by 56 feet, divided into an office for the laboratory staff, a main laboratory with a long tank and sink, shelves and tables for fifteen students, and a small kitchen. The laboratory equipment includes microscopes, reagents, etc., necessary for microscopic work; nets, dredges and seines for collecting, and working libraries. Three or four row boats belonging to the station are at the disposal of the workers. Besides these the station owns a 25-foot steam launch licensed to carry seventeen persons.

One of the lines of work receiving especial attention is the determination of the plankton of the river, that work being done by the superintendent of the station. Besides the principal station there are seven sub-stations where the plankton is taken at stated intervals through the year. To collect the plankton a certain amount of water is pumped into a net of the finest silk; then careful determination of the quantity, species, and even numbers follows the collecting.

The station has received for its support during the past two years the sum of \$10,400 from the following sources:

Appropriation April, 1894, from the University of Illinois	\$ 1,800
Appropriation by last legislature for two years, expiring July 1, 1897: Equipment	2,500
Running expenses, \$3,000 per year.....	6,000
Income from fees	100
Total	\$ 10,400

Only a small number of students can be accommodated at present, but it is the earnest desire of the director, Dr. S. A. Forbes, to enlarge the facilities sufficiently to establish a summer school of biology for the teachers of the secondary schools of the state.

Is it not possible for Iowa to organize and conduct a station similar to that supported by the state of Illinois? Perhaps a

thorough investigation of the situation, and careful thought, might suggest some plan more feasible for our state than that followed in our sister state. Illinois has a state laboratory of natural history that is studying the life of the state. We have no such authorized laboratory. But we have our State university, our Agricultural college, and other colleges broadcast over the state whose scientists are interested in biological problems, and who would certainly agree that the study of the life in our own lakes and streams, and the solving of oecological problems of our own fauna and flora are of paramount importance. Some work is being done along these lines by members of the teaching forces of the various schools. But more wide-reaching and better results could be obtained by organized effort. The life of our lakes and streams is comparatively unknown.

Such a station could be made of great value to the educational interests of the state. Provision could be made for a summer school of biology, where students could study our common every day forms of life in the midst of their activities. Not all in regard to an animal or plant is learned by cutting up an alcoholic specimen. The station should have a course of study so arranged that a student from any college in the state upon taking it would receive credit for it as actual college work. If he is far enough advanced to conduct original investigations let him receive credit for work done. Another course should be arranged that would bring the station more closely in touch with the broad educational interests of the state; that is, a course for the benefit of the public school teachers, a course supplying more directly the needs of science teachers over the whole state.

If the colleges of the state would combine in agreeing to accept work done by their students at the station during the summer under competent direction, as college work, it would encourage some to accept of facilities which may now be beyond their reach. And the colleges might do more; some might equip and support a table at the station for the most worthy students desiring to take advantage of the opportunity.

The scientific and educational possibilities of such a station are many. If financial possibilities were as many and as bright as the educational, then a biological station in Iowa would be easy to found. But how could it be founded and maintained without money? And under the control of what body should

it be? These are questions harder to answer. The first, however, is really not hard to answer. Financial support is a necessity first and other things follow. Much valuable work may be done without very expensive apparatus, but all apparatus costs something. Perhaps there is no method but that of appealing to the state to lay the foundation by an appropriation, then perhaps some of the superstructure could be erected from fees. As an answer to the second question, regarding the control of the station, one that offers itself is that the State Academy of Sciences should have control by whatever means seemed most desirable.

NOTE ON PROBABLE LIFE HISTORY OF CREPIDOD-
ERA (EPITRIX) CUCUMERIS, HAM.

BY F. A. SIRRINE.

During the winter of 1894 and 1895 a trouble known as "Pimply potatoes," among potato growers, was brought to our attention. As the trouble appeared to be some skin disease, it was turned over to M. F. C. Stewart, the mycologist. At the time he came to no definite conclusion as to what the trouble might be. Early in the fall of 1895 Mr. Stewart obtained a quantity of "Pimply potatoes" for microscopic examination. It was found that the pimples covered what appeared to be a brown "sliver" in the flesh of the potato. This "sliver" proved to be a tube lined with broken starchless cells, the starch grains usually occurring free within the tube. Our natural conclusion was that the trouble was caused by the puncture of some insect and that the pimple resulted as an effort of the growing potato to heal the puncture. No trace of castings could be found within the tube, hence it appeared that the tube was not the result of larval mining, nor could it have been made for the deposition of an egg, for in such a case the tube would have shown larval castings. Thus it appeared as if the puncture must be the work of some "snout beetle," or of some hemipterous insect.

A close watch for the depredator was maintained during the past summer. I had my eye on the adult of a new seed stalk weevil *Centorhynchus seriesetosus* Dietz, of kale, turnip and cabbage.