

SOCIETIES AND ACADEMIES

THE NEW YORK ACADEMY OF SCIENCES

SECTION OF BIOLOGY

A REGULAR meeting of the section of biology was held at the American Museum of Natural History, November 14, 1910. In the absence of Chairman Charles B. Davenport, Dr. Alexander Petrunkevitch presided. The following papers were read:

The Effects of Exposure on the Gill Filaments of Fishes: RAYMOND C. OSBURN.

Salmonoid fishes hatched and reared under artificial conditions frequently show a malformation of one or both of the gill covers, as a result of which the gill filaments are exposed. This condition has been observed in many hatcheries, the percentages sometimes being as high as twenty per cent. The deformity in the fishes studied is produced by the rolling in of the operculum. 486 yearling silver salmon reared in the New York Aquarium were examined with the following results: normal, 397; right opercle short, 44; left opercle short, 27; both opercles short, 18; percentage of abnormality, 18.31.

On examination under the microscope the exposed filaments are found to be quite abnormal. The epithelium, instead of being composed of thin flattened cells, is greatly thickened, consisting of cuboid or columnar cells, and in some cases several layers of the cells are found. The secondary laminae, in which respiration for the most part takes place, are often reduced or wanting and the blood capillaries are not fully developed.

The hypertrophy of the epithelium, while it undoubtedly protects the filaments against abrasion, must at the same time seriously interfere with their function in respiration. The cause of the deformity of the opercle is unknown. Fish culturists have noted its appearance very early in fry, but whether it is congenital or is induced by crowding or by other untoward conditions in the hatching trays, further observations must decide.

Courtship in Tarantulas: ALEXANDER PETRUNKEVITCH.

The instincts of the male tarantula change suddenly at the period of maturity. From a creature with domestic habits he develops into a vagabond. Disregarding personal danger he constructs a sperm-web into which he throws out his sperm and pumps it then into both of his palpi. In the search for the female he is entirely dependent upon his sense of touch, his sense of sight being entirely inadequate for the purpose. The courtship is therefore very short and consists in beating the female with his front legs. The

danger of being hit by the fangs of the excited female is prevented by catching them with the hooks on the front legs. The coitus lasts not longer than one half minute, after which the spiders cautiously separate. A few weeks later the males die apparently a natural death.

At the regular meeting of this section held at the American Museum, December 12, 1910, Mr. Roy W. Miner presiding, the following papers were read:

The Effect of Changes in Water Density on the Blood of Fishes: G. G. SCOTT.

When salt water fishes are placed in fresh water they gain in weight. Investigation of the blood shows that there is a decrease in number of corpuscles per cubic millimeter and that the specific gravity of the blood decreases.

Tests with the Beckmann apparatus show that the freezing point of the blood of such fishes is higher than that of normal blood. If the fishes are placed in a solution of sea water plus sea salt, the corpuscle count is increased, the specific gravity of the blood is greater and the freezing point of the blood is depressed. A chemical examination of the chlorides of the blood of normal fish as compared with the chlorides of fishes kept in fresh water, shows that the loss of chlorides in case of the fishes experimented on is greater than the mere dilution of the blood by the endosmosis of water would account for. Hence, under the abnormal conditions to which the fish is subjected the gills become permeable to salts. The osmotic pressure of the blood is thus profoundly changed. That these changes reach the tissues is indicated by investigations now going on. The death of the fish which usually accompanies such sudden transitions as are employed in these experiments is possibly caused by conditions set up similar to those in such diseases as dropsy. It is hoped that further investigations now being carried on will clear up this question.

Marine Ecology and its Representation in a Museum: ROY W. MINER.

The speaker described the chief associations of marine animals to be found between the tides or just below the lower tide limits along the north Atlantic coast, with especial reference to the annulates and molluscs and the fauna of wharf piles in the Woods Hole region and the north shore of Long Island. The methods of collecting were then briefly outlined, and the chief steps for preserving data, observations, etc., for museum ecological groups were mentioned. The speaker then discussed the problems connected with con-

structing and installing groups and models of invertebrates in a museum. Colored slides were shown both of the living invertebrates and of their habitats, and also of the models and groups in course of construction and as completed at the American Museum. The speaker concluded by exhibiting two sketch-models prepared under his direction by Messrs. Matusch and Shimotori, of the museum staff, as preliminary studies for the annulate and pile fauna groups which are in course of construction in the American Museum.

Exhibition of Models of Membracidae: IGNAZ MATAUSCH.

The speaker exhibited a series of six enlarged models in wax which he had prepared for the American Museum of Natural History, as well as a series of twenty-three colored drawings and a collection of typical specimens which had been sent him by Professor F. Silvestri, of Portici, Italy.

The Membracidae, or tree-hoppers, are among the most interesting of insects. Very little is yet known concerning their life histories, a subject to which the speaker said he had devoted considerable attention. They are remarkable for their extraordinary variation in the form of the prothorax. In order to make an enlarged model it is necessary to dismember the insect and to prepare drawings of the different parts to a selected scale. The separate parts are then copied in clay; plaster molds are then prepared and casts made in wax. These are then finished, the details put in, and the whole put together and colored.

L. HUSSAKOF,
Secretary

AMERICAN MUSEUM OF NATURAL HISTORY

THE AMERICAN CHEMICAL SOCIETY
NEW YORK SECTION

THE fourth regular meeting of the session of 1910-11 was held at the Chemists' Club on January 6.

The Nichols medal, awarded annually for the best paper read before the section, was presented to M. A. Rosanoff and C. W. Easley for their paper "On the Partial Vapor Pressures of Binary Mixtures." Professor W. D. Bancroft, president of the society, made the presentation and Professor Rosanoff accepted the medal on behalf of himself and Professor Easley.

In receiving the medal, Professor Rosanoff said:

"Mr. Chairman, Dr. Bancroft, Dr. Nichols, Gentlemen: I thank you all, on behalf of Dr.

Easley and myself, for the great honor you are this evening bestowing upon us. It will be an ever-present support against discouragement in the research struggle to which, I hope and believe, my life will be devoted to the end.

"Much of the honor adjudged to us is due—it is a pleasure to admit—to Clark University, whose unexampled freedom, and liberalism, and Nietzschean belief in the future, form an ideal atmosphere for scientific research.

"Gentlemen, Ostwald prophesies that the center of gravity of science is bound to move from Europe across the Atlantic. This chemical society, a body devoted mainly to the furthering and encouragement of chemical research, can do more than any other group of men, more even than the universities, toward hastening that migration, which will open a remarkable era in American history. Every honor conferred by the society on the basis of research must stimulate that migration and will, therefore, rebound to the society itself."

Mr. T. J. Parker gave an account of the Minneapolis meeting of the American Chemical Society.

Dr. W. C. Moore read a paper by Professor H. N. McCoy and himself on "Organic Amalgams."

Professor Robert Kennedy Duncan addressed the section "On the Relation between Chemistry and Industry in America." Formal discussion of the subject followed by M. C. Whitaker, L. H. Baekeland and Allen Rogers.

C. M. JOYCE,
Secretary

THE BIOLOGICAL SOCIETY OF WASHINGTON

THE 476th regular and 31st annual meeting was held at the hall of the Cosmos Club, December 10, 1910, with President T. S. Palmer in the chair.

Reports of the secretary and treasurer were read and approved. Four new members were elected.

The following officers for 1911 were elected:

President—David White.

Vice-presidents—W. P. Hay, E. W. Nelson, J. N. Rose and Edw. L. Greene.

Recording Secretary—D. E. Lantz.

Corresponding Secretary—N. Hollister.

Treasurer—J. W. Gidley.

Members of the Council—A. D. Hopkins, A. K. Fisher, Vernon Bailey, A. B. Baker and Paul Bartsch.

D. E. LANTZ,
Secretary