cumulative in effect." This conservatism is particularly refreshing in view of the many positive utterances as to the natural extinction of animals, the truth being that we actually *know* very little about it. T. D. A. Cockerell discusses at length 'The Alpine Flora of Colorado,' giving many tables showing the northerly range and vertical distribution of various species: The third long paper, by Thomas J. Headlee deals with the 'Blood Gills of *Simulium Pictipes*.' The number contains the title page and index for the volume.

The Museum News of the Brooklyn institute for January notes 'An Interesting Case of Retardation of Pupæ of a Texas Moth,' *Agapema galbina,* a number of cocoons obtained in 1903 having yielded perfect insects for three consecutive years with the probability that one or two more may appear in 1907. It is stated that the museum has obtained by the bequest of Mr. Henry Mumford the fine series of shells secured by the late Isaiah Greegor comprising 2,400 species and 15,000 specimens. This collection by the terms of the will is henceforth to be known as the Phebe L. Mumford Collection. A brief description is given of the exhibit of the museum, under the auspices of the New York Academy of Sciences, to illustrate progress in zoology. The leading article in the section devoted to the Children's Museum is on the skunk. It is stated that while the general attendance at the Children's Museum is less than during 1905 the attendance of teachers is much greater.

SOCIETIES AND ACADEMIES

THE BIOLOGICAL SOCIETY OF WASHINGTON

THE 420th meeting was held on November 17, 1906, with President Knowlton in the chair and an audience of forty persons.

Professor A. S. Hitchcock remarked on the code of nomenclature recently adopted by the International Congress of Zoologists, comparing its provisions with similar codes adopted in this country. Mr. A. A. Doolittle exhibited an abnormal rose, lacking a pistil and with the stem continued into the flower.

Dr. E. L. Greene spoke 'On So-called Rhus Toxicodendron.' The purpose of the paper was twofold. First, that of demonstrating fundamental distinctions between *Rhus* and *Toxicodendron* as perfectly distinct genera, according to which view no such name as *Rhus Toxicodendron* should be used. Proper *Rhus* has always a many-pinnated foliage, and its inflorescence is always one only to each branch and that strictly terminal. *Toxicodendron* as universally exhibits but three leaflets to each leaf, and as many inflorescences, almost, as there are leaves on the branch, namely, one in each axil, none ever terminal. The individual fruits are again as widely different in the two genera. Moreover, *Rhus* in all its species is innocuous. *Toxicodendron* is acridly poisonous in all its forms. A historic sketch of *Toxicodendron* was given, beginning with its first publication as a three-leaved ivy, by Cornutus, at Paris in 1635; after that, separated from the Ivy, and proposed as a genus *Toxicodendron* by Tournefort in 1694; augmented by Dillenius in 1732; suppressed by Linnæus, who made the name *Rhus Toxicodendron* in 1753; restored to generic rank as *Toxicodendron vulgare* by Philip Miller in 1768. Secondly, a long series of *Toxicodendron* specimens was exhibited, from almost all parts of North America from the Atlantic to the Pacific, and from Maine to central Mexico; these portraying as much diversity of foliage, fruit and modes of growth as, were they oaks or maples, would be accepted for two dozen species. *Rhus Toxicodendron,* so-called, is really a genus *Toxicodendron* made up of probably twenty or more valid species. Some remarks followed, chiefly on that part of the paper in which the action of *Toxicodendron* poison and its reputed remedies were touched upon.

The second paper was by Dr. Barton W. Evermann on 'Fish Culture and Fish and Game Protection in the Cornell and Yale Forest Schools.' He explained the relation of fish culture and the protection of fish and game to forestry and to the practical work of the forester, and the consequent incorporation of instruction on these subjects as a regular part of technical forestry courses. His re-

marks were illustrated by a number of lantern slides taken during the field courses given by him at Axton, in the Adirondacks, for the Cornell School, and at Milford, Pa., for Yale University.

The third paper, 'A Record of the Black Rat in Virginia,' was read by Mr. William Palmer. He noted the occurrence of an isolated colony of the black rat (*Mus rattus*) on the top of a Virginia mountain, Peaks of Otter, in Bedford County, at an elevation of 3,875 feet. The specimens collected are not quite typical. Probably but few individuals now exist in and about an old store at the summit.

The 421st meeting was held on December 1, 1906, President Knowlton in the chair and about fifty persons present.

General T. E. Wilcox remarked on the unusual abundance of quail and the cottontail rabbit in New York a few miles south of Utica.

Dr. Evermann informed the society of the recent death of two naval officers to whom biological science is much indebted, Lieutenant Franklin Swift, retired, of the steamer *Fish Hawk,* and Lieutenant-Commander Leroy M. Garrett, of the *Albatross.* Lieutenant Swift died on November 10, at Charleston, S. C., of typhoid fever, and Lieutenant-Commander Garrett was washed overboard 500 miles northwest of Honolulu on November 21, while the *Albatross* was returning with the great collections of the trip to Japan. These officers have commanded these research vessels during some of their most important work and are in large part responsible for the excellent results obtained.

Dr. L. O. Howard presented the first paper, on the subject 'Polyembryony and Fixation of Sex.' This paper was published at length in Science, December 21, 1906.

The second paper consisted of an illustrated lecture by Mr. John W. Titcomb, on 'Principles and Methods in Fish Culture.' He explained the underlying principles of artificial propagation as applied chiefly to salmonoid fishes, described in detail the methods and manipulations concerned and illustrated every point by lantern-slide pictures, showing apparatus, operations and the fishes themselves in all stages from the egg upward. He commented on the relation of fish culture to various natural sciences. The long and interesting series of illustrations included pictures showing the inauguration of fish culture by the speaker in Argentina, South America.

M. C. Marsh,
Recording Secretary

Discussion and Correspondence

Polyembryony and Sex-determination

In an extended review in the last number of Science (December 21, 1906), Dr. Howard has emphasized the astonishing and valuable results of the recent work by Marchal ('98, '04) and Silvestri ('05, '06) on the spontaneous polyembryony of certain parasitic Hymenoptera. He has quoted Bugnion's discussion of the bearing of this work on sex-determination but has not called attention to the fact that in the light of Silvestri's work this view may need revision.

As stated, Bugnion, '91, in the course of his work upon Encyrtus had noted that as a rule all of the individuals emerging from one host belong to a single sex. At the time, Bugnion thought that this "should be attributed to an occasional parthenogenesis, the caterpillars giving birth exclusively to males having been those which had been pierced by a non-fertilized *Encyrtus.*"

This conclusion, which was a logical one in view of the data then at hand, Bugnion discards completely since the appearance of Marchal's work. He believes that the phenomenon must be "a natural consequence of polyembryony, and that one would expect the sexes to be separated in this way wherever the embryos come from the division of a single egg."

While the latter clause is undoubtedly true, the possibility of the facts being explained on the basis of parthenogenesis is by no means excluded. Bugnion, in his work, did not observe the oviposition. Marchal presents no evidence that parthenogenetic development does not take place. In fact, he purposely leaves the question open, as '04, p. 298, "Le