

As an elementary treatise suitable for students of tender years this work presents the English practice in a general way with sufficient thoroughness to afford a popular understanding of the subject.

American practice is so lamentably weak that the work is of little practical value to our students. With extensive cutting and the addition of much new material it might be transformed into a work of value, but, as Kipling would say, "that is another story."

J. STRUTHERS.

SOCIETIES AND ACADEMIES.

BIOLOGICAL SOCIETY OF WASHINGTON, 256TH MEETING, FEBRUARY 22.

C. HART MERRIAM spoke of *The American Weasels*, describing at some length the various species, their habitats and relationships.

F. E. L. Beal read a paper on *the Food of the Bluejay*, being the results of the examination of about 300 stomachs of this species collected in every month of the year and fairly representing all parts of the bird's range. The food is found to consist of animal and vegetable matter in the proportion of about one of the former to three of the latter. The animal matter is composed largely of injurious insects. The alleged habits of the jay of eating the eggs and young of other birds is only partially confirmed. Of the whole number of stomachs only two, taken in the breeding season, contained shells of eggs and one the remains of a young bird. One stomach taken in February contained the remains of a bird, and several taken at various times contained shells of eggs, apparently those of domestic fowls. The vegetable food consists principally of grain, mast and fruit. Of the first two mast is the favorite, being the most important element of the yearly diet. Corn is the favorite grain. The fruit consists for the most part of wild species.

David White discussed *the Structure and Relations of Buthograptus, Plumulina and Ptilophyton from the North American Palæozic*. After describing the structure of these genera in detail, the speaker stated that it would seem that all the forms considered may belong to one type of nonvascular, feather-like, or plumose organisms,

which consist of a hollow or cellular thin-walled rachis, or axis, destitute of any central strand, forking but seldom in some species, perhaps in all, and possibly divided by transverse septa into cells, though this is not clearly shown in any individual case. To this axis are articulated by round or oval joints, two or more series of more or less elongate, very thin-walled, bladder-like sacs, which, for convenience, are called pinnules. With rare exceptions, these sacs are quite regularly arranged with respect to one another, their parallelism in the impressions giving the feathery appearance to the pinnæ. Similar relations obtain in all the species considered. The pinnules appear to have been eventually deciduous, falling away from the lower portion of the rachis. Although several of the species appear at first glance to very strongly resemble hydroids, the speaker followed Dawson and Lesquereaux in considering these organisms to be vegetable in their nature.

Sylvester D. Judd described a *Peculiar Eye of an Amphipod Crustacean, Byblis serrata*. He said that this crustacean, which belongs to the family *Gammaridæ*, has totally different eyes from *Gammarus*. This peculiar eye of *Byblis* reminds one of the vertebrate eye, for both agree in having a biconvex lens and a fluid filled space with the retina below. A section through the chief axes of the eye of *Byblis* would first show a large lens, which has been secreted in concentric shells by a thickened layer of lentigen, which is on either side continuous with the thinner hypodermis, which is gorged with scarlet pigment that envelopes the eye like a cornucopia, thus shutting out all rays that might reach the retina without first passing through the lens. Under the lentigen is a crescent-shaped humor space. Below and proximal to this space is a layer of columnar cells, which is continuous on either side with the hypodermis. This layer of cells has secreted on its outer boundary, which borders on the space, a strong cuticula. Just proximal to this layer of cells, which has secreted the cuticula, are the omatidia (which of course lack the corneal cuticula). The most distal element of an omatidium is a granular columnar body (cell product). Below and proximal to this columnar

body, the remainder of the omatidium with its refractive cone and retinula is practically identical with the omatidium of *Gammarus*, minus, of course, the corneal cuticula. For in the retinula of both crustaceans there are five retinal cells with pigment, and four rhabdomeres. There are two of these peculiar crater-like eyes that project from either side of the cephalon of *Byblis serrata*.

Vernon Bailey exhibited *Two Mammals New to the Vicinity of Washington*, being *Sorex personatus* and *Synaptomys Cooperi*. In 1888 skulls of these mammals were found in pellets ejected by the Long-eared Owl, but until the capture of the specimens shown, which were taken at Hyattsville it had not been definitely proved that these species were found in the immediate vicinity.

F. A. LUCAS,

Secretary.

GEOLOGICAL SOCIETY OF WASHINGTON.

At the meeting of the Geological Society of Washington (D. C.), held on February 26, 1896, the following communications were presented:

Mr. W J McGee exhibited the geologic map of the State of New York recently printed by the United States Geological Survey in coöperation with Prof. Hall, State Geologist. He stated that the map had been in preparation for the last ten years and its preliminary draft was a compilation by Prof. Hall and himself in greater part from old data. Finding that these were very incomplete and unsatisfactory in many areas, new field work was begun and continued for several years. In the meanwhile a new base was compiled from county maps and other sources. The larger part of the field work was done by Mr. N. H. Darton, of the United States Geological Survey, who mapped the geology of nearly the entire area of the Helderberg and associated formations, the faulted area extending along the Mohawk valley and around the southern side of the Adirondacks to Lake George, the Niagara escarpment, the northern and eastern portions of the Catskill Mountains, the Oneonta region, the greater portions of Albany, Ulster, Orange and Rockland counties, and the Juratrias area of New Jersey. Dr. F. J. H. Merrill contributed data for Westchester, Putnam and New York coun-

ties, and Prof. J. F. Kemp mapped much of the region lying along the eastern side of the Adirondacks. Data for smaller areas were obtained from published or manuscript maps by Messrs. C. D. Walcott, T. N. Dale, J. H. Clarke, W. M. Davis, W. B. Dwight, Mr. Randall, Prof. Smythe and others. The map was edited by Mr. Willis Bailey.

Notes on the Geology of the Black Hills of Dakota were presented by Mr. N. H. Darton. The region was visited last autumn for a study of the outcrops of the Dakota sandstones and the associated formations, in connection with an investigation for the United States Geological Survey of the artesian waters of the Dakotas. There was first described a detailed section which had been carefully measured from the base of the Potsdam to the White River Miocene formation, along a line passing through Rapid City to the Bad Lands. The thickness of the upper Cretaceous members in this section have since been most satisfactorily verified by the deep well-boring on the Rosebud Indian Reservation. The salient features of the general stratigraphy were pointed out and the alleged unconformities in the Juratrias formations were discussed. Attention was called to a well-defined peneplain now represented by the eastern 'hog back' foothills of which the very even crest lines are at an altitude very nearly 4,000 feet above sea level for over 100 miles. Diagrams were exhibited of a very interesting laccolite west of Tilford, and the structure of the Bear Butte and Warren Peaks eruptive areas were described. Some incidental observations in the nucleal region of the hills brought to light some important details of stratigraphy of the Algonkian beds, and some examples illustrating the development of schistosity in the vicinity both of granite and younger eruptives.

Several miscellaneous specimens were shown, including cone-in-cone structure developed in Pierre clays by the pressure caused by the formation of sideritic concretions; material from sandstone disks in the Bad Lands, having vertical cleavage into thin plates with horizontally corrugated surfaces, and masses of phosphated grains from the Pierre clays, which appear to be of coprolitic character.

In the discussion which followed this paper, Mr. M. R. Campbell alluded to the close similarity between the relations of the even crest lines of the 'hog back' ranges described by Mr. Darton, and the Appalachian ridges, and endorsed the view that they are similarly the remnants of peneplains preserved by the harder rocks.

Mr. F. W. Crosby presented a paper entitled 'The Sea Mills of Cephalonia.' These mills are run by sea water which flows into fissures with considerable velocity. The origin of these fissures and the conditions which enables the sea water to sink into them below the level of the sea have been the subjects of popular speculation for many years, but they appear to have attracted but little attention among geologists. Mr. Crosby then quoted a paper by his son, Prof. W. O. Crosby, in which the mechanism of the phenomena was discussed and a hypothesis offered to account for it.

A paper on the 'Stratigraphy at Slate Springs, California,' by Mr. H. W. Fairbanks, was read by Mr. Lindgren.

W. F. MORSELL.

CHEMICAL SOCIETY OF WASHINGTON.

THE 85th regular meeting, which was also the 12th annual meeting of the Society, was held January 9, 1896. The following were elected to membership: Messrs. E. C. Wilson, E. W. Magruder and C. C. Moore. The publication of Bulletin No. 9, was announced and the following officers were elected: President, E. A. de Schweinitz; Vice-Presidents, W. D. Bigelow, W. G. Brown; Treasurer, W. P. Cutter; Secretary, A. C. Peale; additional members of the Executive Committee, Chas. E. Munroe, F. P. Dewey, V. K. Chesnut, H. N. Stokes.

The first paper read was by Dr. H. W. Wiley, on a 'Steam Jacketed Drying Oven,' and the oven was shown in actual operation. In order to surround the drying space of the oven entirely with steam, the door of the ordinary steam jacketed oven is made with double walls, and the steam from the oven conducted into it from the oven by two metal flexible tubes at the top and bottom of the door, so arranged as not to interfere with its opening. The temperature is regulated by a pressure gauge in which, when

a given pressure is reached, the steam cuts off the gas by acting on a column of mercury. When steam is used the temperature can be regulated by setting the gauge to read at any position, to read from the boiling point of water up to 105°. For other higher temperatures other liquids can be used, as alcohol or amyl. alcohol, but ether cannot be safely employed on account of the danger of explosion if there is any leakage.

Dr. Wiley also read a paper on the 'Heat of Bromination in Oils.' The especial difficulty on the process of proposed by Hehner and Mitchell is in handling the liquid bromine in quantities of one cc. at a time. Dr. Wiley found that the process is made practicable by dissolving both the oil or fat and the bromine in chloroform when the solution is easily handled by means of a special pipette. He described the process in detail and said the determinations should be conducted in a room when the temperature is as constant as possible, and the pieces of apparatus should be exposed to the open air for at least half an hour after completing one determination and before beginning another, in order that it may be restored to the standard room temperature. Duplicates usually agree within one or two-tenths of a degree. The ratio of the heat of bromination to the ordinary number must be established for each system of apparatus employed. The process seems to be one of considerable analytical value. For exact scientific purposes calorimetric measurement of the degree of heat produced must be made.

Prof. Chas. E. Munroe made some remarks upon 'The Corrosion of Electric Mains,' and exhibited sections of electric light cables, in which the lead coating had become so corroded that in some places the interior conductor was exposed, while at others the cable was coated with nodular earthy looking masses. The cables were parts of a three-wire system, which carried a direct current of 110 volts on each wire, and which had been laid underground in the upper compartment of the terra cotta conduit. The corroded main was a branch in an alley, while the principal main was in the street and was not attacked. Analysis showed the incrustation to be nitrate,

chloride, carbonate and oxide of lead with water and a trace of organic matter. Surrounding the alley were stables, and in the salts found in the soil produced by the excreta were all the necessary materials and conditions for effecting chemical corrosion *per se* without resorting to any electrolytic theory. In the discussion of the paper Dr. Wiley said he thought there might have been a denitrifying process. Prof. Munroe said there had been no submergence of the cable, but that there must have been water passing through the conduit.

A. C. PEALE,
Secretary.

ACADEMY OF NATURAL SCIENCES OF PHILADELPHIA, FEBRUARY 25.

PAPERS under the following titles were presented for publication: 'The Coloring Matter of the Aril of *Celastrus scandens*,' by Ida A. Keller; 'The Crystallization of Molybdenite,' by Amos P. Brown. The Anthropological Section having precedence, Dr. D. G. Brinton made a communication on the use of the craniofacial line in determining racial and individual characters on the living subject. The relation of the diameters of the cranium, formerly relied on, had been found unsatisfactory. He specially recommended a line closely resembling that suggested by the sculptor, Charles Rochet. It connects the two auditory foramina, forming a slight curve, the superior border of which connects the internal commissures of the eyes. This line, it is claimed, divides the ideal, normal head into two perfectly equal parts, although in nature, of course, this proportion is not maintained, but varies as a racial character and in individuals. The relations of the lines may also indicate the cranial capacity, as the plane of the curve continued posteriorly is approximately the base of the skull. He farther pointed out that the distance between the distal extremities of the curve gives the width of the head and the face, and that a series of curves, described from the fixed points indicated, offers, probably the simplest and most accurate method of obtaining significant head-measures on the living subject.

Dr. Harrison Allen commented on the difficulty of obtaining satisfactory cranial measure-

ments and referred to Oldfield Thomas's lines taken from the outer margin of the orbits to determine the projection of the nose. He did not think the true horizontal plane of the skull could be fixed. The so-called Frankfurt plane is the one most commonly accepted.

Dr. Seneca Egbert stated that he had demonstrated the action of the X-rays through plates of platinum from ordinary sun light. Illustrative pictures were exhibited, and the published results of other experiments were discussed.

Prof. Maxwell Sommerville exhibited beautiful specimens of chipped arrow-heads made from common green bottle glass by the natives of northwestern Australia. He also called attention to a stone carved to resemble a miniature grotesque head from the valley of the Delaware opposite Milford, and an object used in phallic worship by the natives of Poonah, India.

Dr. D. G. Brinton called attention to the importance of obtaining systematic data for the study of American anthropology and suggested the wide distribution, under the auspices of the Anthropological Section of the Academy, of circulars of inquiry similar to those in use by the committee appointed by the British Association for the Advancement of Science for the study of the ethnography of Great Britain.

EDW. J. NOLAN,
Recording Secretary.

NEW BOOKS.

Atlas of Nerve Cells. M. ALLEN STARR. New York and London, Columbia College Press, Macmillan & Co. 1896. Pp. x+78 & 51 plates. \$10.

Text-Books of General Pathology and Pathological Anatomy. RICHARD THOMA. Translated by ALEXANDER BRUCE. London, Adams and Charles Black. New York, Macmillan & Co. 1896. Pp. xiv+624. \$7.00

Electric Wiring. RUSSELL ROBB. New York and London, Macmillan & Co. 1896. Pp. 183. \$2.50.

Résultats des examens de dix mille observations de hernies. PAUL BERGER. Paris, Alcan. 1896. Pp. 206.

Annuaire de l'Observatoire Royal de Belgique. F. FOLIE. Bruxelles. 1896. Pp. 551.