

misconception. Though the content of sense may be diversified, only one thing is ever in the focus of consciousness at a given time. Attention becomes a set of rapidly repeated reproductions. In thinking intently of one thing we limit the field of oscillation and cut off distractions as much as possible, but the oscillations with the various resulting associations continue and give pregnancy to the meditation. Attention is a name for the play of consciousness, and a study of its laws reduces, on the one hand, to the investigation of neural equilibrium, and, on the other, to a natural history of consciousness. The conditions of inner attention are those of association and inhibition.

A Note on the Cerebral Fissuration of the Seal (Phoca vitulina). By PIERRE A. FISH.

The description and illustrations of this brain show that it clearly possesses the carnivorous type of fissural pattern, in spite of several complexities which tend to obscure the type.

Morphology of the Nervous System of Cypris. By C. H. TURNER.

This is the first instalment of a monograph on the Ostracoda which Prof. Turner has had in preparation for several years. It is accompanied by six plates. The ganglia and nerves of the central nervous system and the sense organs of Cypris are described with considerable minuteness. Labial, labral and thoracic nerves are described for the first time among the Ostracoda. Several new sense organs are also described.

Preliminary Notes on the Cranial Nerves of Cryptobranchus alleghaniensis. By J. H. McGREGOR.

In this paper the cranial nerves of the water dog are described, so far as they can be determined by macroscopic methods.

On Three Points in the Nervous Anatomy of Amphibians. By J. S. KINGSLEY.

This article corrects two errors in Von Pleszen and Rabinovicz's 'Die Kopfnerven von Salamandra maculata,' the one concerning the anastomosis between the ophthalmicus superficialis and the maxillary, and the other that between the ophthalmicus profundus and the palatine nerves of Salamandra. Dr. Kingsley

also points out that the tentacular apparatus recently described by Mr. Alvin Davison in Amphiuma does not exist, and therefore this point cannot be used to show the close relationship between the Cœciliidæ and the Amphiumidæ.

The remaining 44 pages of the number are devoted to abstracts and reviews.

SOCIETIES AND ACADEMIES.

THE NEW YORK ACADEMY OF SCIENCES.

THE Section of Geology and Mineralogy held its regular meeting April 20th, President J. J. Stevenson in the chair.

The first paper of the evening was by Mr. John D. Irving, on 'The Stratigraphy of the Brown's Park Beds, Utah.' The observation on which the paper was based, was made by Mr. Irving the past summer, while spending a week in Brown's Park, together with Dr. J. L. Wortman and his expedition from the American Museum of Natural History, New York. Mr. Irving first sketched the topography and geology of the Green River Basin and the Uinta Mountains. He showed the location of the Brown's Park Beds and described their unconformable position upon the Uinta sandstone and the Green River shales. He next outlined the views that had already been published regarding their stratigraphical relations, especially those of Clarence King and S. F. Emmons, of the 40th Parallel Survey, who referred them to the Pliocene, and those of C. A. White, of the United States Geological Survey, who referred them to the Eocene. Mr. Irving stated that careful search failed to reveal any fossils, except a few fragments of bone, which were in such a state that Dr. Wortman considered them to be not earlier than the Pliocene. Mr. Irving then described the Lodore cañon and explained the formation of the Lake in which the Brown Park Beds were deposited as due to the Pliocene elevation of the Uinta sandstone that forms the wall of the Lodore cañon. When this was cut down by the river the lake disappeared and depositions ceased. He, therefore, corroborated the original determinations of King and Emmons. The paper will appear in full in the Transactions.

The second paper of the evening was by

Prof. C. H. Smyth, Jr., on 'The Origin of the Talc Deposits. near Gouverneur, N. Y.' Dr. Smyth first described the geological surroundings of the talc and showed that it occurs along a series of belts in limestone walls and that the previously published statement that it occurs in gneiss is incorrect. By means of microscopic sections he traced its development by the alteration of tremolite in largest part and from enstatite to a less degree, the changes in both having been affected through the agency of water and carbonic acid. The talc occurs in two forms—a scaly variety, or talc proper, and a fibrous variety or agalite. He was unable to determine whether the original rock was a basic intrusive or a siliceous magnesian limestone. The full paper will appear in the *School of Mines Quarterly* for July, 1896.

The third paper of the evening was by Prof. H. P. Cushing, and was entitled 'Are there Pre-Cambrian and Post-Ordovician Trap Dykes in the Adirondacks.' Field work in Clinton county, N. Y., had convinced the writer that there were two periods of dyke intrusion in the Adirondacks. The first yielded the porphyries or bostonite, the Camptonites and non-feldspathic dykes, which cut the Paleozoic strata up to and through the Utica slate. These dykes, are chiefly limited to the shores of Lake Champlain, both in New York and Vermont. They practically lack diabase. The second set are limited to archaic rocks, are much more numerous and are practically all diabase. One hundred and sixteen dykes in all are known in Clinton county; sixteen belong to the first series, while the remaining one hundred belong to the second. The latter have been found in the gneisses in many cases very near the contacts with the Potsdam sandstone, but in no case have they been found penetrating the sandstone. The same relations have been noted by Smyth at the Thousand Islands.

Prof. Cushing therefore urged that these dykes should be considered a separate series of rocks that had been formed subsequently to the metamorphism of the crystalline rock and before the deposition of the Potsdam sandstone. The paper will appear in full in the *Transactions*.

J. F. KEMP,
Secretary.

BIOLOGICAL SOCIETY OF WASHINGTON, 259TH MEETING, SATURDAY, APRIL 4.

The first paper of the evening was Pfaff's *Recent Investigations on Rhus Poisoning*, and was presented by V. K. Chesnut. The writer briefly analyzed the work of preceding investigators and showed how the different ideas regarding the volatile nature of the poison were influenced by successive stages in the development of the science of Organic Chemistry and it was shown that nothing but an oil, like Toxicodendral, could produce the effects of poison ivy. Experiments and authentic cases of poisoning were described to corroborate Pfaff's statements that:

1. While water will not remove the oil from the skin an hour after contact, alcohol will do so very readily, especially when added in successive portions.
2. The poison is readily communicated to different parts of the body and to other persons by contact and friction.
3. The wood, as well as the leaves, is poisonous and the active principle is present in the plant at all times of the year.
4. Herbarium specimens may produce the poisonous effects.

The effect of alcohol as a palliative, and of an alcoholic solution of lead acetate as an antidote was shown by experiments made by the writer upon himself.

B. T. Galloway spoke of *the Action of Copper in Poisoning Fungi*, stating that although copper in various forms had been used for years as a fungicide, little was known in regard to the exact nature of its toxic action on plants. Most of the studies made within the past 8 or 10 years had for their object the determination of the amount of copper necessary to kill the spores of various fungi. In this connection the investigations of Nageli, and the oligodynamic phenomena described by him, were reviewed. Finally the possible methods by means of which spores of fungi may be killed or prevented from infecting living plants, were discussed and attention was called to a paper on the subject by Mr. W. T. Swingle, of the Department of Agriculture, soon to be published.

Under the title of *the Story of two Salmon*

Barton W. Evermann described the spawning habits of the Blueback and the Chinook Salmon, species which had been especially investigated by him during 1894 and 1895. These species have important spawning grounds at the headwaters of the Salmon and Payette rivers in Idaho. This paper gave an account of the manner in which the investigations were conducted and a statement of the more important results obtained.

These two species of salmon are, of course, anadromous, living in the sea, and entering fresh water only for spawning purposes. They enter the Columbia from the sea in the early spring and reach the headwaters of Salmon River over 1,000 miles from the sea, about the last week in July. The spawning began about the middle of August and continued for fully a month.

It has long been known that at spawning time these salmon have their fins more or less worn out and their bodies covered with mutilations, and these injuries were believed to have been received while on the long journey to the spawning grounds. But this was proved not to be true. More than 2,000 salmon were examined as they arrived upon the spawning beds and not one showed any mutilations of any kind.

As the spawning advanced the fish began to show mutilations; the caudal, anal and ventral fins became badly worn, and often the dorsal fin and the sides of the back were injured. By the time the spawning was at its height, scarcely a fish was wholly free from mutilations. The fish were observed daily during the entire spawning period and it was discovered that all the mutilations were received while on the spawning beds, chiefly in moving the gravel of the spawning beds about, but to some little extent in personal encounters between the males.

The second important fact determined was that, after spawning, the salmon coming to that region die, none of them ever returning to the sea. They began dying soon after they had done spawning. On September 7th 1,100 redfish or blue-back salmon were counted in the inlet to Alturas Lake. On September 16th only 213 were left, and on September 22d there were scarcely any left. None had been caught out of the

stream, but all had died. The fish showed no tendency to return down stream.

F. A. LUCAS,
Secretary.

ENTOMOLOGICAL SOCIETY OF WASHINGTON,
APRIL 11, 1896.

THE 116th regular meeting was held in Baltimore on invitation of Mr. P. R. Uhler. Mr. Howard exhibited specimens of *Margarodes vitium* Giard, from South Africa. The locality is a new one, as the species has previously been found only in Chile and Argentina. Referring to a recent note by Valery Mayet, Mr. Howard suggested that the insect is now likely to be carried to many parts of the world in any earth which may occur around exported plants. Mr. Schwartz exhibited specimens of *Coleocerus marmoratus* and an undescribed *Tychius*, to illustrate two modes of variation brought about by different position and development of the scales. In the *Coleocerus*, some specimens are uniformly covered with large white scales, which in others are replaced in spots by brown scales of smaller size. In the *Tychius* some specimens have the elytra variegated with spots and lines composed of large white scales; in other specimens the positions which should be occupied by these scales are covered with a spongy mass which a high magnifying power shows to be composed of the white scales in a collapsed or undeveloped condition. In these specimens the development of the scales has apparently been arrested. Mr. Schwarz also exhibited a new *Apion* and two species of *Anthonomus*, one new and the other *A. leucostictus* Dietz, which he had reared from the seeds of *Xanthoxylum pterota*, at San Diego, Texas.

Dr. Henry Skinner, of Philadelphia, read a paper embodying his views on specific values, and illustrated his remarks with many examples drawn from the Rhopalocera, insisting that morphological species are tentative and must be tested by a study of the life history and geographical distribution.

Mr. Ashmead read a paper on the genera *Stephanus*, *Megischus* and *Megalyra* and their position in the Hymenoptera, concluding that the family *Stephaidæ* does not deserve family rank and that the three genera should be

placed among the Braconidæ in a subfamily which he called Setphaninæ.

Mr. Uhler made some remarks on the 'schlussfeld' of certain Cicadidæ, tracing the development of this basal fold in the hind wings throughout Cicadas from many parts of the world and suggesting its connection with the rapidity of flight of the species. Mr. Benton spoke of the proposed introduction of *Apis dorsata* into the United States, giving an account of previous attempts and particularly of his own journey some years ago to Ceylon in search of this giant bee of India. He described the methods by which he secured colonies and gave an account of the habits of the bee and the character of its nests. He desired the opinion of the Society as to the possibility of the successful introduction of this bee into the United States and the desirability of such introduction. The paper was briefly discussed by Messrs. Mann, Skinner, Schwarz, Ashmead and Stiles.

L. O. HOWARD,
Secretary.

NEW YORK SECTION OF THE AMERICAN CHEMICAL SOCIETY.

At the meeting of the Section held on the 10th inst, at the College of the City of New York, Prof. Birchmore exhibited on the screen the absorption spectra of a number of aniline and other colors, including eosin, aniline red ultramarines, potassium permanganate, cudbear, etc., and explained the effect of certain reactions with ammonia and other reagents on the size and position of the absorption bands.

Dr. Birchmore also explained an arrangement of adjustable colored prisms projecting through the opposite sides of a cylinder, to be filled with a liquid having the same refractive index as glass: oil of juniper was mentioned; whereby the colors of the Nessler reagent in ammonia determinations could be recorded.

The description of this apparatus was brought out in the discussion of Dr. Albert R. Leeds' paper on 'Standard Prisms in Water Analysis, and the Valuation of Color in Potable Waters,' in which Dr. Leeds described his first attempts nearly twenty years ago to obtain suitable standards of comparison, using solutions of various kinds, colored glass plates and colored

glass prisms. He reviewed the progress which has been made in the matter, and recommended the appointment of a committee to unify the methods and adopt a standard.

Prof. C. L. Speyers read a paper on 'Matter and Energy,' in which he discussed the more recent views of Ostwald.

Dr. E. G. Love exhibited some remarkably fine microphotographs of several varieties of starch.

Dr. L. Saarbach exhibited an improved form of laboratory temperature regulator, which has not only the advantage of small cost, but can be taken apart, cleaned and adjusted with the greatest ease. It may be arranged for high or low temperatures and for almost any degree of sensitiveness. It is practically an air thermometer, but can be adjusted to different degrees of sensitiveness by replacing more or less air, by mercury.

Prof. Breneman, chairman of the committee appointed to consider the organization of a chemical club, reported that he had received nearly a hundred replies to the circular sent out, all but about twenty of which were unqualifiedly in favor of the project. He stated that there had been a misunderstanding on the part of some as to the intended membership, and he desired to have it known that there is no intention of limiting the membership to any society or section of the chemical fraternity, but to include chemists and chemical manufacturers generally.

DURAND WOODMAN,
Secretary.

GEOLOGICAL CONFERENCE OF HARVARD UNIVERSITY, MARCH 31, 1896.

'Longshore Transportation on the North Jersey Coast. J. EDMUND WOODMAN.

Littoral transportation is caused by wind waves, wind currents, tidal waves and tidal currents. All these factors are in active operation on the Jersey coast, but the proof is very strong that the controlling forces are tidal. The most general statement of this proof is that the winds, which must be uniform over a considerable extent of shore, act in some places in conjunction with the transportation, in others in opposition to it.

From the region east of Toms river to Sandy

Hook there is a dominant northward current; from the former place to Delaware bay a southward one. This current can be seen and traced in many places. Its geographic effect is chiefly the migration of material (and hence of inlets) from the center towards the two extremities of the State. This opposition of movement cannot be due to the fact that the northern half is in the lee of Long Island, and thus while northeast winds dominate farther south they are overpowered by southeast winds there, for at Sandy Hook or Long Branch the northeast storms are as severe as at Atlantic City.

The reason given by the U. S. C. S. (1856) for this northward movement cannot be correct; for upon examining the region we see that ever so strong a draught through False Hook channel would not cause a steady and strong current as far south as Manasquan inlet. The explanation must be sought in the effect of submarine topography upon the tides, which near shore move as waves of translation. This effect seems to be chiefly the formation of nodal points of secondary importance in the three great tidal bays of the Atlantic coast. The same phenomenon occurs on the south shore of Long Island, and on the east shore of Cape Cod. These secondary nodes are joints of divergence of currents, and must be caused by inequalities of the great continental delta which we do not now recognize.

While the author considers tidal action to be dominant here, he does not believe it to be the exclusive agent of transformation. The direction and amount depend upon the resultant of all the factors tending to produce movement, and wind waves form a very considerable element in this. But that wind waves do not control it is proved by the fact that the current continues northward against adverse winds, and can only be momentarily reversed by long continued and violent storms.

Transportation is mainly off-shore, by bar migration; but a small amount can be observed along the strand, demonstrably propelled by currents and not by waves. Most of the movement here, however, is caused by wave impact and the reflex flow of water.

The deposition is little affected by currents, for much of it is made upon the outside of Sandy

Hook, at a place where the current enters the mouth of False Hook channel, and hence is, if anything, stronger than farther south. But with a constant current deposition often varies with direction and intensity of wind.

It is worthy of note that the point of divergence of the northward and southward currents is so located that the wing, Sandy Hook, is receiving all the waste from the wearing-back of the soft headland of Cretaceous and Tertiary age which extends from Bay Head to Low Moor; while of the transportation along the barrier beaches southward none comes from the headland. Thus these beaches are only carrying their own detritus, piled up at an earlier stage, and are wasting themselves away.

T. A. JAGGAR, JR.,
Recording Secretary.

THE ACADEMY OF SCIENCE OF ST. LOUIS.

At the meeting of April 20th Dr. C. M. Woodward presented the results of a study of certain statistics of school attendance, from which it appeared that the average age of withdrawal from the public schools in three cities compared was as follows: Boston, 15.8; Chicago, 14.6; St. Louis, 13.7.

Prof. J. H. Kinealy exhibited and gave a mathematical discussion of the Stang planimeter, an interesting and simple instrument of Danish invention, but improved in the United States.

WILLIAM TRELEASE,
Recording Secretary.

NEW BOOKS.

A History of the Warfare of Science with Theology in Christendom. ANDREW D. WHITE. New York, D. Appleton & Co. 1896. Vol. I., pp. xxiii+415; vol. II., pp. xxiii+474. \$5.00.

A Dictionary of Chemical Solubilities. ARTHUR MESSINGER COMEY. London and New York, Macmillan & Co. 1896. Pp. xx+515. \$5.00.

Current Superstitions. FANNY D. BERGEN. Boston and New York, published for the American Folk-Lore Society by Houghton, Mifflin & Co. 1896. Pp. x+161.

Plane and Solid Geometry. C. A. VAN VELTZER and GEORGE G. SHUTTS. Madison, Wis., Tracy, Gibbs & Co. Pp. viii+395.