

monium citrate of sp. gr. 1.09, and only slightly soluble in citric acid, but is readily soluble in hydrochloric acid of sp. gr. 1.115.

Two Partially Compensating Sources of Error in the Official Method of Determining Potash: T. E. KEITT.

In the official method there are two sources of error, one the diminished volume due to precipitation of the iron, alumina and tri-calcium phosphate when ammonia and ammonium oxalate are added to the solution after boiling; the second due to occlusion of potash by the above precipitate.

An Odd Result in the Chemical Analysis of a Potable Water: F. P. DUNNINGTON.

Analysis of the water from a newly bored well showed astonishingly high amounts of nitrates, nitrites and chlorides, even after the well had been pumped dry twice. A full explanation lies in the circumstance that the party boring the well wound up by exploding a charge of dynamite "to open up crevices for water" and then to ensure a good job, put some salt in the well. In cleaning out wells some people complete the work by putting salt or lime into the well—an ill-advised custom, frequently encountered in certain regions.

In addition to the above papers there were two informal talks: one by Dr. C. L. Parsons on the radium situation and the capabilities of radium in the cure of cancer, the second by Dr. R. K. Duncan, who described the general organization of the scheme of fellowships in industrial research and recounted a number of the problems upon which the men working under this scheme are engaged; both of these talks were very interesting, and impressed those who heard them.

JOHN JOHNSTON,
Secretary of Section C

AMERICAN ASSOCIATION FOR THE ADVANCEMENT OF SCIENCE

SECTION F—ZOOLOGY

SECTION F—Zoology—of the American Association for the Advancement of Science held its convocation week meeting in the histological building of the Atlanta Medical College, Atlanta, Ga., December 29 and 30, 1913.

Professor Frank R. Lillie, of the University of Chicago, was elected vice-president and chairman of the section for the ensuing year. C. C. Nutting, Iowa University, was chosen member of the General Committee of the association; Herbert Os-

born, Ohio State University, was elected a member of the sectional committee (for 5 years), and E. W. Gudger, Normal College of North Carolina, was made a member of the council of the association.

The following papers were presented at the meeting, either in full or by title:

The Behavior of Leeches with Especial Reference to its Modifiability: WILSON GEE.

The first section of the work reviewed in this paper deals with the reactions of leeches to various classes of stimuli, such as light, chemicals, contact, currents, etc. The second section is an attempt to present, so far as possible, a causal explanation of the modified behavior described in the nephelid leech, *Dina microstoma* Moore. The different responses to the same stimulus were shown in their essential features to be in accord with our knowledge of reflex-arc structure and what might be expected of its conductivity in the various stages of excitement of the leech. Acclimatization to slight stimuli, such as shadows and shocks, was explained on the basis of the dulled sensibility of the receptors and slight changes in the nerve centers involved. It was shown that the phenomenon of fatigue in the leech possesses the same fundamental characteristics as fatigue in skeletal muscle. An important factor in explaining the behavior of the leech at a given moment was shown to be the consideration of the concurrent stimuli operative at that moment. Perhaps intermediate metabolic products are the cause of much of the difference in responsiveness between normal and well-fed leeches. The increased irritability of starved leeches is probably due to much the same cause.

Additional Data on Some of Eisen's Species of Lumbricidæ: FRANK SMITH.

Eisen in 1874 published a list of *Lumbricidæ* from Niagara and from Mt. Lebanon, New England, in which he described four new species. One of them is the widely distributed and well-known *Helodrilus parvus*. The other three species have not been reported since. Eisen gave only brief descriptions of their external characters and their real status has been uncertain. The United States National Museum has specimens of each of these three species which were given by Eisen many years ago, and are accompanied by labels showing that they were part of the original collections on which the descriptions were based. They are in the collections of *Oligochaeta* which have been turned over to the writer for study. Sections have

been made and some of the more important facts of their internal anatomy determined. With the permission of the Secretary of the Smithsonian Institution, I make known some of the results of this preliminary study. *Helodrilus tenuis* has paired sperm sacs in XI. and XII. only, and has no spermathecae. It belongs to the *Bimastus* section of the genus and is the same as *H. constrictus* (Rosa), described in 1884. Its relation to *H. norvegicus* (Eisen) is as yet uncertain. *H. tumidus* has sperm sacs in XI. and XII. only, and has no spermathecae and hence belongs to the *Bimastus* section of the genus as has been assumed by Michaelsen. *Tetragonura pupa*, now regarded by Michaelsen as simply a form of *Helodrilus tetradrus* (Savigny), is represented in the collection by a single specimen which, although labeled by Eisen as *Tetragonura pupa*, has spermiducal pores on XI. instead of on XII., as described by him. All of the reproductive organs and the crop and gizzard are four somites anterior to the position normal for Lumbricidae. There is but one pair of "hearts" and they are in VII. The entire anatomy of this specimen is that which might be expected if a specimen of *Helodrilus tetradrus hercynia* (Michaelsen) had lost the anterior nine somites and regenerated the usual number of five new ones. We do not know how many specimens Eisen may have had and it is certainly unsafe to assume that his description was based on this particular specimen. The real status of this species seems as uncertain as before. (These results will appear later under a different title in a more extended paper from the United States National Museum.)

A Study in Strongyloid Parasites of Cattle and Sheep in South Carolina: A. F. CONRADI.

Among the nematode parasites occurring in the digestive tracts of young cattle and sheep in South Carolina, the stomach worm, *Hæmonchus contortus* and the hookworm of cattle, *Monodontus phlebotomus* are very important. An extended study of these parasites was made covering a period of several years. The stomach worm occurs in both young cattle and sheep in injurious numbers. Hookworm has not been found injurious in sheep, but among cattle this is a species to be reckoned with. The life history of the two species is very similar. The eggs are laid in the stomach and after passing from the animal hatch in from three days to several weeks, depending on the temperature. In our work the stomach worm was almost altogether confined to

the fourth stomach, while the hookworm was confined to the upper eight feet of the intestines. While the hookworm fastens itself to the intestinal wall and sucks blood, we were unable to prove this in case of the stomach worm. These occur in the mucous secretion between the mucous membrane of the stomach and the ingesta and are very rarely attached. Even when the specimen is attached it is but feebly so and can be removed, while in the case of the hookworm often the head is torn off when trying to remove it with the forceps. A vulnerable point in the control of both species lies in the fact that moisture is absolutely necessary for the egg and young larval development. This is true in the laboratory, and experiments in the field have shown that this point can be taken advantage of. A heavily infested lot being about one half creek bottom and one half hillside was divided so as to separate the lowlands from the highlands. An equal number of calves of the same age were placed on these lots in the early spring and these animals received the same amount and kind of feed, except that those in the lower lot obtained their water from a running brook. At the end of the season we had 62½ per cent. more calves on the upland than on the lowland. The following year all calves were kept on the upland and no death occurred. In our work the heaviest egg record occurs during June and July, while the death rate begins the latter part of August and continues through September and October. In our work no young calves born after August 25 took the disease, while the parasites left infested animals at from ten to fourteen months of age.

On the Whale Shark, Rhineodon typus: F. W. GUDGER.

The Eruption of the Permanent Teeth: ROBERT BENNETT BEAN.

Data for 2,221 school children. The eruption of the permanent teeth in the Filipinos is from one to four years earlier than in the Germans and Americans; females are more precocious than the males in all three groups. The lower permanent teeth erupt before the upper ones, except that the upper premolars erupt before the lower.

The teeth erupt in the following order: (1) Lower first molars; (2) lower median incisors; (3) upper first molars; (4) upper median incisors; (5) lower lateral incisors; (6) upper lateral incisors; (7) upper median premolars; (8) lower canines; (9) lower median premolars; (10) upper lateral premolars; (11) upper canines; (12)

lower lateral premolars; (13) lower second molars; (14) upper second molars; (15) lower third molars; (16) upper third molars.

The law of eruption is as follows: There are one or more periods of acceleration alternating with periods of retardation in the development of any one of the structures of the body. The periods of acceleration in the development of one structure may be synchronous with the periods of retardation in the development of another structure. Thus the period of the first six months after birth is one of rapid growth of the body in length, and this is followed by a period of comparative rest of the body while the eruption of the temporary teeth is taking place, all of which are through the gums by the end of the third year. This activity in dental growth is followed by a period of rest. Following this there is a second period of rapid growth in stature, subsequent to which the permanent teeth begin to erupt, after which the growth of the body is again accelerated, to be followed by a second rapid eruption of the permanent teeth and then another rapid growth of the body which is succeeded by puberty. The temporary teeth of the Americans are worse than those of the Filipinos which are worse than those of the Germans. The girls have worse teeth than the boys in all groups. The eruption of the teeth is one of the most exact means of determining the relative development of the individual and may be used as a physiological standard to determine the relative development.

Some Curious Parasites, Commensals, etc., Found on Alecyonaria: C. C. NUTTING.

1. Discussion of the meaning of terms used to indicate the associations of animals discussed in the paper, and the analogies found in the *Alecyonaria* to plants.

2. Commensals found on *Alecyonaria*. (a) Those which are apparently harmless and do not modify the structure of the hosts. Illustrated by basket-fish, serpent stars and mollusks. Similarity in colors to the hosts. Possible advantage of association to commensals. (b) Those which directly modify the structure of the host, but do not subsist upon its tissues. A genus (*Calypterinus*) founded on such modification. *Stenella helminthophora*, in which the scale-like spicules have been remarkably modified to form a refuge for an annelid. *Calyptrophora ijimæ*, in which a web-like membrane including numerous spicules is formed by an annelid. *Echinogorgia pseudosasapo*, in which a barnacle has produced gall-like swellings in which it finds protection. *Soleno-*

caulon, in which it is claimed the leaves are modified to form arcade-like retreats for a macrouran crustacean, and, in another case, a brachyuran. (c) True parasites, apparently subsisting in part or in whole on the tissues of the host. *Chrysogorgia arborescens* with polyp bodies enormously enlarged by a parasitic crustacean of degraded type. *Suberia excavata*, in which the axis cylinder is extensively tunneled by a bivalve, and in which a degenerate annelid has also been found. (d) Parasites which do not live upon the tissues of the host, but which destroy it by strangulation. Millipores entirely covering an aleyonarian colony. Colonial anemones entirely covering a colony of *Caligorgia gilberti*.

An Experimental Comparative Study of the Behavior of the Animals of Two Aquatic Animal Communities: VICTOR E. SHELFORD.

The rapids and pool communities have been compared. The rapids community is characterized as *positive to strong current* and *negative to sand bottom*, while reaction to light, contact and gravitation are in accord with the position in which the animals live, *i. e.*, whether *on*, *under* or *among* stones. The pool community is *positive to sand bottom*, but only in part positive to current. It differs from the pool community in reactions to all the factors used. Those animals that are positive to current have a different optimum, hence animal communities differ in their behavior reactions.

Are the Preotic Myotomes of the Vertebrate Head Postotic in Origin? H. V. NEAL.

The assumption of an exogenous origin of the otic region by Fürbringer ('98) and for both postotic and preotic regions by McMurrich ('12)—appears untenable in the light of the evidence. As pointed out by Johnston ('05) Fürbringer's inferences appear fallacious as a result of his failure to appreciate the relations of the nerve components in the occipital region. The main support for McMurrich's conclusions is therefore rendered doubtful. While the relations of the posterior rectus muscle of the eye to a postotic nerve—the abducens—might appear to favor the postotic derivation of that muscle, the relations of the remaining eye-muscles to nerves having preotic niduli do not support this opinion. Moreover, if McMurrich's assumption were true, it would appear necessary to assume the migration of somatic motor niduli from postotic into a preotic position and the associated migration of the mandibular and hyoid arches with which the myo-

tomes of the eye muscles are connected. The discovery of Van Wijhe's ('82) somites in Cyclostomes (Koltzoff '02) and of a similar mesodermic segmentation in the preotic region of bony fishes (Boecke '04) and of reptiles (Filatoff '07) taken in conjunction with the evidence of their presence in Amphibia (Miss Platt '97) and the repeated confirmation of their existence in Selachian embryos by Hoffmann ('94), Neal ('96, '97), Sewertzoff ('98) and Johnston ('09) attests not only the presence of a primary preotic segmentation, but also indicates that the mesodermic segmentation, as in *Amphioxus*, is continuous from the preoral region backwards through head and trunk. The recent rehabilitation of *Amphioxus* by Delsman ('13) as a transition form between annelids and vertebrates is symptomatic of the recent trend of morphological opinion. A fuller discussion of the problem will be given in a forthcoming number of *The Journal of Morphology*.

The Story of Human Lineage (vice-presidential address): WILLIAM A. LOCY.

Microscopic Demonstration of Fecal Contamination of Food, as Evidenced by the Presence of Protozoan Spores: C. W. STILES.

Instruction of Young People in Respect to Sex: T. W. GALLOWAY.

In a brief discussion like this some things must be assumed. Among these things we may mention the following: (1) Reproduction and sex, next to hunger and the need of food, is the most profoundly influential factor in human life. It is basal to society and to particular organization of society. (2) Anything which bulks as large in human life as sex can not be unimportant in education. (3) Its greatest meaning in education is not in connection with its abuses, perversions and dangers, but rather in the normal, wholesome and constructive contribution which it makes to health,—physical, mental, social, moral and religious. (4) Consequently sex instruction means not emphasis of the pathology of sex, but of the normal development of human personality and society because of, and by means of, the impulses growing out of sex. It deals with cleanness, purity, marriage, home, fatherhood, motherhood, children, parental care, chivalry and the like. (5) In the normal human child there is no such thing as ignorance and innocence with respect to matters of sex. The only choice we have is whether the information will be clean and correct and free from vile and vulgar connotations, or will be incomplete, sug-

gestive and curiosity-inspiring. (6) Even if we could keep children ignorant, there is in the long run no positive correlation between ignorance in respect to vital and far-reaching phenomena and safe, wise adjustment to these phenomena. There is, however, a correlation between knowledge and right conduct, howbeit the correlation is not 100 per cent. (7) We must, therefore, have from some source, adequate instruction in respect to matters of sex. (8) We all agree that their instruction ought to come from parents and others similarly related to the child. (9) We know, however, that this is not being done by the present generation of parents in any serious degree. We know, furthermore, that the present-day parent is not fitted to do it properly. (10) We need, therefore, to prepare a generation of parents who can do this work for society. This must be done by social agencies outside the family. (11) Colleges and normal schools are in position to do two things for the people coming to them: (a) They may give the kind of instruction which parents ought to have; and (b) they may train future teachers in a fundamental knowledge of these matters so that they may bring help to the present-day generation of parents—through parent-teacher associations in the interest of the child.

The discussion of Professor Galloway's paper was led by Professor E. B. Wilson, of Columbia University, and was participated in by several members of Section F.

Variation in Oxyurias: Its Bearing on the Value of a "Nematode Formula": STANLEY B. FRACKER.

Owing to the difficulty of classifying Nematoda certain writers have used a "nematode formula" in their descriptions. This formula shows the proportions of the body structures of the individual worm described. The investigation which this paper reported consisted of the measurement of a large number of individuals of *Oxyurias vermicularis* Linn. to determine the variation in the species. The range proved sufficiently great to throw doubt upon the value of a formula. The conclusion was reached that while the general proportions of the organs of a round worm have a taxonomic importance, the formula as it has been used is likely to be more misleading than valuable. The full paper is to be published soon.

The Development of the Olfactory Nerve and Its Associated Ganglion in Lepidosteus: CHAS. BROOKOVER.

The olfactory nerve and the nervus terminalis

has been followed in its developmental history in a graded series of embryos and larval fishes to the adult condition. The olfactory nerve and the nervus terminalis are interpreted as arising together from the ectodermal nasal placode in the same way as was previously found in *Amia* and *Ameiurus*. The ganglion of the nervus terminalis can not be recognized with certainty until a late embryological stage (about 100 hours from fertilization) and later is divided into a compact central ganglion and a more diffuse peripheral ganglion in or near the nasal capsule. In the adult fish the central ganglion is located on the ventral side of the olfactory nerve anterior to the masticating muscles about an inch rostral of the brain. It can not be positively stated that there is fibrous connection with the other cranial nerves, but a large ramus of the fifth nerve runs in the same bony channel. We have recently found more than two hundred large ganglion cells, associated with the olfactory fila in adult man that have been interpreted as belonging to the nervus terminalis. Full paper to be published in *Journal of Comparative Neurology and Psychology*.

The Library of Congress as an Aid to Scientific Research: E. W. GUDGER.

The Library of Congress, the national library in fact if not in name, contains about 2,000,000 books, including the priceless Smithsonian Collection, and is the richest depository of the kind in the new world. These books, including sets of scientific periodicals and proceedings of learned societies, are, under very liberal regulations and restrictions, available for the use of those doing serious scientific research work anywhere in the United States. Further, the library maintains a division of bibliography the services of which are available to the research worker for the settling of bibliographical questions, for perfecting incomplete references, for compiling lists of references, and even for copying out brief extracts. On the other hand, to the scientific man, visiting Washington for the purpose of making use of the Library of Congress, every facility for work is accorded upon the presentation of proper credentials. He is given a room or an alcove in which to work, may even be admitted to the stacks, and if necessary may have an attendant or stenographer, while there is no limit to the number of books he may have on his table for reference. In short, it is the purpose of the librarian of congress and his associates to supply the unusual book for the unusual need, to make the national library the great-

est reference library in America, and the speaker, having during the past seven years borrowed hundreds of books from it, is able to testify that this purpose is not a matter of theoretical intention, but of actual achievement. This being the nearest large library to the South, it has seemed well, at a meeting of the American Association for the Advancement of Science, held in a southern city and attended largely by southern men, to call the attention of Section F and of the whole association to the great function of this great library.

A Demonstration of the Ears of Some White and Colored People of New Orleans, La.: ROBERT BENNETT BEAN.

During the past three years and more I have collected about 200 ears of colored people in New Orleans, and about as many more of white people, some of which are preserved at the Smithsonian Institution, and the remainder at Tulane University. I measured the ears after classifying them according to my grouping of hyper, meso and hypo forms, but I found that many of the ears of the colored people were unlike any of the three forms, and I call them negroid ears. I had previously collected the ears of Filipinos and placed them in the Smithsonian Institution, and in addition to the ears that I have collected and measured I have examined thousands of ears of Filipinos, Negroes, white people and others, therefore, I feel qualified to classify the normal ear. The ears of the white people may be grouped into three forms which will be described briefly as follows: The hypo ear is a small round ear, that has a deep concha, with a raised helix, that makes the ear look like a shallow bowl. The meso ear is large, often almost rectilinear, and somewhat flattened, and not so bowl shaped as the hypo ear. The hyper ear is long, narrow and usually small, with everted tragus, antitragus and anthelix and rolled back helix. The meso ear seems to be the form from which the others have been derived, and the hypo and hyper forms have apparently undergone a greater amount of retrograde metamorphosis than the meso ear. The three forms are found among the colored people in almost as great purity as among the white people, but the most usual condition of either form is to present a certain amount of wrinkling of the helix as if it had been shriveled, and in contracting the ear is distorted. The ear of the Negro also appears in the form described by Hrdlička, which is small, almost square and flat against the head. The ears of the colored people are, as a rule, smaller than those of the

white people, and this in connection with the wrinkled condition and the presence of the ear described by Hrdlička has led me to consider the Negro ear as having undergone a greater amount of retrograde metamorphosis than the ear of the white people, even a greater amount than the hypo or hyper forms. I am at present at work on the development of the ear of the fetus in the colored people to determine the extent of development of the ear in the early stages of fetal development in order to find the extent of retrograde metamorphosis.

The First-year Zoology Course: JOHN P. CAMPBELL.

The first-year zoology course is of special importance, for the reason that most students go no farther. It should, therefore, have the widest human interest possible, and be no more technical than is necessary, in order to give the largest returns to the greatest number. As usually conducted, this course consists of a more or less intensive study of a few types, the idea being that the benefit to be derived is directly proportional to the amount of contact with these in the laboratory. This is believed to be wrong, and the idea is urged that the amount of laboratory time should be just enough to develop a mental attitude in the student, and put him in sympathy with the methods by which the subject has been developed. If the laboratory work consists merely in verification, no amount will do this, but if it is properly conducted, this result may be reached in less time than is commonly used. Emphasis should be laid also on the historical and philosophical aspects of the subject, and for this purpose students should be required to do wide reading and make ample abstracts. Every effort should be made to have the student get a large view of nature, and he should be able to interpret as well as observe. General discussions should be introduced wherever possible. Zoology is the study of animal life, and the more contact with life is presented, the stronger is the course. Morphology in the old sense has passed away, but the more the student learns to interpret structure in terms of modification in relation to environment, the more is he likely to be mentally awakened. The order of presentation is most important and, in the writer's experience, few students are intelligently interested in the Protozoa, if they are used to introduce the course. Insects serve much better as an introductory subject, after which evolution may be taken up. If then the insects are reviewed and the re-

maining Arthropods taken up in the light of evolution, the study of the tissues in these leads logically into the Protozoa, after which the remaining phyla may be taken up in ascending order. The success of this course should be measured by the reaction of the student, and the proportion that are attracted to take the more advanced work, in which, of course, different methods should be pursued. The round-table discussion of Professor Campbell's paper was led by Professor Galloway.

The Content of a First Course in Zoology: T. W. GALLOWAY.

I. This is so conditioned by what we desire to accomplish that I want to outline briefly some of the more important things I think we should try to do for the pupil in such a course. (1) We should produce and conserve a vital interest in animals. (2) We should secure an appreciation of the human values of animals. (3) We should encourage the attitude in the student of raising and solving problems concerning animals. This means the scientific attitude and the scientific method. (4) The pupil should have some ability to use the library, the field and the laboratory in pursuit of these interests. (5) He should be able to sustain interest in such problems for considerable periods. (6) There should be some sense of the way in which organisms respond to the environing conditions; some conception of individual development, and of the evolutionary series of animals. (7) The pupil should have some knowledge of the cell and of protoplasm as basal in plant and animal life. (8) He should get some practical experience in classifying organisms. (9) He should have a conception of the place of man in the biological series, and in such a way that it will heighten rather than diminish his appreciation of the meaning of the higher human qualities. (10) We should secure for him a sane appreciation of the origin and meaning of reproduction and sex, and of its bearing on human life.

II. It follows from the above that the point of view can not be narrowly morphological. Such, or all, of the possible approaches must be used as will contribute to these ends. Morphology, physiology, ecology and distribution, classification, touches of embryology and such general questions as evolution, heredity, history of biology and the like, must be included. Morphology alone secures little more than a certain deftness of observation and expression. Only when it is enriched by the more vital aspects do we secure discrimination, and the making and testing of general conclusions. The

pupil is entitled to "follow thru" in his mental processes.

III. Life is too short for these results to be accomplished by the laboratory alone or chiefly. The value of laboratory work is not in the zoological information gained by means of it. Its chief value is to enable the pupil to appreciate how the information got into the books, to give him skill in working out things for himself, and to use the increased interest he has in handling objects rather than in reading descriptions of them. It appears to me that about one half the time should be given to laboratory and field work, with more emphasis on the latter than is usual, and one half to class room, library and museum. I conceive that very much more use should be made of the library and somewhat less than is customary of the text or the lecture.

IV. I suggest the following for guidance in the selection of forms to be used in the laboratory study. They should be from those groups that have most human meaning; that are most common in the environment of the pupil; that have fewest disagreeable and repelling points; that illustrate best the great underlying processes and relations which we desire the pupil to get. Such a course might very appropriately emphasize the Protozoa, the Worms, the Mollusks, the Arthropods and the Vertebrates, in the laboratory and the field. The library and the museum may very well supply such synoptic view of the other groups as is needed in the first course.

It is quite difficult but quite important to remember that we are concerned to develop human beings and not in a mere logical display of zoological material. There is no necessary correlation between the two processes.

Note on the Present Status of the Gipsy Moth Parasites in New England: L. O. HOWARD.

Some Notes Regarding the Natural History of the Mole Cricket: E. L. WORSHAM.

The Jassidæ of Maine and their Bearing on the Distribution of this Group in America: HERBERT OSBORN.

Collections during the summer of 1913 greatly extend the records of the species in this family for Maine. For the most part these simply extend known range from adjacent localities, but in some cases from such distant points as Michigan, Iowa and even the Rocky Mountain region.

H. V. NEAL,
Secretary

TUFTS COLLEGE, MASS.

SOCIETIES AND ACADEMIES

THE AMERICAN PHYSICAL SOCIETY

A REGULAR meeting of the Physical Society was held at Columbia University, New York, on February 28, when the program was as follows:

"Radiation Constants of a Nitrogen-filled Tungsten Lamp," by W. W. Coblenz.

"The Villari Critical Point in Ferromagnetic Substances," by S. R. Williams.

"Motion of a Radiating Oscillator," by E. B. Wilson.

"A Method of Rapidly Extracting, Purifying and Compressing Radium Emanation," by William Duane.

"On the Asymmetric Distribution of Velocities of Photo-electrons from Platinum Cathode Films," by Otto Stuhlmann, Jr.

"On the Density of Radiant Action," by William Duane.

"Secondary Electron Emissions from a Hot Cathode Caused by Positive Ion Bombardment," by Irving Langmuir.

A. D. COLE,
Secretary

THE AMERICAN PSYCHOLOGICAL SOCIETY

THE New York Branch of the American Psychological Association met in conjunction with the Section of Anthropology and Psychology of the New York Academy of Sciences, at Princeton, on February 23. The program was as follows:

"Some Tests of Efficiency in Telephone Operators," by Dr. H. C. McComas.

"Transfer and Inference in the Substitution Test," by Professor H. A. Ruger.

"A Comparison of the Effects of Strychnine and Caffeine on Mental and Motor Efficiency," by Dr. A. T. Poffenberger.

"A Comparison of Stylus and Key in the Tapping Test," by Dr. H. L. Hollingworth.

Inspection of the Psychological Laboratory of Princeton, and informal reports of work in progress.

"An Experimental Critique of the Binet-Simon Scale," by Carl C. Brigham.

"The Work Curve for Short Periods of Intense Application," by Professor R. S. Woodworth.

"Recall in Relation to Retention," by Dr. Garry C. Myers.

H. L. HOLLINGWORTH,
Secretary