ment was authorized by the Officer in Charge of the Laboratory, and later by the board, to conduct experiments and secure data bearing on the question * * * . The specific point on which we commenced work was whether the duration of nystagmus after rotation is an index of the sensitiveness of the mechanisms for appreciating motion and maintaining equilibrium. Other questions raised outside of the laboratory, *e. g.*, as to how far the semicircular canals constituted the mechanism involved, or whether they were the sole mechanism, seeming to us to have no practical bearing on the issue.

Our first attack on the problem consisted in observations on circus performers, vaudeville stunters, and dancers, in the effort to determine the nystagmus-reactions of these individuals of demonstrated high ability in equilibration. These observations were started by Captain G. R. Wells, and after being discontinued because of the necessity of sending him to a field station, were taken up by Captain Bentley. The results of these observations indicated the necessity of attacking the problem of practise-effects by controlled experiments. I consulted a well-known dancing teacher in New York City, who advised a daily practise period of half an hour, prophesying striking results in two weeks.

The experiment was carried out by Captain Bentley, on five men, who showed "normal" nystagmus the first day, when tested by Captain Wales, who had had experience in conducting the nystagmus test on examining boards. This observation was checked by Captain Bentley by more exact methods. Each man was given turning at the "standard" rate—ten turns in twenty seconds—first in one direction, then after a brief resting period in the opposite direction, and so on, for approximately half an hour. The total time of turning during the half hour was between three and four minutes. At the end of each set of ten turns, the nystagmus duration was recorded by an admirable method devised by Bentley. Practise was given as near daily as possible, but was interrupted by Sundays and military duties.

The nystagmus duration showed a reduction from day to day, following the form of the usual practise curves derived from other experiments on learning and habituation. In a short time all the men had durations far below the official lower limits for passing candidates (16 seconds) and one showed no nystagmus at all. The equilibration of these men was certainly no poorer than when they showed the "normal" nystagmus at the beginning.

An interesting field for further work on nystagmus was opened up by these investigations, which however had gone far enough to settle the point of practical military importance. It would have been well to ascertain the effect of varying the rate of rotation, * * * , and as I and the other men concerned in the experiments were shortly transferred from duty with the Medical Research Board, the investigation lapsed at that point.

The tests * * * which were carried on in airplanes upon deaf subjects and others, we had nothing to do with. * * *

KNIGHT DUNLAP

THE JOHNS HOPKINS UNIVERSITY

THE MATHEMATICAL ASSOCIATION OF AMERICA

THE third annual meeting of the association was held at the University of Chicago on Friday, December 27, 1918, in conjunction with the annual meeting of the American Mathematical Society. Eighty-six were in attendance at the sessions.

The first session was devoted to the subject: "Deductions from war-time experiences with respect to the teaching of mathematics." This was a conference participated in by representatives of colleges and universities in which the Students' Army Training Corps were located, including R. P. Baker, University of Iowa; W. D. Cairns, Oberlin College; A. R. Crathorne, University of Illinois; D. R. Curtiss, Northwestern University; W. B. Ford, University of Michigan; A. M. Kenyon, Purdue University, and H. E. Slaught, University of Chicago. These men reported upon the methods used and the probable lessons to be gained for the future of collegiate mathematics. Professor D. R. Curtiss also gave an account of "An experiment in supervised study" this being followed by

a discussion by Professor H. L. Rietz, University of Iowa. "A report on the ensign school" was made by Professor E. J. Moulton and R. E. Wilson, of Northwestern University.

After a session of the American Mathematical Society, to which the members of the association were invited to hear the retiring address of President L. E. Dickson on "Mathematics in war perspective," there was a joint session of the two organizations at which the following papers were read:

Some mathematical features of ballistics: Captain A. A. Bennett, Aberdeen Proving Ground.

How the map problem was met in the war: Professor Kurt Laves, University of Chicago.

Notes concerning recent books on navigation: Alice Bache Gould, University of Chicago.

Statistics methods for preparation for war department service: Professor H. L. Rietz, University of Iowa.

Ordnance problems: Major W. D. MacMillan, Ordnance Department, Washington, D. C.

Practical exterior ballistics: Lieutenant P. L. Alger, Aberdeen Proving Ground.

The effect of the earth's rotation and curvature on the path of a projectile: Professor W. H. Roever, Aberdeen Proving Ground.

On low velocity high angle fire: Professor H. F. Blichfeldt, Aberdeen Proving Ground.

There was a joint dinner of the two organizations on Friday evening. The annual business meeting was held Friday noon, and the following officers were elected:

President—H. E. Slaught.

Vice-presidents—R. G. D. Richardson, H. L. Rietz.

Members of the Executive Council for three years—L. P. Eisenhart, B. F. Finkel, E. V. Huntington, E. H. Moore.

The report of the secretary-treasurer showed that eight members had died during the year, 61 individual and 4 institutional members had been added, 49 individual and 4 institutional members had withdrawn, the association thus numbering 1,060 individual and 84 institutional members. One hundred and ten members are known to the secretary-treasurer as having been enrolled in national service, including a small number in Y. M. C. A. and other non-combatant branches.

It was announced that the council had appointed R. C. Archibald, of Brown University, as editor-in-chief of the official journal, the *American Mathematical Monthly*, in place of R. D. Carmichael, resigned; and that twenty persons and one institution had been elected to membership at this meeting.

The financial statement showed a balance for December 1, 1917, of $3,485.47, receipts on 1918 business of $4,566.21, expenditures amounting to $4,539.84, and a consequent balance on 1919 business of $3,511.84, which with $216.27 already received on 1919 business gives a balance under date of December 2, 1918, of $3,728.11. This will be reduced to approximately $1,700 by bills payable on 1918 business.

W. D. Cairns,
Secretary-Treasurer

AMERICAN SOCIETY OF ZOOLOGISTS

SIXTEENTH ANNUAL MEETING

The proceedings of the sixteenth annual meeting of the American Society of Zoologists are published in full in the *Anatomical Record* for January, 1919, together with abstracts of the papers presented.

The following were elected to membership in the society: Arthur Challen Baker, Bureau of Entomology, Washington, D. C.; Samuel Randall Detwiler, Yale Medical School, New Haven, Conn.; Harrison Randall Hunt, West Virginia University, Morgantown, W. Va.; Edwin Booth Powers, Colorado College, Colorado Springs, Colo.; William Hay Talliaferro, Chemical Welfare Service, New Haven, Conn.; Elmer Roberts, University of Illinois, Urbana, Ill.

C. M. Child, Chicago, was elected president; H. H. Wilder, Northampton, Mass., vice-president; W. C. Allee, Lake Forest, Ill., secretary-treasurer, and George Lefevre, Columbia, Mo., member of executive committee.

The following papers were presented:

Parasitology

On the transmission of two fowl tapeworms: James E. Ackert, Kansas State Agricultural College.

Recent discoveries concerning the life history of Ascaris lumbricoides: G. H. Ransom and W. D. Foster, Bureau of Animal Industry, Washington, D. C.

The true homology of the cuticula and subcuticula of trematodes and cestodes: H. S. Pratt, Haverford College.

Comparative Anatomy

The metamorphosis of two species of cyclops: Cyclops signatus (C. albidus Jurine) and Cyclops americanus Marsh: Esther F. Byrnes.