

flexible driving shaft, similar to those of the dental engines.

In work upon the larger specimens the chisel frame is held in the hand, the flexible shaft permitting of considerable freedom in manipulation. In the case of smaller specimens, it has been found best to secure the chisel frame in a vise and to hold the specimen in the hand. Putting the chisel in operation consists solely in pressing it against the specimen in the first case, or the specimen against it in the second. Probably of more importance than the speed, is the control of the length of the stroke, and hence of the liability of injury to the specimen. The full stroke is only one fourth of an inch, and by pressing lightly the stroke can be reduced to an extremely small fraction of an inch.

WILLIAM C. MORSE

WASHINGTON UNIVERSITY

### THE OHIO ACADEMY OF SCIENCE

IN accordance with the amendment of the constitution, adopted at the quarter-centennial anniversary in November, 1915, the twenty-sixth annual meeting of the Ohio Academy of Science was held at the Ohio State University, Columbus, Ohio, on Friday and Saturday, April 21 and 22, 1916. Fifty-five members were in attendance.

The presidential address by Professor George D. Hubbard, of Oberlin College, was on the subject "What Has the Future for Geologists?" On Friday evening a joint session of the academy with the Ohio College Association and other affiliated societies was addressed by Professor Charles H. Judd, of the University of Chicago, on "The More Complete Articulation of Higher Institutions with High Schools." On Saturday morning the academy adjourned for a symposium of the Ohio College Association, addressed by representatives of the various affiliated societies. The academy was represented by Professor Lewis G. Westgate, of Ohio Wesleyan University, who spoke on "The Relation of the College to Research."

The remaining scientific program was as follows:

#### ARCHEOLOGY

"Exploration of Tremper Mound," by W. C. Mills.

#### BOTANY

"A New Three-Salt Nutrient Solution for Sand and Water Cultures," by A. G. McCall.

"An Adjustment of the Sliding Microtome for Cutting Lignified Tissue," by Forest B. H. Brown.

"Notes on the Structure and Function of the Green Layer of the Bark of Woody Plants," by Forest B. H. Brown.

"The Distribution of Fungi in Porto Rico," by Bruce Fink.

"The Genus *Physcia* in Ohio," by Martha McGinniss, introduced by Bruce Fink.

"A Relative Score Method for Unmeasured Characters," by A. G. McCall.

"The Revegetation of the Katmai District of Alaska," by Robert F. Griggs.

"Decrease of Permeability with Age" (Preliminary Note), by H. M. Benedict.

"Methods of Spore Formation in the Zygomycetes," by E. N. Transeau.

"Notes on the Germination of Tree Seeds," by William R. Lazenby.

"The Quince Leaf-Spot," by W. G. Stover.

"A Blade Blight of Corn," by W. G. Stover and W. N. Ankeny.

"The Occurrence of the *Volutella* Rot in Ohio," by Gustav A. Meckstroth.

"Observations on the Ontogeny of the Gall of *Pachypsylla mama* Riley," by B. W. Wells.

"Botanizing in Porto Rico," by Bruce Fink.

"Parthenogenesis in the Dandelion," by Paul B. Sears.

"The Educational Value of Wood Study," by A. B. Plowman.

"A New Method for Marking Slides," by Paul B. Sears.

"Certain Points in the Celloidin Method" (Demonstration), by A. B. Plowman.

#### ZOOLOGY

"Parallelism between the Cystid Agelacrinites (fossil) and the Holothurian *Psolus* (recent), with Demonstrations," by Stephen R. Williams.

"The Axial Rotation of Microorganisms and its Evolutionary Significance," by L. B. Walton.

"Notes on Ohio Tingitidae," by Carl J. Drake.

"Insect Population of Grasslands," by Herbert Osborn.

"Genitalia of the Bedbug with special reference to a Unique Method of Copulation," by P. B. Wiltberger.

"The Origin of the Gasserian and Profundus Ganglia in *Rana*," by Ralph A. Knouff, introduced by F. L. Landacre.

"The Fusion of the Gasserian and Profundus Ganglia in *Plethodon*," by Katharine Okey, introduced by F. L. Landacre.

"The Origin of the Placodal Ganglia in *Squalus*," by C. I. Reed, introduced by F. L. Landacre.

"Concerning Thyroid Glands in Amphibia," by R. A. Budington.

"Feeding Thymus and Thyroid Extracts," by E. P. Durrant.

"Notes on Protozoa. (a) A Review of the Arcellidæ. (b) Supplement to the Euglenoidina," by L. B. Walton.

"Notes on Birds," by H. A. Albyn.

"A Recent Ohio Specimen of Henslow's Sparrow" (Demonstration), by Edward L. Rice.

#### GEOLOGY

"On Wavemarks," by Walter H. Bucher.

"The Northward Extension of the Physiographic Provinces of the United States," by W. N. Thayer.

"Additions to the Anatomy of *Lepadocystis moorei*," by W. H. Shideler.

"Crystals," by W. N. Speckman.

#### PHYSICS

"Resistance of Electrolytes by a modification of Kohlrausch's Method," by M. E. Graber.

"Demonstration of Apparatus showing Analogy between Reactance Phenomena in Alternating Current Circuits and in Fluids," by F. C. Caldwell.

"Absorption of High Frequency X-rays," by S. J. M. Allen.

"The Symbols used in Geometry," by John H. Williams.

The trustees of the Research Fund reported a further gift of \$250 from Mr. Emerson McMillin, of New York, for the encouragement of the research work of the academy. Since the last meeting a grant to L. B. Walton has been paid, and new grants made to L. S. Hopkins, F. L. Landacre, W. H. Shideler, B. W. Wells and Stephen R. Williams.

Gratifying progress was reported by the committee on scientific journals. The scope of this work, in which the academy is cooperating with the Ohio Library Association, is shown by the following paragraphs from the appeal for cooperation mailed to all important libraries in the state: "The Ohio Academy of Science and the College Section of the Ohio Library Association jointly propose to compile a union catalogue of the periodical and scientific sets (except documents) in the libraries of the state. This catalogue is to be made on cards, and filed with the Ohio State University Library, the official depository of the Ohio Academy of Science. Ultimately the academy hopes to print this union catalogue for the

benefit both of librarians and of scientists. However, until printed, it will be possible for any one to write directly to the Ohio State University Library and secure information concerning the location of any scientific set in the state."

"The Ohio Academy of Science has been working on such a proposition for several years, and much of preliminary data has been received. At the October, 1915, meeting of the Ohio Library Association a committee was named to compile a union catalogue of periodical sets so that librarians might know where sets are when needed by them in the various universities and colleges."

"Therefore, this joint effort of the two associations, as outlined above, will bring into existence a bibliographical tool, the value of which will be indispensable to the college librarians and to the scientists of the Ohio Academy."

Obituary notices of Professor F. M. Webster, of Washington, D. C., and Professor John Royer, of Bradford, Ohio, were presented by the Committee on Necrology.

Sixteen new members were elected.

The officers for 1916-17 are as follows:

*President*—Professor F. O. Grover, Oberlin College.

*Vice-presidents*—(Zoology) Professor Stephen R. Williams, Miami University; (Botany) Professor E. L. Fullmer, Baldwin-Wallace College; (Geology) Professor August Foerste, Steele High School, Dayton; (Physics) Professor M. E. Graber, Heidelberg University.

*Secretary*—Professor E. L. Rice, Ohio Wesleyan University.

*Treasurer*—Professor J. S. Hine, Ohio State University.

*Executive Committee, in addition to the President, Secretary and Treasurer, members ex officio*—Professor L. B. Walton, Kenyon College; Professor Bruce Fink, Miami University.

*Trustees of Research Fund*—Professor W. R. Lazenby, Ohio State University; Professor N. M. Fenneman, University of Cincinnati; Professor M. M. Metcalf, Oberlin College.

*Publication Committee*—Professor J. H. Schaffner, Ohio State University; Professor L. B. Walton, Kenyon College; Professor J. A. Culler, University of Cincinnati.

*Library Committee*—Professor W. C. Mills, Ohio State University; Professor F. O. Grover, Oberlin College; Mr. C. W. Reeder, Ohio State University.

EDWARD L. RICE,  
*Secretary*

DELAWARE, OHIO