sions of the subjects and are very well selected to give the student an elementary knowledge of our present views on them.

The book should be very valuable to mining engineers, geologists, and others who are interested in making careful studies of rocks without using the petrographic microscope. It is an excellent text-book for courses in macroscopic petrography.

ESPER S. LARSEN

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SOCIETIES AND MEETINGS

THE AUTUMN GENERAL MEETING OF THE AMERICAN PHILOSOPHICAL SOCIETY

AN unusual number of important scientific meetings have been scheduled to be held in Philadelphia this fall and winter. Among these were first and foremost the notable Bicentennial Celebration of the University of Pennsylvania with its numerous sections, sessions, lectures and symposia, the semi-annual meeting of the National Academy of Sciences and the annual meeting of the American Association for the Advancement of Science with its many affiliated and associated societies. Under these circumstances, it was feared that the regularly held Autumn Meeting of the American Philosophical Society might not be well attended nor of real importance. But this fear was not justified, for about seventy-five members of the society and one hundred guests, many of them from distant places, were in attendance at the meeting on November 22 and 23. There were three half-day sessions for the reading of papers at which twenty papers were presented, twelve of them by recipients of grants from the research funds of the society. Most of these papers were discussed by persons who were familiar with the subjects presented and the sessions were of correspondingly increased interest. The list of speakers, their topics and the leaders in the discussion of each paper were as follows:

H. P. Robertson, professor of mathematical physics, Princeton University. "Stationary Stellar Systems." Discussed by Dr. Shapley.

K.Aa. Strand,* research associate, Sproul Observatory, Swarthmore College. "The Orbital Motion of Zeta Aquarii." Discussed by Mrs. Gaposchkin.

W. F. G. Swann, director, Bartol Research Foundation of the Franklin Institute. "The Origin of the Secondary Peak in the Rossi Curve for Tin."

S. A. Korff,* research fellow, Bartol Research Foundation of the Franklin Institute; research associate, Carnegie Institution of Washington. "The Production of Neutrons by the Cosmic Radiation." Discussed by Dr. Swann.

Henry A. Boorse,* assistant professor of physics, Columbia University (Barnard College). "Some Problems of Low Temperature Physics." Discussed by Drs. Swann, Aydelotte and Urey.

Oswald Veblen, professor of mathematics, Institute for Advanced Study. "Report on *Mathematical Reviews.*"

Franz Boas, professor emeritus of anthropology, Columbia University. "Relation between Physical and Mental Development." Discussed by Dr. Davenport.

Daniel Sutherland Davidson,* assistant professor of anthropology, University of Pennsylvania. "Rock Paintings and Carvings in Western Australia." Discussed by Dr. Kidder.

Mary Butler,* research associate, University Museum, University of Pennsylvania. "An Archeological Survey of the Alta Verapaz, Guatemala." Discussed by Dr. Kidder.

L. S. Cressman,* professor of anthropology, University of Oregon; John Simon Guggenheim Memorial Foundation Fellow, 1940–41. "Studies on Early Man in South Central Oregon."

Edith von Porada,* research fellow, John Pierpont Morgan Library. "The Collection of Cylinder Seals in the Pierpont Morgan Library."

Nelson Glueck,* professor of bible and biblical archeology, Hebrew Union College. "Ezion-geber: Solomon's Seaport." Discussed by Dr. Albright.

T. Leslie Shear, professor of classical archeology, Princeton University. "Résumé of Results of Ten Years' Excavation in the Athenian Agora." Discussed by Dr. Meritt.

A. P. Coleman, lecturer in East European languages, Columbia University. (Introduced by Dr. Prince.) "Sir John Bowring and Slavonic Poetry." Discussed by Dr. Conklin.

William B. Scott,* professor emeritus of geology and paleontology, Princeton University. "The Mammalian Fauna of the White River Oligocene." (Read by title.)

Glenn L. Jepsen, associate professor of geology, Princeton University. (Introduced by Dr. W. B. Scott.) "The Ancestry of the 'Flying Lemur.'" Discussed by Drs. Shull and Conklin.

William J. Robbins,* professor of botany, Columbia University; director, New York Botanical Garden. "Vitamin B_6 and Growth of Excised Tomato Roots." Discussed by Drs. Bronk and White.

Charles B. Davenport, director (retired), department of genetics, Carnegie Institution of Washington. "Responsive Bone." Discussed by Drs. Weiss and Corner.

Alexander Weinstein,* Zoological Laboratory, Columbia University. "The Geometry and Mechanics of Crossing Over." Discussed by Drs. Whiting and Conklin.

Paul Weiss,* associate professor of zoology, University of Chicago. "Autonomous vs. Reflexogenous Activity of the Central Nervous System." Discussed by Dr. Bronk.

Leonard G. Rowntree,† director, Philadelphia Institute for Medical Research. "The Work of the Philadelphia Institute for Medical Research."

The evening lecture on November 22 was given by Edward S. Corwin, professor of jurisprudence,

* Recipient of grant from the Penrose Fund.

† Recipient of grant from the Deland Fund.

Princeton University, on "Some Aspects of the Presidency"—a timely and scholarly address on the development of the powers and functions of the President during our national history.

As usual, the social aspects of the meetings of the society were not neglected. All out-of-town members and speakers were guests of the society at the Benjamin Franklin Hotel. An informal dinner preceded the lecture on Friday evening and a reception followed it. Luncheons were served in the Hall of the society on each day of the meeting and, as usual, there were many assurances that the meetings of the American Philosophical Society are the most enjoyable of all.

The whole of Saturday afternoon was given up to an executive session of the society. In addition to regular business a report was made by Mr. W. Stephen Thomas, executive secretary of the committee on education and participation in science on its work during the past year. This work is carried on under the auspices of the American Philosophical Society and with funds furnished by the Carnegie Corporation of New York. It is an attempt to stimulate work in science by amateurs and to cultivate in them scientific habits of thought and work. Philadelphia was thought to be a particularly favorable place to experiment in this field of education because of its long history of amateurs in science and its many clubs and organizations of amateur scientists. A survey has been made by Mr. Thomas which shows that there are in Philadelphia 287 clubs and societies of amateurs, with 32,000 members, in pure and applied sciences. The facts of this survey have been printed in a pamphlet of 44 pages entitled "The Layman Scientist in Philadelphia: A Directory of Amateur Scientific Organizations and Resources in Science" by W. Stephen Thomas.

The committee has also organized four projects in which amateurs may participate in scientific work under the direction of four scientific consultants; these are (1) a project in botany, planned and supervised by Dr. John M. Fogg, Jr., on the blooming and fruiting of native wild plants, with tabulations of dates and weather conditions on charts provided by the supervisor and filled out by the volunteer observers. More than 200 charts were distributed to applicants and 51 have been returned with data on some 85 species. (2) Radio project for amateurs to determine facts concerning the ionosphere through records of radio reception, fade-outs and skip-distance occurrences. Dr. Serge A. Korff planned and supervised this project and prepared a form or log to be filled out by observers. About 200 persons applied for these logs and to date 50 persons have actively cooperated in filling out over 200 of these charts. These observations have been so planned that they provide an important supplement to the work of professional students of radio. (3) A third project for amateur cooperation in science concerns the study of the annual rings of old trees in the Delaware Valley with a view to the correlation of tree ring growth with climatic conditions and records of the weather. This project was proposed and is guided by Dr. E. E. Wildman and several hundred persons are cooperating in studying the rings of stumps and logs of old trees and timbers from ancient buildings. One hundred persons have already reported on such studies submitting charts of the rings or in some cases sections of the trees themselves. (4) Finally, Mr. Roger Conant, of the Philadelphia Zoological Garden, has organized a project for tagging frogs, turtles and snakes and a few singing insects, so that their habits, life histories and migrations may be better known. To date 52 persons have participated in this project and have done careful work and kept excellent records.

A monthly bulletin has been published by this committee and distributed to a large number of interested persons. Numerous meetings of members of the executive staff with various clubs and organizations have occurred; a council composed of several of these organizations has been formed and several meetings held in the Hall of this society. It was the general opinion of those who heard this report that the committee on education and participation in science has made a good beginning on an important project.

In reviewing the society's support of research during the past seven years, Dr. Conklin, chairman of the committee on research, reported that the total sum assigned to research from the Penrose Fund during these years was nearly $475,000, or an average of nearly $68,000 a year. In addition the accumulated income of the Johnson Fund, all of which is assigned to research, has amounted to about $47,000 and during the past three years the research grants from this fund have averaged $13,000 each year. The available income from the Daland Fund for research in clinical medicine has since its reception in 1938 amounted to about $18,000 or $6,000 each year. Thus the total research budget of the society is now about $87,000 a year. The research budget from the Penrose Fund is unrestricted, that from the Johnson Fund is semi-restricted in that it has been agreed that persons working in certain institutions may be regarded as occupying a preferred position, while the income from the Daland Fund is restricted to research in clinical medicine and one institution has for the time being been given a preferred position.

A tabular summary of the research grants made from the Penrose Funds shows that since the beginning of our research program in mid-summer 1933 there have been 485 grants in 32 different subjects for a total sum of $446,882, or a general average of more

than $920 per grant. In Class I, Mathematical and Physical Sciences, 135 grants were made in six different subjects for a total sum of a little more than $140,000; Class II, Geological and Biological Sciences, received 236 grants in fourteen different subjects for a total sum of $182,476; Class III, Social Sciences, received 26 grants in history and political science for a total of $20,632; Class IV, Humanities, received 81 grants in nine different subjects totaling $84,713. In addition to the 478 grants in these four classes there were seven miscellaneous grants, which could not be properly classified in any of the classes, for a total sum of a little more than $19,000.

In explanation of the inequality of distribution of research funds to the four classes it was pointed out that this distribution was roughly proportional to the number of applications from these classes; furthermore the committee on research has always attempted to make the grants to the most worthy applicants without reference to the classes or subjects represented.

The funds at the disposal of the Committee on Research are not sufficient to make long-continuing grants and consequently the policy has been to help start or finish worthy projects rather than to furnish continuing support; in only 68 cases have grants been renewed for a second time and only in 23 cases for a third. Likewise, it has not been possible to make grants to pay in whole or in part the salaries of members of the staff of any institution, nor in general to pay living expenses of applicants.

In all cases applicants are expected to specify the uses to which the grant will be put. In general each grant has been used for several purposes, but the principal uses may be classified as follows: assistants, technical, artistic, etc., 213 grants; apparatus and materials, 128 grants; travel and field work, 123 grants; living expenses, 14 grants, and publication, 6 grants.

Recipients are notified that in no case is a grant to be regarded as a gift or charity but rather as an investment in men and projects, which investment is expected to yield returns: No doubt there are many returns of a more or less intangible nature such as the personal education of the recipient, but the most tangible result of any grant is the promotion of knowledge through the publication of research. All grantees agree to furnish an abstract of the results of their researches for publication in the *Year Book* of the society. In *Miscellanea* for 1935 and 1936, there were published 25 such abstracts; in the *Year Books* for 1937, 1938 and 1939, 289 abstracts; and 47 full papers resulting from grants have been published in the *Proceedings* of the society, 6 in the *Transactions* and 3 in the *Memoirs;* while 118 reports of researches aided by grants of this society have been reported at its general meetings. In addition, grantees have reported 236 books and articles published elsewhere which have resulted in whole or in part from grants of this society. Thus practically all grants, except some of those made during the past year for which there has not been sufficient time to expect published results, are represented in these publications. In general this seems to be a fairly satisfactory return on the investments made in our grants-in-aid of research.

Twelve different members of the Committee on Research reported to the society their estimates of the value of the researches in the fields with which they were especially familiar, and as one member said of his own field they might be classed as good and not-so-good. This could probably be said of the grants in all the fields. It is difficult to say what proportion of all the researches could be classed as good, fair or poor, but it is probable that at least three quarters of all would fall in the first two categories. Perhaps this is as good a result as could be expected, considering the fact that the Committee on Research has been inclined to favor applicants who are in small institutions where facilities for research are not good. In all such cases the stimulus to investigator and institution has been an important result and the grant has been regarded as a trust and has been conscientiously used as such. On the whole it may be said that the research program of the American Philosophical Society has been a success and that our investments in men and projects have yielded satisfactory returns.

EDWIN G. CONKLIN

SPECIAL ARTICLES

SUGGESTIONS ON PLANT VIRUS NOMENCLATURE AS EXEMPLIFIED BY NAMES FOR CITRUS VIRUSES

SEVERAL systems of nomenclature for viruses have been advanced. The following suggestions have developed out of discussions with a number of my associates who have urged me to publish it for consideration. The following manner of naming the viruses, in my judgment, would combine the best features of Johnson's,[1] Smith's[2] and Holmes's[3] proposals, without the chief objections and difficulties in the application

[1] James Johnson, *Agr. Exp. Sta., Univ. of Wis. Res. Bull.* 76, 1927.

[2] Kenneth M. Smith, "A Textbook of Plant Virus Diseases," p. 101. Philadelphia: Blakiston Company, 615 pp., illus., 1937.

[3] Francis O. Holmes, "Handbook of Phytopathogenic Viruses." Minneapolis: Burgess Publishing Company, 221 pp., 1939.