

exhibitors were various departments of the British Museum. Its department of zoology sent a series of armadillos, an example of camouflage in a nightjar and turtles stranded on the coasts of the British Isles; its department of geology flexible sponges of Oligocene age from Ukraine and casts of the skull and other parts of a large fossil amphibian from New South Wales; and its department of mineralogy a beautiful specimen of Danburite, a rare gem stone from Burma; while its research laboratory and department of ethnography illustrated the application of x-rays to the study of old Peruvian pottery.

From Kew Gardens came specimens showing the resupination of the flowers of laburnum and other plants, and the origin of the garden plum was illustrated by the John Innes Horticultural Institution. The National Physical Laboratory showed radio-transmitting equipment for use with meteorological sounding balloons, and an apparatus for measuring extremely minute differences in water pressure, and the Cavendish Laboratory, Cambridge, a new form of x-ray microscope which converts a series of measurements on x-ray beams diffracted by a crystal into an optical image of the crystal that can be viewed through an eyepiece.

Among exhibits from the Imperial College of Science and Technology were instruments for the microscopy of ores, a small internal-combustion engine running on methane and apparatus for measuring the oxygen consumption of flying insects and determining the effect of atmospheric pressure on the frequency of their wingbeat.

The director of research of the Admiralty demonstrated the rapid spectro-chemical analysis of alloy steels, and Dr. W. H. Hatfield, of the Brown-Firth Research Laboratories, showed non-magnetic steels and examples of different methods of obtaining extremely hard metallic materials. Sir Robert Hadfield showed a quick-immersion thermo-electric pyrometer for measuring the temperature of liquid steel and apparatus for the rapid estimation of carbon in steel.

Photographic exhibits sent by George H. Gabb included examples of early Talbotypes and Daguerreotypes, among them being what is probably the earliest attempt to photograph the solar spectrum, dating from 1842.

A CONFERENCE ON THE CALCULUS OF VARIATIONS

A CONFERENCE on the calculus of variations will be held at the University of Chicago from June 27 to 30 under the auspices of the department of mathematics. The speakers and the topics which will form the basis for discussion at the conference are as follows: Tibor Rado, of Ohio State University, "Length and Area" and "Geometrical Approach to the Plateau Problem";

Jesse Douglas, of the Institute for Advanced Study, "The Problem of Plateau-Riemann" and "Minimal Surfaces of Higher Topological Structure"; Marston Morse, of the Institute for Advanced Study, "Functional Topology and Analysis in the Large" and "The Existence of Minimal Surfaces of General Critical Type"; Karl Menger, of the University of Notre Dame, "Logical Analysis of the Semi-continuity Properties of Line Integrals"; E. J. McShane, of the University of Virginia, "Existence Theorems for Minima of Simple and of Multiple Integrals"; Max Coral, of Wayne University, "The Equations of Haar and the Differentiability of their Solutions"; G. A. Bliss, of the University of Chicago, "The Field Theory for Multiple Integrals"; L. M. Graves, of the University of Chicago, "The Jacobi Condition for Minima of Multiple Integrals"; M. R. Hestenes, of the University of Chicago, "The Problem of Bolza"; W. T. Reid, of the University of Chicago, "Sufficiency Proofs for the Calculus of Variations by Expansion Methods"; H. H. Goldstine, of the University of Chicago, "Minimum Problems of Abstract Functional Calculus." Discussion of some of the problems and results presented in the lectures of the conference will be continued in a seminar on the calculus of variations conducted by G. A. Bliss, and lasting through the summer quarter. Among those who will participate in the seminar are Max Coral, H. H. Goldstine, L. M. Graves, M. R. Hestenes, E. J. McShane, W. T. Reid and M. F. Smiley. A series of lectures preparatory to the addresses of the conference will be given in the seminar in the preceding week, from June 21 to 24. All mathematicians and other scientists who may be interested are cordially invited to attend the conference and the preparatory lectures in the seminar. Requests for information concerning the conference and housing accommodations may be addressed to Professor M. R. Hestenes, Eckhart Hall, University of Chicago.

L. M. GRAVES

THE ATLANTIC CITY MEETING OF THE AMERICAN SOCIETY FOR TESTING MATERIALS

THE forty-second annual meeting of the American Society for Testing Materials will be held at Chalfonte-Haddon Hall, Atlantic City, from June 26 to 30. There will be given upwards of a hundred and ten technical papers and reports in the fields of standardization, research and testing of engineering materials. The subject of the annual address of the president, T. G. Delbridge, manager of the research and development department of the Atlantic Refining Company, will be "Glimpses at Petroleum," and the fourteenth Edgar Marburg Lecture will be by Professor H. F. Moore, on "Stress, Strain and Structural Damage."

Throughout the week of the meeting the fifth Exhibit of Testing Apparatus and Related Equipment will be in progress. The exhibit will open at noon on Monday. Many leading commercial companies concerned with the manufacture and distribution of testing apparatus and related equipment, measuring and recording instruments, laboratory supplies and related scientific instruments will be among the exhibitors. A number of instruments will be on display for the first time. In addition, several committees of the society are sponsoring displays illustrating important parts of their work. There will also be in progress the second Photographic Exhibit and Competition on the theme "Testing and Research in Engineering Materials." A separate section will be given to photomicrography.

On Monday the whole day will be devoted to committee meetings, which will continue through the remainder of the week. The first formal session will open at 10:30 o'clock on Tuesday morning, June 27. The second session in the afternoon, a Symposium on Paint Testing, with ten to twelve informal papers covering particular tests and their significance, will be held simultaneously with the one on iron, including several papers on cast iron and malleable iron castings. Two evening sessions on Tuesday are devoted to water, with five technical papers and two reports on this subject; and a round-table discussion of effect of sub-atmospheric temperatures on the properties of metals.

The session on Wednesday morning will be devoted to paper, plastics, rubber, glass and electrical insulating materials. This session runs concurrently with the one on fatigue and corrosion, there being four items dealing with fatigue and five covering corrosion. Reports on soaps, textiles and timber will follow on Wednesday afternoon, with a simultaneous session on coal, petroleum products and gaseous fuels. The Edgar Marburg Lecture will be given on Wednesday at 4 P.M., and at this time the award of the Charles B. Dudley Medal will be made. The evening session covers radiography, magnetic testing and metallography, there being four items in the field of radiographic testing by well-known authorities. At the time there will be a session dealing with soils, with a symposium on Shear Testing of Soils. Six papers by prominent technologists form the basis of discussion.

Thursday morning will be devoted to steel, ferro-alloys and the effect of temperature. Two other sessions run concurrently with this—one on bituminous materials and road materials and the other round-table discussion on quantitative spectrography. A round-table discussion on Thursday afternoon on freezing-and-thawing tests will determine whether any organized work should be undertaken by the society in this field. The fourteenth session involves ceramic and masonry materials. Several papers will be given at

the fifteenth session on methods of testing. Discussions will concern cement, concrete, lime and gypsum. The concluding session will include twelve papers and reports on non-ferrous metals.

THE GEOLOGICAL SOCIETY OF AMERICA

THE Geological Society of America, Section E of the American Association for the Advancement of Science, the Association of American Geographers and the American Society of Agricultural Engineers will join in meetings at Milwaukee during the week of June 19. The Upper Great Lakes region will provide the general theme for scientific sessions and excursions.

The following excursions have been arranged:

- June 15-17. To the iron and copper districts of northern Michigan, leaving Marquette, Michigan, 8 A.M., June 15. R. M. Dickey, leader.
- June 19-22. Local trips, with Milwaukee as base. Ira Edwards and F. T. Thwaites, leaders.
- June 24-27. To the Baraboo-Devils Lake region, Wisconsin. E. F. Bean, leader.

Those interested in participating in the excursion to northern Michigan or in the excursion to the Baraboo region, Wisconsin, are asked to communicate with the Secretary of the Section, H. A. Meyerhoff, 88 Crescent Street, Northampton, Mass. Plans were made on the basis of the registration on June 1, although later registration is not precluded.

The program and abstracts of papers to be presented at the summer meeting to be held at the University of California, Berkeley, on August 8, 9 and 10, will be distributed in June. Those wishing to participate in the local excursions on August 10 and from August 11 to 14, and in the excursion arranged for Los Angeles on August 17, who have not already sent in their names, are urged to communicate at once with C. A. Anderson, secretary of the Cordilleran Section, University of California, Berkeley.

As previously announced, the Paleontological Society, the Society of Economic Geologists and the Seismological Society of America will hold meetings at Berkeley in conjunction with the meeting of the Geological Society.

SEVENTH INTERNATIONAL CONGRESS OF GENETICS

PLANS for the Seventh International Congress of Genetics, to be held from August 23 to 30 in Edinburgh, are now fairly complete. The meetings will be held in the university departments at King's Buildings on the outskirts of the city. The Organizing Committee has selected Dr. N. I. Vavilov as president of the congress, and the secretary-general is Professor F. A. E. Crew, of the Institute of Animal Genetics at Edinburgh.