Following the meeting there was a geology field trip and the usual botanical foray. About sixty botanists and lovers of nature left Harrisonburg after lunch, Saturday, went to the mountains west of there, spent the night at a Girl Scout Camp and dispersed for home Sunday afternoon. In this way the academy committee on the flora of Virginia is sweeping up various parts of the state.

E. C. L. MILLER,
Secretary

THE OHIO ACADEMY OF SCIENCE

THE forty-fourth annual meeting of the Ohio Academy of Science was held at the Ohio State University, Columbus, on Friday and Saturday, March 30 and 31, under the presidency of Dr. E. Lucy Braun, of the University of Cincinnati. The attendance was surprisingly good, the sectional programs unusually attractive, the enthusiasm refreshing and the cordiality of Ohio State University, as usual, delightful.

About 200 members and visitors sat down to the annual dinner on Friday evening, Dr. A. E. Waller, chairman of the local committee, acting as toastmaster in a very happy manner. Following the dinner, President Braun gave a most informing address on "A History of Ohio's Vegetation," illustrated with a number of excellent lantern slides.

The invitation address was given on Friday morning by Dr. Walter H. Bucher, of the Department of Geology, University of Cincinnati, on the theme "Recent Geologic Methods of Measuring Time." This address was listened to with the closest attention by a crowded house.

The eight sectional programs contained some 145 papers, many of them of outstanding interest.

The Central Ohio Physics Club, Professor G. A. Stinchcomb, of Heidelberg College, president, and Professor R. H. Howe, of Denison University, secretary, again honored the academy by meeting in joint session with the section of physics and astronomy.

Some demonstrations and exhibits of unusual interest were provided for the members of the academy, and provisions were made for a visit to the "Heavy Water" installation of the Ohio State University, also to inspect the work of the departments of agricultural chemistry, chemical engineering, chemistry, ceramics and metallurgy. The officers and staff of the Battelle Memorial Institute extended an invitation to visit the institute under guides and at the same time inspect the exhibits of the department of chemical engineering, including (a) nomographic charts in the rayon industry, (b) fineness determination of Portland cement, etc., and (c) classification of limes.

Twenty-eight new members were elected and the following members were made fellows in the Academy: Stanley Adair Cain, Wendell Holmes Camp, Arthur Glenn Chapman, Ray Clarence Friesner, Robert Benson Gordon, Lawrence Emerson Hicks, Paul Jackson Kramer, Clarence J. Leuba, Melvin Gillison Rigg, Hiram Frederick Thut and Harry Ellsworth Nold.

The following were elected to office for the ensuing year: *President,* James P. Porter; *Vice-presidents,* (A) Zoology, Robert S. McEwen; (B) Botany, O. L. Inman; (C) Geology, Willard Berry; (D) Medical Sciences, J. B. Brown; (E) Psychology, Francis N. Maxfield; (F) Physics and Astronomy, C. E. Howe; (G) Geography, G. W. Conrey; (H) Chemistry, Clyde S. Adams; *Secretary,* William H. Alexander; *Treasurer,* A. E. Waller.

WILLIAM H. ALEXANDER,
Secretary

REPORTS

APPROPRIATIONS FOR GRANTS-IN-AID BY THE NATIONAL RESEARCH COUNCIL

THE Committee on Grants-in-Aid of the National Research Council, at its meetings in May and June, out of 142 requests made sixty-six grants for the support of research projects, as follows:

Physical Sciences: Sebastian Albrecht, research associate, Dudley Observatory, "accurate stellar wave-lengths and standard radial velocities"; M. L. Pool, assistant professor of physics, Ohio State University, "disintegration of the lighter elements with low voltage bombardment and the examination of the products of the disintegration with a low pressure Wilson Cloud Chamber"; P. A. Ross, professor of physics, Stanford University, "scattered x-rays"; Charles H. Smiley, assistant professor of mathematics, Brown University, "tables of orbital coordinates for nearly-parabolic orbits"; Otto Struve, director of the Yerkes Observatory, and S. L. Boothroyd, professor of astronomy, Cornell University, "development of the technique of coating large optical surfaces with a metal by evaporation in vacuo."

Engineering: Jacob P. Den Hartog, assistant professor of applied mechanics, Harvard University, "relaxation tests in torsion on hollow tubes at high temperatures, and correlation of tests with results of 'creep' tests"; Mortimer F. Sayre, associate professor of applied mechanics, Union College, "types of tests for welding."

Chemistry: Gosta Akerlof, assistant professor of chemistry, Yale University, "measurement over a temperature range of 0° to 100° of the vapor pressure of aqueous solutions of certain strong electrolytes"; W. R. Brode, associate professor of organic chemistry, and W. L. Evans, professor of chemistry, Ohio State University, "absorption spectra of organic and inorganic compounds"; Emma P. Carr, professor of chemistry, Mount Holyoke College, "the absorption spectra of simple or-

ganic compounds in the region 2200–1400 A.''; Thomas DeVries, assistant professor of chemistry, Purdue University, ''the density of gas in the adsorbed state''; Herrick L. Johnston, associate professor of physical chemistry, Ohio State University, ''calculation of thermodynamic properties of gases from spectroscopic data''; Louis Waldbauer, assistant professor of chemistry, State University of Iowa, ''x-ray crystal structure of inorganic compounds''; J. C. Warner, associate professor of theoretical chemistry, Carnegie Institute of Technology, ''the influence of solute molecules upon the vibrational frequencies and intensity of absorption of non-polar solvent molecules''; Roger J. Williams, professor of chemistry, Oregon State Agricultural College, ''chemical isolation of 'pantothenic acid' ''; Don M. Yost, assistant professor of chemistry, California Institute of Technology, ''the thermodynamic constants and molecular configurations of fluorine gas and of fluorides.''

Geology and Geography: Bradford C. Adams, Los Angeles, California, ''the foraminifera of a Pliocene section at Canada de Aliso, Ventura County, California''; Gilbert H. Cady, senior geologist, Illinois State Geological Survey, ''the plant components in Illinois coal''; George B. Cressey, professor of geology and geography, Syracuse University, ''geographic field work in China''; Charles E. Decker, professor of paleontology, University of Oklahoma, ''studies on graptolites''; V. C. Finch, professor of geography, University of Wisconsin, ''preparation of a series of isopleth maps of the United States''; Harold L. Geis, fellow in geology, University of Chicago, ''the taxonomy of the Pennsylvania Ostracods of Illinois''; J. F. Lutz, assistant professor of soils, North Carolina State College of Agriculture, ''physical and chemical properties of soils affecting erosion''; Evans B. Mayo, instructor in petrography, Cornell University, ''the granites of the eastern Sierra Nevadas''; William F. Prouty, professor of geology, University of North Carolina, ''the Silurian deposits of eastern Tennessee''; Parry Reiche, fellow in geology, University of California, ''the lithology, structure and sequence of the Sur Series of California at its type locality''; Francis P. Shepard, assistant professor of geology, University of Illinois, ''the submarine canyons off the California coast''; C. Warren Thornthwaite, assistant professor of geography, University of Oklahoma, ''the climatic basis of forest distribution in eastern North America''; Samuel Weidman, professor of geology, University of Oklahoma, ''dolomitization, silicification and related phases of mineralization associated with the zinc-lead ore deposits of the Tri-State district''; E. P. Wheeler, 2nd, Ithaca, New York, ''a study of the anorthositic rocks in the vicinity of Nain, Labrador''; George W. White, assistant professor of geology, University of New Hampshire, ''mapping of the Wisconsin-Illinoian glacial boundary in north and west central Ohio, by a study of soil minerals.''

Medical Sciences: Joseph D. Aronson, assistant professor of bacteriology, Henry Phipps Institute, ''the mutual effect of tuberculosis and syphilis in experimental animals''; Henry G. Barbour, associate professor of pharmacology and toxicology, Yale University, ''relation of the pituitary gland to water shifting reflexes in primates''; Detlev W. Bronk, professor of biophysics, University of Pennsylvania School of Medicine, ''properties and functions of the sympathetic ganglia''; Samuel J. Crowe, professor of otology and laryngology, Johns Hopkins University Medical School, ''the physiology of the middle ear''; J. A. E. Eyster, professor of physiology, University of Wisconsin, ''the electrical field around the contracting heart and skeletal muscle, and related phenomena''; E. M. K. Geiling, associate professor of pharmacology, Johns Hopkins University Medical School, ''histological and pharmacological study of pituitary glands of whales, porpoises and seals''; Arthur Grollman, associate professor of pharmacology and experimental therapeutics, Johns Hopkins University Medical School, ''chemical study of the adrenal cortical hormone''; Harold E. Himwich, associate professor of physiology, Yale University School of Medicine, ''interrelated aspect of carbohydrate metabolism''; Richard U. Light, research assistant, Yale University School of Medicine, ''development and standardization of a new apparatus for the investigation of neurological function''; F. A. McJunkin, professor of pathology, Loyola University School of Medicine, ''extraction and purification of agents that inhibit mitotic proliferation in the kidney''; George C. Shattuck, assistant professor of tropical medicine, Harvard University Medical School, ''effects of heat, *i.e.*, sun-stroke and heat-exhaustion''; William F. Windle, associate professor of anatomy, Northwestern University Medical School, ''development of behavior in the embryo correlated with the development of intrinsic structure of the nervous system.''

Biological Sciences: E. Lucy Braun, associate professor of botany, University of Cincinnati, ''the relationship of climax associations of the deciduous forest formation''; H. S. Fawcett, professor of plant pathology, University of California, ''a comparative study of the parasitic action of certain strains of the fungus *Trichoderma* against the fungus *Rhizoctonia solani*''; Herbert C. Hanson, professor of botany, North Dakota Agricultural College, ''the relation of vegetation to soil types in grassland areas''; Walter N. Hess, professor of biology, Hamilton College, ''the islets of Langerhans in the pancreas of rainbow trout and other animals''; Mt. Desert Biological Laboratory, ''chemical stimulation of animals by various substances''; J. G. Needham, professor of limnology and entomology, Cornell University, ''a compendium of culture methods for invertebrate animals''; H. W. Norris, research professor of zoology, Grinnell College, ''the functions of the hypophysis of the Elasmobranch fishes, particularly sharks''; Clayton R. Orton, professor of plant pathology, West Virginia University, ''the dissociation of fusaria in the soil''; Victor E. Shelford, professor of zoology, University of Illinois, ''changes during the past year in abundance of Canadian rodents to discover the effect of their abundance on food supply, and the reasons for their increase or decrease''; Christianna Smith, professor of zoology, Mount Holyoke College, ''histological changes in fetal rats''; Thomas L. Smith, professor of zoology, College

of the Ozarks, "genetics of the wax moth, *Galleria mellonella*"; Carl G. Vinson, professor of horticulture, University of Missouri, "the virus of mosaic disease of tobacco"; Allyn J. Waterman, instructor in biology, Brooklyn College, "progressive organization of mammalian embryos."

Anthropology and Psychology: Clarence W. Brown, professor of psychology, University of California, "the functional relationship between the amount of destruction and the voltage and duration of the current"; Frederica de Laguna, assistant, University Museum, University of Pennsylvania, "an archeological reconnaissance of the lower Yukon, Alaska"; Eugene A. Golomshtok, research associate, University Museum, University of Pennsylvania, "the Old Stone Age in European Russia and Siberia"; J. C. Boileau Grant, professor of anatomy, University of Toronto, "the physical anthropology of the Athapascan Indians of the Mackenzie River Basin"; Melville J. Herskovits, associate professor of anthropology, Northwestern University, "the motor habits of the Negroes of Haiti"; George Herzog, research associate, Institute of Human Relations, Yale University, "interrelation of the poetry, language and music of the Pima Indians of Arizona"; Edmund Jacobson, assistant professor of physiology, University of Chicago, "the influence of neuromuscular relaxation on blood-pressure, and action-potentials in peripheral nerves"; George Kreezer, research associate, The Training School at Vineland, New Jersey, "the coordination of antagonistic muscle groups in spasticity"; R. H. Stetson, professor of psychology, Oberlin College, "acoustic and physiological analysis of the vowel as it occurs in actual speech"; Michael J. Zigler, associate professor of psychology, Wellesley College, "the relationship between qualitative changes in cutaneous sensations and their physiological correlates in human nerve."

The National Research Council will be ready to consider further requests for research grants in the fall. Applications should be filed on blanks which will be furnished by the Secretary of the Committee on Grants-in-Aid on request, and should be filed with the committee before October 15, 1934. Action upon these applications will be taken toward the end of December.

ISAIAH BOWMAN,
Chairman, National Research Council

SCIENTIFIC APPARATUS AND LABORATORY METHODS

A NEWLY DESIGNED TYPE OF STEEL CASE FOR ENTOMOLOGICAL WORKING COLLECTIONS[1]

IT is axiomatic among sportsmen that few men are open to suggestion involving the type of firearms they use. Probably the same degree of settled conviction is true regarding one's camera equipment or its lenses. At least my own experience has taught that few men welcome any suggested change or improvement of their photographic apparatus. Similarly, most museum men become attached to a particular type of housing for the collections in their charge, and are reluctant to consider, much less accept, any alteration of the methods to which they are accustomed. This is natural and to be expected, and in the great majority of instances is fostered by the financial limitations of budgets, which prevent the adoption of a type of housing not readily capable of assimilation and interchangeability with units already in use. However, in the belief that the presentation of practical methods, which have successfully met the requirements of a large museum collection, may be justified, I wish to place before the society a brief description of a new and relatively inexpensive, yet thoroughly modern unit for housing museum study collections of insects.

The older and larger institutions naturally have had broader experience in matters of collection housing than smaller or newer institutions. My own association with museum work at the Academy of Natural Sciences of Philadelphia covers a period of thirty-six years, during which I have seen entomological collections pass from the double book box to the Schmidt box, and then to a larger unit of different type, while the housing of the same went from wooden cupboards by way of the Skinner cabinet of sheet tin, designed by my predecessor, Dr. Henry Skinner, to the modern steel unit I am now describing.

The housing problems our institution encountered were varied, and each department handled its own until the advent of the Cambridge cans for birds and mammals provided the impetus for the development of the Skinner cabinet, which was merely an enlarged Cambridge can provided with a rack to hold twenty-eight Schmidt boxes, or later fourteen glass-top boxes of a larger type. Like the Cambridge cans the Skinner cabinets required a double deck frame or rack for the most economical utilization of the available space. Some few years ago the staff of the Academy seriously undertook the development for each department of housings of automobile body sheet steel, to be lap or spot welded, with outer surfaces flush for the most efficient stacking, and yet with the greatest possible flexibility in the way of utilization, and at prices no greater than we had been paying for less satisfactory cases. The result is that to-day we have developed steel housings, each of special character and with

[1] Address delivered at the annual meeting of the Entomological Society of America, Boston, December 29, 1933, by James A. G. Rehn, of the Academy of Natural Sciences of Philadelphia.