REPORTS

GRANTS FOR RESEARCH OF THE GEOLOGICAL SOCIETY OF AMERICA

THE following twenty-four grants have been approved recently by the Geological Society of America, in support of special research projects:

Robert T. Hill, Dallas, Texas, $1,200 to cover expenses connected with research in the history of geologic investigation in the Southwest.

F. M. Anderson, Berkeley, Calif., $300, to cover cost of illustrations connected with study of the stratigraphy and faunas of the Cretaceous deposits of northern and central California and Oregon.

Christina Lochman, Chicago, $1,000, to cover field, laboratory and office expenses for completion of memoir on the Upper Cambrian faunas of Montana, Wyoming and South Dakota.

R. S. Bassler, Washington, D. C., $600, for photographic assistance in preparation of paper on the stony bryozoa (Trepostomata).

Richard Foster Flint, New Haven, $475, to cover field and laboratory expenses connected with study of the Pleistocene drift borders across the Idaho-Washington line to the Cascade Mountains.

Charles A. Anderson, Berkeley, Calif., $350, for rock analyses for study of the volcanic history of the Clear Lake area north of San Francisco.

John T. Rouse, Clinton, N. Y., $425, for traveling and field expenses, study of the structure and tectonic history of the Absaroka volcanic area, Wyoming.

Charles H. Behre, Jr., Evanston, Ill., $1,000, to cover traveling, field and laboratory expenses connected with an examination of the geologic setting of the great depression of the South Park, Colorado.

Duncan Stewart, Jr., Northfield, Minn., $100, for thin sections in study of duplicate rock specimens from the Antarctic Archipelago and the South Orkney Islands.

James H. Gardner, Tulsa, Okla., and Donald C. Barton, Houston, Texas, $550, for expenses connected with the running of precision levels on salt domes in Texas and Louisiana, in order to determine possible differences in elevation caused by movement in the salt domes during coming years.

H. W. McGerrigle, Hanover, N. H., $500, for office expenses connected with study of the succession of faunas in the Philipsburg group of southern Quebec and northern Vermont.

H. R. Wanless, Urbana, Ill., $600, for field and miscellaneous expenses connected with determination of the correlation of coal seams and other strata of the Pennsylvanian between the eastern interior coal field and the Appalachian coal field.

F. M. Carpenter, Cambridge, Mass., $125, for expenses connected with the collecting of Permian fossil insects in Dickerson County, Kansas.

Julia Gardner, Washington, D. C., $700, for traveling and office expenses and assistance connected with study of the Tertiary faunas of northern Mexico and their relation to the faunas of the eastern Gulf Province. (This investigation was supported in 1933 and 1934).

Norman D. Newell, Lawrence, Kansas, $142, for traveling and field expenses for investigation of a fauna occurring in the Woodward formation in the Upper Cimarron Group.

Joseph A. Cushman, Sharon, Mass., $1,500, for clerical and other assistance in completion of monograph of the foraminiferal family *Nonionidae*.

Lewis B. Kellum, Ann Arbor, $2,000, to cover field expenses in connection with cooperative studies of the geologic history and structural development along the ancient continental margin in Coahuila and adjacent states. (This investigation was supported in 1933 and 1934).

Marcellus H. Stow, Lexington, Va., $288, for traveling and field expenses and photographic supplies, connected with investigation of the Paleocene and Eocene sedimentation and stratigraphy in the western part of the Bighorn Basin.

W. H. Twenhofel, Madison, Wis., and Frank F. Grout, Minneapolis, Minn., $1,000, for field and laboratory expenses of study of the accessory minerals in igneous rocks and pre-Cambrian sediments in the Lake Superior region. Half of this amount is to be expended by workers at the University of Minnesota and half by workers at the University of Wisconsin. (This investigation was supported in 1934).

Walter H. Bucher, Cincinnati, $800, to cover traveling and field expenses and assistance in connection with investigation of the Heart Mountain overthrust in Wyoming.

Henry S. Sharp, New York, $400, to cover traveling and field expenses connected with study of the origin, age, correlation and relationship to erosional surfaces in the adjacent plains, of the "Sub-summit" peneplain of the Beartooth Mountains.

Arthur D. Howard, New York, $344, to cover traveling and field expenses connected with study of the history of the Grand Canyon of the Yellowstone.

Frank J. Wright, Granville, Ohio, $475, for traveling and field expenses in connection with correlation of the erosion surfaces of the Bighorn Basin.

B. L. Miller and Maurice D. Ewing, Bethlehem, Pa., $2,000, for field expenses, equipment, assistance and supplies connected with seismic work on the eastern Continental Shelf.

One hundred and thirty-three research grants made by the Geological Society since December, 1932, amounted approximately to $125,000.

GRANTS FOR RESEARCH OF THE AMERICAN PHILOSOPHICAL SOCIETY

GRANTS to support special research projects by the American Philosophical Society from April, 1934, to March, 1935, were announced at the annual meeting. The value of the awards ranges from $50 to $6,000. Recipients of the grants and their projects are:

HELLMUT DE TERRA, Peabody Museum of Natural History, Yale University, to enable him to study the geological background of early man in Northern India through

the use of concerted methods of geology, paleontology and prehistory, and to search for early hominids and fossil anthropoid apes to advance our knowledge of man's evolution and his earliest cultures.

RALPH E. CLELAND, Goucher College, Baltimore, in support of his work for a cooperative cytogenetic and taxonomic attack upon the phylogeny and systematics of Oenothera (evening primrose), with special reference to the sub-genus onagra.

F. K. RICHTMYER, Cornell University, to enable him to continue his work on the determination of the widths, shapes and relative intensities of the lines in the x-ray spectra of the several elements; and the use of these data to compute the distribution of energy in the excited states of atoms.

FARRINGTON DANIELS and B. M. DUGGAR, University of Wisconsin, in support of a fundamental research in photosynthesis, concerned with a determination of the quantum efficiency in this process when employing monochromatic light in different regions of the spectrum using algae as test material.

K. LARK-HOROVITZ, Purdue University, in support of his investigation on the intensity of electron scattering by means of homeo-polar compounds.

HARRY SHULTZ VANDIVER, University of Texas, to enable him to continue his work on the computation and investigation of the properties of Bernoulli numbers with special application to Fermat's last theorem, perhaps the best known of all unsolved mathematical problems.

FRANK G. DUNNINGTON, California Institute of Technology, to enable him to continue his work on a precision determination of the specific charge of a free electron by a new deflection method.

N. T. BOBROVNIKOFF, of the Perkins Observatory, for investigations of stellar spectra, mostly in the red and infra-red, with a special attention to the band spectra.

JUDSON DALAND, Philadelphia Institute for Medical Research, in support of work on the biological effects of thymus extract (Hanson)—the accruing acceleration in the rate of growth and development in successive generations, from the extract of thymus.

FRANK C. JORDAN, for the Allegheny Observatory, to cover expenses in connection with the work on the measurement of plates and computations for the determination of stellar parallaxes.

C. E. MENDENHALL and G. BREIT, University of Wisconsin, in support of the experiments on nuclear disintegration and scattering with protons and deutons accelerated by about 300 K. V.

ALEXANDER PETRUNKEVITCH, Yale University, to enable him to continue his work on the physiology of digestion and digestive enzymes in spiders.

CHARLES E. ALLEN, University of Wisconsin, for the determination of the chromosome complements of heteroploid clones of sphaerocarpos.

HENRY A. PILSBRY, Academy of Natural Sciences, Philadelphia, to enable him to collect and make field studies of mollusks of Sonora and Sinaloa, Northwestern Mexico, with the object of determining the relation of the Sonoran fauna of our Southwest to the neotropical fauna of Mexico.

FRANCIS W. PENNELL, Academy of Natural Sciences, Philadelphia, to enable him to collect and make field studies of plants, especially of the family scrophulariacea, in Sonora and Sinaloa, Northwestern Mexico, considering the composition and distribution of the flora and its relation to that of the Southwestern United States and Southern Mexico.

EDGAR F. HOWARD, University Museum, University of Pennsylvania, to investigate the problem of man's antiquity in America, with particular reference to a study of possible routes of migrations from Asia.

FREDERICA DE LAGUNA, University Museum, University of Pennsylvania, to make an archeological investigation of the lower Yukon Valley from Koyukuk to Holy Cross.

CHARLES P. OLIVIER, Flower Observatory, University of Pennsylvania, for the study of meteor trains, including their heights, durations, drifts, spectra, constitution and other physical characteristics.

ALEXANDER BIDDLE, for the National Economy League, for (1) the state-wide gathering of facts on the 5,635 tax-levying units in Pennsylvania by the Pennsylvania Economic Council; (2) the study of Philadelphia government by the Philadelphia committee.

HARLAN T. STETSON, Harvard University, for investigation of cosmic terrestrial relations.

SPROUL OBSERVATORY, Swarthmore College, to determine the magnitude of stars utilizing the energy received from them in wave-lengths in the red and infra-red parts of the spectrum.

PERCY BUCHANAN, Naka Ku Nagoya, Japan, for the investigation of the early linguistic origins of Japanese.

CHARLES A. KOFOID, University of California, for a morphological and physiological investigation of the neuromotor system of the ciliate protozoa in all the major types of ciliates, with a view to defining the structure and function of such system.

REAR ADMIRAL JOHN D. NARES, for the International Hydrographic Bureau, Monte Carlo, for the preparation of base charts.

SCIENTIFIC APPARATUS AND LABORATORY METHODS

A SIMPLE PHOTOGRAPHIC RECORDING KYMOGRAPH[1]

WE wish to describe a photographic recording device which we have found so convenient and so satisfactory that we believe it may prove useful in other laboratories where kymographs are employed. Many tracings, ordinarily written on smoked drums, may advantageously be recorded with this apparatus, and the friction of lever points on paper and the laborious adjustment of these points to the writing surface may thereby be eliminated. Furthermore, this direct and practically undistorted recording of changes in the level of a liquid in a manometer provides an accurate

[1] Submitted for publication April 9, 1935.