

the Weather Bureau. Over half of the 'Bulletin' is taken up with local weather signs for different Weather Bureau stations; these signs being such as the following: winds which bring precipitation; relation of pressure changes to precipitation; directions of high and of warm winds; conditions for frost, etc. In other words, these are type local weather conditions, which will doubtless prove useful to many persons. These local weather signs are illustrated by a series of seasonal charts, showing, for the United States, the directions of the rain winds; the direction of movement of cirrus or cirro-stratus clouds before rain, and the number of hours they appear before rain; the barometer heights preceding precipitation, and the wind direction during periods of high and of low temperature.

R. DEC. WARD.

HARVARD UNIVERSITY.

#### ELIZABETH THOMPSON SCIENCE FUND.

THE 29th meeting of the board of trustees was held at the Harvard Medical School, Boston, Mass., on February 5. The following officers were elected:

*President*—Henry P. Bowditch.

*Treasurer*—Charles S. Rackemann.

*Secretary*—Charles S. Minot.

The report of the treasurer, showing a balance of income on hand of \$1,788.29, was read and accepted.

The secretary presented reports of progress from the holders of various grants, the work for which is not yet completed, as follows:

No. 27. E. Hartwig.	No. 98. J. Weinzirl.
60. F. Kruger.	99. H. S. Grindley.
65. O. Lubarsch.	100. H. H. Field.
71. A. Nicolas.	101. T. A. Jaggar.
73. J. von Kennell.	102. E. O. Jordan.
94. A. M. Reese.	103. E. Anding.
96. H. E. Crampton.	104. W. P. Bradley.
97. F. W. Bancroft.	106. W. Valentiner.

Professor Belopolsky having completed and published the work under grant No. 76, it was voted to close the record of that grant.

The secretary reported that 59 applications had been received for the consideration of the board, the total amount asked for being nearly

\$10,000. Under these circumstances it became necessary to decline, not only applications of minor interest, but also several which in the opinion of the board were of exceptional merit and highly deserving of encouragement and support.

It was voted to make the following new grants:

No. 107. \$300 to Professor Morris W. Travers, London, England, for researches on the absolute scale of temperature, by experiments with liquid hydrogen.

No. 108. \$150 to Professor Benjamin L. Seawell, Warrensburg, Missouri, for study of the taxonomy and ecology of the organisms of freshwater lakes, in relation to fish foods and water supplies.

No. 109. \$40 to Professor A. Nicolas, Nancy, France, for studies on the embryology of reptiles.

No. 110. \$250 to Professor H. S. Grindley, Urbana, Ill., for the separation and purification of the nitrogenous substances of meats.

No. 111. \$200 to Professor R. Hürthle, Breslau, Germany, to determine the relation between pressure and the obliteration of circulation.

No. 112. \$143 to Professor W. J. Moenkhaus, Bloomington, Ind., for studies on the individuality of maternal and paternal chromatin in hybrids.

No. 113. \$50 to S. P. Fergusson, Esq., Hyde Park, Mass., to measure the errors of absorption hygrometers.

No. 114. \$300 to Dr. Werner Rosenthal, Erlangen, Germany, for researches on the Lombardy chicken pest.

No. 115. \$300 to Professor Henry S. Carhart, Ann Arbor, Michigan, for the preparation and study of Clark and Weston standard cells.

CHARLES S. MINOT,

*Secretary.*

#### THE ANNUAL REPORT OF THE DIRECTOR OF THE GEOLOGICAL SURVEY.

THE twenty-fourth annual report of the director of the United States Geological Survey, which is now ready for distribution, shows that the several branches of that organization greatly enlarged the scope of their work and increased their activities during the last fiscal year. The period covered is from July 1, 1902, to July 1, 1903, for the work of which congress had appropriated the sum of \$1,377,470.

The survey as now organized is divided into five branches: The geologic, topographic, hydrographic, publication and administrative.

The geologic branch includes the divisions of geology and paleontology, of mining and mineral resources and of physics and chemistry. The administration of the division of geology and paleontology was in the hands of the geologist in charge of geology, while scientific supervision rested with the chiefs of sections. The various sections included those of areal geology, Pleistocene geology, pre-Cambrian and metamorphic geology, petrology, economic geology of metalliferous ores, economic geology of non-metalliferous minerals and paleontology. A new section was created during the year—that of petrology. The petrographic laboratory maintained in connection with this section has probably no equal in the quality or the rapidity of its work.

A new feature of the work of the division of geology and paleontology was the preparation and publication of a bulletin entitled 'Contributions to Economic Geology, 1902,' which is intended to be the first of an annual series.

From the appropriation of \$163,700 for geologic work allotments were made for 47 field parties, which were sent to all parts of the country. In addition to this, \$14,000 was appropriated for the paleontologic work of six other parties. Brief accounts of the results accomplished by each party are given in the report.

Under authority of an act of congress making an appropriation of \$60,000 for a continuation of the investigation of the mineral resources of Alaska, five parties were actively engaged in field work during the summer of 1902. A somewhat detailed account of the investigations made by these parties is given in the report.

The principal work of the division of mining and mineral resources is the preparation of the annual report on the mineral resources of the United States, although considerable time is devoted to answering technical inquiries. At the request of the director of the census, the schedules of inquiry of the twelfth census in regard to mining

were included with the statistical cards annually sent out by the survey. The returns were transmitted through the Geological Survey to the Census Office, thus affording both offices the benefit of cooperation.

The division of physical and chemical research made 225 analyses of rocks and coals, and 443 qualitative determinations of minerals during the year. A research into the action of ammonium chloride on silicates was finished. Experiments were made upon methods for the analysis of cements. The experimental work of the physical laboratory related mainly to the behavior of the rock-forming minerals and analogous but somewhat simpler chemical compounds at high temperatures. Experiments upon the linear force exerted by growing crystals were also continued.

Near the close of the fiscal year, the topographic branch was reorganized for administrative purposes into two divisions, one of topography and one of geography and forestry. The division of topography now includes three sections: The eastern and western, and a third section, subordinate to the other two, which is called the triangulation and computing section. A federal appropriation of \$309,200 was spent on the work, besides an additional sum of \$90,000 allotted by various states for cooperative work.

The year's work of the division of topography may be summarized as follows: Two base lines were measured; primary azimuth observations were made at 4 triangulation stations; 395 triangulation stations were occupied or located; 1,487 miles of primary traverse were run; 36,275 square miles were covered by detailed topographic mapping, this area being distributed through 36 states and territories; 29,160 miles of levels were run; and 1,826 permanent bench marks were established, and at each of these an iron post, a bronze or aluminum tablet, or a copper or aluminum plug was set in place. In connection with the Alaskan surveys, about 20,080 square miles were mapped topographically. About 45 miles of the boundary of the Big-horn Forest Reserve of Wyoming were surveyed and marked with special iron posts,

this work completing the survey of the reserve; also 154 miles of the boundaries of the Black Mesa Forest Reserve and 12 miles of those of the Mount Graham Forest Reserve of Arizona were surveyed and similarly marked. In the office 97 atlas sheets were completed and the entire revision and redrafting of the large topographic wall map of the United States was commenced.

The division of geography and forestry was instrumental in making an agreement between the representatives of the farming industry and the sheep industry in Utah, to the effect that the entire mountain region of Utah, which constitutes at present the summer range for sheep, be reserved; that in such portions of these reserves as contributed to the water supply of the agricultural settlements sheep grazing be prohibited; that the remaining portions of the reserves be allotted to the various sheep owners for extended periods, and that the number of sheep to be grazed upon a unit of area be restricted far below the present number. About 7,500 square miles of forest reserves were examined during the season. The appropriation for this work amounted to \$130,000.

The funds available for the work of the division of hydrography were doubled by the appropriation act of June 28, 1902, and the operations under the reclamation law were entrusted to the officials of this division. As a consequence, it became necessary, for administrative purposes, to create a separate branch of the Geological Survey. This is known as the hydrographic branch, and includes the work of the division of hydrography and also that of the reclamation service, organized to carry on the surveys and examinations authorized by the reclamation law. The proceeds of the sale of public lands in the western states and territories, which were set aside to create a fund for this purpose, amount to between \$3,000,000 and \$4,000,000 a year. Preliminary investigations made to show the extent to which the arid lands can be reclaimed by irrigation have been carried on by the Geological Survey for many years. At the beginning of the fiscal year the various engineers who had previously

been engaged in these investigations were provided with added facilities for extending the work and carrying on to construction the projects that were considered feasible. Surveys and examinations were made in the states of Arizona, California, Colorado, Idaho, Kansas, Montana, Nebraska, Nevada, New Mexico, North Dakota, Oklahoma, Oregon, South Dakota, Utah, Washington and Wyoming.

A division of hydrology has also been added to the hydrographic branch, the purpose of which is to study geologic conditions governing the occurrence of underground waters. Another feature of this branch is the division of hydro-economics, of which the chief *raison d'être* is the investigation of the equality of water and its effect on various industries.

Many interesting details are also given in this report concerning the work of the publication and administrative branches of the survey. Significant of the amount of matter published by the survey is the statement that 20,756 pages of manuscript were edited during the year and 257 atlas sheets and special maps were engraved.

This report is published for gratuitous distribution and may be procured on application to the director of the Geological Survey, Washington, D. C.

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EMIL ALEXANDER DE SCHWEINITZ.

THE Medical and Dental Departments of Columbian University have passed the following resolutions in memory of the late Dr. de Schweinitz:

A great calamity has befallen the medical and dental departments of the Columbian University in the death of Dr. Emil A. de Schweinitz, professor of chemistry and toxicology and dean of the medical faculty.

Dr. de Schweinitz became professor of chemistry in 1893, and four years thereafter (1897) he was appointed dean of the medical faculty. He filled both positions with marked ability until his death on February 15, 1904.

Not only was he admired and beloved by the students for his ability as a skillful teacher, both in the lecture room and laboratory, but his gentle method and kindly interest in their welfare won for him their devout regard and unlimited esteem.