

This last gift makes the total received by the foundation from Mr. Rockefeller \$182,000,000, of which both income and principal were made available for appropriations. In 1917-18 \$5,000,000 from the principal was appropriated for war work.

SCIENTIFIC NOTES AND NEWS

DR. JACQUES LOEB, of the Rockefeller Institute for Medical Research, Dr. Robert Andrews Millikan, of the University of Chicago, Dr. Arthur Gordon Webster, of Clark University, and Dr. W. W. Campbell, of Lick Observatory, have been elected honorary members of the Royal Institution of Great Britain and Ireland.

DR. OTTO KLOTZ, director of the Dominion Observatory, Ottawa, has been appointed the representative of Canada on the "Committee on Magnetic Surveys, Charts and Secular Variation" of the International Geodetic and Geophysical Union, recently formed at Brussels.

DR. C. O. MAILLOUX, who was elected president of the International Electrotechnical Commission for the next period of two years at the plenary meeting in London on October 24, was the president of the American committee. He is the second American to hold that honor. Previous presidents have been Lord Kelvin, Dr. Elihu Thomson, Professor E. Budde and Maurice Leblanc. He is a past-president of the American Institute of Electrical Engineers, and was the first editor of *The Electrical World* serving in that capacity in 1883.

DR. HERRICK E. WILSON, having resigned his position as assistant to Mr. Frank Springer, of the U. S. National Museum, will continue research work upon fossil crinoids at his home in Oberlin, Ohio.

THE American Institute of Baking, founded by the American Association of the Baking Industry, has begun work in Minneapolis under the direction of Dr. H. F. Barnard assisted by an advisory committee of the National Research Council and in cooperation with the Dunwoody Institute. Dr. Barnard

has been connected with the State Board of Health of Indiana for nearly nineteen years and was federal food administrator of that state during the war.

DR. PAUL G. WOOLLEY, who recently resigned from the chair of pathology at the University of Cincinnati, is reported to have accepted the direction of a laboratory for medical diagnosis at Detroit.

PROFESSOR A. E. GRANTHAM, for twelve years head of the department of agronomy in Delaware College and agronomist to the Delaware Agricultural Experiment Station, has resigned, his resignation to become effective on February 1, to become manager of the Agricultural Service Bureau of the Virginia-Carolina Chemical Company, with headquarters at Richmond, Va.

DR. L. W. STEPHENSON, of the Geological Survey, has been granted a six months' leave of absence in the early part of 1920, in order to do stratigraphic work for one of the oil companies in the Tampico oil field.

PROFESSOR J. C. MCLENNAN, F.R.S., has resigned as scientific adviser to the British Board of Admiralty, to return to his duties as professor of physics in the University of Toronto.

DR. WICKLIFFE ROSE, general director of the International Health Board of the Rockefeller Foundation, and Dr. Richard M. Pearce, recently appointed director of a new division of medical education, sailed on December 11 for Europe to secure information about public health administration and methods of medical education in England and on the Continent.

DR. THEODORE C. LYSTER, former colonel of the U. S. Army, is now in Mexico representing the yellow fever commission of the Rockefeller Foundation of which General Gorgas is the head.

DR. O. HOLTEDAHN is organizing a Norwegian exploring expedition to Novaya Zemlya, and expects to sail in June. A botanist, a zoologist and a meteorologist will accompany the expedition. Dr. Holtedahl will devote his time to geological and geophysical problems.

At the dedication of the new pathological laboratory of the Philadelphia General Hospital the principal address was delivered by Dr. William H. Welch, of The Johns Hopkins University, who spoke of the important part played by morbid anatomy in the advancement of medicine. Drs. Arthur Dean Bevan, Chicago, and Louis B. Wilson, Rochester, Minn., also spoke.

Nature records the death on November 25 of Frederick Webb Headley, at the age of sixty-three years. Mr. Headley spent nearly forty years of his life as an assistant master at Haileybury College, where he succeeded in maintaining a body of active boy-naturalists in the college. He was the author of "The Structure and Life of Birds" and "Life and Evolution."

UNIVERSITY AND EDUCATIONAL NEWS

MR. JOHN MARKLE has agreed to provide the sum of five thousand dollars a year for five years beginning January 1, 1920, for the continuation of the mining engineering course at Lafayette College, which was suspended during the war.

It is planned to establish a school of engineering under the joint direction of the Carnegie Institute of Technology, Pittsburgh, the U. S. Bureau of Mines and the coal operators of the Pittsburgh District.

DELEGATES from French and Swiss universities met recently at Geneva and made arrangements for interchange of students and professors with credits for corresponding work.

DR. MEYER G. GABA, who was an instructor in mathematics at Cornell from 1915 to 1918, has been appointed associate professor of mathematics at the University of Nebraska.

DR. JAMES PLAYFAIR McMURRICH, professor of anatomy in the University of Toronto, has been elected dean of the faculty of arts.

DR. T. HARVEY JOHNSTON has been appointed to the new professorship of biology at the Queensland University. Dr. Johnston was one

of the traveling commissioners sent abroad by the Queensland government to investigate the Prickly Pear problem.

At the University of Cambridge Dr. F. H. A. Marshall, fellow of Christ's College, has been appointed reader in agricultural physiology, and Mr. P. Lake, of St. John's College, reader in geography.

DISCUSSION AND CORRESPONDENCE THREAD MOULDS AND BACTERIA IN THE DEVONIAN

WHILE making a comprehensive survey of the comparative histology of the skeletal parts of ancient vertebrates, in conjunction with the study of paleopathology, my attention was attracted to the enlarged and distorted shapes of many lacunae in the carapace of *Borthroilepis* and *Coccosteus*. Closer examination under the oil immersion revealed the occurrence of thread moulds and bacteria in the almost disrupted lacunar spaces, and since these organisms have never before been noted in the osseous elements of such ancient vertebrates, a brief description will be given of them here. There is a great gap in our knowledge of ancient bacteria especially between the Pre-Cambrian bacteria described by Walcott and the Carboniferous forms described by Renault, so that we know nothing of the occurrence of bacteria especially in bony material during the early and middle Paleozoic.

The occurrence of thread moulds (*Mycelites ossifragus*) in the hard parts of invertebrates and vertebrates, from molluscs to man, has been noted for more than eighty years and the literature is very extensive. The canals made by the penetrating moulds, known as the *canals of Roux or Wedl*, have been noted by Kölliker in the hard parts of invertebrates, fossil and recent, by Triepel in recent human bones, by Shaffer in ancient human teeth, by Sonders in a Neolithic skull, by Roux in the skeletal parts of vertebrates, Carboniferous to recent. They have been recently seen in the bony parts of Devonian vertebrates, doubtless they have a very wide distribution and may be regarded as one of the most ancient types of organisms in existence. There is nothing peculiar in