

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