dues in two different soils and showed that there was a pronounced effect of different soils and only a slight effect of different organic materials on the sequence of activity, if the nitrogen content of the organic materials was made up to the same percentage.

Robert A. Greene reported that the Azotobacter (plaque) method of determining the fertility requirements is not applicable to any extent to Arizona soils.

O. Lilliland reported that the scorching of prune trees in the Sacramento Valley of California is associated with the potassium content of the soil. He also found the Neubauer seedling test to be a good criterion of the available potassium supply of the soil.

W. V. Halverson and R. E. Bell reported that after modifying the soil plaque method of Sackett, the results obtained show with few exception that where phosphate fertilization in the field resulted in significant increases in yield, the method showed an acute phosphorus deficiency.

Philip Isaak and R. E. Bell reported that if soils are high in acid-soluble phosphorus (above 800 pounds per acre), low in $CaCO_3$, and the pH of the acid extract is low, they do not respond to phosphorus application, but if the soils are low in acid-soluble phosphorus, high in $CaCO_3$ content, and the pH of the acid extract is high, they will respond to phosphate fertilization.

R. E. Bell discussed the rotation plots of the University of Idaho and stated that the wheat-oats-potato rotation maintained a higher level of soil organic matter than was obtained by any of the other cropping systems except where manure is applied.

G. B. McDole reported that in Idaho deep tillage done properly is giving beneficial results on soils of the texture of silt loam or heavier.

F. B. Laney discussed the geology of the Palouse region and stated that the present surface soil was brought in by the wind, but that the present topography is a result of erosion.

OBITUARY

ERNEST JULIUS WILCZYNSKI

ERNEST JULIUS WILCZYNSKI, professor emeritus in the department of mathematics at the University of Chicago, died on September 14 in Denver, Colorado, after a lingering illness of more than nine years.

In his youth he was a precocious student of mathematics. He was born in Hamburg, Germany, on November 13, 1876, but his family migrated to America when he was still quite young and settled in Chicago, where he completed his elementary and high-school education. At the age of seventeen, with the assistance of an uncle, Ellis Wilczynski, of Hamburg, he returned to Germany and studied at the University of Berlin, where he received the degree of doctor of philosophy in 1887 at the age of twenty-one.

He was very young and boyish in appearance when he came back to the United States after receiving his degree and was at first unable to secure a teaching position. His first year he spent as a computer in the office of the *Nautical Almanac* at Washington. In 1898, however, he was appointed instructor of mathematics at the University of California, and from that time to his retirement from active work in 1923 on account of illness he was a leader in mathematical research and university mathematical instruction. At California, he served as assistant and associate professor until 1907, with an interruption from 1903 to 1905, when he was in Europe as a research associate of the Carnegie Institution of Washington. He was associate professor at the University of Illinois from 1907 to 1910, and at the University of Chicago from 1910 to 1914, and professor of mathematics at Chicago from 1914 to 1926. He was made professor emeritus in 1926 when it seemed clear after three years of illness that he would never be able to return to active work. It was characteristic of his courage and his optimism that he never gave up hope of doing so.

Wilczynski's mathematical curiosity led him into varied fields. In his earlier years he wrote on astronomy and applied mathematics and differential equations. At the same time he was beginning the work in projective differential geometry which later became his principal interest and the one for which he is best known to mathematicians in this country and abroad. His methods in this domain showed great originality and power and have been widely developed by his students and other writers. He wrote also on the theory of functions of a complex variable, and seventeen of his seventy-seven published papers are distributed in miscellaneous fields different from those already mentioned.

In mathematical affairs other than teaching and research Wilczynski's career was also a notable one. He was at various times councilor and vice-president of the American Mathematical Society, and of the Mathematical Association of America. He was a lecturer at the New Haven Colloquium of the society in 1906, and associate editor of its *Transactions*. In 1909 he won a prize of the Royal Belgian Academy of Sciences, and in 1919 he was elected a member of the National Academy of Sciences at Washington.

Professor Wilczynski is survived by his wife, whom he married in Italy in 1906, and three daughters. His legacy to American mathematicians is a great one. The theory of projective differential geometry, as he formulated it, is largely the creation of his own mind. His publications in this and other fields have been an active inspiration to many research workers. His students are distributed widely in mathematical work throughout the country. They and his older colleagues will mourn the loss of his personality, but will cherish and preserve the devoted interest in mathematics which was his dominant characteristic.

G. A. BLISS

THE UNIVERSITY OF CHICAGO

BARTON WARREN EVERMANN

BARTON WARREN EVERMANN was born in Monroe County, Iowa, on October 24, 1853, and died at his home, 2715 Woolsey Street, Berkeley, California, at 4 P. M. on September 27, 1932. In his seventy-eight years and eleven months there was crowded a long succession of events and accomplishments, the tenth part of which many men would consider ample. Driven always by an incessant desire to add to the store of human knowledge and to teach this knowledge to others, he was a very busy man up almost to the day of his death.

His final illness came on somewhat gradually. On June 21, 1932, he very reluctantly entered Stanford University Hospital in San Francisco, in the hope that a few days of rest and relaxation would prove beneficial. But the time had evidently come for a general disintegration of bodily functions because one complication led to another until he was soon so deeply enmeshed that no hope of escape could be seen. In spite of this, his indomitable will to overcome obstacles kept him fighting for life to the last. His last conscious moments were given to pleading with those about him to let him get up and go to the academy where he had important work to do.

He married Meade Hawkins, of Burlington, Indiana, on October 24, 1875; she died at Berkeley, California, on February 9, 1929. A son and a daughter, Toxaway Bronte and Edith (Mrs. William E. Humphrey), survive.

Educated in the schools of Indiana, he always looked upon the affairs of that state with great personal interest. He graduated from the state university in the class of 1886 and received the degree of doctor of philosophy in 1891.

His first work was as a teacher in the public schools of Indiana and California, and although he continued with this duty only ten years it made a lasting impression upon his mind. At heart he was always a teacher and he had the greatest admiration for any one, young or old, who had a desire to acquire information. Also he was very intolerant of those who considered they had learned enough. It seemed to most of us who knew him intimately that his happiest moments were those spent telling of natural history to classes of school children which visited the halls of the California Academy of Sciences.

The many honors which came to the man are enumerated in well-known books of reference and it will suffice here to say that throughout his career he was intimately associated with the great naturalist, David Starr Jordan. Together they traveled, studied and explored, and together they wrote many of the most important works on fishes which have been published. Some of these were: "The Fishes of North and Middle America," 4 vols., 1896, 1900; "American Food and Game Fishes," 1902, several editions; "Check List of the Fishes of North and Middle America," 1930, etc.

In 1886 he first became associated with the U. S. Bureau of Fisheries, where he occupied several official positions. From 1903 to 1910 he was in charge of the Division of Scientific Inquiry, and from 1910 to 1914 he had charge of the administration of the Alaska Fisheries Service. The Pribilof Islands were particularly interesting to him, from the time he first became a member of the Fur Seal Commission in 1892 and visited Bering Sea, until his death.

The amount of work which he did in ichthyology is astonishing and his activities in this line extended from Porto Rico to the south seas. Next in importance of interest to the fishes to him were the birds, about which he wrote extensively.

He kept up to date a card index of his publications and the last number is 387; this is a review of W. S. Blatchley's book, "My Nature Nook," which appeared in SCIENCE, Vol. 76, No. 1959, July 15, 1932, pp. 57–58.

His notice of the death of Dr. Jordan was published in SCIENCE (Vol. 74, No. 1918, October 2, 1931, pp. 327–328) and has attracted wide attention. (See O. F. Cook, "The Need of Naturalists." *Journal of Heredity,* Vol. 23, No. 6, June, 1932, pp. 239–243.)

Dr. Evermann came to the California Academy of Sciences in 1914 as director and became responsible for some of the most important developments in the history of the institution. The installation of the long series of habitat groups in the exhibition halls was immediately begun under his supervision and was carried to completion. In 1921 he became instrumental in the establishment of the Steinhart Aquarium in San Francisco under the auspices of the academy; this was through his acquaintance with Mr. Ignatz Steinhart. In 1929 arrangements were made with Mr. Leslie Simson for the collection of a series of African mammals