White, was principal and mathematics teacher in Cazenovia Seminary. In his seminary years the boy was introduced to farm life on his grandfather's lands and invited to take up that work, but, like Newton, he preferred academic activities to farming, and his chief contribution to the farm consisted of surveying, a task which he appreciated most for its temporary claim. He entered Wesleyan University and was graduated with honors in 1882. Twice he returned there for service, to assist in astronomy and physics the year after graduation, and again in 1884 as registrar and tutor in mathematics after an intervening year of teaching at Centenary College. Frequent trips to Wesleyan in later years and deep interest in its welfare gave testimony to his strong attachment to his Alma Mater and the honorary degree conferred on him at the Wesleyan Centennial in 1932 bespeaks the university's pride in him.

Between 1887 and 1890 Mr. White was at Göttingen in work that led to the doctorate. Here he responded to the stimulus of great mathematicians with a thoroughness and joy which characterized all his work. Whether through the influence of these years of close contact with the minds congregated in that Mecca of the era or through his own natural urge to wider fields, he developed a breadth of view and a catholicity of interest that marked his scholarship through the following years.

At Clark University, to which he was called on his return from European study, and at Northwestern University, where he was chairman of the department, his mathematical stature could be measured by the calls he was receiving to other posts. It was at Northwestern, in 1905, that President James Monroe Taylor, of Vassar College, after a nation-wide search for a distinguished mathematician, found in him the man he sought.

To Vassar's advantage he declined frequent further calls and remained to direct the Vassar Department of Mathematics for thirty-one years, an inspiration to students and colleagues who enjoyed the charm of his personality and the quality of his mind. His dry wit, his courtly bearing and his quiet, gentle insistence on work of substance expressed with clarity brought forth the best in his students. To the college community Professor White and his wife, a musician of note, provided generous hospitality which afforded valuable opportunities for additional acquaintance. They also helped to cement friendly relations between town and gown, Mr. White serving at one time as president of the Poughkeepsie University Club, at another as commodore of the Poughkeepsie Yacht Club, and both entering into various other local activities.

Profesor White was one of the founders of the American Mathematical Society Colloquium Lectures. He served as editor of the *Annals of Mathematics* from 1899 to 1905 and of the *Transactions* from 1907 to 1914. He was president of the American Mathematical Society from 1906 to 1908, president of the American Association for the Advancement of Science in 1915, and was elected fellow of the National Academy of Science in the same year. The degree of doctor of laws was conferred on him by Northwestern University in 1915.

Publications by Mr. White in book form and as contributions to journals were concerned primarily with his interests in the theory of invariants, geometry of curves and surfaces, correspondences, plane and twisted curves, homeomorphic sets of lines in a plane and relativity in mechanics. His best known work was "Plane Curves of the Third Order."

With his vast fund of information Professor White was always ready to explore topics brought to his attention by others, beginners as well as mature workers, and shared his wisdom with genuine pleasure. His colleagues of various departments enjoyed the universality of his knowledge as well as his humor and friendly, constructive cooperation, and they continued to consult him during the years of his retirement from teaching. He never did retire from creative scholarly work nor from his connections with church and city groups, but remained a remarkably active and efficient person to the time of his death.

MARY EVELYN WELLS

VASSAR COLLEGE

ARTHUR TRAUTWEIN HENRICI

1889–1943

DR. ARTHUR T. HENRICI passed away on April 23, 1943, at the age of 54 years. To many of his friends the news of his death will come as a severe shock. His youthful appearance and active mind gave promise of many more years of productive and fruitful service. His associates, however, were aware of his failing health and were therefore somewhat prepared for the blow when it fell.

Dr. Henrici's Germanic ancestors migrated from Grosskarlsbach to Pittsburgh in 1825, where many of their descendants still reside. Born in Economy, Pa., on March 31, 1889, Dr. Henrici moved with his parents to Pittsburgh when a boy. Here he attended public schools and entered the medical school of the University of Pittsburgh in 1907, where he was graduated at the head of his class four years later. Upon graduation he received the Brinton Award in recognition of outstanding scholarship. Following graduation from the medical school, he served for about a year and a half as pathologist in St. Francis Hospital under the late Dr. Klotz.

In 1913 Dr. Henrici was appointed instructor in bacteriology at the University of Minnesota, where he spent the greater part of his distinguished professional career. He was made a professor of bacteriology in 1925. Following the outbreak of World War I, he enlisted in the Army Medical Corps. He served as captain with his unit in France until after the Armistice.

Dr. Henrici's research interests were largely in the fields of morphology and taxonomy. He soon became a recognized authority in these branches, so much so that he somewhat personalized these fields. In addition to his contributions to scientific journals, he is the author of "Morphologic Variation and the Rate of Growth of Bacteria," "Molds, Yeasts, and Actinomycetes" and "The Biology of Bacteria." He was a member of the Society of American Bacteriologists, of Sigma Xi and of Alpha Omega Alpha. He was associate editor of the *Journal of Bacteriology*, and in 1939 he served as president of the Society of American Bacteriologists. In 1941 he held the Walker Ames Lectureship at the University of Washington.

As a teacher Dr. Henrici had few peers. His clarity in presentation of data was a model of pedagogic technique. Dr. Henrici was loved and admired by his colleagues and idolized by his students. His death will long be mourned by all who knew him.

W. P. LARSON

RECENT DEATHS

FRED HALL KAY, geologist, vice-president in charge of exploration and production for the Standard-Vacuum Oil Company, died on July 9 at the age of fifty-eight years.

DR. EDITH HALL DOHAN, curator of the Mediterranean section of the University of Pennsylvania Museum, author, and member of several expeditions to Crete, died on July 14 at the age of sixty-five years.

SCIENTIFIC EVENTS

RESEARCH IN THE UNITED STATES

Nature makes the following comments on a recent statement made by Sir Ernest Simon before the Parliamentary and Scientific Committee concerning research in the United States:

The research unit of the Bell Telephone Company, for example, has some 5,000–6,000 research workers concentrated on the one problem of telephonic communication. In the United States there seemed to be little need to persuade the business man, hard-headed though he be, of the value of research. He is now so firmly convinced by the results of the last twenty years, in peace and in war, of the necessity of research, that expenditure has risen to an astonishing figure, and, during the great depression, the research budget was the last to be cut. In 1940, according to an official report, industry was maintaining some 2,200 laboratories with a research staff of 70,000, at an annual cost of three hundred million dollars. Sir Ernest wondered what the expenditure is in Great Britain; he doubted whether it was £4,000,000, yet it was to be noted that the United States population was only three times greater than ours. Per head he estimated that the United States was spending five times as much as we spend on university and industrial research. The results were significant. America now leads in hydrocarbon research, the world order being now: United States first, Germany second, Russia third and Great Britain fourth. Yet coal is our only special large-scale natural resource, and success in the difficult post-war period in exporting enough to pay for our essential imports will depend to a substantial extent on the most scientific treatment of our coal in order to get from it the maximum value.

This question of research is, of course, broadly divisible into two parts: research conducted by industrial organizations and research conducted by universities, and Sir Ernest Simon had some equally striking points to make concerning American universities. Their size and number is almost startling. When, during 1937–38, we had about 50,000 university students in Britain, America had a million. Their income was £97,000,000, while ours was just over £6,000,000. American grants from government authorities were ten times, and from private generosity, twenty times as great as ours. In engineering, for example, there were, in the same year, 12,000 graduates from the American schools compared with about 800 in Great Britain. Now none more than ourselves realizes that this comparison either of research or of numbers of universities and students may quite easily be very misleading. There are many factors which need close examination before final and valid conclusions can be drawn. The standards of graduate qualification must be closely examined and more particularly the work done by post-graduate students. The same care is needed when comparisons of arrangements for research are made, for research is a word capable of many interpretations. In saying that, we have no intention of attempting to detract from the vast and expert work of American research organizations and of American universities. By whatever test which may be applied it seems clear, from the points made by Sir Ernest Simon, that America has set and is setting an example which ought, without any avoidable loss of time, to be followed in Britain. The discussion which followed Sir Ernest's statement showed how the problem was appreciated by his listeners and gave indications of where research here should be encouraged and fostered.

VITAMIN D PATENTS

THE following "special" has been sent from San Francisco to *The New York Times* by Lawrence E. Davies: