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:

Patents covering production of vitamin D, reported to have yielded royalties exceeding $7,500,000 to the University of Wisconsin Alumni Research Foundation, have been held invalid by the Federal Circuit Court of Appeals.

The decision was written by Judge William H. Denman, with concurrence by Judge Albert Lee Stephens. Judge William Healy concurred in a separate opinion.

The case was taken to the Circuit Court by Vitamin Technologists, Inc., on appeal from a lower court at Los Angeles which had held the Steenbock patents valid and infringed.

The patents in question covered a process of producing vitamin D, known as a preventive of rickets, by subjecting foods to radiation of ultra-violet rays such as are obtained from the quartz vapor lamp.

"Primarily it is to be noted that the claim applies to all ultra-violet rays," Judge Denman wrote in the opinion. "It is not confined to such rays as are produced by a particular medium, such as the quartz lamp. It includes, of course, the ultra-violet rays of the sun.

"Many years before the application, science had discovered that the sun's rays shining on cut alfalfa hay cured in the field was an antirachitic food for pigs.

"Steenbock himself verified the facts concerning alfalfa by the discovery that when cured out of the sunlight it lacked the antirachitic quality exerted when cured in the field.

"We thus have the inventor proving that it is from the ultra-violet rays of the sun that the alfalfa acquires its vitamin D, that is, by the process claimed by him as patentable.

"If the patent be valid, it is thus seen that the farmer is an infringer when he exposes his cut alfalfa to the ultra-violet rays of the sun long enough to make it antirachitic.

"So also the long previously established practice of the radiation of milk by the mercury vapor lamp would infringe the monopoly of Steenbock's patent because, admittedly, in its customary use it would produce in the milk vitamin D."

The court asserted that Dr. Steenbock's "great contribution" to science and human needs was "his more exact recognition of what had transpired in all these prior practical uses of the ultra-violet rays in producing the then unnamed Vitamin D substances."

It added that the District Court had erred in saying that "nature, unaided by man, does not and can not antirachitically activate foods for medicines."

"The clear vision of such a scientific investigator as Dr. Steenbock well may create vastly higher indebtedness from the world of human beings than owed to the inventors of mechanisms and processes to whom his vision is the inspiration," Judge Denman's opinion continued.

"However, our Congress as yet has provided no system of reward to the pure scientist, while it has to the inventor for his processes and mechanism. Steenbock's valuable scientific certitudes are discoveries, but they are not inventions within the meaning of the term 'invention' as used by the Congress in its patent laws."

Judge Denman explained that Dr. Steenbock had been preceded by "the discovery by Hume and Smith" that rats, made rachitic, had their condition improved when put in a cage with a floor of sawdust into which ultra-violet rays had been radiated from a mercury vapor quartz lamp.

"They thought the radiation of the air the cause of the improvement," the opinion stated. "Steenbock discovered the improvement was caused by the antirachitic quality of the sawdust eaten by the rats. He did not invent a method, but merely discovered what happened in the prior known process."

The court ruled that there could be no infringement because the three patents in the suit were invalid.

THE NATIONAL METAL CONGRESS

PLANS for the twenty-fifth annual National Metal Congress in Chicago during the week of October 18 have been announced by W. H. Eisenman, managing director of the meeting and national secretary of the American Society for Metals.

Final arrangements for a War Conference Display have been completed. All activities will be concentrated in the Palmer House and other Chicago hotels.

The Metal Congress and Conference Displays will center on the increase of war production in the metal industry, to the conservation of metals and to post-war planning. All technical sessions and special daily War Production and Conservation sessions will be streamlined and comprehensive in their contributions to war problems. Mr. Eisenman states that during the past year the metal industry has largely finished its plant expansion job for war and now is confronted with production problems involving shortages of many strategic metals, more efficient use of equipment and continued training of personnel. All these problems will be discussed at the congress.

Four national societies will again cooperate in the congress. In addition to the American Society for Metals, there will be the American Welding Society, the Wire Association and the Iron and Steel and Metals divisions of the American Institute of Mining and Metallurgical Engineers.

War Conference Displays and the sessions of the American Society for Metals will be concentrated in the Palmer House, with the American Welding Society at the Morrison Hotel, the Wire Association at the LaSalle and the American Institute of Mining and Metallurgical Engineers at the Sherman.

The Conference Displays will be placed in the special rooms designed for light displays, which will accommodate light equipment and metal parts. Manufacturers are being urged to use models, moving pictures, photographs and literature to present new developments to the industry.