Professor L. F. Audrieth, of the University of Illinois, was reelected editor of the *Register*. Dr. C. S. Carlson, assistant professor of chemical engineering at the University of Pennsylvania, and Professor Herschel Hunt, of Purdue University, were chosen for the offices of secretary and treasurer, respectively.

Phi Lambda Upsilon has enjoyed a remarkable growth since it was founded at the University of Illinois in 1899 as a society for the promotion and recognition of high scholarship and achievement in the field of chemistry. Only seven collegiate honorary organizations antedate the founding of Phi Lambda Upsilon. There are now thirty-eight chapters with an active and alumni membership exceeding 11,000.

For many years Phi Lambda Upsilon has recognized outstanding American investigators by election to honorary membership. During the past year two distinguished chemists have been awarded this distinction—Dr. Linus C. Pauling, director of the Gates and Crellin Laboratory at the University of California and Nobel Laureate, and Professor William Lloyd Evans, retired head of the department of chemistry at the Ohio State University and president of the American Chemical Society.

THE CHARLES FREDERICK CHANDLER MEDAL OF COLUMBIA UNIVERSITY

FOR outstanding achievements in chemical science, Dr. Robert R. Williams, chemical director of the Bell Telephone Laboratories, New York, and Dr. Roger J. Williams, of the University of Texas, received on February 26 awards of the Charles Frederick Chandler Medal of Columbia University. This is the first double award of the medal since it was established in 1910.

Dr. Robert R. Williams was cited for "his years of work on the isolation of vitamin B_1 and his contributions to the elucidation of its chemical structure." Vitamin B_1, which Dr. Williams synthesized and named thiamin, is the antineuritic beriberi vitamin, vital to nerve health and life.

The award to Professor Roger J. Williams was made in recognition of his discovery of pantothenic acid, powerful regulator of growth popularly known as "the acid of life," and for his contributions to the knowledge of the vitamin B complex.

The medal ceremony was held in the Horace Mann Auditorium. Dr. George B. Pegram, dean of the Columbia Graduate Faculties, presented each recipient with a certificate in lieu of a gold medal, presentation of which will be postponed until after the war. The university, as part of its conservation policy, has discontinued striking bronze, silver or gold medals during the war period.

Vitamins will increase intelligence and morality as well as give people better physical and mental health, was stated by Dr. Roger J. Williams in a joint discussion on "Vitamins in the Future." He pointed out that "Since an ample supply of vitamins can foster a higher intelligence in human subjects, it has also the capability of fostering morality. Recent studies, several of them in New York City, have shown without question that intelligence and morality go together."

Discussing novel approaches to the treatment of diseases by chemical means, Dr. Roger Williams described a new "definite guiding principle" that chemists may follow in their investigations. He said:

> It seems a reasonable working hypothesis to assume that chemical substances which have striking physiological effects have these effects because of their resemblance to naturally occurring tissue constituents. Continuing, we may assume that many substances of potential therapeutic value will be found which bear chemical resemblances to the various vitamins, of which we now have a considerable variety.
>
> If these remarks are valid, chemotherapy can now develop, not in a hit-and-miss and entirely empirical fashion, but by making use of at least one definite guiding principle.
>
> One of the most important applications of vitamin knowledge will be, I believe, to the study of cancer. Our work as well as that of others indicates that the vitamins in the diet make a difference in cancers other than those induced by butter-yellow.

All the vitamins which are required to check the great nutritional plagues of mankind have already been discovered and produced commercially. Dr. Robert Williams stated that:

> The lesser vitamins, if we may call them such for the sake of brevity, may afford us, however, great revelations regarding physiological and even pathological processes and so must be classified as lesser only in a narrowly defined sense.
>
> The point in distinguishing between major and lesser vitamins is one which concerns present-day technology, present-day economics and present-day sociology. I should like to divert the minds of food processors, teachers of nutrition, practicing physicians and laymen from speculating about the latest surmise of vitamin science and persuade them to devote their major energies to the intelligent application of the vitamins which stand in the front row on the shelf.
>
> It is high time we should be systematically eradicating the long known deficiency diseases. The first impulsion of our present knowledge of vitamins and their essential roles should be to promote restoration of values lost to the masses by these restrictions. A general removal of economic restraints would largely achieve the result because appetites lead to diversity when income permits.
>
> This, however, is a Utopian ideal far beyond our immediate reach. Education, if universal, would largely accomplish the result, for avoidance of refinement is not inherently costly. However, education of the most needy

elements is exceedingly slow and difficult. We must, therefore, turn to more effective weapons as soon as education has pervaded the public mind sufficiently to permit their employment.

Legislation in the United States prohibiting the sale of impoverished white bread and flour is a possibility. Undoubtedly any attempt to prohibit the sale of white wheat products in the United States would meet with insuperable public opposition. However, it is now possible to add artificially the principal valuable vitamins and minerals of wheat at a cost of something less than twenty-five cents per capita per annum.

Increased economic productivity of the bulk of the population would repay the cost perhaps a thousand-fold to say nothing of improved health and sense of well-being. Yet this great reform is being sabotaged or damned with faint praise by half the nutritionists of the country on the ground that it would be still better if we could arrange breakfasts of ham and eggs, whole wheat buns and a glass of milk for everybody. Of course it would, but shall we wait for the millennium to take our first steps to mass repair of our nutritional errors?

Pending the day when such legislation can be secured and the necessary scientific methods of control are developed, we must look largely to the food industries for correction of our dietary faults. These industries have been made very conscious of their public obligations, to a great extent through the operation of the pure food laws during recent decades. Within the limits of practicality, they are in general ready to cooperate in such reforms on a voluntary basis.

You are doubtless asking what all this vitamin knowledge will get us in terms of health, strength and longevity. No quantitative estimates are possible. Very few long-term experiments with animals have been carried out since all the major vitamins became available in pure form and since several of the lesser ones have been at least recognized. The testimony of the clinics, the results of experiments with school lunches or supplementary feeding, as well as the observation of health trends in nutrition-conscious populations, are very reassuring.

Since partial deficiencies are often most apparent in middle or later life when the body mechanism is beginning to feel the strain of the years, it seems reasonable to hope that nutritional reform will extend the span of life measurably. Control of infectious disease has principally affected mortality in infancy and early life. Those who survive to old age tend to be those who have acquired immunity to infectious disease or at least to have undergone a selection for resistance to disease. In nutritional disease, the phenomenon of immunity is absent. We do not grow accustomed to deficiencies with the years. Early damage remains and later damage accumulates till the slowing bloodstream of age leaves our cells grossly undernourished, so it seems.

When nutritional reforms have been in full operation for some years, the physician will have little occasion to treat deficiencies of the major vitamins. Until that happy day, which must be some years hence, he will encounter an abundance of avitaminoses, especially in clinics for the under-privileged. His immediate task is to recognize the symptoms.

SCIENTIFIC NOTES AND NEWS

THE American Education Award of the American Association of School Administrators was presented on February 24 at the San Francisco meeting to Dr. Robert A. Millikan, chairman of the Executive Council of the California Institute of Technology, as "a tribute to and in recognition of outstanding contributions made in the broad field of education."

THE Longstaff Medal of the Chemical Society of London has been awarded to Dr. Hugh S. Taylor, David B. Jones professor of chemistry and chairman of the department at Princeton University. The medal is conferred every three years upon a fellow of the society "who, in the opinion of the council, has done the most to promote the science of chemistry by research."

THE Wollaston Medal of the Geological Society, London, has been awarded to Professor R. A. Daly, Sturgis Hooper professor of geology in the Museum of Comparative Geology at Harvard University, "in recognition of his fundamental researches in many branches of geology, especially those concerned with the origin of igneous rocks, the constitution of the interior of the earth and the controls of coral-reef formation."

THE *Journal* of the American Medical Association reports that Dr. Juan P. Garrahán, a pediatrician of Buenos Aires, has been awarded the 1941 prize of the Academia Nacional de Medicina of Buenos Aires for his article on "Prothrombin, Vitamin K and Hemorrhages in New-born Infants." The prize was established by the academy in memory of the Argentine pediatrician, Dr. Juan Carlos Navarro, who died in 1936.

PRESENTATION of the gold medal of the Society of Women Geographers was made on February 23 at the annual meeting of the society in New York to Dr. Margaret Mead, assistant curator of ethnology at the American Museum of Natural History.

OFFICERS of the Society of Economic Paleontologists and Mineralogists have been elected as follows: *President,* Herschel L. Driver, Standard Oil Company of California, Los Angeles; *Vice-president,* Parker D. Trask, U. S. Geological Survey; *Secretary-Treasurer,* H. B. Stenzel, University of Texas.

PROFESSOR RAYMOND E. DAVIS, of the College of Engineering of the University of California, was installed as president of the American Concrete Insti-