

later placed in charge of the Department. In 1924, he was appointed an associate professor of biochemistry and in 1928 he was raised to professor and chairman of the Department of Biochemistry. He continued as chairman of the Department until January, 1942, when Japan took over the College. In March, 1944, he was called to Chungking to organize the Division of Nutrition and join the National Institute of Health. In July, 1944, the Chinese Government sent him to the United States as its nutrition expert on a special mission to study rehabilitation reconstruction programmes for post-war China. He served as director of the Nutrition Institute, Ministry of Health, until the end of 1947. He was also associated with the Institute as the director of its Peiping Branch during 1946-47.

In 1947, Dr. Wu and five other Chinese scientists were invited by Unesco to attend the International Physiological Congress which was held at Oxford. On his return from the Congress, by way of the United States, in September, 1947, he was extended the privileges of a visiting scholar in the Department of Biochemistry, College of Physicians and Surgeons, Columbia University. In June, 1948, he was appointed a research associate at Columbia. Sensing the political situation in China, he finally made preparations to move his family to the United States.

Dr. Wu joined the Department of Biochemistry, Medical College of Alabama, Birmingham, on September 1, 1949, as visiting professor. Following a heart attack in October, 1952, he retired on September 30 and moved to Boston, Massachusetts, where he devoted his time to higher mathematics, Spanish and writing.

Dr. Wu was a member of an Administrative Committee of three functioning as director of Peking Union Medical College, 1935-37. He was a member

of the Chemistry Division of the National Committee on the Standardization of Scientific Terminology during 1921-27; he served as editor of the *Chinese Journal of Physiology*, 1926, and continued on the editorial board until 1942; and was president of the Chinese Physiological Society, 1931-34.

Dr. Wu was a tireless investigator. His bibliography has 160 entries, which includes two books: "Principles of Nutrition" (1929) and "Principles of Physical Biochemistry" (1934). His fields of research included blood chemistry, gas and electrolyte equilibria, nutrition, immunochemistry, proteins and the metabolism of amino-acids using amino-acids labelled with nitrogen-15 as tracer.

In addition to his contribution of the famous system of blood analysis he also was a pioneer in his researches and theory in other major areas. He made quantitative analyses of the precipitate from the antigen-antibody reaction following the use of labelled antigen. In 1928, he used haemoglobin which was labelled with a coloured group. The next year, he reported the use of iodo-albumin as the antigen and he analysed the antigen precipitin precipitate for iodine and nitrogen content. These were the first analyses of this nature and antedated the use of isotopes for such analyses by several years. He also proposed the first reasonable theory of denaturation of proteins in 1931. Other valuable contributions to protein chemistry by Dr. Wu were his studies on the molecular weights and osmotic pressures of haemoglobins of experimental animals in aqueous solution, 65 per cent glycerine solution and in concentrated urea. He noted that the molecular weights of oxyhaemoglobins and haemoglobins of dog and sheep are not changed in urea solution whereas those of ox and horse are reduced to one-half.

EMMETT B. CARMICHAEL

## NEWS and VIEWS

### *Pioneer 5*

THE United States space probe *Pioneer 5* was launched from Cape Canaveral in Florida at 13.00 U.T. on March 11, to become the third artificial planet of the Sun. The launching missile was a three-stage *Thor-Able* rocket, and the final-stage vehicle attained a velocity of about 6.9 miles per sec. relative to the Earth, in a direction nearly opposite to that of the Earth's motion around the Sun. Its residual velocity relative to the Sun, after escaping from the Earth's sphere of influence, was therefore less than the Earth's orbital speed, and its orbit is consequently smaller than that of the Earth: it is expected to be about 75 million miles from the Sun at perihelion, and about 92 million miles at aphelion, with a period of 311 days. At perihelion it will be near the orbit of Venus, which moves in a nearly circular path at a distance of 67 million miles from the Sun.

*Pioneer 5*, which weighs 90 lb., has a 5-watt radio transmitter for use near the Earth and a 150-watt transmitter for use at greater distances. The power is provided by solar batteries arranged in four 'paddle-wheel' vanes. To conserve energy, the transmitter is to be switched on for only a few minutes each day, in response to commands from Earth. The radiotelescope at Jodrell Bank is the main tracking station, and the 150-watt signals should be received at distances out to about 50 million miles. If so, *Pioneer 5* will be

within communication distance for about the next five months. *Pioneer 5* carries various scientific instruments, including a high-energy radiation counter, an ionization chamber and Geiger counters to measure medium-energy radiation, a magnetometer to determine both the strength and direction of the magnetic field in space, and equipment for detecting micro-meteorites.

Pharmacology at University College, London:

Prof. F. R. Winton

PROF. F. R. WINTON, who is retiring from the University of London chair of pharmacology at University College, was trained originally in chemistry and had been working for some time as an industrial chemist with the Mond Nickel Co. when he decided to take up medicine. He graduated M.D. (Cambridge) in 1926, and he obtained the D.Sc. (London) in 1942. After graduation, he worked with A. J. Clark in the Pharmacology Department of University College, London, and in 1931 returned to the Department of Physiology, Cambridge, first as lecturer and then as reader. In 1939 he was appointed to the London chair of pharmacology at University College, in succession to Prof. J. H. Gaddum. His earliest scientific work, carried out in conjunction with L. T. Hogben, dealt with the identification of a frog melanophore-expanding hormone in the pituitary gland. His sub-