

at the Eidgenössische Technische Hochschule. Very soon however, partly inspired by Schrödinger's lectures, he changed over to theoretical physics, and in 1927 moved to Leipzig, where as a pupil of Heisenberg he was awarded his doctorate for a dissertation on the quantum mechanics of conduction electrons. After working successively under Pauli, Heisenberg, Bohr and Fermi, he went to Stanford in 1934 as associate professor of physics, where in 1939, in collaboration with Alvarez, he made the first measurement of the magnetic moment of the neutron, using the cyclotron at Berkeley. In 1946 Prof. Bloch published the theory and, together with a number of collaborators, the experimental technique of measuring very accurately nuclear magnetic moments by the method of 'nuclear induction'. For this he was awarded the Nobel Prize for Physics in 1952 jointly with Prof. E. M. Purcell, who had done independent work in the same field (see *Nature*, 170, 911; 1952).

Director of the Synchro-cyclotron Division :

Prof. C. J. Bakker

PROF. CORNELIS JAN BAKKER has been appointed a member of the Directorate and director of the Synchro-cyclotron Division. Prof. Bakker was born in 1904 and studied physics under Zeeman in Amsterdam, taking his doctorate in 1931 for work on the Zeeman effect in the spectra of the noble gases. After this he spent a year in London at the Imperial College of Science and Technology continuing his work in the field of spectroscopy. He then joined the scientific staff of Philips at Eindhoven, where he did research on certain physical problems in relation to radio. However, his interests turned to nuclear physics and during the Second World War, in collaboration with Prof. Heyn, he started designing a cyclotron for Philips. In 1946 he succeeded Gorter as professor of physics and director of the Zeeman Laboratory of the University of Amsterdam and also became director of the Institute of Nuclear Physics, the focal point of Dutch nuclear research, sponsored by Fundamenteel Onderzoek der Materie (F.O.M.), by the city of Amsterdam and by Philips. There he and his team of assistants work with the cyclotron which was designed and built by him for Philips. Prof. Bakker is a member of the Dutch Reactor Committee and, as such, a member of the Joint Dutch-Norwegian Committee, which operates the joint reactor at Kjeller in Norway; he is also secretary of the Joint Committee on Spectroscopy of the International Union of Pure and Applied Physics and the International Astronomical Union. He was one of the original eight experts invited in 1951 to draw up plans for the future of the European Organization for Nuclear Research, and since 1952 he has been director of the Synchro-cyclotron Group; with about fifteen staff members and consultants he has been carrying out the engineering studies on the synchro-cyclotron. The new Division has begun moving to Geneva, but at the moment Prof. Bakker is only spending part of his time with it.

College of Aeronautics : Prof. J. A. J. Bennett

THE Board of Governors of the College of Aeronautics has appointed Dr. J. A. J. Bennett to be professor of aerodynamics in succession to Prof. A. D. Young, who has taken the chair of aeronautical engineering at Queen Mary College, University of London (see *Nature*, January 9, p. 64). Prof. Bennett, who holds the degree of D.Sc. of the University of

Glasgow and the diploma of the Imperial College of Science and Technology, London, is an international authority in the field of helicopters. He has been a member of the Helicopter Committee of the Aeronautical Research Council since 1945 and has served on a number of British missions devoted to rotary-winged aircraft. He was the originator of the Gyrodyne, which established an international speed record in 1948. A very considerable number of papers on rotary-winged aircraft have appeared under his name in technical journals both in Great Britain and abroad. Prof. Bennett is a founder member of the Helicopter Association and a member of the Council, and a founder member of the American Helicopter Society. For the past two years he has been engaged on helicopter research at Hiller Helicopters, California, and, prior to this, he was for seven years head of the Helicopter Branch of Fairey Aviation Co., Ltd.

H. W. B. Roozeboom (1854-1907)

HENDRIK WILLEM BAKHUIS ROOZEBOOM, who is remembered in the history of physical chemistry for having demonstrated the industrial importance of the phase rule, was born in the historic town of Alkmaar on the North Holland Canal, a century ago, on October 24, 1854. His interest in chemistry began in his school-days; but he was too poor to go to a university. In 1875 he was offered a position as assistant analyst by J. M. van Bemmelen, and three years later he became an assistant in the chemical laboratory of the University of Leyden. He obtained the Ph.D. of this university in 1884, and in 1890 was appointed lecturer in chemistry. In 1896 he succeeded J. H. van 't Hoff in the chair of inorganic and physical chemistry in the University of Amsterdam. In 1875 the American physicist, Josiah Willard Gibbs, contributed to the *Transactions of the Connecticut Academy* his classic "On the Equilibrium of Heterogeneous Substances", which established the phase rule for chemical equilibrium and change. Roozeboom made careful studies of melting points and solubilities, while investigating the equilibria between solid and liquid phases in various systems, and in 1904 began publication of "Die heterogene Gleichgewichte vom Standpunkt der Phasenlehre". Completed in 1918, after his death, by his pupils, this work, particularly on the composition of the salt hydrates, showed the practical value of Gibbs's rule. Roozeboom died on February 8, 1907, at the age of fifty-three.

Scientific Instruments from the Thirteenth to the Nineteenth Century

ASTROLABES, armillary spheres, portable sundials and other antique scientific instruments constitute a valuable source for the historian of science. They afford evidence which is complementary to the printed and manuscript material, and they may provide information unobtainable in any other way. Besides all this, they are frequently beautiful objects in themselves—products of a happy marriage of scientific design and the art of the metal-worker and engraver. The most important private collection of such instruments, that of Mr. J. A. Billmeier, of London, is described in the October issue of *The Connoisseur* by Dr. C. H. Josten, curator of the Museum of the History of Science, Oxford. The greater part of the collection was recently acquired from M. Henri Michel, of Brussels, well known for many years as a leading authority and connoisseur