

accepted rules inspired Buys Ballot to write a treatise entitled "Prière à tous ceux qui veulent bien de la météorologie" (1856). But it was only sixteen years later that Buys Ballot opened the first international meteorological congress at Leipzig and became the first president of the International Meteorological Committee and the real father of international meteorology. Dutch meteorologists continued to play important parts in the international meteorological world; Van Everdingen guided the International Meteorological Organization during 1923-35, and Cannegieter was the first chief of the permanent secretariat of that Organization.

The Institute lost its great leader in 1890, and with his decease an era of steady development came to an end. Meteorology entered, not only in the Netherlands but also elsewhere, a rather dull period which started with "the disappointment of the nineties". New horizons were opened around 1910, with the beginning of upper-air observations. Van Everdingen, director since 1905, started his activities as extra-ordinary professor at the University of Utrecht with a lecture entitled "The Third Dimension in Meteorology". A theodolite for recording the projections of pilot balloon-tracks was developed, kite ascents were made, and many Dutch meteorologists had licences as free-balloon pilots. Cannegieter was the first who experimented with aeroplanes as meteorograph-carriers, and the regularity of the Netherlands upper-air ascents became known all over the world. When a new field was opened with the introduction of the radiosonde, Cannegieter used the instrument on an expedition to the Azores, from where no upper-air information had previously been obtained, and also in Iceland during the second Polar Year.

When Van Everdingen took the reins, the Institute, which had moved from Utrecht to De Bilt in 1897, consisted already of five divisions. It was then, and still is, really a geophysical institute, the activities of which are not limited solely to meteorology. With the development of the geophysical sciences during the course of the past half-century, the divisions slightly changed their names, but there are still those of forecasting (now combined with aeronautical meteorology), climatology (now combined with agricultural meteorology), maritime meteorology (now combined with oceanography), seismology and magnetism (now also deeply involved in ionospheric research) and finally a general service division (administration, library, workshop and instrument development). Each division is headed by a director (a specialist in his own field), and in Van Everdingen's time the director in chief was still an all-round meteorologist.

Cannegieter guided the Institute through the unhappy period of the Second World War, when forecasting for the general public and for aeronautics was curtailed, and synoptic and aerological observations were totally stopped. In spite of all material and other difficulties, the war period provided some dividends, as the synoptic staff took part in an extensive magnetic survey of the Netherlands, thorough plans could be made for future development and serious scientific investigations improved the knowledge of the forecasters who were perforce idle during this period.

Thus came the post-war period, with its stormy development in the Institute's activities and the enlargement of its field of action. Cannegieter, who had already passed the retiring age, was succeeded

by Vening Meinesz, a geophysicist of renown who had already long relations with the Institute, where, among others, his apparatus for gravity measurements at sea had been built. From 89 men (24 scientists) in 1945 the personnel jumped to 345 (73 scientists) in 1954. The greatest growth took place between 1945 and 1950. It was no longer feasible to house all the workers stationed at De Bilt in the old building. Offices were spread all over the village. The disadvantages of this involuntary decentralization were felt almost daily. Vening Meinesz's ambitions to bring the Institute again under one roof were, in spite of all difficulties, realized in 1953, when new wings to the old building came into use. The floor space of approximately 1,000 m.<sup>2</sup> was increased to 3,500 m.<sup>2</sup>, and, in addition, a plot of 2 hectares was joined to the gardens, sufficiently large for investigations in the field of agricultural meteorology and for the launching of radiosondes in spite of the fact that the aerologists are close neighbours of the ionospheric transmitter with its high antennae.

Vening Meinesz found himself too much absorbed in administrative duties and returned to science again in 1951, at the moment when, according to his views, the staff was sufficiently large to deal with its practical and scientific tasks, and when his plans for the extension of the premises were accepted by the Government. He was succeeded by the present director, C. J. Warners, a former Secretary of State in the Netherlands East Indies.

The Royal Netherlands Meteorological Institute is an entity in the economic life of the Netherlands, not only because of its forecasts for the general public, agriculture and horticulture, fisheries, shipping and aviation, but also because of its activities in so many other fields. It has relations with agricultural research, through an active group of agricultural meteorologists. With those interested in the water balance of earth and atmosphere, it studies evaporation and related processes. A group of statistical workers has already solved many practical problems. The maritime meteorologists, up to now engaged in the construction of the atlases for mariners, have diverted their interests in a scientific direction. Oceanographers pay much attention to high tides and storm surges in the North Sea, but do not neglect other problems of a local nature. New ideas about microseisms have developed in the seismology division, and the telegraph authorities keep close contact with the workers in the fields of magnetism and ionospheric research. These are but a selection of the many topics in which the Institute is interested, all of which are faithfully recorded in the recent centenary volume. W. BLEEKER

## OBITUARY

### Mr. F. Morley Colebrook, O.B.E.

DURING his thirty-three years service on the scientific staff of the National Physical Laboratory, Mr. F. M. Colebrook, who died on June 21, played a major part in the development of the Radio Division from its birth as a section of the Electricity Division, and more recently became the head of the newly formed Electronics Section.

Colebrook was born in March 1893 and studied science at Birkbeck College, University of London. After service in the First World War, he continued his

studies at the City and Guilds Engineering College, obtaining his A.C.G.I. and B.Sc.(London) and, after some research on high-frequency resistance, his diploma of the Imperial College (D.I.C.).

He joined the National Physical Laboratory in 1921 and soon demonstrated his flair for carrying out a combined theoretical and experimental investigation of various fundamental problems in the radio field. He soon made distinctive, and very practical, contributions to our knowledge of the characteristics of transmitting and receiving aerials, to the development of radio-frequency valve amplifiers, the technique of the precise measurement of current and field-strength at high frequencies and the definition and measurement of interference. He was responsible for the publication of several special reports of the Radio Research Board, outstanding among which is the one entitled "A Theoretical and Experimental Investigation of High Selectivity Tone-Corrected Receiving Circuits". This work, published in 1932, did much to clear the minds of those responsible for the allocation of frequencies for broadcasting and communication services, at a time when confusion of thought made the 'physical reality of sidebands' a subject of serious discussion among certain authorities. Many other papers were contributed to the *Journal of the Institution of Electrical Engineers*, and to the *Wireless Engineer*, of which periodical he later became a member of the editorial advisory board. He was the author of two books on "Alternating Currents and Transients" and "Basic Mathematics for Radio Students".

On technical committees, as in his laboratory work, Colebrook displayed that outstanding characteristic for starting a penetrating inquiry into matters which had often already been accepted by others, and so bringing to light sometimes a fallacy, and at other times a new and refreshing point of view. As a colleague, he was delightful to work with, and he could be relied upon to produce a novel, if sometimes idealistic, point of view on any new problem; he was always ready to be consulted. I was indeed sorry when, with the formation of the Radio Research Organization, Colebrook was destined to sever his formal association with radio matters and become the leader of the separate team formed at the National Physical Laboratory to develop, into a practical working machine, the mathematician's conception of an automatic electronic computer.

Apart from his work, Colebrook was a man of many tastes. He read voraciously and widely, he had a keen ear for music, and with the aid of a high-fidelity receiver of his own design and construction, he seemed to listen to and enjoy every worthwhile musical broadcasting programme. He had a lively interest in amateur dramatics; he was a keen gardener, and, under the necessities of wartime, took a practical and utilitarian interest in the breeding of rabbits.

It is to be regretted that he was not spared to develop and enjoy these personal and unofficial activities, or even to be invested with the O.B.E., to which he was appointed in June last.

R. L. SMITH-ROSE

## NEWS and VIEWS

### Chemistry at the Imperial College of Science and Technology : Prof. H. V. A. Briscoe

AFTER an association with the Imperial College of Science and Technology extending, with one intermission, over a period of forty-eight years, Prof. H. V. A. Briscoe now relinquishes the directorship of the laboratories for inorganic and physical chemistry at the College, and retires from his chair of inorganic chemistry in the University of London. Entering the College as a student in 1906, he served after graduation as research assistant to the late Sir Edward Thorpe and afterwards was a member of the teaching staff of the Chemistry Department. In 1921 he was appointed to the chair of inorganic and physical chemistry in Armstrong College (now King's College) at Newcastle upon Tyne, in the University of Durham, succeeding the late Sir Norman Haworth four years later as head of the Chemistry Department. In 1932, however, he returned to the Imperial College to follow Prof. H. B. Baker in the chair of inorganic chemistry, and on the retirement, four years later, of Prof. J. C. Philip, assumed the direction of the laboratories for inorganic and physical chemistry.

Throughout an active academic career Prof. Briscoe has also devoted much attention to researches of industrial importance; he was one of the founders of the Northern Coke Research Committee and has served as president of the Research Association of British Paint, Colour and Varnish Manufacturers. He has also participated in a study of the part played by dangerous dusts in the causation of silicosis and similar maladies. In recent years, Prof. Briscoe has taken much interest in the organization of train-

ing for laboratory service, and is now chairman of the National Joint Committee on Recruitment and Training of Science Laboratory Technicians.

Prof. R. M. Barrer

THE chair of physical chemistry at the Imperial College of Science and Technology in the University of London, formerly occupied by the late Prof. J. C. Philip, has now been filled by the appointment of Prof. R. M. Barrer. A graduate of Canterbury University College, Christchurch, New Zealand, Prof. Barrer held an 1851 Exhibition Scholarship at Clare College, Cambridge, afterwards being appointed to a research fellowship. During 1939-46 he was head of the Chemistry Department at Bradford Technical College. In 1946 he left Bradford to take up an appointment as reader at Bedford College, University of London. Since 1949 he has occupied the chair of chemistry in the University of Aberdeen, where he has gathered around him an active school of research in physical chemistry, particularly in those branches of the subject concerned with adsorption, diffusion, and the physicochemical properties generally of permeable materials, especially zeolites.

### Physiology at Queen Elizabeth College :

Prof. J. A. C. Knox

DR. JOSEPH ALAN CRUDEN KNOX has been appointed to the chair of physiology tenable at Queen Elizabeth College (University of London) in succession to Prof. J. Yudkin, who has become professor of nutrition in the College. Prof. Knox was born in 1911 and was educated at Aberdeen Grammar School and Glasgow