

approaching meteor. Not until the ionized column approximately reaches the point of intersection of the normal from the observing station to the ionized column can the stronger and more enduring broad-side echo be obtained. Secondary reflexions which appeared in the recordings can be attributed to the effects of drifts and diffusion which, as is known from visual meteor data, may cause irregularities in the train a few seconds after its formation. An example of a Giacobinid meteor echo, producing sufficient ionization around it for the track of the approaching meteor to be detected, is illustrated in the accompanying diagram, which is taken from a photographic recording.

These faint tracks resulting from the reflexion from the ionization in close proximity to the approaching meteor enabled the geocentric velocities to be determined without requiring a knowledge of the radiant position. The range-time characteristics, with few exceptions, were found to be representative of a body moving with uniform velocity in a straight line. The range R at any instant T is then given by

$$R^2 = R_0^2 + V^2 (T - T_0)^2,$$

where R_0 and T_0 represent the range and time when the range is a minimum and V is the geocentric velocity. From the analysis of twenty-two tracks, the

weighted mean of the computed velocities was found to be 22.9 km./sec., with root-mean-square deviation of 1.3 km./sec., the weighting factor being made proportional to the duration of the track. This mean value is in close agreement with the theoretical velocity of 23.7 km./sec. given by Dr. J. G. Porter, director of the Computing Section of the British Astronomical Association.

Sir Edward Appleton and R. Naismith, who in 1932 noticed the general occurrence of the transient ionospheric radio (or radar) echoes which are now known to arise from the ionization trails of meteors, took part in the discussion. The results which they obtained on the occasion of the Giacobinid Shower of October 10 were described in these columns a few weeks ago (*Nature*, 158, 936; 1946). Moreover, as a result of their systematic study of the diurnal and seasonal variations of both meteor ionization trails and sporadic ionization in the E layer of the ionosphere, they have been led to the important conclusion that the fine dust of sporadic meteors contributes substantially to the irregularities of ionization which have long been known to exist in the E layer. An account of these phenomena, and the descriptions of the investigations of the other radar workers mentioned above and of 60 Group R.A.F., are being given at a meeting of the Physical Society on January 31. J. S. HEY

NEWS and VIEWS

Gold Medal of the Royal Astronomical Society: Prof. M. G. J. Minnaert

PROF. MARCEL GILLES JOZEF MINNAERT, director of the Sonnenburg Observatory, Utrecht, has been awarded the Gold Medal of the Royal Astronomical Society for his outstanding contributions to solar physics and in particular to solar spectrophotometry. A pupil of Julius, he was later at Utrecht a colleague of Ornstein and Moll, and an early worker in the field of spectrophotometry, both developing the technique and applying it to a wide range of solar problems. He has taken part in a number of eclipse expeditions: to Sumatra in 1926 and 1929, and to Canada in 1932, all spoilt by clouds; his one successful expedition was to Lapland for the eclipse of 1927, where he obtained the first absolute values of the intensities of the chromospheric lines. He produced during the early days of the War a "Photometric Atlas of the Solar Spectrum", a most valuable contribution to solar spectroscopy. His later years in the War were spent in a concentration camp, from which he has emerged with his scientific enthusiasms undamped. He is chairman of the Commission on Spectrophotometry of the International Astronomical Union, a position for which he is well qualified by both experimental and theoretical studies. The distribution of energy in the sun's continuous spectrum and in that of the corona, the law of darkening of the sun's limb, and the polarization of the corona are among other subjects to which he has made valuable contributions. He has also worked on the direct photometry of Venus, the moon and red stars. His work is throughout characterized by a thoroughness, accuracy and care which have secured him a leading position in his own field. He was elected an associate of the Royal Astronomical Society in 1945.

Cadman Medal of the Institute of Petroleum: Mr. R. P. Russell

THE Council of the Institute of Petroleum has awarded the Cadman Memorial Medal to Mr. Robert Price Russell, president of the Standard Oil Development Co., the central technical and research organisation of the Standard Oil Company (N.J.). Great services were rendered by Mr. Russell and his associates during the War in the production of high-octane aviation fuels, synthetic rubbers and toluene for explosives, and in the development of flame throwers, incendiaries and smoke generators. More than half the American output of aviation petrol for war-planes was manufactured by the catalytic cracking process, in which Mr. Russell played a notable part. Nine tenths of the American output of petroleum-based butadiene, the starting material in the manufacture of synthetic rubber, came from the process which Mr. Russell directed into large-scale production. In recognition of his war-time work, Mr. Russell was awarded the Medal for Merit, the highest civilian award in the United States. In 1946 he received the gold medal of the American Institute of Chemists for "noteworthy and outstanding service to the science of chemistry". Mr. Russell is well known personally in Great Britain, for he came here in 1944 as chairman of the Petroleum, Chemical and Rubber Division of the U.S. Strategic Bombing Survey. A team of scientific workers under his supervision entered Germany on the heels of the front-line troops to survey the enemy's vast oil-chemical industry.

Born in Massachusetts in 1898, Mr. Russell saw military service in the First World War; on resuming his studies, he obtained a master's degree in chemical engineering at the Massachusetts Institute of Technology in 1923. After holding some academic

appointments, he joined the Standard Oil Co. (N.J.), in 1927, when he became research director of the newly established Esso Laboratories at Baton Rouge, La. Here he initiated research on the hydrogenation process and the manufacture of synthetic products from petroleum. Mr. Russell is now directing research on new and improved uses for crude oil, the production of liquid fuels from coal and natural gas, and the development of improved synthetic rubbers and plastics.

Institution of Electrical Engineers :

Honorary Member

THE Council of the Institution of Electrical Engineers has elected Sir John Macfarlane Kennedy, past president, to be an honorary member of the Institution, in recognition of his distinguished work in the sphere of electricity supply and of the services rendered by him to the Institution. Sir John was at Trinity College, Cambridge, and also went to Zurich Polytechnic. He served his pupillage with Richard Moreland and Sons, London, Willans and Robinson, Rugby, and Siemens-Halske, Berlin. During 1902-34 he was a partner in the firm of Kennedy and Donkin, and was engaged in electricity supply, distribution and traction works. In 1922 he submitted to the Electricity Commissioners proposals for the reorganisation of electricity supply in Great Britain, and eventually prepared a report for the Ministry of Transport on the reorganisation of electricity supply. In 1934 he took office with the Electricity Commission, of which he is now deputy-chairman.

Faraday Medal

THE Faraday Medal of the Institution has been awarded to Sir Standen Leonard Pearce, for his outstanding contributions to the advancement of engineering practice and notable achievements in electrical engineering. Sir Leonard Pearce was educated at Bishops Stortford College and Finsbury Technical College, London. He served his pupillage with J. G. Statter and Co. at West Drayton, and Thomas Richardson and Sons of Hartlepool. After occupying various posts, he was appointed in 1903 to be chief engineer to Manchester Corporation Electricity Undertaking; in 1926 he became engineer-in-chief of the London Power Co.

Prof. F. J. W. Roughton, F.R.S.

DR. F. J. W. ROUGHTON, who succeeds Prof. E. K. Rideal in the John Humphrey Plummer professorship of colloid science in the University of Cambridge, is a physiologist admirably qualified to deal with the border-line between biological and physical science. Since his election to a fellowship at Trinity College, Cambridge, in 1923, his researches have been concerned with the carriage of gases by the blood and with the physical chemistry of the blood pigments. His best-known work is that begun with Meldrum on the enzyme carbonic anhydrase, which plays an important part in the transport of carbon dioxide from the tissues to the lungs. Physical chemists will remember also the ingenious methods which he used with Hartridge to study the rapid rate of combination of oxygen with hæmoglobin. Largely as the result of his work, the complex interchanges between the corpuscles and the plasma in the lung capillaries are far more clearly understood. His wide knowledge of physico-chemical techniques and of their application

to biological problems has made him an authority in a field which is rapidly becoming one of the growing points in natural science; and physiologists will wish him every success in an appointment which will give full scope to his talent for reducing biological equations to measurable terms.

Human Nutrition at the London School of Hygiene and Tropical Medicine : Prof. B. S. Platt, C.M.G.

THE increasing importance attached to the scientific study of nutrition is reflected in the appointment of Dr. B. S. Platt as professor of human nutrition at the London School of Hygiene and Tropical Medicine. Dr. Platt will continue to hold, in conjunction with the chair, his present post as director of the Medical Research Council's Research Unit of Human Nutrition, at the National Hospital, Queen Square, London. His appointment is thus also another welcome sign of the growing readiness of universities to elect to professorial rank those whose duties are primarily in research; under the old system a professor was too often so fully occupied with teaching as to have little time left for research. Dr. Platt graduated in the School of Chemistry at Leeds in 1923. He engaged in research there under the late Prof. J. B. Cohen, was elected to a Beit Memorial Fellowship in 1926, and became medically qualified in 1930. During 1932-38 he was attached to the Division of Clinical Research of the Henry Lester Institute of Medical Research at Shanghai, as associate in medicine, and in 1932 was the author of the B.M.A. "Bishop Harman Prize Essay" on "The Importance of Vitamin B₁ for Maternal Health in Pregnancy and Lactation". In 1938 he was appointed to the scientific staff of the Medical Research Council, and since 1944 has been director of the Council's Human Nutrition Research Unit.

Dr. Platt has served as a nutritional expert on a considerable number of government committees, including the Scientific Food Policy Committee, the Committee for the Care of Shipwrecked Personnel, the Rations Sub-committee of the Military Personnel Research Committee, and the United Kingdom Delegation to the Food and Agriculture Organisation Conferences; and in his work he has travelled widely, including visits to West and East African territories, Newfoundland and the West Indies. In 1944, he gave the De Lamar Lecture in hygiene at the Johns Hopkins University. He has published a considerable number of papers, dealing mostly with biochemical studies on water-soluble vitamins, his best known work perhaps being that with Miss Lu on the blood pyruvate in vitamin B₁ deficiency in man.

Prof. Frank Horton, F.R.S.

THE recent retirement of Prof. Frank Horton from the University chair of physics which he has held at the Royal Holloway College (University of London) since 1914 brings to an end an active teaching career lasting more than forty years. That career really falls into two parts, Cambridge and London, though it should be mentioned that he received his earlier training at Birmingham, of which University he holds the degree of M.Sc. At Cambridge, as a lecturer at the Cavendish Laboratory in the days of J. J. Thomson, he formed one of that brilliant team of young physicists comparable in their way with those other teams in other spheres during the same epoch, namely, 'Cromer's young men' in Egypt and the Sudan, and 'Milner's young men' in South Africa. An early