

methods of analytical control; this led ultimately to numerous scientific publications by various members of his scientific staff.

It was a natural corollary to his achievement in setting up the manufacture of laboratory chemicals that Hill worked assiduously in the advocacy of the Safeguarding of Industries Bill, and later for having laboratory chemicals included in the list of goods scheduled under the Act.

Hill's family had long been connected with the Salters' Company; it was during his grandfather's mastership that the Salters' Company set an early example in founding research scholarships. Hill, who became master of the Salters' Company at an early age, was largely instrumental in the formation of the Salters' Institute of Industrial Chemistry, which has as one of its main objects the provision of funds for the training of men entering industrial chemistry.

Hill filled many public offices in connexion with pharmacy and pure and applied chemistry. His published addresses bear witness to his clear thinking and the high standards at which he always aimed. He became chairman of the Association of British Chemical Manufacturers and of the Wholesale Drug

Trade Association, president of the British Pharmaceutical Conference, vice-president of the Institute of Chemistry and of the Society of Public Analysts.

The fine-chemical industry of Great Britain, which has undergone great growth during his life, has benefited by his notable contribution to its development.

FRANCIS H. CARR

WE regret to announce the following deaths:

Dr. L. Doljanski, head of the Department of Experimental Pathology, The Hebrew University, Jerusalem, on April 13.

Mr. R. Murdin Drake, O.B.E., joint manager of the Association of British Chemical Manufacturers, on November 21, aged forty-five.

Sir John Fryer, K.B.E., F.R.S., secretary of the Agricultural Research Council, on November 22, aged sixty-two.

Mr. J. E. Kingsbury, a founder of Standard Telephones and Cables, Ltd., and an active member of the Society of Telegraph Engineers and later of the Institution of Electrical Engineers, on November 4, aged ninety-three.

NEWS and VIEWS

Nobel Prize for Physics:

Prof. P. M. S. Blackett, F.R.S.

THE Nobel Prize for Physics, for the year 1948, has been awarded to Prof. P. M. S. Blackett, of the University of Manchester. The most important of Blackett's contributions to experimental physics have been made with the Wilson expansion chamber. After the discovery of the artificial transmutation of some of the light elements by Rutherford in 1919, it became important to make a detailed study of individual disintegrations, and this could only be done with the Wilson chamber. In order to observe the transmutation of a nitrogen nucleus, it was necessary, however, to consider making many thousands of photographs. For this purpose, Blackett developed the automatic expansion chamber. The successful design and operation of this elaborate instrument, in which the many operations involved in taking a single photograph were made mechanically, in an ordered sequence many times repeated, represented a technical achievement of the highest order. With this instrument, Blackett secured the classical photographs, now familiar to many generations of physics students, showing the disintegration of nitrogen by fast α -particles; and many other examples of nuclear processes.

The experience in design and operation gained with the automatic expansion chamber formed the basis for the next technical advance, the development of the counter-controlled Wilson chamber. If an ordinary chamber is expanded at random, the chance of observing the tracks of particles of the cosmic radiation is very small—in the case of apparatus of conventional design operated at sea-level. In collaboration with G. P. S. Occhialini, Blackett therefore arranged that the expansion should take place only when one or more particles had passed through the chamber. This was secured by a 'trigger' device which operated only if a particle passed through both of two Geiger counters, placed one above and one below the chamber. In this way the beautiful photographs of showers of positive and negative electrons—

the 'soft' component of the cosmic rays—were obtained. The principle thus introduced, of combining the particular features of the Wilson chamber with those of the Geiger counter in a single apparatus, continues to be one of the most fruitful methods in the physics of the cosmic radiation. Blackett was also a pioneer in the development of apparatus for studying the deflexion of cosmic ray particles in Wilson chambers operated in strong magnetic fields—a method of great importance for the development of our knowledge of the momenta of cosmic ray particles. This present recognition of his distinctive and original contributions to physics will be welcomed everywhere.

Centenary of H. A. Rowland

NOVEMBER 27 marks the centenary of the birth of Henry Augustus Rowland, one of the most distinguished men of science that the United States has produced. Born at Honesdale, Pennsylvania, on November 27, 1848, Rowland was the son of a clergyman, and at the age of sixteen, after being allowed to abandon his classical studies, he devoted himself to science. He studied to be a civil engineer at the Rensselaer Polytechnic Institute at Troy and graduated in 1870. During the next few years he successively served as a railway engineer, taught in the Wooster College and lectured as assistant professor at the Rensselaer Institute. On April 3, 1876, he became the first professor of physics at the newly created Johns Hopkins University at Baltimore, having the previous year visited Europe and worked for a time under the great Helmholtz. Rowland retained the professorship until his death, adding lustre to the University by his own brilliant researches and by the band of devoted workers he gathered around him.

Rowland's greatest researches were those on the determination of the mechanical equivalent of heat, the determination of the ohm and the study of the solar spectrum. In 1882 he described to the Physical Society his celebrated diffraction grating which placed in the hands of the spectroscopist a new and

powerful instrument of research—one which made it possible to photograph spectra directly without the use of prisms or lenses and with a greatly increased dispersion and resolving power. In 1888 he published a photographic map of the normal solar spectrum, in 1893 a table of standard wave-lengths, and in 1895–97 a table of solar wave-lengths. For his discoveries and investigations Rowland received the Rumford, the Draper and the Matteucci Medals and was honoured in many ways by societies and universities. Besides being a great investigator, he was a great teacher, kindling in his students an enthusiasm approaching his own. His work was always distinguished for refinement and accuracy; and withal he possessed the true scientific temperament. "For myself," he said once, "I value in a scientific mind most of all that love of truth, that care in its pursuit and that humility of mind which makes the possibility of error always present, more than any other quality. This is the mind which has built up modern science to its present perfection, which has laid one stone upon the other with such care that it to-day offers to the world the most complete monument of human reason." Rowland died at his house in Baltimore on April 16, 1901. His body was cremated and his ashes buried beneath his famous ruling engine. His library was in 1903 given by his widow to the Johns Hopkins University.

Mathematics at Ibadan

THE chair of mathematics at University College, Ibadan, Nigeria, has now been filled by the election of Dr. F. V. Atkinson. Educated at St. Paul's School and at the Queen's College, Oxford (of which he was an open scholar during 1934–37), Dr. Atkinson was later a Senior Demy of Magdalen. During the War he served with the Army in India, reaching the rank of major, and he returned to Oxford in 1946 as lecturer in mathematics at Christchurch. Dr. Atkinson's work has been chiefly concerned with the analytical theory of numbers, and the properties of the Riemann ζ -function.

Reading Institute of Education

AN Institute of Education has been established in Reading as the area training organisation for Berkshire, Buckinghamshire, Hampshire, Oxfordshire, West Sussex and Reading. The scheme for the Institute provides for a Board of Governors drawn in equal proportions from the local education authorities in the area and from the University of Reading. The Minister of Education has appointed Sir Frank Stenton, vice-chancellor of the University, as chairman. The principal objects of the Institute are to further the training of teachers and other persons intending to engage in educational work in the area; to foster close relations between the corporate members of the Institute (at present, the University of Reading, the county councils and county borough councils in the area and the training colleges in the area, namely, Culham, Bishop Otter, Easthampstead Park and Newlands Park); and to establish an educational centre for the promotion of the educational interests of students and teachers and other persons professionally concerned with or interested in education in the Institute area. The Institute will be established in or near Reading, and a search for suitable accommodation has already begun; ultimately it is hoped that the Institute will have a new building designed for the purpose. Mr. C. R. E. Gillett has been appointed director of the Institute.

Sources of Technical Assistance

A SURVEY of the technical assistance available for economic development in the United Nations and the Specialized Agencies has been prepared by the secretariat for the second session of the Sub-Commission on Economic Development of the Economic and Employment Commission (London: H.M. Stationery Office. United Nations, E/CN.1/Sub. 3/22. June 2, 1948). Its immediate purpose is to facilitate examination of provisions currently being made for such assistance to members of the United Nations in their programmes of economic development, and particularly to assist the Sub-Commission in considering measures for increasing the availability and effectiveness of such technical assistance. Its scope is limited to those activities, excluding the provision of funds and relief supplies, which are designed to assist economic development; provisions for technical assistance in the sphere of social welfare are not described in detail. The Survey gives a very clear but concise account of the types of assistance available, including that in the form of research and information, as well as international training, panels and conferences; and also of the sources of assistance. It then reviews in succession the various fields such as agriculture, forestry and forest products, fisheries, education and technical training, labour and employment, health, nutrition and safety, finance and currency, or statistics in which such assistance might be required. The Survey contains nothing that is new; but gives a convenient and impressive picture of the elaborate and interlocking organisation for world co-operation which has already been built up, and which could be used if the will to do so were genuine and widespread.

German Hydrographic Journal

REFERENCE was made in *Nature* of September 4, p. 364, to the first issue of the *Deutsche Hydrographische Zeitschrift*. The next two numbers have now appeared: Vol. 1, No. 2/3, June 1948; and Vol. 1, No. 4, August 1948. The former contains articles on problems of marine geology, coastal geodesy, terrestrial magnetism and oceanography, whereas No. 4 is completely devoted to oceanographical and tidal problems. An essay by O. Pratje on the bottom sediments of the southern and middle Baltic and their importance for the interpretation of fossil sediments is based on about a thousand bottom samples which had been collected in the years just before the War. It is accompanied by detailed charts and profiles. F. Rudolf Jung examines the limits of applicability of transit-bearing and of the trigonometrical determination of distances in the technique of marine surveying, and gives numerical and geographical aids for the practical work in question. F. Errulat deals with the mean intensity of great geomagnetic disturbances as dependent on geomagnetic latitude, and finds interesting relations with the results of J. Bartels. G. Neumann writes on resonance-oscillations of bights and on the mouth correction for seiches; his treatment of the Frische Haff agrees well with results which H. Lettau had derived from the registrations of tide gauges. F. Model discusses the thickness of the ice on the Alster in Hamburg towards the end of the severe winter of 1946–47. On the open basin a thickness of 51–56 cm. was found; below a rather broad and low bridge it fell to only 12 cm. G. Wust, studying once again the temperature-inversion in the deep waters of the South Atlantic, finds a remarkably close association