

in the water-table following the change from the basin type of irrigation to perennial irrigation.

In considering fibre quality, Balls took as his end-point the quality of the spun yarn, and this interest, together with the circumstances of his career, led him into spinning technology. His "Handbook of Spinning Tests for Cotton Growers" (1920) was a pioneer work that needs little amendment to-day. His "Studies of Quality in Cotton" (1928), based on research work done at Bollington and describing notably the 'drafting wave' and the 'Rule' spinning frame, has influenced much of later technological research and development.

Balls was active to the end, and it was a pleasure to delegates at the Jubilee Conference of the Textile Institute (which had awarded him an honorary fellowship in 1943) in May of this year, to hear from the master himself a paper on the "Beginnings of Botany on a Cotton Crop".

Dr. Lawrence Balls was a great man, in the true sense of the words, who made for himself a career and won by his ability international recognition in a little-known and, at that time, little-regarded field of investigation.

D. W. HILL

Prof. J. Brontë Gatenby

PROF. JAMES BRONTË GATENBY, the eminent cytologist, died on July 20 while on holiday at Galway, Ireland. Born in 1892 in New Zealand, he developed a keen interest in entomology and this led him to correspond with Prof. E. B. Poulton in Oxford, where he later went as a student and studied under Prof. E. S. Goodrich. His interest in entomology was reflected in many of his later papers. He graduated in 1916 with first-class honours and was appointed lecturer in histology in Prof. (later Sir Charles) Sherrington's Physiology Laboratory. He soon became interested in cytology, particularly in the inclusions of the germ cells of a wide variety of animals, and he published a long series of papers on this subject. In 1918 he was appointed to a senior demyship at Magdalen College, Oxford, and in 1919 lecturer in cytology in the University of London, where he worked with Prof. J. P. Hill. During these years he produced a considerable number of papers on the embryology, oogenesis and spermatogenesis of both invertebrates and vertebrates. His D.Phil. he obtained from Oxford and his D.Sc. from London.

In 1921 he was appointed to the chair of zoology and comparative anatomy in Trinity College, Dublin, a post which he held until 1959, when he was appointed to a research chair of cytology in the same University. During this period in Dublin he attracted students from all over the world, and he was involved in several fierce controversies relating to the Golgi apparatus—the cell inclusion which he studied in considerable detail. These controversies were mainly concerned with Parat's vacuome hypothesis and also with the question of whether or not the Golgi bodies in many cells were staining artefacts.

Since the Second World War, Gatenby took an increasing interest in electron microscopy. He became firmly convinced of the great potentialities of this technique two years ago when he worked for a while at the Argonne National Laboratory in the United States. He was, however, always insistent on linking this work with light microscope studies. This was his second visit to the United States—in 1930 he spent a year at Yale University as a Seessel Fellow. In 1933

he was appointed visiting lecturer to the University of Louvain.

He had a very extensive knowledge of microscopical techniques, and for many years was a joint editor of "The Microtome's Vade Mecum". He was on the editorial board of the *Journal of the Royal Microscopical Society* and other learned journals, and was made an honorary member of a number of scientific societies.

To his students Gatenby appeared rather fearsome at times, but to keen and interested ones he gave every encouragement and showed much kindness. He would stand for no sham or bluff. He was in many ways an outstanding representative of the old school of classical zoologists. His teaching and published work reflected his respect and affection for some of the great names of British zoology whom he knew well—Goodrich and Lankester in particular. By his death the world of cytology and zoology has lost an eminent man. He is survived by his second wife and four children by his first marriage.

J. N. R. GRAINGER

Prof. F. A. Jenkins

PROF. FRANCIS A. JENKINS, professor of physics in the University of California, died at his home in Berkeley on August 3, after an illness of two months. He was a graduate of the Universities of Chicago and Toulouse and had been a faculty member at Berkeley for thirty-one years. He had held Guggenheim fellowships at Utrecht, Uppsala and most recently at Oxford, where his presence and activity in the autumn of 1958 are warmly remembered at the Clarendon Laboratory, at Brasenose College, which made him a member, and by many friends and colleagues.

Jenkins's name is perhaps most widely known through the excellent text-book on optics, by Jenkins and White; but it is his research work, covering a wide field of optics and especially spectroscopy, which has established his reputation among physicists, chemists and astronomers everywhere. His chief contributions were in the field of molecular spectroscopy; of the numerous topics only some of the most important can be mentioned here: his thorough study of the CN bands and of perturbation effects in their rotational structure, the investigation of isotope effects and the determination of isotopic mass ratios (Li₂, BO), his work on the intensity distribution in the rotational structure of bands and on the changes of coupling conditions as the result of increasing rate of rotation (NO), the determination of nuclear spins and nuclear statistics from alternating intensities (Se, C¹⁴) and the study of Rydberg series in band spectra.

In the field of atomic spectroscopy, his work on the quadratic Zeeman effect in sodium and potassium, of Zeeman effects in forbidden lines and on hyperfine structure and isotope shift is outstanding. He also made valuable contributions to spectroscopic methods, especially in the field of dielectric multi-layers, studying the performance of broad-band interference filters, the dispersion of the phase change in such filters and the ultra-violet reflectivity of multi-layers containing antimonous oxide and lead chloride. It was especially his knowledge and experience in this field from which the spectroscopy group in the Clarendon Laboratory derived great benefit during his stay there.

His most recent interests were exciton absorption spectra and methods of applying electronic computers to the analysis of band spectra. In the latter field he worked in close collaboration with the Departments of Chemistry and of Astronomy in Berkeley.

A feature common to all Prof. Jenkins's publications is their thoroughness and completeness, both in the measurements themselves and in their theoretical evaluation; there was no room for false claims, either in his work or in his personality.

Those who knew personally 'Pan', as he was called, will have lively memories of his warm personality, his human understanding and friendliness, his sense of humour and the breadth of his interests and concerns. Many will also recall his happy home and family, that meant so much to him. He was strongly attached to California, where he had spent most of his life, and he liked the camping holidays for which that State offers so many opportunities. But he also had strong ties with the Old World and felt very much at home in England and other European countries. His presence and contributions will be sadly missed at many spectroscopic conferences.

H. G. KUHN

Prof. Tadeusz Miłobedzki

PROF. TADEUSZ MIŁOBEDZKI, formerly of the Warsaw Polytechnic, died on July 13, 1959. He led a simple, quiet life and worked successfully until old age. He was a man of great intellectual power, a skilful research worker and an excellent teacher.

Miłobedzki was born at Koło upon Warta on June 16, 1873, and graduated at the University of Warsaw in 1897. He took a special interest in organic chemistry, and was a student of Prof. Wagner, a specialist in terpenes. He also worked in Berlin, Leipzig and Graz, and obtained his Ph.D. at the Jagellonian University in Cracow in 1918.

In 1906, when the Russian authorities had allowed the opening of the Polish Technical College, Miłobedzki was appointed a lecturer in inorganic and

analytic chemistry there. In 1915 he took an active part in the organization of Polish university education. He was a co-organizer of the Warsaw Polytechnic and the first dean of its Faculty of Chemistry. In 1917 he was appointed an extraordinary professor at the Central School of Agriculture in Warsaw, where he became the first rector. In 1922 he was called to the chair of inorganic chemistry in the University of Poznań, and in 1929, after the death of Prof. J. Zawidzki, he succeeded to the chair of inorganic chemistry at the Warsaw Polytechnic.

For his outstanding work as a scientist, organizer and teacher, he was made an honorary professor of the Central School of Agriculture at Warsaw and of the Jagellonian University.

In 1922 Prof. T. Miłobedzki became an ordinary member of the Poznań Society of the Friends of Sciences, and in 1932 he was elected to the Warsaw Scientific Society. During 1937-39 he took part in the work of the Polish Committee of the International Union of Pure and Applied Chemistry. In 1945 he became a member of the Polish Academy of Science and Arts and, on its foundation, of the Polish Academy of Science.

Prof. Miłobedzki played a prominent part in the development of the Polish Chemical Society. In 1920 he was one of its founders and in 1928 he was elected president. During 1916-17 he was the editor of *Chemia Polska* and during 1935-39 he was the editor of *Roczniki Chemii (Annales Societatis Chimicae Polonorum)*.

Prof. Miłobedzki and his pupils carried out important investigations on titration analysis. He also worked on phosphorus compounds, using not only the methods of classical inorganic chemistry but also those of physical chemistry, including the Raman spectra and absorption spectrometry. Prof. Miłobedzki also worked out a commonly applied new method for the detection of acid radicals. His books on analytical chemistry, "Szkoła analizy jakościowej" (School of Qualitative Analysis) and "Szkoła analizy ilościowej" (School of Quantitative Analysis), were much used.

WIKTOR WAWRZYCZEK

NEWS and VIEWS

National Institute of Medical Research:

Prof. P. B. Medawar, C.B.E., F.R.S.

PROF. P. B. MEDAWAR, professor of zoology at University College, London, who is to succeed Sir Charles Harington in 1962 as director of the National Institute of Medical Research at Mill Hill, brings to the post an outstanding record in medical research and an exceptionally broad background of relevant biology. A product of the Oxford Department of Zoology and Comparative Anatomy, he began research in Sir Howard Florey's department with a study of growth and movement in cell populations. When the Second World War came, he turned to nerve regeneration with Prof. J. Z. Young's group, and the problems of nerve grafting soon led him to skin grafting. Ever since, though there have been many interesting by-products of his active mind concerning human growth, wound-healing, ageing and cell transformation, he has pursued the problems of the homograft reaction, tenaciously and resourcefully. He

has immensely clarified this field, and has been the leading figure in an international movement which is contributing fundamentally to knowledge of immune mechanisms. His success in research has been due to an unusual range of gifts: skill and speed in the laboratory, a flair for the design of crucial experiments, and a powerfully analytical mind. He was elected to the Royal Society at an unusually early age in 1949, and received a Royal Medal in 1959. His work is communicated in an irresistibly brilliant style, and his powers of exposition have often been used effectively to a wider public, most recently in the Reith Lectures. Somehow he has combined his activity in creative science with a great amount of work in scientific policy-making, notably on the University Grants Committee (1955-60) and the Agricultural Research Council (since 1952). His ability to combine productive research with heavy administration assures the success of his new appointment.