

nology at Dresden. He was made a fellow of the Institute of Radio Engineers (N.Y.) in 1915, received its medal of honour in 1928, and was a member of the board of directors and vice-president in 1933. He was honorary president of the German National Committee of the International Scientific Radio

Union, and was elected vice-president of that Committee in 1938. All those who had the pleasure of meeting Prof. Zenneck at international conferences will remember his charming personality and his modest simplicity, combined with wittiness and quickness of repartee. R. L. SMITH-ROSE

NEWS and VIEWS

Nobel Prize for Physics for 1959:

Dr. Emilio Segre and Dr. Owen Chamberlain

Dr. Segre and Dr. Chamberlain, who have been awarded the Nobel Prize for Physics for 1959, have collaborated in research in high-energy physics for a number of years at the Lawrence Radiation Laboratory of the University of California at Berkeley. Dr. Segre was born in Italy in 1905 and was a member of Fermi's remarkable nuclear research school in Rome. He emigrated to the United States before the War. Dr. Chamberlain is thirty-nine and, like Dr. Segre, is a distinguished experimentalist. Their collaboration at Berkeley has been associated with the great accelerators which have been built there over the years. They were the leading members of a team engaged in experiments on nucleon-nuclear interaction with the help of the 184-in. synchrocyclotron, and in particular made a detailed study of polarization phenomena in high-energy scattering. The work which has now been honoured by the Nobel award has, however, been their discovery in 1955 of the antiproton in experiments with the 6 GeV.-proton synchrotron, the bevatron. The existence of the antiproton had been confidently postulated for many years; the discovery of the positron in 1932, and its interpretation on the Dirac theory, also implied the existence of other anti-particles including a negatively charged proton. Antiprotons stubbornly eluded discovery in the very high-energy (but very low-intensity) bombardments of cosmic radiation, and one reason for building the bevatron was to have an intense beam of sufficiently energetic protons to create proton-antiproton pairs in the laboratory.

The actual discovery, however, involved a long series of painstaking experiments with very elaborate detection equipment which had to be specially developed. The development of effective techniques for beam separation and detection for use with machines of very great energy is a field of research in itself. The antiprotons produced when a beam of high-energy protons falls upon a target in a machine like the bevatron are very greatly outnumbered by other charged particles produced with very broad momentum spectra in the relativistic region. These background particles would cause impossible confusion in the detection apparatus if they were not systematically eliminated. Their elimination in the experiments of Segre and Chamberlain was a major programme in experimental physics. The final apparatus used was elaborate and refined. Charge and momentum separation of antiprotons from the mixed beam of particles was achieved by magnetic deflexion and focusing in separate lenses, and velocity selection was aided by time-of-flight and Čerenkov radiation techniques. When some forty events had been accumulated which corresponded within acceptable margins of error with the properties of the antiproton, it could be said that the antiproton had been discovered. As is usual in high-energy research

with large machines, team-work by large numbers of physicists and engineers was involved; the award of the Nobel prize to Segre and Chamberlain underlines the fact that the brilliant individual worker is still needed to inspire and direct the work.

Royal Society Medals for 1959

THE following awards of medals have been made by the President and the Council of the Royal Society: *Copley Medal* to Sir Macfarlane Burnet, director of the Walter and Eliza Hall Institute, Melbourne, Australia, for his distinguished contributions to knowledge of viruses and of immunology. *Davy Medal* to Prof. R. B. Woodward, of the Department of Chemistry, Harvard University, Cambridge, Massachusetts, for his distinguished researches in organic chemistry and particularly for his contributions to the structure and synthesis of natural products. *Hughes Medal* to Dr. A. B. Pippard, reader in physics in the University of Cambridge, for his distinguished contributions in the field of low-temperature physics.

Genetics at Cambridge: Prof. J. M. Thoday

A GRADUATE of the University College of North Wales, Bangor, Dr. J. M. Thoday, who has recently been appointed to the Arthur Balfour chair of genetics in Cambridge, began his research career in the Botany School, Cambridge, under the guidance of Dr. (now Prof.) D. G. Catcheside. These early studies of the action of ionizing radiations on chromosome structure were interrupted by war service in the Royal Air Force, to be resumed after the War at the Mount Vernon Hospital and Radium Institute, where, in collaboration with Dr. J. Read, Thoday demonstrated the effect of oxygen tension on the frequencies of chromosome changes following irradiation. During 1947 he moved to Sheffield to take up an appointment as lecturer in cytogenetics, becoming senior lecturer in charge of the newly founded Department of Genetics there in 1954. In Sheffield his research moved towards the field of population genetics, particularly in relation to the genetical control of stability in development and to the action of disruptive selection. His experiments with *Drosophila* have been especially rewarding in the light they have thrown on the power of disruptive selection to conserve variability and to build up polymorphisms within populations. They are showing us for the first time under controlled conditions how polymorphisms can come into being and how their genetical structure reflects the selection which has brought them about. Prof. Thoday's breadth of experience and originality of approach augur well for the future of genetics in Cambridge.

Genetics at Sheffield: Dr. J. A. Roper

DR. J. A. ROPER returns to his own University (Sheffield) as the first holder of the new chair of