

could be so controlled as to act upon the upper stratum alone, ignoring the lower, a condition of affairs in which the solvent differential would obviously be zero. Academically, a complete examination of the anisotropic character of diffusion is of much interest, as recent theoretical investigations have revealed.

From the methodological angle, it is necessary to recollect that a long series of tests upon (necessarily) over-simplified examples will be needed before it is possible to go over to the extremely complicated, and largely empirical, circumstances of application in the restorers' studio. In this lies the intrinsic value of the present opportunity. *En route*, some recourse will probably be had to various micro-dissection techniques, and apparatus is available with that in mind. If and when a tolerably complete grasp of the whole matter in its basic form has been achieved, the

incidental, but practically important, question of the optimum conditions for the easy and rapid removal of over-paint from pictures will almost certainly be answered automatically.

In all these ways, it is intended to attempt fundamental advances in our knowledge both of the materials and phenomena which are of direct significance in the care of a great collection of paintings. Without the generous support of the Nuffield Foundation, it is difficult to believe that such an enterprise could ever have been contemplated. Moreover, the National Gallery is now in the unique position of being the locus of research which should not only benefit the priceless patrimony in the care of the Trustees, but also, through publication of the results in due course, render a service to the responsible tasks of curatorship throughout the world.

## NEWS and VIEWS

### Institution of Electrical Engineers :

#### Honorary Members

THE Council of the Institution of Electrical Engineers has elected the following to honorary membership of the Institution: Sir Arthur Fleming, for his distinguished work in electrical engineering, in particular in the field of technical education, his contributions to scientific research, and his services to the Institution; and Sir Edward Appleton, for his distinguished work in the field of pure and applied physics and his researches into the characteristics of the ionosphere and the part they play in determining the mode of propagation of radio waves.

#### Faraday Medal

THE Council of the Institution has made the thirtieth award of the Faraday Medal to Prof. E. O. Lawrence, for his distinguished work in the field of nuclear physics. Prof. Lawrence, who was born in Canton, South Dakota, on August 8, 1901, was educated at the South Dakota, Minnesota, Chicago and Yale Universities and became professor of physics at the University of California in 1928. Lawrence's early researches were concerned with photoelectric effects, and in 1930 he became interested in the possibilities of using the method of resonance acceleration in order to obtain positive ions of very high energies by means of a number of consecutive accelerations through relatively low differences of potential. His recognition, however, of the limitations of this method of linear resonance acceleration led him to conceive and build the first cyclotron, which he used to study the transmutation of elements and artificial radioactivity. For this work he was awarded the Nobel Prize for Physics in 1939. During the Second World War Prof. Lawrence was a member of the team of American and British scientific men concerned with the development of fissile materials. The need for larger samples of uranium-235 than could be obtained by the mass-spectrograph method led him to investigate the large-scale separation of uranium isotopes by electromagnetic methods. He achieved success by employing the 'Calutron' mass separator, and this method of effecting the large-scale separation of uranium isotopes was adopted in preference to the two other methods (the centrifuge and diffusion systems) which were under investigation at the same time. Among Prof. Lawrence's

honours are the Hughes Medal of the Royal Society and the Duddell Medal of the Physical Society.

### Veterinary Science in the Ministry of Agriculture :

#### Sir Thomas Dalling

SIR THOMAS DALLING, chief veterinary officer of the Animal Health Division, Ministry of Agriculture, is to retire at the end of March. Born in Edinburgh in 1892, a son of the forge, and educated at George Heriot's School, he entered the Royal (Dick) Veterinary College in 1910 and qualified M.R.C.V.S. with honours in 1914. As a student in Edinburgh he was outstanding in his year, and also gained the FitzWygram and Williams Prizes open to all students qualifying in the veterinary colleges of Great Britain and Ireland. After a short period in general practice he joined the Army Veterinary Corps and served in France during the First World War, where he was employed in various veterinary laboratories. On demobilization in 1919 he returned to general practice for a very short time; but opportunity to join Prof. Gaiger at the Glasgow Veterinary College as research worker in bacteriology led to his becoming chief investigator of the Animal Diseases Research Association, founded and maintained by subscriptions from the farming community and interested agricultural bodies in Scotland. In 1923 he became veterinary superintendent of the Wellcome Physiological Research Laboratories at Beckenham, where he carried out research on disease problems, including blackleg in cattle, leptospirosis in dogs, canine distemper and bovine tuberculosis. During 1937-42 he held the chair of animal pathology at the University of Cambridge.

Government service opened a wide field for Sir Thomas's organizing and research ability when he became director of the Veterinary Research Laboratory of the Ministry of Agriculture at Weybridge in 1942; and on the retirement in 1948 of Sir Daniel Cabot, chief veterinary officer of the Ministry of Agriculture, he succeeded him. For many years he has been a member of council of the ruling body of his profession, the Royal College of Veterinary Surgeons, and on the reconstitution of the Council following the passing of the Veterinary Surgeons Act of 1948 he was appointed president of that body, and was re-elected the following year. Since the end of the War, his advice on the control of animal disease has been sought by practically every country in