

with the velvety strength of *Gryllotalpa*, burrowing, swimming and flying, showed him to have been a great naturalist.

Willcocks took occasion to investigate patiently some unique opportunities. The invasion of a new scale-insect which destroyed the Lebbek avenues of Cairo was the first of them. Another was the arrival in Egypt of the pink boll-worm, which quickly became the major pest of cotton for many years; arising out of his studies about its queer resting-stage in the seed, he invented the heat-treatment which has for decades been applied as compulsory routine at every ginnery in the country; the credit went elsewhere. His quiet enthusiasm enlisted many willing amateur helpers before professional entomologists became abundant, and his reputation was in no way diminished when the newcomers found that they could accept his fundamental observations.

The Cotton Museum exercised his ingenuity, and his craftsmanship produced some noteworthy exhibits in collaboration with his wife and his artist brother-in-law, A. Morel; there were some witty private fantasies as well. Writing results was a painful necessity, and because his publications were made in Egypt they are little known elsewhere. Unfortunately the three volumes already mentioned weigh more than half a stone apiece, with three-inch page margins, so that their unwieldiness restricts their use.

Willcocks leaves memories of gentle pessimism; of devotion to his friends, whether human, feline or even invertebrate; of industry in spite of recurrent invalidism. It must be a matter for regret that Britain found no means for making use of the latter half of a life from which Egypt had profited so much.

W. LAWRENCE BALLS

## NEWS and VIEWS

Photographic Science: Dr. C. E. K. Mees, F.R.S.

By the retirement of Dr. Kenneth Mees from his position as vice-president in charge of research of the Eastman Kodak Company, industry has lost one of its foremost research directors. While many have the satisfaction of looking back on widely applied technical improvements for which they have been responsible, few can claim to have altered the whole aspect of an industry; Mees is one of them. At University College, Sir William Ramsey dissuaded Mees from an academic career, and in 1906 he joined the firm of Wratten and Wainwright, Ltd., of Croydon, as partner and joint managing director—at a salary of £3 per week! At that time the photographic industry depended largely on empiricism for its advance, and this appointment presented a wonderful opportunity to a trained scientist of exceptional ability. Mees was not slow to take full advantage; he was the first to market panchromatic materials, and by proper application of spectrophotometry was able to produce a comprehensive series of light filters (Wratten filters) which were the first commercially available products in this field. At this time industrial research laboratories were rare; but with characteristic foresight George Eastman decided to establish one at the Eastman Kodak Company's plant at Rochester, N.Y. Mees was invited to organize this development; but he was reluctant to leave his firm, so Eastman purchased Wratten and Wainwright, Ltd., and in 1912 Mees went to the United States to commence his duties. Since that date the work of the laboratory has covered both fundamental and applied research, and has not been confined to subjects of immediate connexion with photography.

In a special division of the laboratories which Mees established for research on photographic emulsions, much of the early development work leading to the great advances in photographic materials has been carried out. Of special importance for science was the working out of a wide range of plates and films for spectrographers and astronomers. Among the other notable contributions to photography made by Kodak during the period when Mees was director of the Research Laboratories were the introduction of panchromatic materials, of 16-mm. (and later 8-mm.) Cine Kodak film and equipment in 1923, and 'Koda-

chrome' film in 1935. Other activities include the establishment in 1918 of a department for the manufacture of synthetic organic compounds to replace German supplies, which has now become the Eastman Organic Chemicals, and work on molecular distillation, which was applied successfully to the extraction of vitamins from cod liver oil and has resulted in Distillation Products, Inc. Mees's books on photography culminated in his "Theory of the Photographic Process", published in 1942 and completely revised in 1954. His wide interests are reflected in "The Organization of Industrial Scientific Research", written in collaboration with J. A. Leermakers; but his breadth of vision is best illustrated by his philosophical discussion of the history of science in relation to world history—"The Path of Science". He was elected an Honorary Fellow of the Royal Photographic Society in 1921, and received the Progress Medal of this Society in 1913 and again in 1953. In 1939 he was elected a Fellow of the Royal Society, and in 1950, after he became an American citizen, a member of the U.S. National Academy of Sciences.

Dr. C. J. Staud

DR. CYRIL J. STAUD now succeeds Dr. Mees as vice-president in charge of research and development, Eastman Kodak. Staud graduated at the University of Rochester, N.Y., and obtained a Ph.D. degree at the Massachusetts Institute of Technology. He joined the Kodak Research Laboratories in 1924, where his ability gained for him positions of increasing responsibility. In 1931 he was appointed superintendent of emulsion research, and was appointed director of the Research Laboratories in 1947. His energies have been devoted to the internal organization of the laboratories, so that he is not as well known outside the firm as his achievements would warrant. He has an astonishing grasp of the details of the wide activities of the Laboratories, and is outstanding in organizing and inspiring effective and enthusiastic team-work. His managerial skill is supplemented by a keenly inventive mind, and he has been responsible for many of the Company's scientific achievements. Although Dr. Mees's retirement is a sad loss to the organization, and to industry generally, the research activities of Eastman Kodak have been left in capable hands.