

HONORARY GRADUATE

Sydney Cohen

Professor Sydney Cohen CBE MD PhD FRC (Path) FRS is a graduate of our university and a former member of the staff of the Departments of Anatomy and Physiology at our Medical School. He has made outstanding contributions to biomedical science in the area of the metabolism of plasma proteins and immunity to malaria, particularly relating to the development of malaria vaccines.

Sydney Cohen was born in Johannesburg in 1921. He received his early education at King Edward VII School. In 1939 he entered the University of the Witwatersrand Medical School, graduating MB BCh in 1944. He subsequently obtained the MD degree of the University in 1954 and the degree of PhD of the University of London in 1959. In 1944 he went to war-time London and worked in the Emergency Medical Service and at that training ground for so many eminent medical specialists, including many South Africans, the Royal Postgraduate Medical School and Hammersmith Hospital. In 1948 he returned home to a lectureship in our Department of Anatomy, and after three years transferred to the Department of Physiology as Lecturer and later Senior Lecturer. At this time the young Sydney Cohen was clearly a rising star in an impressive galaxy, which included Raymond Dart and Phillip Tobias in Anatomy, and Joe Gillman, Sydney Brenner, Bennie Kammerer, Paul Levy and Andries van Zyl in Physiology.

In 1954 he left South Africa once more to join the National Institute for Medical Research, Mill Hill, where in a very productive six-year period he carried out basic studies on the metabolism of plasma proteins in rabbits, baboons and humans. He pioneered protein labelling techniques, and became particularly interested in gamma globulin, showing for instance that IgM has a rapid turnover rate compared with IgG and is largely confined to the vascular system.

After a three-year period from 1957 to 1960 as Director of the Metabolic Unit at the Whittington Hospital, Sydney Cohen moved to St Mary's Hospital Medical School, where he was elected Reader in Immunology. In 1965 he was appointed to the Chair of Chemical Pathology at Guy's Hospital Medical School, where he continued to enhance an already illustrious research reputation right up to his retirement this year.

Sydney Cohen's scientific discoveries were made at an exciting time, because modern immunology was at last emerging, and the facts now learned routinely from textbooks were being painstakingly established in the laboratory. In collaboration with the late Professor R R Porter (who subsequently received the Nobel Prize) he made fundamental studies on the structure of antibody. The basic structure of the immunoglobulin molecule was determined, distinct light and heavy chains were demonstrated and allotypic specificities were localized on the heavy and light chains. This was a tremendous achievement. Sydney Cohen was always conscious of the medical applications of discoveries in science, having already shown, for instance, that immunoglobulin was synthesized within the central nervous system in patients with multiple sclerosis. Later he became interested in gamma globulin and immunity to malaria, and during a study in West Africa he demonstrated that resistance to malaria could be transferred to children by injecting human immunoglobulin. In other words, malaria immunity could be due to antibodies, an idea which was not generally accepted in 1961.

For the rest of his career he focused on immunity to malaria and the development of malaria vaccines, attracting first-class young scientists and a massive flow of research money to his laboratory. Many interesting discoveries were made. Malaria could be prevented by antibody. After inactivation, the merozoites could be used to vaccinate monkeys, which were then protected against malaria.

Merozoites could be grown in culture, but such vaccines seemed impractical for large-scale human use, and he and his colleagues therefore began to analyse the individual malarial antigens. Before long a protective antigen of molecular weight 66000 was discovered, which shows promise as a vaccine. This antigen is now being studied, and the controlling gene has been cloned.

During his career Sydney Cohen has had a major impact on the scientific life of our university and later that of Guy's Hospital. He is one of those outstanding medical graduates who is at the same time an excellent scientist, shown by his becoming an FRS in 1978. He has also served on a large number of national and international advisory bodies, particularly the World Health Organization.

By honouring one of our most distinguished medical graduates, we shall be recognizing his splendid achievement in the field of basic research in immunity, and his pioneering work in the development of malaria vaccine, which promises to be one of the great advances in the history of medical research.