fibrosarcomata induced in rats it was shown that the host environment exerts a predominant influence on radiosensitivity (Dawson, Field and Madoc-Jones). An observation made at the Chester Beatty Research Institute points to the possibility that radiosensitization with compounds having radiobiological properties similar to desoxybromouridine (BUDR) may be of practical value. BUDR is known to be incorporated into the DNA of dividing cells and this resulted in such cells being more sensitive to X-rays. In a series of leukaemia cells having different radiosensitivities in tissue culture it was found that incorporation of BUDR sensitized the radio-resistant cells to a greater extent than the more radiosensitive cell lines. The differences in radiosensitivity of these cells arise out of differences in their capacity to restore radiation-induced lesions, and BUDR appears to sensitize by interfering with post-irradiation repair processes. BUDR exerts its greatest effect on those cells which have the greatest repair capacity and in this way may provide useful differential radiosensitization.

Clinicopathology of Cancer

Tumours arising from human trophoblast are rare, and incidentally are examples of a tumour arising in the foetus which infiltrates the mother. From Charing Cross Hospital comes a report of forty-four patients with trophoblastic tumours, thirty-nine of them with overt metastatic disease, who were treated with a combination of methotrexate and 6-mercaptopurine during a $6\frac{1}{2}$-year period. Only six patients died, and the remainder are in complete remission as shown by clinical, radiological and hormonal evidence. Six patients had successful pregnancies after chemotherapy, and the infants were normal. Chemotherapy of trophoblastic tumours is now established as a triumph of modern medicine over what was once a fatal disease.

The University of Glasgow Veterinary School continues its researches on lymphosarcoma in domestic animals and includes in its study the curious lymphosarcoma-like, transmissible venereal tumour of dogs. It will be recalled that this was the first tumour (or tumour-like condition—there is no real distinction) shown to be transplantable. No microbiological agent has been demonstrated as a causative factor, transmission depending on the inoculation of viable tumour cells. The disease is almost extinct in England but is common in some parts of the world, East Africa and Japan, for example. The tumour is said to have only two-thirds of the normal chromosome complement. An attempt is still being made to isolate a virus from it.

It is apparent that the concentration of patients and the specialist knowledge available in the few large institutions devoted to the management of cancer is good for both specialist and patient. It is a fact, however, that 'cancer' is not recognized as a speciality in the National Health Service, though one form of cancer therapy, that is, irradiation, is so regarded. Pooling of material for clinical research has the disadvantage that some clinicians must sacrifice familiarity with the conditions selected for study, but this is offset by the rapidity with which unsuspected data may come to light and the adequate testing of new therapeutic measures be carried out. One notes with approval the setting up of a Thymic Tumour Panel; thymic tumours are rare, and so far only in the United States has there been any opportunity of examining a large series of cases. The publication of the researches of the Testicular Tumour Panel has been conspicuously successful.

The early detection of cancer is still a major topic. St. Mark's Hospital reports that only a little more than 3 per cent of all rectal cases seen were at an 'early' stage of development. In a study of early cases no evidence was found over the past 40 years that patients are coming earlier for treatment. With a mounting campaign for the setting up of centres for the early detection of cervical carcinoma in well women, reports from a number of centres corroborate the established value of the present cytological procedure. The final report from Way of the North of England Council states that, between 1947 and 1963, 476 cases of occult cervical carcinoma were discovered and treated, some of the patients later having successful pregnancies. During this same period 2,094 clinical cancers were treated. In 1964 the number of preclinical cancers detected by cytology exceeded the numbers detected by clinical methods for the first time ever. In contrast with this gratifying state of affairs it is fair to say that there are still no comparable methods for the detection of early visceral malignancy nor for the early mammary carcinoma. The value of the prophylactic surgery for preclinical cervical carcinoma will only be confirmed when the death rate from cervical carcinoma is seen to fall.

At University College Hospital, Ross and Marshall-Jones have studied the metabolic disturbances associated with carcinoma of the bronchus. These patients with bronchial carcinoma developed bilateral adrenal hyperplasia with extremely high levels of blood and urine corticosteroids, not elevated by corticotrophin nor depressed by dexamethazone. Two of these showed hyperkalaemic acidosis due to corticotrophin production by the tumour. Another two exhibited dilutional hyponatraemia due to the production of antidiuretic hormone by the tumour, one of them having severe myasthenic neuropathy. Urich, Dayan and Montgomery summarize their published observations on the obscure and uncommon neuromyopathy, the result of bronchial and other carcinomas. Both these reports underline the potentially rich field of investigation which lies in the oblique approach to tumours by studying their effects or concomitants, and again emphasize the advantages to be gained from co-operation among specialists.

P. Alexander
I. Hieger
A. L. Levene

OBITUARIES

Dr. F. J. Wilkins

Dr. F. J. Wilkins, a director of Glaxo Group, Ltd., was killed in the early hours of the morning of October 27, 1965, at London Airport as the result of the crash of a Vanguard aircraft on a flight from Edinburgh to London. The original flight, timed to leave Edinburgh at 5.30 p.m. on October 26, had been cancelled owing to fluctuating fog in London. When another flight became available at a very late hour, Fred Wilkins was one of those who decided to take it instead of travelling by train or remaining in Edinburgh overnight. This decision was entirely characteristic of him, and it was a product of the restless energy which led him to achievements denied to many of his contemporaries who had seemed likely to surpass him when they were younger.

Wilkins was born in Cardiff in 1905, and he obtained all his early education in that city. After obtaining a London B.Sc. degree and a Diploma in Industrial Chemistry in 1924, he decided to engage in research at Cardiff Technical College, and he spent the next three years on investigations relating to nitrosyl sulphuric acid and to the catalysed oxidation of ammonia. For this work he was

awarded a London M.Sc. degree. He then decided to pursue reaction kinetics in greater depth than was possible at Cardiff. To this end, and with the help of a research grant from the British Non-Ferrous Metals Research Association, he joined the Department of Physical Chemistry in the University of Cambridge, where he worked on a number of topics under the direction of E. K. Rideal. The most important of the subjects he studied were the oxidation of copper, and, as an offshoot, the oxidation of hydrogen with copper as the catalyst. He showed that the oxidation of copper could be considered as the sum of four consecutive processes, while the reduction of cuprous oxide by hydrogen consisted of six consecutive reactions. In all, he published, either as sole or as joint author, some six papers and two short notes while he was at Cambridge, and he received a Ph.D. degree in 1927.

In 1930 he obtained a Department of Scientific and Industrial Research senior research award and he moved to University College, London, where F. G. Donnan was the professor of physical chemistry. There Wilkins worked on gaseous adsorption, and he published one paper on the effect of intensive drying on the accommodation coefficient of liquid and solid surfaces for molecules of their own vapours. However, in spite of the fact that his main work allowed him plenty of time to indulge his tastes for music and the visual arts, Wilkins gradually found himself becoming less interested in an academic life, and in 1933 he joined the nitrates and sulphuric acid group in the Billingham Division of Imperial Chemical Industries, Ltd.

The problems and environment there were much to his liking, and he threw himself with great energy into improving the efficiency of the plants. After three very successful years as a plant manager, he moved first into the research department and then into the technical department, in the latter of which, during the first two years of the war, he was in charge of the start-up and proving trials of a number of ammonium nitrate explosive factories.

In 1941, C. S. Robinson, who had been managing director at Billingham and who had been seconded to the Ministry of Supply as director-general of the Royal Ordnance Filling Factories, was faced with the task of expanding the Royal Ordnance Factory organization in order to meet the constantly changing demands of the Services, and he managed to extract a number of 'bright boys', Wilkins among them, from Billingham. Wilkins was located at Bridgend, which was the headquarters of the western regional filling factories of Bridgend, Glascoed and Hereford, and he created and managed a highly efficient development team. Among their achievements were substantial improvements in the operation of a fully mechanized detonator filling plant and of a continuous 25-pounder shell filling plant. The risks involved in these processes were substantially reduced, and both productivity and quality were much improved.

At the end of the war, Wilkins decided to leave Imperial Chemical Industries and stay in Government service, and he became, first, director of chemical research and development, and, later, principal director of scientific research (defence). However, after some time he found that the task of being a head-office administrator was not an entirely satisfactory one, and in 1949 he accepted an invitation to become a local director of Glaxo Laboratories, Ltd., in charge of their northern factories.

All his work up to that time had been connected with well-known inorganic chemical processes involving the same types of reactions as those which he had first studied in 1924. The complex organic chemistry of the corticosteroids and the production of antibiotics by fermentation were new fields of endeavour to him, and they presented him with a major challenge, a situation which always brought out his best qualities. But he did not confine his interests to purely technical matters, and he became intensely interested in labour relations and in the training and proper utilization of graduate staff. Because of the new ideas which he introduced and his forceful personality, his influence throughout the Glaxo organization spread well beyond the realms of his own bailiwick, and in 1956 he joined the main board of the company as deputy managing director. In 1961, when the Glaxo organization was remodelled in the form of a holding company, Glaxo Group, Ltd., and of a number of operating subsidiaries, he was made chairman and managing director of Glaxo Laboratories, Ltd., the largest of the subsidiaries in Britain, as well as being made a member of the board of the Group. Under his direction, Glaxo Laboratories, Ltd., continued to expand and flourish, in spite of some slowing down of innovation in the pharmaceutical industry of Britain as a whole.

Fred Wilkins's interests were extremely wide, and he even found time to go in for farming on quite a large scale, employing always, of course, the most up-to-date methods. He travelled widely on the Continent and in North America, and he made many friends whom he and his wife were fond of entertaining at their home in Burnham Beeches.

Although Wilkins made a very considerable contribution to all the organizations in which he worked, his influence on Glaxo Laboratories was much the most profound. His outlook was partly that of a scientist with a highly analytical mind, and partly that of an artist, for he took a great delight in music, in ballet and in the art of the High Renaissance. He was never at a loss for a new idea, and he was always anxious to give the younger members of the staff the best possible chance of proving themselves. He was warm-hearted and volatile, and, as he liked saying, a true Welshman. For him, technological innovation and artistic creativity were the two aspects of human endeavour which were most worth while.

A. H. Wilson

Prof. Mary Barber

The sudden death of Prof. Mary Barber on September 11, 1965, is an irreparable loss to bacteriology.

Mary Barber was born in 1911. Her father, Dr. Hugh Barber, is a distinguished physician who trained at Guy's Hospital, became a Fellow of the Royal College of Physicians in 1933 and has practised medicine for many years in Derby. She obtained the M.R.C.S., L.R.C.P. qualification from the Royal Free Hospital in 1934, and the M.B., B.S. (London) in 1936. Between 1934 and 1937 she held the posts of house physician, clinical assistant to out-patients, resident pathologist and A. M. Bird Scholar in pathology at the Royal Free Hospital. In 1958 she went to the Archway Group Laboratory in Highgate and in 1940 became assistant in the Department of Pathology at the Postgraduate Medical School of London. She took the London M.D. in pathology in 1940. In 1947 she was appointed lecturer in bacteriology at the Postgraduate Medical School and in 1948 became reader in bacteriology at St. Thomas's Hospital Medical School. While holding this post she spent a few months at the Institut Pasteur in Paris during 1950–51. She stayed at St. Thomas's until 1957, when she returned to the Postgraduate Medical School, this time as reader in clinical bacteriology. In 1964 the title of Professor of Clinical Bacteriology was conferred on her by the University of London.

Mary Barber will always be remembered for her work on hospital infections, particularly those caused by staphylococci: but it should be emphasized that this work in which she established her unique reputation was broadly based on a sound general knowledge of clinical bacteriology and pathology. In her early work she was interested in listerella and erysipelothrix infections, in puerperal sepsis and in the antibacterial activity of 2-aminophenol and some simple derivatives. Later she became increasingly absorbed in the staphylococci and very soon became an authority on almost every aspect of the challenge they present. A clinical bacteriologist by training and ex-