viruses have so far proved resistant to successful extraction, but may yield to improved techniques.

A more readily applied, if less direct, method³⁹ is to test the growth-inhibitory effect of 5-fluorodeoxyuridine, which should specifically inhibit DNA synthesis. This compound inhibits growth of a deoxyvirus (vaccinia) but not of a ribovirus (poliovirus), and gives promise of reliable results provided that it can be confirmed with more known examples and that it is used with a host cell which it penetrates successfully (that is, in which it inhibits a known deoxyvirus). This is a very simple test, and there is a strong case for all virus laboratories to run it through their collection of virus strains, as the information to be obtained is of primary importance. A preliminary screening of new clinical isolates, for example, with 20 per cent ether and 5-fluorodeoxyuridine, might speed typing and economize in antisera.

Classification of all Viruses

It is tempting to follow this scheme to its conclusion and include all viruses in the one classification, since superficially plant and bacterial viruses seem separated from animal viruses only by host range. This would have the effect, satisfactory from a structural point of view, of placing all bacteriophages and Tipula iridescent virus alongside the adenoviruses, and plant viruses (for example, tomato bushy stunt virus⁴⁰) with poliovirus; the embarrassment of deciding the correct 'kingdom' for plant viruses which grow in insects (and vice versa) would be avoided. In fact, the fundamental likeness in all biological replications and cellular metabolism makes it nowadays legitimate to question seriously whether the usual separation into plant, animal and bacterial viruses is justified, because this classification may depend only on relatively trivial differences in the virus coating. Convincing evidence of this would be growth of a virus in a host of the 'wrong' kingdom; this might be achieved by unusual manipulative techniques, provided that there is no fundamental impediment. Alternatively, evidence for such an impediment would itself constitute most important information.

Conclusions

In summary, a taxonomy for animal viruses based on type of nucleic acid and essential labile lipid content appears less arbitrary and genetically more stable than those previously suggested, and may provide a useful means of ordering the host of viruses

now newly coming to light. The typing of the nucleic acid, a factor of primary importance, is likely to be easier than was hitherto supposed, requiring not very accurate assay procedures but needing some system in which infectivity can be detected; it merits wide consideration. Such a taxonomy might in time include all viruses.

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OBITUARIES

Prof. H. R. Dean

PROF. HENRY ROY DEAN, professor of pathology in the University of Cambridge since 1922 and Master of Trinity Hall during 1929-54, died on February 13, a few days before his eighty-second birthday.

Head-boy of the School at Sherborne, he gained first-class honours and, later, an honorary fellowship at New College, Oxford. He qualified from St. Thomas's Hospital, and was then elected to a senior demyship at Magdalen College, Oxford. Thereafter, on a travelling fellowship, he worked in Berlin with Wassermann. In 1912, he became professor of

pathology and bacteriology at Sheffield; and in 1915 professor of pathology and dean of the Medical School in Manchester. He was appointed professor of pathology at University College, London, in 1922 but, before taking up this post, moved instead to Cambridge as professor of pathology there.

Dean's published contribution to medical research was not voluminous, but it laid solid foundations for much of our present knowledge of immunology. His work on complement continued the classical line of Bordet and Wassermann. His work on the precipitin reaction made a quantitative approach to this subject possible. His description of the pathology of anaphylactic shock in man has not been

surpassed. His realization of the essential unity of the antibody reactions helped to bring order into a confused field. His papers, like those of his great predecessors, are classical in quality, commendable to students.

His second great contribution to medical science was the quality and nature of his teaching. Forty years ago, he was a very great teacher, who insisted on the interdependence of all branches of pathology and medicine. He made his students eager to know more and more about more and more. Pathology he regarded as one great subject, of which bacteriology, immunology, virology, haematology and morbid anatomy were all interdependent parts, and liable to suffer from individual elevation to specialist rank. He taught pathology as the true basis of all medicine and as especially valuable for the insight it gave into normal function. He was, thirty and forty years ago, a brilliant lecturer; but his greatest effect was obtained when demonstrating in the laboratory.

His creation of the Part II and Part I Pathology Triposes in Cambridge has benefited many generations of Cambridge medical graduates, and, through them, the whole of medicine.

As a principal leader in the Cambridge Medical School, as Master of Trinity Hall and, during the two difficult and anxious years which preceded the Second World War, as vice-chancellor, Dean's energies were necessarily devoted chiefly to administration. Outside Cambridge, he had many activities; at various times, and for many years at a time, he was chairman of the council of the Imperial Cancer Research Fund, secretary of the Pathological Society of Great Britain and Ireland, a member of the Royal Commission on the University of Durham. He served on the General Medical Council as representative of the University of Manchester during 1919-22, and of the University of Cambridge during 1942-57.

He received several honorary degrees—LL.D. of the Universities of Aberdeen and Western Reserve, honorary D.Sc. of the University of Liverpool. He was a Corresponding Fellow of the New York Academy of Medicine.

Dean was no dilettante, but he was well informed on a very wide range of subjects. To accompany him on a wine-buying expedition for the College; or to handle and appreciate some of the silver he had collected; or to inspect his seedling viruses in Trinity Hall; or to climb mountains with him, or swim with him, or to follow the boats in Mays or Lent races, or sit with him on boards and committees, or hear him quote Horace with a conscientiously archaic pronunciation, or just to drop in for a chat with him—these were all memorable experiences, and for the memory of them one is grateful. But one is chiefly grateful for the example of staunch, objective honesty of outlook on everything that came within his ken, and for the irrepressible humour of his commentary on it. An anonymous contributor to *The Lancet* has said "I owe it to him that I have had such an interesting life". Many others would acknowledge the same debt.

In 1908 he married Irene Wilson, who died in 1959, after being his close partner and perfect counterpart throughout a long joint career. Mrs. Dean shared the affection and regard in which he was held by many hundreds of younger people whom they helped, encouraged, guided and entertained.

E. T. C. SPOONER

Prof. Jerome T. Syverton

JEROME T. SYVERTON, whose death occurred on January 28, began an outstanding, active career in microbiology as an instructor in bacteriology at the University of North Dakota in 1928. Born in Courtenay, North Dakota, in 1907, he entered the University of North Dakota in 1923, obtaining the A.B. degree in 1927 and the B.S. degree in 1928. He graduated from Harvard University School of Medicine in 1931, and after an internship and assistant residency in medicine at Duke University Hospital in 1931-32, he became an assistant in pathology and bacteriology at the Rockefeller Institute for Medical Research, New York. There he obtained basic knowledge in virology under the guidance of Dr. P. K. Olitsky, and in 1932 became a member of the faculty of the University of Rochester School of Medicine and Dentistry.

Except for a sabbatical leave in 1942 at Vanderbilt University School of Medicine as visiting associate professor of pathology and bacteriology, Syverton's fundamental and pioneering work involving, for example, tumour viruses and multiple viral infections of single animal cells, as well as the development of his outstanding skill as a teacher and student adviser, was done during 1934-47 while in the Department of Bacteriology at the University of Rochester. For his outstanding research in virology, he received the Lilly Award in Bacteriology and Immunology in 1938. During 1944-46 he was on active duty in the United States Navy as a visiting investigator at the Rockefeller Institute, and member of Naval Medical Research Unit 2 in the Pacific Theatre. In 1947 he became professor and head of the Department of Microbiology at Louisiana State University School of Medicine, and since 1948 had been professor and head of the Department of Bacteriology at the University of Minnesota.

During his academic career Syverton's enthusiastic and vigorous approach to professional life, with simultaneous devotion to his family and friends, set an extraordinary example for students and associates. His graduate and postdoctoral students during twelve years at the University of Minnesota alone numbered more than 65. His productivity as an investigator was remarkable, and during 1957-58 he was recipient of the Commonwealth Fund Award for Creative Work. Eighty-seven articles describing his own work and 119 in conjunction with his students and associates were published between 1933 and 1960. His stature in science and academic medicine was evidenced by his membership of many scientific advisory committees, and his enthusiastic support of science at an international and national level was widely recognized and appreciated. The world's scientific community has lost a creative and productive investigator, the educational community an enthusiastic teacher, the community of his colleagues and associates a true friend, and his family an affectionate and lovable father.

WILLIAM F. SCHERER

Prof. B. Davison

PHYSICISTS and mathematicians connected with the British and Canadian atomic energy projects have learned with regret of the sudden death of Boris Davison on January 24, while still a very productive mathematical physicist engaged on problems of neutron transport.