

by the Inland Revenue authorities of the Crown properties transferred from the Office of Woods to the Forestry Commission. The chief of these were the New Forest and the Forest of Dean, the total valuation of which amounts to £1,227,495.

Under education and research the Report sum-

marises the conclusions of the Irvine Committee on the training of candidates for Government forest services. The Commissioners pass no comment upon these conclusions which, it is understood, are receiving the careful consideration of the universities concerned.

Harvey and Preventive Medicine

A BRIEF account of Sir George Newman's Harveian Oration to the Royal College of Physicians of London appeared in *NATURE* shortly after its delivery (*NATURE*, Oct. 29, p. 657). The full text of the discourse has since been published in pamphlet form.*

In his discussion of the new physiology which was inaugurated by Harvey's demonstration of the mechanism of the circulation of the blood, Sir George Newman points out that in 1622, six years after Harvey's first Lumleian discourse and six before his book was published, the demonstration of the lacteals and lymphatic system by which nutriment reached the blood was made by Aselli, Pecquet and Rudbeck. In 1648 the chemistry of digestion and the blood was investigated by van Helmont. Ten years later, the corpuscles of the blood were discovered by Swammerdam and Malpighi, and in 1661 Malpighi revealed the existence of the capillaries, which had been suspected by Harvey who, in the absence of a microscope, had been unable to detect them. In 1669 the contributions to the physiology of respiration by Boyle, Hooke, Mayow and Richard Lower demonstrated the purpose and process of aeration of the blood in the lungs, its selective use of the oxygen in the air, its conveyance to the tissues by the blood, and the resulting vitality and functioning of the tissues.

In the succeeding century, the actual gases which control life—carbonic acid, nitrogen and oxygen—were separated and fresh knowledge of the nervous and digestive systems was acquired. In the middle of the nineteenth century the foundations of endocrinology were established by the work of Thomas Addison, Claude Bernard and Brown-Séquard, and since then the progress of physiology in Great Britain has been pre-eminent in quantity, quality and scope.

Sir George Newman next considers the application of these discoveries to preventive medicine. He points out that from the sixteenth century onwards, the research worker has collaborated with the private practitioner and the public medical officer in the prolongation of life and the prevention of disease.

* "The Debt of Preventive Medicine to Harvey and the College of Physicians." (Harveian Oration, 1932: The Royal College of Physicians of London.) By Sir George Newman. Pp. 47. (The British Periodicals Ltd., 19 Cursitor Street, E.C.4.) 1s. net.

Striking examples of this statement are furnished in the eighteenth century by Lind and Sir Gilbert Blane in their defence of the health and the dietary of seamen, by William Cadogan, the pioneer in maternal and child welfare, and Sir John Pringle, who reformed the health of the Army. In recent times the labours of modern physiologists have contributed not only to the conservation of health but also to the prevention and cure of disease, as is exemplified by their work in connexion with cretinism, goitre, diabetes, anæmia, malnutrition, deficiency diseases, beri-beri, osteomalacia, scurvy and rickets.

The study of the cause and control of infective diseases is taken by Sir George Newman as another example of the Harveian method and spirit. The conveyance of infection by the circulating blood was acknowledged by Harvey's contemporaries, such as Glisson and Sydenham in the seventeenth century, and by the eighteenth century physicians who explored the circumstances and clinical features of infective diseases and observed their relation to external environment, to seasons and to meteorological conditions. Examples of such men were Huxham, who investigated typhoid, typhus, Devonshire colic, scurvy and scarlet fever; Heberden, who studied chicken-pox, measles and epidemic colds; Fothergill, who described epidemic sore throat; Haygarth, well known for his work on small-pox and typhus; Edward Jenner, who introduced vaccination, and Willan, the father of British dermatology. It is noteworthy that in spite of the absence of any exact knowledge of the causation of disease, which was not reached until the advent of bacteriology in the later half of the nineteenth century, two significant conquests were achieved by the English before the end of the eighteenth century in the control of scurvy and of small-pox.

The production of artificial immunity, which Sir George Newman rightly regards as the greatest single advance in preventive medicine, is chosen by him as yet another example of the application of the Harveian method. Although the protective qualities of the blood were known to Harvey, it is only within comparatively recent times that an explanation of this property has been found, thanks to the work of Pasteur, Lister, Metchnikoff and Sir Almroth Wright.

Spreading of Liquids on Solid Surfaces

IT is generally supposed that on metals as well as on water the fatty oils and fatty acids should possess a more pronounced spreading tendency than the mineral oils, yet experiments show that this is not the case. Buckley and Snyder (*J. Amer. Chem. Soc.*, Jan.) have confirmed this observation and have discovered an interesting phenomenon of rupture of thin layers of liquid on a solid surface due to the instability created by an underlying adsorbed film of low surface energy. Fatty oils and fatty acids lower the static coefficient of friction between metal

surfaces more than do mineral oils of the same viscosity, and a mineral oil containing a small percentage of a fatty acid lowers the friction almost as much as a pure fatty oil. This is in agreement with a preferential adsorption of fatty acid on the metal surface, indicating that these acids lower the surface tensions of metals more than do mineral oils.

Mineral oils which spread rapidly on ordinary metal surfaces seem to have no spreading tendency on a metal surface covered with an invisible fatty acid film. When a drop of petroleum oil containing

some fatty acid is placed on a polished plate, the mineral oil spreads in its normal manner, the fatty acid being preferentially adsorbed on the solid and lowering the surface tension until at a minimum thickness of liquid layer, rupture of the film occurs.

Any portion of oil in the midst of an area covered with an adsorbed film pulls itself together into a drop, whilst the oil in contact with clean metal continues to spread outward. It is supposed that fatty oils and fatty acids are prevented from spreading on metal surfaces by the great reduction in the surface energy of the metal which is brought about to some distance in advance of the spreading layer by the breaking away of an expanding ring or by the condensation of vapours.

University and Educational Intelligence

CAMBRIDGE.—Dr. N. J. T. M. Needham, of Gonville and Caius College, has been appointed Sir William Dunn reader in biochemistry in succession to Prof. J. B. S. Haldane.

V. J. Chapman, of Pembroke College, has been elected to the Frank Smart studentship in botany.

The following have been awarded Smith's prizes: E. A. Maxwell, Queens' College, for an essay entitled "The Invariants of Certain Surfaces" and R. H. Stoy, Gonville and Caius College, for an essay entitled "The Planetary Nebula". Rayleigh prizes have been awarded to the following for the essays indicated: W. E. Candler, Trinity College, "The Stability of the Rings of Saturn"; C. Strachan, Corpus Christi College, "Reflection by Monomolecular Films"; M. H. H. Walters, King's College, "The Effect of Stellar Encounters on the Orbits of Binary Stars".

EDINBURGH.—The Senatus has resolved that the honorary doctorate in laws be offered to the following: The Right Hon. Craigie Aitchison, Lord Advocate; Sir James Caw, formerly director of the National Galleries of Scotland; Sir Henry Dale, director of the National Institute for Medical Research; Prof. G. H. Hardy, Sadleirian professor of mathematics, Cambridge; Sir Alexander Houston, director of water examination, Metropolitan Water Board; Sir Hugh Rose, chairman of the General Board of Control for Scotland; Mr. J. C. Smith, formerly senior inspector of schools in Scotland; Mr. W. W. Tarn, author of works on the Hellenistic age.

LONDON.—The Armourers and Brasiers' Company and the Carpenters' Company have decided to make grants to the University of £2,000 and £1,000 respectively in the shape of annual payments extending over ten years; and the Ironmongers' Company has granted £500 and the Dyers' Company £105. These benefactions will be applied towards meeting the cost of the new Ceremonial Hall to be erected on the University's site in Bloomsbury.

A munificent bequest by the late Mr. Arthur L. Leon amounting to some £20,000, for the promotion and encouragement of post-graduate or advanced research work, has been accepted with great appreciation.

The Court has appointed Mr. James Stinton Jones to be consultant engineer for heating, lighting, ventilation and electrical services generally, in connexion with the new buildings in Bloomsbury.

THE Salters' Institute of Industrial Chemistry is offering several fellowships for chemists of post-graduate training, and grants-in-aid to people employed in chemical works who desire to extend their education for a career in chemical industry. Further particulars can be obtained from the Director of the Institute, Salters' Hall, St. Swithin's Lane, London, E.C.4.

THE Cecil Peace Prize of £100 is offered annually to graduates or students in any university in Great Britain or Northern Ireland for the best essay on some subject connected with the maintenance of international peace. The subject for 1933 is "Is it true that the British Empire is in itself a League of Nations?" Further particulars can be obtained from the Secretary, Universities Bureau of the British Empire, 88a, Gower Street, London, W.C.1.

THE annual examinations for a Faraday scholarship of eighty guineas per annum, tenable for two years at the Faraday House Electrical Engineering College and one year in manufacturing works, and for a Maxwell scholarship of sixty guineas per annum, tenable for two years at the College and one year in works, will be held at Faraday House on April 4-6. Further particulars can be obtained from the Registrar, Faraday House Electrical Engineering College, 62-70, Southampton Row, London, W.C.1.

THE University of Leeds has recently issued a list of holiday courses open to all students, whether former members of the University or not, to be given during the Easter vacation, on April 19-21. Amongst the courses are one on modern psychological principles by Dr. Ll. Wynn Jones and a course of six lectures in physics, comprised of two by Prof. R. Whiddington on "Recent Advances in our Knowledge of the Electron", two by Dr. E. C. Stoner on "Recent Developments in Magnetism", one by Mr. J. Ewles on "The Photoelectric Effect" and one by Mr. F. A. Long on "Recent Low Temperature Researches". Further information can be obtained from the Registrar of the University.

THE objectives of secondary education are being much discussed in the United States as well as in Great Britain. In the October number of *School Life*, the organ of the United States Federal Office of Education, appears an article by one of the senior staff on "Schools and the Social Upheaval" in which it is argued that a primary function of education, particularly in the high schools and colleges, is to prepare the rising generation for playing their part intelligently in the solution of social, economic and civic problems. Why should the people pay in taxation two and a half billion dollars yearly to support a public school system unless it believes that an educated public is the surest safeguard of its freedom? It is because the high schools, patterned largely on the model of the colleges evolved to serve leisured and professional classes, have failed to adapt their teaching to the task of justifying this belief that the type of education they provide is being found inadequate to present-day needs. To fulfil their task of passing on the accumulated wisdom of one generation to the next the schools must expound the beliefs of acknowledged experts in regard to social and economic affairs, and in the readjustment now due, this function and character training should, it is contended, be treated as of paramount importance.