The Report of the Medical Research Council.[1]

A FIRST perusal of the report of the Medical Research Council for 1924–1925 shows its many-sided activities: there appears to be scarcely a branch of medical science in which investigations have not been carried on by members of the Council's staff or by other research workers receiving whole- or part-time grants. The great volume of work performed is due in great measure to the utilisation of facilities provided by the universities and other institutions, by means of grants-in-aid to the investigators working therein. Research work, therefore, throughout the country is co-ordinated through the medium of the Council; and as specific problems arise, plans for their investigation can be formulated and the work entrusted to those most qualified to deal with it. In addition, grants have been made for work within the programmes of the Department of Scientific and Industrial Research, the Miners' Welfare Fund, the Dental Board of the United Kingdom, the League of Nations, the *Field* Newspaper Distemper Research Council, and the British Empire Cancer Campaign. The Council also makes the annual awards of the Rockefeller Fellowships, tenable in America by scientific workers in the British Isles.

It must not, however, be supposed that any distinction is made between 'pure' and 'applied' research. Every advance in knowledge leads, sooner or later, to a practical application, even though the latter may not be at first apparent.

It is obvious that it is impossible to deal with all the many-sided activities of the Council in the space at our disposal; stress will be laid on certain outstanding pieces of work, more especially those which have not been recently considered in these columns.

An extremely important function of the Council is the regulation of biological standards: that is, standards for certain substances of unknown chemical constitution, or, if of known constitution, presenting difficulties in chemical estimation, or possibly showing a varying therapeutic potency, although apparently of the same composition. Two important steps have been taken during the year: the Therapeutic Substances Bill has received the Royal Assent, and the second International Conference on the standardisation of biological products was held at Geneva in September under the auspices of the Health Section of the League of Nations, when a gratifying measure of agreement was reached as to the standards for a number of products. The president of the Conference was Dr. H. H. Dale, to whom, to a large extent, the success achieved was due.

At present the only substances which are required to be biologically standardised in Great Britain are salvarsan and insulin; and this is only due to the fact that the patent rights are vested in a public department. The international conference agreed on standards for pituitary extracts, thyroid gland, digitalis and *Filix mas* and other anthelminthics; investigation is still proceeding with reference to standards for suprarenal preparations and adrenaline, ergot, and vitamin preparations. It may be anticipated that the compounds in the former group will shortly be scheduled under the Therapeutic Substances Act, so that preparations of or containing them will only be allowed to be marketed if they comply with the requisite standard. In this connexion it may be mentioned that Dr. Hartley has prepared a standard sample of diphtheria antitoxin; this is the only serum for which a standard and a method of assay have been accepted by international agreement at the present time.

The Standards Laboratory at Oxford, under Prof. Dreyer's direction, has supplied standard agglutinable cultures and standardised agglutinating sera made with certain of the enteric and dysenteric organisms; the quantities issued have been 195 litres of the former and nearly four litres of the latter. The National Collection of Type Cultures maintained at the Lister Institute under the direction of Dr. Ledingham has been increased during the year, and more than 4000 type cultures have been distributed to research workers both at home and abroad.

Research work has been carried out in a number of specific subjects by numerous investigators. The oxygen chamber at Guy's Hospital has been in use again during the year, and great benefits are reported from this treatment in bronchitis and asthma. Dr. Edith Willock, working with Prof. Raper, has demonstrated the existence of an anoxæmic type of infantile atrophy, which is treated by means of oxygen-enriched air.

The physiology of hæmoglobin, the respiratory pigment of the blood, has been further investigated by workers under the direction of Prof. Barcroft. Anson and Mirsky have shown that hæmochromogen —often called reduced alkaline hæmatin—is really a conjugated protein, consisting of a base, named 'hæm,' and globin, and have been successful in synthesising it. The base unites with many other nitrogenous substances besides globin, and gives a series of pigments, some of which are found in invertebrate animals. Dr. Keilin, investigating a respiratory catalyst called 'cytochrome,' has found it to be present in the cells of all ærobic organisms so far examined, including animals, higher plants, yeasts and bacteria; it appears to be formed of three hæmochromogen compounds and so to be closely related to the respiratory pigment hæmoglobin.

Prof. Shaw Dunn, working with Drs. Lovett, Dible and McSwiney, has investigated some aspects of acute experimental oxalate nephritis; it was found that water diuresis in this condition favourably influenced the urea retention, producing a copious elimination of the latter by the glomeruli. No diminution in the rate of blood-flow through the kidney was observed in this type of nephritis. Dr. Baker has described two cases of obstruction of the renal tubules caused by excretion of hæmoglobin following the intravascular hæmolysis of transfused blood. Experiments made later showed that hæmoglobin, excreted through the glomeruli in solution in an alkaline medium, is precipitated in the tubules, probably in the form of hæmatin, owing to the increase in acidity and salt concentration. This intrarenal obstruction probably occurs also in blackwater fever. The treatment suggested is the production of an alkaline diuresis. Prof. Maclean and Drs. Urquhart and Forest-Smith have been able to show that rabbits given an exclusively protein diet for long periods do not develop nephritis or, in fact, show any sign of renal impairment, provided they are also given small amounts of cabbage; previous results pointing to the opposite conclusion appear to have been due to a lack of vitamins or some other constituent of fresh food. Thus an excessively protein dietary does not appear to be harmful to the kidneys.

Prof. Korenchevsky and Miss M. Carr have been engaged in a research on the influence of the internal secretions of the sexual and prostate glands upon metabolism. They conclude that the former contain hormones which increase the nitrogenous metabolism;

[1] Committee of the Privy Council for Medical Research. Report of the Medical Research Council for the Year 1924–25. Pp. 164. (London: H.M. Stationery Office.) 3s. 6d. net.

the variable effects observed after injections of emulsions of either testes or ovaries are due not only to the specific hormones, but also to the presence of non-specific substances such as insulin, and to the varying efficiency of all the other endocrine glands in aiding or opposing the action of the hormones injected. Drs. Gardiner Hill, Jones and Forest-Smith have engaged in a study of different types of obesity and their relationship to the various glands of internal secretion. They consider that certain patients who present similar appearances to the diabetic receiving large amounts of insulin may be suffering from an excessive production or release of insulin from the pancreas.

Dr. Fletcher, working at Kuala Lumpur, has found that quinidine is as effective as quinine in the treatment of malaria, that the two alkaloids do not act specifically on one type of the malarial parasite, and that there is no difference in their toxicity. The question of the effectiveness and toxicity of the different cinchona alkaloids and their proportions in different species of bark is of considerable economic importance.

Drs. Henry, Lewis, Chalmers and Harries have been investigating the toxin of the *Streptococcus scarlatinæ*; a stable preparation was obtained by precipitation with alcohol. Intradermal inoculation into human beings enables those who are susceptible to be distinguished from those who are relatively resistant; most young children are in the former group, and most adults in the latter; but children who have had the disease are also resistant. An antitoxin has been prepared the clinical trials of which are at present in progress.

A short section is devoted to some of the main aspects of the work of the Industrial Fatigue Research Board. The direct practical applications of much of this work, carried out 'in the field,' need scarcely be emphasised. The scientific study of workers in the factories leads to the formulation of conclusions as to the most beneficial methods of carrying out the various types of work examined, which should lead both to greater comfort for the worker and also to an increased output. Thus Mr. Wyatt and Mr. Fraser have shown that the judicious introduction of rest pauses almost always has a good effect, the workers unconsciously responding by increased efforts, so that the output is greater in spite of the shorter time worked. Thus shorter hours with higher wages seem to be no remote possibility.

University and Educational Intelligence.

CAMBRIDGE.—The death, in tragic circumstances, of Dr. M. B. R. Swann, the senior demonstrator in the Department of Pathology, has been a serious blow to the University in general and the Department in particular. It is not yet a matter of common knowledge that during the last few years this particular school, under Prof. Dean's guidance, has been the centre of renewed activity. In the first place, pathology has been introduced as a subject in the second part of the Natural Sciences Tripos. Students who wish to obtain a more detailed knowledge of pathological problems and a closer insight into modern research than is entailed by the crowded medical curriculum can now receive well-organised instruction. In addition, they have a definite status and also the advantage of receiving some acknowledgment for their trouble; as a result, competent research workers are being trained. The new pathological and veterinary building will, when completed, afford suitable accommodation for more workers. The staff is very keen and not over-encumbered with elementary teaching, so there are good prospects of considerable progress.

LONDON.—A course of three free public lectures on "Hygiene" will be given (in English) by Dr. Gustave Monod, at the Middlesex Hospital Medical School, on March 2, 3, and 4, at 5.30 o'clock, and one of four (also in English) on "The Evolution of the Nervous System," by Dr. C. F. Ariens Kappers, at University College, on March 9, 10, 11, and 12, at 5.30 o'clock.

MANCHESTER.—Dr. John Samuel Dunkerly, senior lecturer in zoology in the University of Glasgow, has been appointed Beyer professor of zoology and director of the zoological laboratory in succession to Prof. S. J. Hickson, who will retire in September next. Dr. Dunkerly, who was a student of Birkbeck College, London, graduated in 1908, and later studied under the late Prof. Minchin at the Lister Institute of Preventive Medicine. He became an assistant-lecturer at Birkbeck College, and in 1911 was appointed lecturer in zoology in the University of Glasgow. He was on military service from 1914 to 1918, and in 1920 was appointed senior lecturer in zoology at Glasgow, obtaining the degree of doctor of philosophy there. A number of Dr. Dunkerly's papers have been published in the *Transactions of the Royal Society of Edinburgh*, the *Quarterly Journal of Microscopical Science*, and in other journals. His investigations have dealt mainly with Flagellata and other Protozoa.

THREE fellowships, each of the annual value of 200*l.* and tenable for two years, are being offered to graduates of the University of Wales. Particulars are obtainable from the Registrar, University Registry, Cathays Park, Cardiff. The latest date for the receipt of applications for the fellowships is May 31.

APPLICATIONS are invited for the Grocers' Company's research scholarships in sanitary science, each of the annual value of 300*l.* and an allowance to meet the cost of apparatus, etc., in connexion with the research carried out. The scholarships will be tenable for one year, but renewable for a second or third year under certain conditions. Forms of application (returnable not later than April 13) may be obtained from the Clerk of the Grocers' Company, Grocers' Hall, E.C.2.

FROM the Universities Bureau of the British Empire we have received a 40-page pamphlet containing lists of students from other countries in the universities and university colleges of Great Britain and Ireland, and of interchanges of teachers in 1924–25 between the universities of Great Britain and Ireland and those of other countries. A numerical summary of students from abroad discloses some interesting facts. The total number of the students in these lists is 4669. To this total Asia contributes 1718 (including 1301 from India, Burma, and Ceylon, 110 from China, 102 from Japan, 77 from Siam, 42 from Palestine, and 41 from Malaya), Africa 1150, America 815, and the Pacific 332. Of countries within the Empire, Canada and Newfoundland are represented by only 151, including 45 (chiefly Rhodes scholars) at Oxford; the West Indies, having no university of their own, send a much larger contingent proportionally to their population, namely, 139; South Africa and Rhodesia send us more than any other part of the Empire except India—716; from Australia there are 217, and from New Zealand 114. From foreign countries, the most notable contributions, other than those already mentioned, are: Egypt 351, United States 434, Russia 99, Germany 78, Switzerland 64, France 47. Of the universities most frequented by students from abroad, London is easily first with 2158 (including 673 in the medical schools). Next come Oxford 530, Edinburgh 525, Cambridge 493, Glasgow 207, Manchester 179.