

staff for a large spectrograph of very advanced design, which it is hoped will be installed at the *coudé* focus very soon after the new reflector comes into operation.

#### Biblical Botany at the Hebrew University

STUDY of the flowers of the Bible has just been introduced to the Hebrew University at Jerusalem as a subject for students, who are showing considerable enthusiasm for it. Coupled with biblical botany is the study of Jewish and Arab plant-lore. Dr. Ephraim Hareubani is the lecturer, and he brings to his task thirty years of research into the flowers and plants mentioned in holy scriptures. Together with his wife, also a botanist, he has collected almost all the specimens named and, using Mrs. Hareubani's own methods of preservation, has placed the whole collection in the University's Museum of Biblical Botany. He has identified and classified all the plants of ancient Palestine, Syria and Babylon mentioned in the Bible, the Hebrew Talmud and later Jewish writings. A conspicuous feature of the Museum of Biblical Botany is the fresh-looking appearance of the permanent exhibits which, without pressing or bathing in liquids, seem as though they have just been plucked, and retain their original colour and greenness of stalk. They are displayed in their natural groups in sealed cupboards. Among the many curious plants may be mentioned a species of *Capparis*. This blooms, matures and dies in a single day, and, by the exercise of considerable patience and vigilance, Dr. Hareubani has been able to show it in a series of half-hourly stages of growth.

STUDY of botany on a scientific plane was first begun in Palestine by Dr. Alexander Eig, late director of the Department of Botany at the Hebrew University. His researches, from 1921 onwards, led him to Syria, Turkey, Kurdistan and the desert tracts, and he built up a comprehensive collection of Near Eastern flora. The Palestine plants he classified according to the geographical and climatological types of the world groups (the country comprises two different floral regions), and he published a remarkably detailed phytogeographic map of Palestine. According to Faba Turovlin, broadcasting from the Jerusalem wireless station, "by following Dr. Eig's observations on the subject, the character of any particular district in Palestine may often be learned from the study of its plants, and in some cases from the occurrence of a single plant only". There is now periodically published a *Palestine Journal of Botany*.

#### Excavation of a Hill Fort in Sussex

THE hill fort or camp at Mount Caburn, near Lewes, which is under excavation by the Brighton and Hove Archaeological Society, continues to yield interesting results. The investigations have now revealed the character and constructional history of the ramparts in some detail. According to a report on recent work (*The Times*, August 25), excavations in the upper rampart show that, when first constructed, it was retained by a line of posts and a net palisade.

A channel in the chalk indicates the line of the palisade. The second stage of the outer rampart, which covered the final period of occupation of the camp, is indicated by the fact that the original rampart was reinforced by a mixture of chalk and black mould. Post holes show that the rampart was further strengthened by fresh timbering. On the south side of the gateway a long cut has shown that the inner ditch had been filled up by the slipping of the inner rampart. Occupation floors of huts are clearly evident. There is no trace of occupation during the neolithic period, but a small piece of bronze has been found.

#### Archæology and the Unemployed at Oxford

OXFORD, like the Irish States (see *NATURE* of June 11, p. 1041), has made use of measures for the relief of unemployment to further archæological studies. Voluntary labour from the Oxford and Wales camps of the Universities Council for Unemployed Camps has carried out excavations on Farington Clump during two seasons, proving it to be the site of the Adulterine Castles raised by Robert of Gloucester against King Stephen. In 1937, excavations were begun on a Romano-British and early Saxon cemetery site at Frilford. Here, under the direction of Dr. L. H. Dudley Buxton, members of a camp near Eynsham, consisting of ninety men from South Wales and twenty-five university men, worked daily on the Romano-British area. They located six graves and established the north-western limits of the cemetery. A hoard of thirty coins made it possible to date the site with some precision. The Saxon area is of special interest, as it is one of the sites, rare in Britain, which was in continuous occupation during the period of Saxon penetration. Excavations are being continued at Frilford and on a site in the north of England. The men, some of whom have been out of work for years, showed a ready response, both technically and intellectually, to archæological training, and their interest in the results was keen. The three weeks in camp produced a marked improvement in physique. Funds for the continuation of this work are urgently needed, especially as the applications from clubs for the unemployed are increasing. Contributions may be sent to the treasurer of the appeal, Mr. J. Kelly, 16 Charlbury Road, Oxford.

#### Insulin Treatment of Diabetes

PROF. CHARLES BEST, of Toronto, delivered the twelfth Stephen Paget Memorial Lecture at the annual general meeting of the Research Defence Society on June 9 (*The Fight against Disease*, 26, No. 3; 1938). Prof. Best is the co-discoverer, with Prof. Banting, of the anti-diabetic substance known as 'insulin', now universally used for the treatment of the disease, and the subject of his lecture was "Insulin and Diabetes: The Present Position". The stages in the discovery and preparation of insulin were first outlined, and Prof. Best then described recent modifications—protamine- and protamine-zinc insulins—by the use of which the effect of the dose is prolonged. He next discussed the influence of insulin



treatment upon diabetic mortality in Canada, where since 1922 insulin has been available for everyone who wished to have it. In certain age groups the mortality from diabetes is not coming down; it may even be going up, because there are now many more diabetics who reach the older age groups. When these people die, as even the diabetic must, the cause of death is usually stated to be diabetes. But in the earlier age groups, up to fifty years, diabetic mortality has markedly declined. From 1891 until 1920, before the use of insulin, the percentage mortality among diabetics up to 50 years of age remained steadily at about 45 per cent, that is, nearly half the cases died. Since 1922, when insulin began to be used, the mortality first steadily declined, and for 1929-33 has been about 15 per cent (statistics for Ontario). This great saving of human life, as well as of much suffering, must be ascribed to experimental work done upon animals, and Sir Edward Mellanby, in proposing a vote of thanks to the lecturer, bewailed the fact that it is necessary even now for scientific men to come forward and justify the use of animal experiments.

#### Measurement of Mechanical Power

In a lecture on the measurement of mechanical power by Dr. C. V. Drysdale, delivered to the Junior Institution of Engineers, and published in its *Journal* of August, he points out the urgent demand there is for the accurate measurement of mechanical power under service conditions and how impossible it is to judge the relative merit of various mechanical devices without knowledge of this and the economy of the fuel used. In mercantile shipping, this is fully recognized and has led to great improvements in torsion meters. Many engineers are now studying the performance of aero engines especially at high altitudes, and this involves the making of power measurements, more especially at high altitudes during actual flight. The Royal Aircraft Establishment has now designed and constructed a mechanical power (watt) meter for air-screw testing. Utilizing the principle that a constantly excited generator produces an electromotive force proportional to the speed and that the torque is proportional to the current, it has constructed a mechanical power meter which acts satisfactorily. Alternating current at a frequency of 1,500 is supplied by a small wind-driven alternator on the plane. Records are given which prove that accurate testing of power during flight has been accomplished. Dr. Drysdale states that, of the millions of mechanically propelled vehicles in use, it is probably safe to say that not one per cent of their engines are working with anything like their maximum efficiency. One has only to watch the tuning up of an engine after decarbonization and regrinding of the valves to realize how much it depends upon the almost unaided judgment of the mechanic.

#### The Agricultural Research Council

THE third report of the Agricultural Research Council (London: H.M. Stationery Office. 5s. 6d.) surveys the research work aided from State sources during the period October 1935-September 1937. Besides

its co-ordinating functions in respect of much of the work carried out at the various research institutes in Great Britain, and its advisory capacity as regards the Development Fund, the Council now possesses a field station of its own at Compton, Berks, where it is proposed to establish disease-free herds of cattle, pigs, etc., and to provide opportunities for experiments under scientifically controlled conditions on a larger scale than is ordinarily possible at any individual research institute. The first group of experiments with cattle will be concerned with contagious abortion and will involve the testing of various vaccines. Among other problems to be investigated are the causes of the unduly high death-rate among pigs and poultry, particular attention being paid to fowl paralysis as regards both its hereditary and its infectious aspects. A new interest of the Council was marked by the setting up of an equine research committee to deal mainly with horse diseases, a substantial aid for which is being provided by the Racecourse Betting Control Board. The review of the research work on foot-and-mouth disease recently undertaken by the Council is particularly appropriate in view of the serious outbreaks this year. The general conclusions are that in spite of the high cost and slow progress of the investigations, they should be continued in the hope that eventually measures will be found that will make possible some modification of the slaughter policy.

#### League of Nations: Social Surveys

THE report on the work of the Advisory Committee on Social Questions of the League of Nations in 1938 (Second Session) refers to the proposed review of social questions to be published quarterly, and contains, in addition to information regarding the League's work on social questions, special articles by experts and selected bibliographies on social questions (C.147.M.88.4. Pp. 28. Geneva: League of Nations; London: George Allen and Unwin, Ltd. 1s. 3d.). On the recommendation of a sub-committee, the Committee has decided to place three new subjects on its agenda: the principles adopted in the organization and administration of welfare work among the young, including social assistance; the training of persons engaged in social work; and family desertion. The first study is to be limited, in the first instance, to a selected number of representative countries, emphasis being placed on the study of principles adopted in organization and administration of the administrative machinery. The study on training for social work will take note of the work already carried out by the International Committee on Social Service Schools in regard to the participation of universities in the training of social workers, and will deal with other aspects, such as the extent to which different groups of social workers, including voluntary workers, are trained, and the training given. Developments in child welfare in the past year are summarized in the report, which includes reports from the liaison officers with the International Labour Office and the Health Organisation, and formulates the broad principles arrived at from its investigations on the placing of children in families.