

of an animal, and pumps oxygenated defibrinated blood round an artificial circuit, which may include one or more different organs: the latter are thus perfused with blood under conditions approximating the normal. The preparation, however, only lasts for a few hours. It is reported in *The Times* of June 22 that Dr. Alexis Carrel and Colonel C. A. Lindbergh, the well-known American airman, have devised, at the Rockefeller Institute for Medical Research, New York, an apparatus by means of which isolated organs can be kept alive, even growing, for prolonged periods.

In this apparatus, the organs are removed aseptically from the dead animal together with surrounding tissues, arteries, veins, nerves and lymph vessels: all are kept constantly protected with gauze pads soaked in Dakin's solution. The perfusion fluid consists of blood serum or of solutions containing protein-split products: a small amount of phenol red is added to act as an indicator of the metabolic activity of the organ or of the occurrence of bacterial infection. The air supply, kept in contact with the perfusion fluid, contains 40 per cent oxygen and 3-4 per cent carbon dioxide. The apparatus is kept in an incubator at body temperature. The organs so far kept alive in this manner have included thyroid gland, ovary, adrenal, spleen, heart and kidney, obtained from adult fowls or cats; an ovary actually grew in size and weight by the addition of new cells and tissues. It is hoped to use the method for the study of the production of hormones by the glands of internal secretion, for the isolation of substances essential to the growth, differentiation and functional activity of these glands and for the discovery of the laws of association of organs. It is also hoped to study diseases in isolated human organs. The success of the method depends principally upon maintaining complete freedom from bacterial infection, and secondly on the use of suitable nutrient fluids, difficulties which Carrel and Lindbergh appear to have overcome.

Antiquities from Tell Duweir, Palestine, 1934-35

THE annual exhibition of antiquities from Tell Duweir (Lachish), Palestine, found by the Wellcome Archaeological Research Expedition to the Near East under the leadership of Mr. J. L. Starkey in the course of the excavations of 1934-35, opened on June 24 at the Wellcome Research Institution, 183-193 Euston Road, London, N.W.1. The objects exhibited again illustrate details of culture in the various periods represented on the site, beginning with the extensive prehistoric settlements of the copper and bronze ages and ending with the later Jewish kingdom, when the city suffered the successive onslaughts of Sennacherib and Nebuchadnezzar. Further light is thrown upon the early cave dwellers, and the possible line of development of the localised art reminiscent of Tell el-Amarna, of which evidence was found last year, is suggested by a bone inlay in the form of a head, which seems to be a copy of an ivory original. Another interesting find is an Iron Age burial, which included among its grave furniture

a short-handled iron fork with three long prongs. It is reasonable to conjecture that this implement served the priest to extract joints from the offerings-bin of the sanctuary discovered last year. Culturally and historically, however, the outstanding finds are a further example of the early script, resembling that from Sinai, which adds three characters to those known from last year's find, and a series of letters on ostraka, dating from shortly before the fall of the city, now to be identified with certainty as Lachish. This discovery, long eagerly awaited, alone makes the excavation notable. An instructive commentary on the work of the expedition is afforded by a cast of the bas-relief of the siege of Lachish, now in the British Museum, which, coloured and skilfully flood-lit, can be seen in full detail for the first time. The exhibition is open daily from 11 a.m. until 5 p.m., and on certain evenings until 8 p.m., until July 27. A lecture on "The Lachish Letters found at Tell Duweir" will be given by Dr. Harry Torczyner, professor of Hebrew philology in the University of Jerusalem, on Tuesday, July 9 at 5 p.m. Admission to the exhibition and lecture is free by ticket.

The Quetta Earthquake

A CORRESPONDENT of *The Times* (June 24) gives some interesting details about the great earthquake of May 31. The zone of destruction extends from Surab in Kalat State to a few miles north of Quetta. Its length is 130 miles and its width 15-20 miles. Even within this area, its effects were variable. In some parts, they spread over the whole width; in others, they were confined to a narrow line, some villages being untouched, while others were destroyed. Quetta lies in an upland valley, 5,500 ft. above the sea, in which earthquakes are rather frequent. The recent shock, however, differed from its predecessors. Though the loss of life was much greater, road and rail communications were not damaged, trees, lamp-posts and most of the telegraph poles remained standing, and electric current was available from the first hour of the shock. The great destruction in Quetta City is traced to the poor quality of the buildings, the erection of earthquake-proof houses having been generally neglected. In the areas of excessive damage, the few buildings that were earthquake-proof remained intact, and not even their chimneys fell.

Tercentenary of the Muséum National d'Histoire Naturelle

THE tercentenary of the Muséum National d'Histoire Naturelle in Paris has been celebrated during the past week, and included a *séance solennelle* on June 25 in the presence of the President of the Republic. Sir Arthur Hill, director of the Royal Botanic Gardens, Kew, was the principal delegate from Great Britain, and delivered an address in the name of the foreign delegates who were present. In view of the number of delegations attending the gathering, it was decided to select representative men of science to deliver addresses; Sir Arthur Hill spoke on behalf of the foreign delegates and also as a botanist;

M. Lacroix, a geologist, represented the Institut de France; and M. Caullery, a zoologist, acted on behalf of the French delegates.

Loss of the *Dana*

It is reported in *The Times* of June 24 that the Danish Government's scientific research ship *Dana* sank on June 23 in the North Sea, sixty miles west of Ringkjöbing, Jutland, after a collision with a German trawler. The director of the vessel's scientific work, Dr. A. V. Tåning, and the crew were saved. The *Dana* was well known to men of science and others through the work of the late Prof. Johannes Schmidt, director of the Physiological Department of the Carlsberg Laboratory, Copenhagen, on the migration of eels. It may be remembered that the oceanographical expedition of the *Dana* in 1928-30 was described in an article by Prof. Johannes Schmidt in *NATURE* of March 21, 1931, p. 444 and March 28, p. 487, which included a reproduction of a photograph of the *Dana*.

Floodlighting for the Royal Silver Jubilee

THE floodlighting of London and of many provincial cities has generally been favourably received by the public. The use of coloured light for buildings like the London County Hall and Hampton Court Palace has been severely criticised. The latter development was partly due to the invention of gaseous electric lamps which provide an economical method of producing coloured lights. In the *Illuminating Engineer* of June, P. Good reviews the Royal Jubilee electric lighting. He points out that the floodlighting of a building produces a visual impression which is quite unrelated to the daylight picture and should be so judged. If it has produced a satisfactory impression, it can be justified on artistic grounds. The Horse Guards Parade, illuminated by white light in 1931, was illuminated by violet light in 1935. Although one paper described it at the Jubilee as "a magic castle of palest violet", yet to most people it looked like a temporary structure of plaster and not worthy to be compared with its appearance on the earlier occasion when illuminated by white light. The electrical industry has shouldered the burden of the cost of providing permanent installations at Buckingham Palace, the Horse Guards Parade, the National Gallery and 'Big Ben'. Other interests are paying the cost of the permanent floodlighting of St. Paul's Cathedral. The floodlighting of public gardens has been universally praised. St. James's Park at night illuminated by 300 gas floodlights was a great attraction. When the development of the buildings on the south side of the Thames is completed, it is to be hoped that arrangement will be made for floodlighting and that commercial advertisements will be excluded.

Electric Supply Tariffs in Great Britain

A SERIOUS hindrance to the rapid development of public electric supply in Great Britain is the great inequality in the charges made for electricity in many neighbouring districts. In a paper on public supply

tariffs by J. A. Sumner read to the Institution of Electrical Engineers on February 28, it is concluded, after a careful study of methods of lowering the costs of distribution, that it is not unreasonable to forecast that electricity will be available within the next few years to all consumers at a rate of 0.5d. per unit. Mr. Sumner begins by comparing the costs per kilowatt of a private supply station with that of a public supply. Statistics for the case when Diesel engines are used for the private supply prove that it is the more expensive. It appears that many undertakings are selling electricity for power purposes at a lower rate than is required to compete with the real costs of running private plant. Hence in some cases the domestic consumer is penalised unfairly. It is pointed out that the distinction between 'urban' and 'rural' supply is sometimes unnecessary, as in many cases the capital expenditure for dwellings near the mains is much the same in the two cases. The analysis of the statistics proves that the merging of electricity areas into much larger single districts than at present is necessary for the reasonable standardisation of tariffs. It is possible in this way to balance the inevitable deficit of a newly-developed area against the surplus from the older areas. By this means a uniform tariff can be kept throughout each single large administrative district.

Applications of Photo-electric Control

THE *G.E.C. Journal* (General Electric Company) of February gives an interesting review of electrical progress and development in 1934. Many useful devices are described. Aerodrome obstruction and boundary lights must be switched on when daylight is poor and when darkness approaches in the evening. It is essential that the pilots see the boundary of the aerodrome and any obstructions in the vicinity. The photo-cell has been successfully applied to the control of these lights. At Croydon Airport the switching on of the obstruction light is controlled by a photo-cell amplifier. Another useful application of photo-cells is to control the speed of escalators. The wear and tear of escalators like those in the underground railways of London which are in continuous use is extremely heavy; and renewals and repairs are expensive and, owing to the restricted space, are difficult to carry out. It is desirable to keep the speed low during slack periods at the less-frequented stations when no one is on the escalator. At the entrance to the stairway, a suitable lamp is installed to shine across the footway on to a photo-cell similarly mounted on the other side, just below the handrail. When this beam is interrupted by the entrance of a passenger, the stairway is speeded up in several stages so that the passenger feels no shock, and the escalator continues to run at a high speed until the passenger has time to reach the top. This is attained by a time delay device using a radio valve. If other passengers come on to the stairway before the last one reaches the top, the time delay device resets, so that the high speed continues until the last passenger gets to the top, after which the low speed comes into operation.