

Bureau of Standards, Department of Commerce. The latter was the hardest hit of all scientific organisations affected, the Congress appropriation for 1933-34 of 2,056,000 dollars having been reduced to 1,336,000 dollars, less than one half of the 1931-32 expenditure. Part of the reduction was automatically covered by the President's 15 per cent reduction of all salaries of Government employees, but the personnel displaced amounted to 350, and one of the research projects on which they were engaged remains a total loss. Among the discontinued projects are the investigations on the manufacture of fructose, the sensitivity of photographic emulsions, soil erosion of pipes, and testing methods for paper.

THE research work of the Chemical Division was practically paralysed, and really important researches on rubber, including a basic study of its electrical properties which was nearing completion, as well as on lubricants, were brought to a standstill. Fundamental work at the Bureau of Mines has been seriously reduced, while the organic research carried out at Pittsburg has been completely eliminated by the closure of the laboratory. Much research on explosives, fuels and physical chemistry has also been discontinued at Pittsburg, and the petroleum and other field stations have similarly been affected. In the Department of Agriculture, reductions have been much less serious. The only major activity discontinued under the Bureau of Chemistry and Soils is the operation of a blast furnace for the recovery of potash and phosphorus. The study of a poison weed in Texas under the Bureau of Animal Industry has been seriously curtailed, but elsewhere chemical work under Government agencies has involved, it is stated, no essential curtailment of activities.

Exploration of Kharga Oasis, 1932-33

A SUMMARY report of the expedition of the Royal Anthropological Institute to Kharga in 1932-33 appears in *Man* of November. This report covers the third and final season's work of the expedition as originally planned. Miss Caton Thompson did not accompany the expedition on this occasion and Miss Gardner's attention was devoted mainly to the further geological exploration of the oasis and also to clearing up certain points from previous years' work. More than two hundred miles were carefully surveyed and in addition comparative studies were made in the Nile Valley from three bases. One of the most important of the results in relation to the main object of the expedition was the dating of the top tufa terrace at Refuf both by advanced Acheulean hand-axes in a scree deposit beneath the tufa and by core and flake tools without hand-axes interbedded in the tufa itself. This is the first time that implements have been found in such a situation. A number of shells new to Kharga were collected. An unmapped pass was discovered in lat. 25.5°. In a note commenting on the work of the expedition and the results, Miss Caton-Thompson directs attention once more to the difficulties attendant on archæological work in Egypt owing to the unsatisfactory

state of the antiquities laws. In this instance, the difficulty arises from the fact that the Egyptian Department of Antiquities has enforced on an expedition for geological and prehistoric research conditions which were framed to meet the requirements of dynastic and predynastic excavation. The Kharga expedition has provided unprecedented material for the typological study of early palæolithic industries, but as Miss Caton-Thompson points out, their scientific value is entirely destroyed if picked specimens from a series forming a related whole are selected for retention in Egypt. She urges the immediate introduction of fresh regulations permitting the temporary export for purposes of study of such series, unutilised by capricious selection.

Southern Railway Electrification

SIR HERBERT WALKER, general manager of the Southern Railway Co., has contributed a paper on the economic results achieved by the Southern Railway electrification to *World Power* of November, which proves that this scheme was a sound railway development. He points out that at the time of the amalgamation of the L. and S.W.R. and the L.B. and S.C.R. in 1923, the success of the electrification of their suburban lines had been already proved. The electrification of the Brighton-Worthing line in 1932 confirms the success of the earlier electrification schemes. Immediately the section of line to Brighton and Worthing was electrified, the number of passengers carried began to grow. At the end of six months the number carried was 22 per cent larger than the corresponding period of the preceding year. This is due partly to the introduction of a service of trains of much greater frequency than formerly, and partly to the shortening of schedule times owing to the increased powers of acceleration and to the higher speed up steep gradients. Notwithstanding the lower fares brought into operation between many of the stations, the increase in receipts for the first six months was nearly 18 per cent. The development of the passenger traffic is shown by the fact that the number of people who travelled to Brighton during the Easter holiday period of last year was nearly 150,000, and exceeded the population of Brighton itself. The percentage increase in the issue of season tickets on the Brighton and Worthing extension has increased from month to month. The increased annual cost to the railway of the interest on all the capital charges due to the electrification has been covered in the first six months of working.

History of the Public Lighting of Paris

IN the *Revue Scientifique* of October 28, M. R. Boutville gives an interesting account of the public lighting of Paris from the earliest times until the end of the nineteenth century. He points out that the first public lamp was the famous candle lantern placed in front of the Grand Chatelet in 1318. An ordinance of Louis XIV in 1667 increased the number of lamps in the streets and insisted that they should be lit 'even in moonlight' from November 1 until March 1. A medal was struck in 1669 to commemorate

the securing of the safety of the city at night. The next step in advance was the invention in 1774 by the Abbé Matherot de Perigny of an oil lamp with a silvered reflector. The way in which this reflector distributed the light led some to think that nothing better could be invented in the future. During the Revolution, some of these lamps were suspended by pylons and some by span wires fastened across the street at a height of about 16 ft. The lamps obstructed the traffic when they had to be trimmed and their containers replenished. By the use of Argand burners in 1821, the lighting was improved. The first gas lamps were placed in the Place du Carrousel in 1829. The number of flat-flame gas lamps, each burner giving a modest light of about 10 candle power, increased from 14,000 to 21,000 between 1839 and 1870. Jablochkoff electric candles were used in 1878 to light the Avenue de l'Opéra, and people still living can remember the spluttering carbons and the fluctuating light they gave. At the Paris Exhibition of 1900, it was still doubtful whether lighting by incandescent gas mantles or open arc lamps was the better. At that date there were 50,900 street lamps in Paris. It would be unsafe to prophesy how it will be illuminated twenty years hence.

Decreasing Barn-Owls

ONE of the outcomes of the census of barn-owls (*Tyto alba alba*) in England and Wales (Blaker, *Bird Notes and News*, 15, 7) is substantiating the fears that this useful bird is on the decline in Britain. Northumberland, Cumberland and Durham were the only counties to report an increase. The areas of maximum population (41-50 pairs per 100 sq. miles) appear to be Anglesey, Devon, Durham and parts of Essex, Suffolk and Hertford, and that of minimum population (0-5 pairs per 100 sq. miles), a mountainous area of north-east Lancashire and north-west Riding. About 4,000 naturalists took part in this census, organised by the Royal Society for the Protection of Birds, and found about 12,000 breeding pairs for England and Wales in the summer of 1932, non-breeding birds averaging one per 50 sq. miles. Some 45,000 eggs were laid in 1932, of which 35,000 hatched and 33,000 owlets left the nest, when the country would contain 55,000 barn-owls, which, by the following spring, would be reduced to 24,000. The species seems to have declined 50 per cent in the past ten years, and is declining at about 1,000 a year, or four per cent. Of 214 nests examined, 807 eggs were laid, 174 of which failed to hatch, and of the 633 owlets, 594 left the nest. There is a marked spreading over the countryside at the end of the nesting season, which accounts for the presence of the birds in areas otherwise rarely inhabited. Mr. Blaker considers that the decline of the species could be averted if four per cent of the death-rate was stopped. The Royal Society for the Protection of Birds is to issue the complete census results in pamphlet form. The barn-owl, which was once the commonest owl in Britain, is nowhere now so numerous as the tawny-owl, nor in many places as the alien little owl. The

food of the barn-owl consists of 69 per cent voles and mice (Collinge).

Ceylon Fisheries

THE administrative report of the Marine Biologist of Ceylon (Dr. Joseph Pearson) for 1932 shows that the work of the Department has been greatly restricted for lack of funds. No oysters were seen on the pearl banks during the January-March survey. All the potential paar areas are surveyed at least once in three years. The isolated patches of young oysters found in the Gulf of Manaar show little promise for fisheries in the near future. The window-pane oyster fishery in Lake Tangleam should do well if no fishery is held this year and provided that no abnormally heavy rains occur during the intervening north-west monsoon. There are also oysters in the lake which should be fishable in 1936 and 1937, and as there are many brood oysters the chances of new spatfalls are hopeful. The chank fishery was carried on in the Palk Strait but the average of chanks exported was much less in 1931-32 than in 1930. With regard to the development of the fishery industry, there is still the question of modern boats and gear. It is now proposed to enlist the services of a master fisherman skilled in small boat fishing with modern apparatus, for the purpose of making initial investigations, and to train a local crew in the proper use of the boat and gear, instead of appointing a new marine superintendent who would not be so skilled in this type of work. It is also proposed to purchase a small boat, suitable for the use of the fishermen, to serve as a model for adoption. The purchase of this boat would, however, not be possible until the investigations have been carried far enough to indicate the type most suitable.

Vibrations due to Traffic in Oxford

THE Milne-Shaw seismograph has lately been employed for the purpose of estimating the amount of vibration caused by the passage of heavy traffic along the main streets of Oxford, and the consequent damage likely to result to the buildings of the city. A comparison of the readings of seismographs in position at the University Observatory and in the High Street respectively, taken at the same time and for the same duration, showed in the former case an almost imperceptible amount of vibration, but in the latter a record of disturbance which clearly indicated a serious menace to the stability of buildings along the route, especially of the older structures belonging to the University and Colleges.

Tables of Alcoholic Strength

THERE has been recently issued by H.M. Stationery Office new tables correlating percentages of proof spirit and percentages of alcohol by weight with specific gravity at 80° F., compiled by Mr. Francis G. H. Tate, of the Government Laboratory (2s. 6d. net), whose well-known book on the British system of alcoholometry entitled "Alcoholometry: an Account of the British Method of Alcoholic Strength Determination" was noticed in our columns in March 1931.