

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. Jablochhoff 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 Tanglegam 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.

It is understood that these tables are to be legalised for use in Great Britain. They should prove very helpful both in England during the summer months and throughout the year in those countries where the minimum temperature approximates more closely to 80° F. Proof spirit was legally defined so long ago as 1816, though it was not until 1847 that Joseph Drinkwater determined the relative proportions of alcohol and water in it. The Fahrenheit temperature then selected was 51°, which is proving often to be inconvenient in practice. At the temperature of 80° F. now chosen, proof spirit has a specific gravity of 0.913162; it contains 49.28 per cent of alcohol by weight, or 57.25 per cent by volume. Absolute alcohol at this temperature is equivalent to 175.35 per cent of proof spirit.

#### Harnack House, Berlin-Dahlem

THE colony which has grown up at Dahlem in the suburbs of Berlin, consisting of the various departments of the Kaiser Wilhelm Gesellschaft, from which researches in all branches of science have added significantly to knowledge, is now a large one. The growth of the purely scientific laboratories has naturally brought with it other needs, for example, suitable lecture and meeting-rooms, a club-house and even residential facilities. These have been provided in the form of Harnack House, named after the first president of the Kaiser Wilhelm Gesellschaft, which is now responsible for no less than thirty research institutes it has called into being. Harnack House is essentially a co-operative concern; the German State provided the money for the building, the Prussian State presented the land, and individuals, industrial associations and public bodies all gave liberal assistance. It consists of large and small public rooms named after celebrities in the sentimental German manner, a canteen and a number of bedrooms. These are in the first place available for foreign men of science who are working at the Institute, and also for other foreign scientific workers of repute who are visiting it or are specially recommended. The terms are moderate and as the journey by the 'underground' takes less than half an hour, residence there for a single night or for a longer period may prove attractive to scientific workers visiting Berlin, particularly as Harnack House is a centre of research activity.

#### Yellow Sodium Light for Detecting Colourless Details

DR. M. LUCKIESH and Dr. F. K. Moss, of the Lighting Research Laboratory of the General Electric Company of America, reported at a meeting of the Optical Society of America on October 17 an interesting property of the new sodium vapour lamp which will shortly be upon the market. According to Science Service, they stated that for revealing the details of small colourless objects the yellow single colour light from sodium vapour is definitely and markedly better than the light emitted by ordinary incandescent tungsten filament lamps. In addition to revealing the details of small objects better, the speed of retinal impression is also higher. On the average,

the proportion of the light reflected by a large number of coloured specimens is much the same for both illuminants, although there is wide variation for individual colours. Sodium light enhances brightness contrast between various pairs of colours in more cases than tungsten light does, but some of the exceptions are important. To eyes accustomed to white light, the yellow sodium light sometimes produces curious phenomena. Experiments were made to find out if there was a difference in the nervous muscular strain produced by reading under white light and under sodium light respectively, but no difference could be detected in the human eye after subjection to the two illuminants.

#### Developments in Industrial Research

MUCH good work is being done in industrial research by the Mellon Institute of Pittsburgh. In the *Shoe Factory* and in the *Starchroom Laundry Journal* of October 1933 interesting tests are described on shoe leather and on 'Calgon', a special form of sodium metaphosphate for use in laundering. In introducing a new special leather, it was found necessary to supplement actual wearing trials by laboratory tests. The 'Vici' leather, produced by a new method of tanning, was exposed in an oxygen bomb and in a fadeometer, and it was tested for use as a water bag. But these methods were not sufficient. It was necessary to test the resistance of the leather to 'scuffing', that is, to surface disfigurement by a sharp, cutting blow. Shoes made from various leathers were enclosed in a wooden drum with buttons on the inside. The air in the drum was kept at a temperature of 100° F. and it was rotated at 18 revolutions per minute. Five sample shoes are placed in the drum with a moist abrasive and the test is completed when the counter shows that 700 revolutions have been made. The samples are then carefully wiped and dried and are graded on the basis of the number, area and depth of the scuffs. This test gave satisfactory results. The story told in the *Laundry Journal* of the technical development of sodium metaphosphate from being merely a laboratory curiosity to being a valuable commercial product is most interesting. Calgon dissolves soaps in the washer, shortens the time required, is not harmful to the materials or injurious to colours. It has excellent emulsifying properties, as shown by its successful use in the laundering of greasy overalls.

#### Re-Afforestation in Mexico

ACCORDING to a Mail Report from Science Service (Washington, D.C.), Mexico is undertaking a re-afforestation programme. It is stated that the Mexican Ministry of Agriculture is now putting into force a programme of reafforestation of areas that have been denuded since the Spanish Conquest, which turned many parts of Mexico into semi-arid regions. "Local detachments of soldiers all over the country have been ordered to co-operate with government agricultural agents in their reforestation work. During the last five years new trees have been planted on many of the naked slopes of the