

as a bryologist. The herbarium of Robert Paulson has been presented by his widow. It contains more than six hundred flowering plants, but its value is in its 269 British and 200 foreign lichens, for Mr. Paulson was one of our best known amateur lichenologists. Mr. A. H. G. Alston, assistant keeper in the Department, recently visited southern Albania in company with Mr. N. Y. Sandwith, of the Kew Herbarium. About 550 numbers were obtained. The Lunxheriës Mountains and Mount Tomori were explored, and further collections were made about Voskopoj. A visit to Gur-i-Topit was forbidden by the authorities because of a revolution. The main interest in the collection is that it was made at a late season of the year when little exploration has been done in the region. It also supplements the previous collections made in Albania by these botanists. The herbarium of Maurice Depierre has been purchased. It consists of about 23,000 specimens representing the flora of Mont Blanc and the other mountains in the Haute Savoie, collected in the first half of the last century. It contains specimens collected by the Curé's friends, MM. Puget and Chevalier, and some of the labels are made out or verified by the celebrated Prof. Reuter, who published a catalogue of the plants of Geneva.

Trees and Health

As the subject of his Chadwick Public Lecture on October 23, Mr. R. St. Barbe Baker discussed "The Contribution of Trees to National Health and Efficiency". He commenced by tracing the history of trees on the globe, showing that in early times trees of certain species were regarded as sacred, a superstition of man—if indeed it were a superstition—which survives to the present day, since many jungle races still worship the forests, or trees in the forests. Mr. Baker correctly states that man has been a destroyer of trees and the forest for a long period in his history. This destruction in the early days of man was justified to enable him to obtain space for pasturing his flocks and raising crops; with the increase in numbers, however, the destruction and wasteful utilisation of the forest proceeded apace, resulting in the disappearance of ancient civilisations owing to the former prosperous lands becoming a desert. As Mr. Baker shows, this wanton waste of the resources of the earth is continuing at an increased pace, owing to the greater demands being made upon the lands for agriculture and other purposes by an increasing population at the expense of the forest. Mr. Baker's remarks on the subject of the French and British in West Africa concerning the forests and the advance of the Sahara are somewhat misleading. The French are in fact carrying out forestry work of considerable importance and high technique in West Africa. In Nigeria a very considerable recognition exists of the problems connected with agricultural methods, forests, the increasing desiccation, and so forth.

Two other points in connexion with Mr. Baker's lecture are worthy of note. Under certain conditions,

trees and the health of man are closely connected. In most of the temperate parts of the world under salubrious conditions of land and climate this is true. Mr. Baker must, however, be aware that in certain parts of the globe it is far from the truth. Medical opinion in West Africa, for example, now holds that sleeping sickness due to the tsetse fly is increased by the presence of trees on the ground. Large belts of trees around towns and along main roads are now felled, and the area kept clean with the object of reducing the disease. Generalities are always dangerous. Many have welcomed the 'Men of the Trees' and the effort the Society stands for. At times, however, Mr. Baker would seem to forget that a Forestry Commission has been established in Great Britain and has now been carrying out excellent afforestation work for some fifteen years; also that many landowners throughout the country possess parks containing beautiful trees. It is not that the love of the tree is not deeply implanted in the British peoples. The trouble arises from the fact that the general public does not know or understand how to raise young trees. One has only to look at the trees upon some of the arterial roads to realise that there is little use in planting trees in Great Britain unless proper provision is made for their supervision. It would be a fine thing if the members of the Society which Mr. Baker represents would, individually, plant twenty-five trees on Armistice Day in this Jubilee year. But who is going to look after these trees for say the next fifteen years? Without such attention, how many will be alive at the end of two to three years? If the 'Men of the Trees' can solve the question of how young trees, planted in public localities in Great Britain, are to be properly tended until they have reached a size and height beyond the ordinary dangers to which the young standards are exposed, we shall be on the road to replacing in our generation what our forefathers have given us in the wonderful old trees to be found in this island.

Births and Deaths in England and Wales, 1934

PART I, consisting of Tables (Medical), of the Registrar-General's Statistical Review of 1934 has just been published (London: H.M. Stationery Office. 6s. net). The number of live births in England and Wales registered in the year was 597,642, giving a birth-rate of 14.8 per 1,000 persons living. This rate was 0.4 above that for 1933, which was the lowest ever recorded. The death-rate was 11.8 per 1,000 persons living, 0.5 below the rate for 1933. When allowance is made for the fact that the average age of the living population is increasing every year, the resulting corrected or standardised death-rate was the lowest ever recorded both for men and for women, the rate for the sexes together being just half of the corresponding rate in 1881-90. Mortality from infectious and parasitic diseases in general reached a low record of 1.3 per 1,000, notwithstanding increases for scarlet fever and diphtheria, and the tuberculosis rate declined once again to a new low record of 763 per million. Pneumonia gave the lowest rate save in 1930, which was also a very healthy year. The

cancer rate, corrected for the increasing age of the population, rose slightly to 1,003 per million, but was still below the levels reached in 1928 and 1929. A new feature of the review is the tabulation of a 'comparability factor' for each separate town and rural district, which shows at a glance whether the distribution of persons by age and sex in the population of that area would lead to the expectation of a death rate above or below that of the country as a whole, and makes it possible to correct the death rate by a simple multiplication for valid comparison with that of any other area similarly corrected. After correcting in this way, the administrative County of London and the south eastern counties of Kent, Surrey, Sussex, Hampshire, Isle of Wight and Berkshire gave a combined mortality rate after correction only 84 per cent of that of the country as a whole, compared with 113 per cent for the north of England, namely, Durham, Northumberland, Cumberland, Westmorland, Yorkshire, Lancashire and Cheshire.

Archæological Investigation under the Soviets

ARCHÆOLOGICAL activities in Russian territory, in which the work of the Historical Museum of Moscow has been reinforced by the co-operation, financial and other, of museum authorities in the United States, have produced results of no little historical importance. Archæologists on the staffs of the various Russian museums are now engaged, according to a report from the Moscow correspondent of the *Observer* in the issue of October 27, in examining material brought in by expeditions to the Crimea, Kazakstan in Central Asia, the Georgian Republic in the Caucasus and the Ural Province. From the Crimea comes further evidence relating to Neanderthal man in the form of stone implements from a settlement site—not a cave—on the Katcha River, while in the neighbouring village of Pychka rock-paintings in red, depicting battle scenes, were discovered, which are attributed to a pre-Scythic culture of the third millennium B.C. The expedition of the Historical Museum to Kazakstan was occupied in excavating a site of the Bronze Age, on which a communal hut, measuring twenty-five metres in length, has been uncovered, as well as an altar about which were the charred bones of domestic animals, vessels containing the remains of food and bone cubes, which are said to resemble modern dice. In the Caucasus, cave deposits were examined, which yielded a number of flint implements of the palæolithic age.

Illuminating Engineering

IN his presidential address to the Illuminating Engineering Society, delivered on October 8, Mr. A. W. Beuttell took an optimistic view of the future of illuminating engineering. He based his claim on the inevitable demand for more artificial light which must approximate more and more to daylight. At the moment, the cost of this light is prohibitive, and the problem is to produce more light whilst using no more energy. The keeping low of energy costs will increase the cost of equipment. It is now

realised that having incandescent metals near their melting point does not give the solution. On the other hand, vapour discharge lamps, although we are only at the threshold of these fields of discovery, whilst giving cheaper light, do not give white light. The question is now being thoroughly explored. The disturbance of electrons causing light is produced by heat, but at present much energy is lost in the non-visible spectrum. This problem is of great importance owing to the future great demand for light and the well-defined field with which we have to deal, and the fact that the production of light is based on the fundamental principles which physicists study. In considering the production and use of light, the psychological aspect has also to be considered. Mr. Beuttell expressed the view that in both the physiological and psychological processes concerning light, cause and effect hold good. Whilst we are learning rapidly, it is necessary that specialists should pool their knowledge.

The Internal Combustion Engine and its Fuel

ON OCTOBER 9, Mr. H. R. Ricardo received the Melchett Medal of the Institute of Fuel, and after the presentation delivered his Melchett Lecture on the "Progress of the Internal Combustion Engine and its Fuel". This progress he characterised as one of the most startling developments of the last fifty years, and now, he said, more than eighty per cent of the total power output of prime movers is based on petrol. He traced the development of the views held on the cause and character of the phenomenon of 'engine knock' and the formulation of the well-known method of evaluating 'knock-tendency' by means of the variable compression engine. The value of aromatic hydrocarbons was established by this machine and later the practice of rating fuel by an 'octane-number'. The production of fuels with high 'octane-numbers' has permitted the use of higher compression ratios with consequent greater engine efficiency, culminating in the 60 horse-power per litre attained by the Schneider engines. Further increase in the octane-number of petrols is not anticipated, nor the use of supercharging in pleasure cars. The Diesel engine is displacing the petrol engine in heavy commercial vehicles, and will continue to do so even at the same cost of fuel per gallon, owing to the 70 per cent advantage in the figure of miles per gallon.

The King's Fund Miniature Hospital

IN order to make known more widely the great work of the voluntary hospitals, Mr. Saxe Wyndham in 1929 suggested to the King Edward's Hospital Fund for London that a model of a modern hospital, complete in its smallest details, would be likely to arouse the interest of the public and so help the King's Fund. The Propaganda Committee of the Fund decided to undertake this work, and a design for the model was commenced by the late Mr. Percy Adams, and completed after his death by Mr. Lionel Pearson. At first, there was some difficulty in obtaining the necessary funds, but eventually Messrs.