

water. A new use of cellulose is the manufacture of shoes. With this material all sewing and nailing of the soles to the uppers are eliminated. The cement used to stick them together is a cellulose nitrate cement. It is now only necessary to hold them together for fifty seconds. A single operator in 8 hours 15 minutes applied soles to 1,580 pairs of shoes. The value of cellulose as a raw material is continually increasing as our knowledge increases.

Fenland Archæology

AMONG the objects which the recently founded Fenland Research Committee, of which Prof. A. C. Seward is chairman, has in view is the preparation and publication of a map, or series of maps, showing the extent of Roman or British occupation of the Fens and of the watercourses as they existed at that period. As was pointed out when the Committee was formed, the scientific investigation of the Fenland to a great extent has been neglected, and if it should be possible to complete the survey for the purpose of this map on the scale contemplated, it will prove of very considerable importance for the study of the physical and human geography of the period. It is estimated that something like a million acres will be added to the map of Roman Britain. In the meantime, an appeal has been issued by the Committee for assistance towards the cost of printing a map of the Fens on the scale of two inches to the mile in a series of twenty sheets, of which four have already been prepared. The maps are to be reproduced by photography from the six-inch Ordnance map and will show all that is shown on that map. It has been found by experience that the two-inch scale is more convenient for survey work than the six-inch, hence the necessity for the reproduction. The maps are intended for use as a basis for the research work of the Committee, especially in connexion with the work of plotting from air-photographs showing abandoned drainage channels, the Celtic, or Romano-British, system of fields and drainage and the like. A sum of £500 is required. Contributions may be sent to the Hon. Secretary, Dr. Grahame Clark, Peterhouse, Cambridge.

Afforestation in Great Britain

IN view of the conditions of drought experienced in 1933, the fourteenth Annual Report of the Forestry Commissioners for the year ending September 30, 1933 (H.M. Stationery Office, 1934) may be read with satisfaction. Since the Commissioners commenced their afforestation work, the only comparable drought in Great Britain was that of 1921; the losses in the nurseries and new plantations were far less in 1933 than in 1921. Equally satisfactory is the comparison of fire losses with those of the bad fire year 1928-29, even though the drought in 1933 was more prolonged. This is attributed to the fact that the whole system of fire prevention and fire protection was overhauled after 1928-29, and with success; since the acreage burnt in 1932-33 was 1,313 compared with 4,574 acres in 1928-29. It is of interest to note that 50 per cent of the fires in plantations

during 1932-33 originated from sparks from railway engines, whilst 19 per cent were caused by the general public. With the growing area of coniferous woods in the country, as a public property, it would appear that railway managements should take steps to minimise this wasteful destruction. The Commissioners continued their planting work, the total area dealt with (planted or sown) during the year amounting to 21,037 acres, of which 19,160 acres were conifers and 1,877 acres broad-leaved species. The total area planted by the Commissioners during the fourteen years amounts to 232,711 acres, of which 217,919 acres are under conifers and 14,792 under broad-leaved species. During the same period, 95,228 acres have been planted by local authorities and private owners with the help of State assistance; the area during 1932-33 amounting to 4,580 acres. Land acquisitions during the year amounted to 17,591 acres, 15,335 acres being classified as plantable land. The Commissioner's policy of establishing training camps for the unemployed resulted in five new camps being formed, the total number being thus augmented to twelve.

Agricultural Industries Congress

THE fourth International Congress of Agricultural Industries will be held in July 1935 in Brussels. The third congress was held last Easter in Paris. Many aspects of agricultural research and technology were considered, including the importance of pH (intensity of alkalinity-acidity) in agricultural practice; improvement of wheat and sugar beet by genetical methods; fermentation studies, and various other subjects connected with the food industry. The April number of the *Bulletin de l'Association des Chimistes de Sucrierie, de Distillerie et des Industries Agricoles* contains an account of the Congress, the final report and the resolutions passed. The scientific proceedings have been published in a separate volume. As a result of the last Congress, a permanent International Commission of Agricultural Industries has been established in Paris (156 boulevard de Magenta). Its purpose is to organise international congresses and exhibitions and to notify the various States and organisations concerned of the results of such activities. Among the resolutions passed by the last Congress was a recommendation that some suitable international organisation be requested to correlate the present knowledge concerning water pollution by industrial wastes, and to facilitate further study of the conditions that must be fulfilled by water from industrial wastes in order that it shall not be harmful.

Fauna of Caves

A BIBLIOGRAPHY of cave faunas is now being published (*"Animalium Cavernarum Catalogus"*, auctore B. Wolff, Pars 1: Vorwort; Einleitung, Band I, S. 1-16; Band II, S. 1-32; Band III, S. 1-64. 18 M. Pars 2: Band I, S. 17-32; Band II, S. 33-64; Band III, S. 65-144. 18 M. Berlin, W. Junk, 1934). This work is to be completed in three volumes which will form respectively a biblio-

graphy, a list of the caves and of the animals recorded from each, and a list of the animals found living in caves arranged in systematic order, and will be provided with an index in two parts—an alphabetical list of the caves and another of the animals recorded. The first and second parts now issued contain the first section of the bibliography (32 pp.), of the list of caves arranged according to the countries in which they occur (64 pp.) and of the catalogue of animals recorded—Protozoa, Coelenterata, Vermes, Crustacea and Insecta as far as the end of the Apterygota (144 pp.). The author is rendering useful service in bringing together the widely scattered references on cave faunas in the literature, and in carefully analysing the papers on the subject for the data recorded in the second and third sections of the work.

Romanes Lecture at the University of Edinburgh

MISS ISABELLA DAVIDSON ROMANES, of Edinburgh, who died in 1932, bequeathed to the University Court a sum of £2,000 in memory of her brothers Robert and James, chemists, who graduated B.Sc. in the University of Edinburgh, in 1874 and 1880 respectively. The elder brother, moreover, obtained the degree of D.Sc. in 1876; he was later scientific chemist in the Government School, Rangoon. The University Court has *inter alia* instituted a biennial Romanes lectureship. The first lecture was given on May 24 by Prof. H. Wieland, of Munich, on "Some Enzymic Reactions of Yeast".

Population of Arctic Russia

THE Soviet Government has published a map on a scale of 1 to 5,000,000, in two sheets, showing the distribution of people in the northern parts of Russian territory in Europe and Asia, from the Finnish frontier to the Pacific. On a groundwork showing only water features in blue, the various races are shown by twenty-three colours and tints. Squares of colour indicate settlements of different sizes while circles of colour show the density of nomadic peoples. The map is very clear, although the different colours and symbols have to overlap in many places. The data were collected during the census of 1926 and the map has been prepared by P. E. Terlezki for the Northern Tribes Assistance Committee. The legend is in English as well as Russian. The two sheets present a most graphic picture of the distribution of peoples, their relation to river valleys and sea coasts and the meeting and intermingling of various tribes.

Physical and Chemical Apparatus

WE have received from Messrs. Griffin and Tatlock, Ltd., Kemble Street, Kingsway, W.C.2, a copy of their illustrated catalogue, No. 50 L, of scientific apparatus. This describes, in 900 pages or more, instruments and apparatus for the physical sciences, including mechanics, sound, heat, light and electricity, with the addition of laboratory fittings and a list of chemicals. The catalogue also contains a very

useful classified list of standard textbooks and recent publications on all branches of physics, chemistry and general science. Of special interest to the teacher of physics is the "Microid Physical Series" comprising apparatus and instruments of new and improved design for demonstrating physical principles. This series contains more than one hundred items and we may instance as articles possessing novel features of interest the circular trolley and centrifugal force apparatus, an apparatus for finding "g", a rotating platform for illustrating angular momentum (Pohl), the universal projector, spectrometer, and optical bench, the potentiometer and the earth inductor. A section on microscopy includes an inexpensive microprojector and drawing apparatus for biological and other subjects. Among technical testing apparatus we find the Griffin-Sutton bomb calorimeter, the Boys' gas calorimeter, and also microid pyrometers. It is gratifying to find that British firms are now active in the design and construction of scientific apparatus.

APPLICATIONS are invited for the following appointments, on or before the dates mentioned:—A temporary surveyor in the Engineer's Department, River Medway Catchment Board—Engineer, 71A Bank Street, Maidstone (Aug. 31). A principal of the Widnes Municipal Technical School—Secretary, Education Office, Town Hall, Widnes (Aug. 31). A technical assistant with training in electro-acoustics at the Air Defence Experimental Establishment, Biggin Hill, Kent—Superintendent (Aug. 31). A deputy station superintendent at the Pigeon House Steam Power Station, I.F.S.—Secretary, Electricity Supply Board, 60 Upper Mount Street, Dublin (Aug. 31). A lecturer in electrical engineering at the College of Technology and Art, Rotherham—Director of Education, Education Offices, Rotherham (Sept. 1). A lecturer in chemistry at the Portsmouth Municipal College—Registrar (Sept. 1). A director of research of the Research and Standardisation Committee of the Institution of Automobile Engineers—Secretary, I.A.E., marked 'Personal' (Sept. 1). An assistant lecturer in the Department of Physiology, qualified in medicine and preferably with a science degree, at University College, Cardiff—Registrar (Sept. 1). A professor of animal husbandry and lecturers in histology and embryology, in chemistry and physics and in biology at the Royal Veterinary College, London, N.W.1—Secretary (Sept. 3). An assistant in the Botany Department of the University of Aberdeen—Secretary (Sept. 8). A demonstrator in civil engineering, City and Guilds (Engineering) College, chiefly for work in connexion with the theory of structures—Secretary, Imperial College of Science and Technology, South Kensington, S.W.7 (Sept. 8). A county librarian to the Northamptonshire Education Committee—Secretary for Education, County Education Offices, Northampton (Sept. 8). A chief advisory economist for the Midland Province at the Midland Agricultural College—Principal of the College, Sutton Bonington, Loughborough. A sanitary engineer for the Department of Health, Palestine—Crown Agents for the Colonies, 4 Millbank, London, S.W.1, quoting M/3449.