

to a record of the progress which is being made with the collection and identification of the species of the forest floras of the various Colonies and Protectorates. Details are given under the Colonies grouped under West Tropical Africa, East Tropical Africa, South Central Tropical Africa, the South Temperate Region and a few other territories. The report gives full details of the various branches of work upon which the Institute is engaged, including brief accounts of the tours abroad undertaken by the students and others attending the courses.

#### Plant Breeding in the U. S. S. R.

THE Bureaux of Plant Genetics at Cambridge and Aberystwyth have published jointly a bulletin of 58 pages (price 3s. 6d.) on plant breeding in the Soviet Union. This is mainly a translation from the Russian of an address given by Prof. W. I. Vavilov at a conference on the planning of plant breeding and genetics investigations, held at Leningrad in 1932, and is followed by a detailed programme of work on different economic plants. The congress effected a reorganisation of the various genetical institutions in Russia and the adoption of a new system of fourteen plant breeding centres. This bulletin will be of service to all who are engaged in plant breeding, particularly on the practical side. It sets forth in outline the immense collections of economic plant material which have been made by expeditions to many parts of the world, notably Afghanistan, Kashmir, Abyssinia, Mexico, Bolivia and Peru. These embrace more than 200 crops, including 29,200 living specimens of wheat, 13,000 of barley, more than 9,000 of maize, 1,000 of potatoes, etc. There has resulted the conception of geographical centres for the production of varieties of many crops. The work includes cereals, vegetables, fruit trees, medicinal and fibre plants, etc. A series of new potato species with diverse characters and multiple chromosome numbers was found in the Andes. The vast amount of breeding work in progress and projected during the second five-year plan (1933-37) is outlined in the latter part of the bulletin.

#### Grassland Research

THE Imperial Economic Committee has issued its report (No. 27) on grassland seeds (London: H.M. Stationery Office. 1s. net). As grass may be regarded as the vital raw material of most of the produce of livestock, and farming and grassland products accounted for more than 20 per cent of the value of all imports into the United Kingdom in 1932, the importance of good grassland management cannot be over-emphasised. The discovery that local strains are, for their own locality, often superior to commercial strains as regards persistence and leafiness has opened the way for considerable improvements, but even greater advances are being made by the production of pedigree strains at the plant breeding stations. If, however, economic benefit is to be gained from all this experimental work, far-reaching changes in organisation of the seed industry will be needed. The primary task is that of ensuring an

adequate supply of stock seed of the pedigree strains and of maintaining them true to type when they pass in commercial quantities through the ordinary channels of trade, and to achieve this end the breeding stations will need to be supplemented by seed farms. In this connexion, the report gives particulars of schemes for seed certification and other methods which have been adopted in various countries, notably in Sweden, Canada and New Zealand, and the success with which such schemes have met suggests that districts such as Northern Ireland, where considerable quantities of rye-grass seed are produced annually, might benefit from a similar type of organisation if combined with the experiments now in progress with improved stock seed.

#### Farm Pumps

AN illustrated booklet entitled "Pumps for Farm Water Supply" by C. A. Cameron Brown of the Institute for Research in Agricultural Engineering, Oxford, has just been published (Oxford Univ. Press, price 1s. 6d.). Its appearance is opportune although plans for its preparation were made before the drought in 1933 and 1934 had rendered the question of rural water supplies such an urgent matter. The inquiry has been carried out particularly with the view of helping the farmer and isolated small country house dweller to obtain an adequate water supply from whatever source may be available at as low a cost as possible. Small electrically driven pumps capable of delivering upwards of 250 gallons per hour are available at prices from £10 to £12. No pump should be installed without an assurance from the makers that it will give the performance required to meet the particular set of conditions in each particular case, but with this proviso they should prove entirely reliable. The gravity tank is still the commonest, and probably the simplest, method of providing service, but the pressure-tank system has an advantage where the installation of a gravity tank presents constructional difficulty or is likely to be unsightly, but it is at a disadvantage in districts where electricity supply failures are frequent. The actual running cost of these small pumps is low in comparison with the cost of public water supply in towns. Test figures under working conditions show from 0.66 electrical units to 1.89 units per 1,000 gallons.

#### Zoological Society of London

AT the monthly general meeting of the Zoological Society of London it was stated that the total number of visitors to the Society's Gardens during the year 1934 was 1,639,611, the receipts amounting to £50,969, an increase of £3,432 as compared with the previous year. The total number of visitors to the aquarium during 1934 was 265,604; the receipts amounted to £9,063, which represents an increase of £242 as compared with 1933. The total number of visitors to Whipsnade Park during 1934 was 516,411; the receipts were £22,223, an increase of £3,463 as compared with the previous year.