Problems of Soil Erosion

FOR his Friday evening discourse at the Royal Institution, on November 12, Sir Daniel Hall took as his subject "Soil Erosion: the Growth of the Desert in Africa and Elsewhere". Soil, far from being stable, is easily set in motion by wind or rain if the cover of vegetation and the binding supplied by its roots and humus are unduly disturbed. Deforestation about the headwaters of the streams, followed by grazing by goats which prevent natural regeneration, has brought about the denudation of the hillsides in Levantine countries, has turned the river valleys into malarious swamps and choked the harbours at their mouths. Of recent years the duststorms that have swept across the United States represent the removal of the fertile soil from farming land west of the Mississippi, in many cases to such an extent as to cause the abandonment of the farms. It is not so much agriculture that is to blame, as the continuation of a wasteful system of farming and the breaking up of the sod on soils only fit for regulated grazing. Such wind destruction extends into Canada and has become serious in parts of Saskatchewan and Alberta.

IN Africa the problems of erosion by washing are becoming insistent. The native forms of agriculture are wasteful and depend upon moving on to fresh land every few years. With the growth of population that has followed the Pax Britannica, land is becoming insufficient for shifting cultivation, giving rise to land hunger and political unrest. Still more destructive is the custom, among the Bantu tribes in particular, of maintaining excessive numbers of cattle, sheep and goats, which are not used for food. Livestock has increased far beyond the capacity of the grazing grounds, and, with overstocking, erosion sets in. So far from affording opportunities for colonization, much of the best land in East Africa is rapidly wasting and leaving its inhabitants under a growing threat of famine. Sir Daniel exhibited photographs of the remedial measures that are being adopted, but it will be necessary to interfere somewhat drastically with tribal customs before the natives can be taught to practise a system of agriculture that will maintain the fertility of the land and allow of continuous production. Considerable expenditure is probably required in order to implement British trusteeship for the inhabitants of Africa who are now destroying their means of existence.

Kashmir Earthquake of November 14

AN earthquake of some strength occurred on the afternoon of November 14 in north-western India, especially in the province of Kashmir. That it attained semi-destructive intensity (degree I of the Milne scale) is clear from the slight damage that occurred at Srinagar, Abbottabad, and other places. The earthquake is of interest chiefly from its association with more violent shocks in the same province. Within little more than a century, two earthquakes of Milne's highest order of intensity (III) visited Kashmir, one in 1828, the other in 1885. Another, of intensity II, occurred on December 4, 1865, in the district around Chamba (about 150 miles south-east of Srinagar), and two others, of about the same intensity as the recent shock, in that near Srinagar on August 28, 1916, and January 20, 1931. Of these earthquakes, by far the most interesting is that of May 30, 1885, studied by Mr. E. J. Jones, of the Geological Survey of India, whose brief report is published in the *Records* of the Survey (**18**, 221–227). In the small meizoseismal area of this earthquake, containing about 47 square miles, the destruction of villages was complete and about 3,000 persons were killed. The next isoseismal includes Srinagar near its east end, and within it large portions of the towns and villages were thrown down. Abbottabad lies a short distance to the west of this isoseismal. Thus, it would seem that the origin of the recent shock may have been connected somewhat closely with that of its much stronger predecessor in 1885.

Benefaction to Edinburgh Astronomical Association

THE Edinburgh Astronomical Association will shortly be in possession of about £25,000 under the will of the late Mr. J. H. Lorimer, the well-known artist. Mr. Lorimer had been a member of the Association since 1924, when the first general meeting of the Association was called. He served for a time as a member of council some years ago and later was elected vice-president. He was much interested in astronomy and in the Association, and regularly attended the Association's meetings. The Association has always had plans for development, but has been hampered in the past by the small income available. Now that this is to be much increased, the council is considering which in particular of the many possible schemes will best use the money for the benefit of astronomy. As yet the only decision made is to extend the Association's library. The objects behind further decisions are likely to be: to advance the science of astronomy and promote astronomical research, to circulate information on astronomical matters by publication and generally to encourage astronomical study and to increase popular interest in the science. Negotiations are being conducted with the view of using the Edinburgh City Observatory for research and education. This Observatory has not been in use since the death of the City Astronomer, Mr. J. McD. Field, in April of this year.

Physical Fitness of University Students

THE University authorities at Leeds have introduced a scheme of medical examination and advice which should be of considerable assistance to students in the maintenance of their health while they are at the University. The scheme is on an entirely voluntary basis, but there is reason to think that it will be used extensively. A certain number of medical practitioners, resident in different parts of Leeds, are co-operating with the University for this purpose. A student who registers under the scheme (paying a nominal fee of half a crown) is entitled to go to one of these doctors, at his own choice, for examination and advice. The scheme is not intended to provide medical treatment for students, but rather to help them to avoid the necessity for treatment. In the past, members of the staff have always been ready

to advise and help students when any questions have arisen in regard to their health; the new scheme, however, by providing a simple form of machinery, will encourage students, whatever their present condition of health, to satisfy themselves of their physical fitness or be advised in good time of the measures they should take to become fit. Consideration is also being given by the authorities to the possibility of extending the facilities for physical training at the University. The students are naturally watching with keen interest these developments, which are taking place in consultation with the Union Committee.

Agricultural Marketing Policy

UNDER this head, Mr. A. N. Duckham, research officer to the Bacon Development Board, made a weighty contribution to the discussion on "State Intervention in Agriculture", which was held in Section M at the British Association meeting in Nottingham. In his view, recent marketing legislation is the offspring of the researches and inventions associated with the names of Liebig, Mendel, Faraday, Pasteur and others, and of the necessity for rectifying the imbalance between agriculture and manufacturing industries. The protective measures adopted by the marketing boards have helped to save British agriculture from chaos by reducing, through price stabilization, the speculative nature and insecurity of 40–50 per cent of home production, and by prompting improvements in agricultural business methods. Other beneficent activities of the boards have been the laying down of minimum quality standards the standardizing of trade practices, and the institution of good market-intelligence services. Equally important have been the provisions made for controlling competition, for example, by limiting the number of sugar-beet factories, creameries, bacon factories, potato merchants and cattle markets. The savings effected by cutting out surplus capacity and operating the remainder at full load should, it is stated, reduce the price spread between farmer and consumer; and farmers should benefit by the practice of collective bargaining, which is one of the main objects of the Marketing Acts. A noteworthy feature of current policy is the statutory attempt to influence demand by 'consumption steering', that is, by means of differential prices and subsidies to consumers, by education, habit-changing and direct publicity. So far very little has been done in this direction, but, in the author's view, the success of current marketing policy will be largely governed by steering consumption more vigorously towards the produce of British soil. Planning and State intervention have come to stay, and their prospective effect will be to ensure stability of quality, supply and price.

Development of the Glasshouse Industry

A SERIES of papers delivered before Section M (Agriculture) of the British Association at Nottingham on September 6 dealt with the history and present-day practice of the growth of crops under glass. Mr. H. V. Taylor first indicated trends in the technique of plant forcing, from the early use of the cloche, through the employment of frames and greenhouses, to the modern Dutch lights and 'aeroplane' tomato houses. Dr. W. F. Bewley spoke upon "Science in Relation to the Glasshouse Industry". He showed how the increase in intensity of crop forcing, and the growth of produce out of its normal season, brings new problems of disease and of nutrition. Many examples of how these troubles have been overcome by the Cheshunt Research Station were given. Some of the investigations, as the work of Lloyd on control of the tomato moth caterpillar, and that of Speyer upon the control of white fly, are now classical, and the newer research maintains the high standard. A most welcome link with practice was provided by Mr. F. A. Secrett's paper on "The Production of Early Vegetables and Salads under Glass". The need for vegetables quickly grown on good soil, as a contribution to national health, was stressed. A suitable light soil, adequately manured, and a site with security of tenure and adequate water supply, are the first essentials. Heavy capital costs and labour charges are incurred, but Mr. Secrett's practical demonstration of commercial success is even more eloquent than his illuminating paper.

Fire-Immune Cable

A FACTORY, opened by Lord Ridley on October 12, for making fire-resisting cable called 'Pyrotenax', marks a new development which promises to be of far-reaching importance to the electrical industry. The insulating cover utilizes a new insulating material, magnesium oxide, the heat-resisting and other physical properties of which have been proved in connexion with boiling-plate elements, which are made of resistance wire embedded in the oxide. 'Pyrotenax' cable has a copper conductor, magnesia insulation, and copper sheath. The new technique enables continuous runs of this cable up to 300 yards to be produced. A piece of cable in series with a burning lamp can be hammered to the thickness of a sixpence without affecting the light. It is therefore mechanically robust. For all practical purposes the cable is immune from fire and would not contribute anything to a possible conflagration. Notable use has been made of 'Pyrotenax' cable in France. The Louvre, the *Normandie*, the Galeries Lafayette and the French railways use it. In Great Britain it has been adopted for the new lighting equipment of the Tate Gallery and for several industrial installations. The 'Pyrotenax' factory is practically 'all-electric' throughout, electric furnaces being used for all the annealing stages and for the dehydration of the magnesium oxide insulation. The rating of these furnaces is 250 kilowatts, and their temperature is controlled by a Cambridge thermostatic instrument. The factory is situated at Hedgely Road, Hebburn-on-Tyne. A full illustrated account appeared in the *Electrical Times* of October 21.

Electrical Accidents and their Causes

IN a pamphlet issued by the Home Office (London: H.M. Stationery Office, 1937, 6*d*.) and written by H. W. Swann, H.M. Inspector of Factories, a report of electrical accidents for the year 1936 is given. The