

Association will, it is hoped, be further strengthened by the institution of regular annual membership in addition to the present ordinary (biennial) membership. Another suggestion is that the Research Council shall arrange for the publication of a monthly scientific journal. The ultimate decision on the plan will rest with the A.N.Z.A.A.S. at its Auckland meeting in January 1937.

#### Physicists at Stuttgart

THE double number of the *Physikalische Zeitschrift* of December 1 devotes 185 of its pages to reports of the papers and discussions at the meeting of German physicists at Stuttgart in September last. More than half the fifty-seven papers read dealt with the electrical conductivity of non-metallic materials, cosmic rays and atomic nuclei. In each of these subjects, the opening papers consisted of reports on the present position of our knowledge, which enabled the audience to appreciate more completely the points made by subsequent speakers. Prof. F. Hund of Leipzig outlined the 'energy band' theory of conduction so far as it concerns the movement of electrons in non-metallic conductors. This leads to a conductivity proportional to  $e^{-B/T}$  where  $B$  is a constant and  $T$  the absolute temperature, which Dr. W. Meyer of Berlin showed is only a first approximation to the actual facts. Prof. P. M. S. Blackett gave a summary of our knowledge of the dependence of the number of cosmic rays incident at a point on the earth's surface, on the latitude and longitude of the point, the time of day, the direction of incidence and the thickness of absorbing layer surrounding the recorder. Prof. C. F. von Weizsacker of Leipzig showed the progress made in determining the forces which hold together the protons and neutrons of the atomic nucleus.

#### Misuse of Forest and Soil Resources

THE rather wide title "The Use and Misuse of Land" is given to a report by Dr. R. M. Gorrie of the Indian Forest Service, published in the *Oxford Forestry Memoirs* No. 19 (Oxford: Clarendon Press, 1935). As a Leverhulme research fellow, Dr. Gorrie spent four months in the United States, his subject being "The Correlation of Erosion Damage and Grazing in Forest Lands". He states that the present report deals, in addition, with the wider implications of the misuse and abuse of forest land. Dr. Gorrie has considerable experience of the over-grazing and other abuses to which the land of the outer hills of the Punjab has for long been subjected. Few will disagree with his assertion that "Much of the land classified as 'forest' in the arid tropics and the semi-tropics in British dominions and possessions is incapable of producing crops of commercial timber, but is of considerable social value for grazing, flood control, water conservation, or game management, which would justify some form of working plan being prepared and operated with these values in view". Thirty years ago this policy was being ardently advocated by far-sighted forest officers, and large areas of land in the British Empire and outside it

would have been saved for useful economic purposes had the administrators of the day understood the real value of the forest in tropical and semi-tropical regions. The United States is not the only country which has misused its forest and soil resources; parts of India, East and West Africa and Australia are presenting similar problems to the administrator. Various bodies in the United States, including the Federal Forest Service, are, and have been for some years, giving attention to the position to which land values have been reduced. Dr. Gorrie's report draws some valuable parallels with Indian conditions.

#### British Empire Naturalists' Association in Gloucestershire

THE council of the British Empire Naturalists' Association has decided to make the North Cotswolds the subject for its 1936 field-meeting and holiday, which will take place on June 13-27; most of the local arrangements will be made by the North Cotswold Branch of the B.E.N.A., of which Mrs. A. B. Lane is honorary secretary. Though with little out of the ordinary in the way of birds and mammals, the area is especially rich in flora. It contains one of the two British haunts of the adder's tongue spearwort, *Ranunculus ophioglossifolius*, which has been safeguarded by the generosity of the Cotswold Naturalists' Field Club. Other rare plants in the flora include the lizard orchid, which was recorded from Birdlip in east Gloucestershire; the rare green-berried 'virescens' variety of elder by the side of the Chelt near College Road, Cheltenham; the great earth-nut, *Carum bulbocastanum*, in a cornfield near Cheltenham, previously thought only an eastern county plant; one of the rare vetches, *Lathyrus tuberosus*, previously thought to be confined to eastern counties, but now recorded from near Cirencester; and three stations for the rare cotton grass, *Eriophorum latifolium*. The flora of the area also includes grass-of-Parnassus, wintergreen, pasque-flower, lily-of-the-valley, fritillary (including an albino form that persists near Elmore), herb Paris, deadly nightshade, meadow-saffron and the two sundews. Regarding fauna, the hobby and hoopoe are much rarer than formerly, but specimens of these occur on migration most years; hawfinches nest in many woods in large numbers, and it will be interesting to see if any of the crossbills, immigrants from the Continent last year, remain to this year.

#### 'Singling' of Double Track Lines

THE Great Southern Railways of Ireland have singled 220 miles of double track railway, that is, trains can travel in both directions along each track. It has been found that many of these double track lines which have never been worked to full traffic capacity can be operated as single tracks with little or no reduction from the flow of full traffic. This method of working has led to a very special and improved method of signalling which is described in a paper by Mr. H. Birchenhough, read to the London Students' Section of the Institution of Electrical Engineers on November 27. Permission to occupy a section of the line is given to the driver