

years. In order to take advantage of the presence in Scotland of many foreign and overseas geologists who will be attending the Aberdeen meeting of the British Association, it has been decided to hold the centenary celebrations early in September. Invitations have been sent to learned societies at home and abroad, and a large number of delegates will take part with the fellows of the Society in various functions. On Monday, September 3, the delegates from kindred societies will be received in the buildings of the University of Edinburgh, where they will be welcomed by the president, Sir John Flett, in the name of the Society, and by Sir Thomas Holland, in the name of the University. During the afternoon, visits will be paid to the Royal Scottish Museum and the offices of the Scottish branch of H.M. Geological Survey. In the evening, the Society and its visitors will be the guests of the Lord Provost and Town Council of Edinburgh at a reception in the College of Art. Tuesday morning will be devoted to hearing short addresses by eminent geologists in the new Geological Department of the University. The party after lunch will make a tour of various places of geological interest in and around Edinburgh. A dinner on Tuesday evening given by the Society to the visiting representatives will bring the functions to a close.

Earthquake in Scotland

An earthquake of unusual strength occurred in Ross-shire and the surrounding counties on August 16 at about 2.15 a.m. (G.M.T.). The early accounts are insufficient to determine its intensity and disturbed area, but it seems to have reached the degree 7 (Rossi-Forel scale) and to have been felt over at least 10,000 sq. miles, for it was observed at such places as Glenshiel in west Ross-shire and Pitlochry in Perthshire. Its strength is also evident from the fact that it was recorded at West Bromwich, where, at about 2.25 a.m., it caused the pointer of the seismograph to move an eighth of an inch. The principal earthquake zone in the north of Scotland is the portion of the Great Glen fault that lies between Inverness and Loch Ness. As most of the places from which reports come cluster in the neighbourhood of Dingwall, it is possible that the origin may lie in that district.

Element 93: A Correction

X-RAY spectroscopic analysis has failed to confirm the presence of any new element in pitchblende from Joachimsthal. Dr. G. Koblíček has consequently withdrawn his claim to the discovery of an element of atomic number 93 in this uranium ore, concerning which an announcement was made in NATURE of July 14, p. 55. He now states that the substances he supposed to be the silver and thallium salts of an acid, $H(93)O_4$, were sent to Prof. V. Dolejšek (Prague) and to Drs. I. and W. Noddack (Berlin) for X-ray spectrum examination. No lines corresponding to an element of atomic number were obtained but the presence of tungsten was unmistakable. Tungsten was also detected afterwards by chemical means in

Dr. Koblíček's preparations. The erroneous atomic weight determination arose from the assumption that his silver salt was $Ag(93)O_4$, whereas it was actually silver tungstate. The unusual behaviour of tungstates in acid media is suggested as an explanation of the reactions described by Dr. Koblíček (*Chemický Obzor*, 9, 129; 1934) which he attributed to the presence of a new element. This withdrawal has, of course, no reference to the earlier work of Prof. E. Fermi dealing with the 'synthesis' of an element of higher atomic number than uranium (NATURE, June 16, p. 898).

An International Air Police Force

LORD DAVIES continues his vigorous campaign for an international police force in a new booklet entitled "Force and the Future" which deserves notice as a shorter and more incisive statement of the argument of his larger work, which we have already noticed in review. He also brings it up to date by arraigning the Government on several counts for holding up the League of Nations and failing to provide it with the means of enforcing its will. The discussion of these is clearly out of place in these columns, but it is germane to science to point out that, as time goes on, opinion seems definitely to be settling on the air as the sphere of action in which international co-operation is most appropriate, feasible and urgent. A well-thought-out plan for a European air police has lately been submitted to the League of Nations Union by Rear-Adm. R. N. Lawson and should be carefully considered by the government experts and everyone who is anxious to move in the direction of greater security and union among the nations. If not immediately practicable in the form of police, it clearly is so in the form of greater facility and safety in transport and communication. Started in this way, as the International Postal Union was in the middle of last century, a union or bureau associated with the League of Nations would secure a much more efficient and economical way of utilising the air for peaceful purposes, and indirectly sidetrack the horrors of bombing from the air which Lord Davies and many others have held up to us as the inevitable result of man's latest conquest. Were the air used habitually for its obvious purpose of bringing the nations easily together, it would soon seem as mad and monstrous to use it for destruction as for the barber to cut your throat when you sit down to be shaved. While man has free will, one cannot absolutely rule out the possibility of the wildest actions, but one can make them, by controlling habits, improbable to the highest degree.

Community Education and Training

In a paper on "The United States United Communities Bill from the Point of View of India's Educational Problems" read before the ninth All India Educational Conference in December, 1933, Capt. J. W. Petavel, formerly lecturer on the poverty problem in the University of Calcutta, explains that the United Communities Bill aims at providing for

the financing by the State of a system of modernised mutually co-operating co-operative colonies. In other words, it plans to bring into existence an organisation of people who would be customers to one another, and thereby independent of fluctuations in general trade prosperity. Capt. Petavel claims that co-operative colonies for education would be the easiest type to establish, and that in India they would enable an ideal educational programme to be planned. They would revive in a modern form the old Indian *Gurukul* education system as was strenuously advocated by the late Sir Asutosh Mookerjee. In the educational colonies, three hours per day might be devoted to productive work of a suitable kind, which it is claimed is the first item in any ideal educational programme. Another three hours devoted to organised games would serve to develop muscle, alertness and disciplined co-operation. In the ideal programme there would be time also for instruction conveyed by drama, song and similar methods. Class work need then occupy not more than four hours, leaving fourteen hours for rest and recreation. The colonies would be practically self-supporting, since the pupils would cultivate the land that would give them and those who taught them their food. In the Indian rural districts, the educational 'united communities' would be centres also of technical training of all kinds. They would be the seed farms, stock farms, demonstration farms and centres of rural reconstruction generally.

The Ministry of Health in 1933-34

THE fifteenth Annual Report of the Ministry of Health was issued on August 11 (Cmd. 4664. London: H.M. Stationery Office. 6s. net). The Report, which relates to the year ended March 31, 1934, is divided into six parts—public health, housing and town planning, local government and local finance, administration of the poor law, national health insurance and contributory pensions, and the Welsh Board of Health. As in previous years, the Annual Report of the Chief Medical Officer of the Ministry is published separately. During the twelve months, private enterprise built without subsidy 207,869 houses, which constitutes a record. The opportunity has been taken to include in the Report a full review of the public health services under the conditions created by the Local Government Act, 1929. The number of samples of food analysed by public analysts during the year 1933 was 138,171, of which 7,601 samples were reported as adulterated or not up to standard, a percentage of 5.5, being a slight increase over the two previous years. As regards infectious diseases, the notable features of the year were an increase in the prevalence of scarlet fever, concurrently with an increase in the prevalence in diphtheria, an increase in the prevalence of and mortality from cerebro-spinal fever, and a decline in the incidence of smallpox.

The Giorgi System of Units

AN interesting note on the metre, kilogram, second and 'another unit' system of units by Prof. G. Giorgi has been published by the International Electro-

technical Commission (I.E.C.) the central office of which is at 28, Victoria Street, S.W.1. This system of units has already been described in NATURE of April 21, p. 597. The committee for electric and magnetic units voted last year unanimously in favour of a proposal to arrange the system of practical electrotechnic units into a complete absolute system usually called the M.K.S. system. In this paper, Giorgi describes the three well-known groups of units, the C.G.S. electrostatic, the C.G.S. electromagnetic and the group of practical units. He commends the national system of units devised by Heaviside, in which the 4π is displaced and a perfect duality between electric and magnetic formulae is secured. The theory of physical dimensions is better understood than it was fifty years ago. No one now believes that everything in the physical world depends necessarily on three fundamental quantities, length, mass and time. Giorgi shows that by taking the ampere, or the volt or the coulomb as the fourth unit, he can build up a complete absolute system from four fundamental units. This set of units is neither electrostatic nor electromagnetic; it is in agreement with the principle of duality and can be used with either rational or non-rational derived units. All units of the system lie between the smallest and largest magnitudes that present science has to measure. It will simplify the learning of the theory of electricity by students of electrical engineering. No proposal is made to discard the existing systems of units. Each one will be employed according to the requirements of the subject and the preference of the user. Future practice will show which is the most convenient.

Before Papyrus: Beyond Rayon

AN interesting and brightly written paper by Dr. G. J. Esselen, the president of Inc. Chemical and Research Development of Boston, is published in the *Journal of the Franklin Institute* of March. It is entitled "Before Papyrus . . . Beyond Rayon" Rayon a few years ago was universally known as artificial silk. The basic chemical substance to which the writer refers is cellulose. It forms the structural framework of all vegetable life and is the raw material of great industries. The reason why the derivatives of cellulose were so slow in developing is that it is only a few years ago since its empirical composition was discovered. Transparent sheets of cellulose plastic are used in the manufacture of the laminated 'glass' used in automobiles. A recent discovery has so lowered the cost of the manufacture of cellulose acetate plastic that at the present time more than 70 per cent of all the laminated 'glass' manufactured in the United States is made from it. They also make bullet-proof 'glass' composed of five laminations, the centre one being a piece of plate glass about $\frac{3}{4}$ in. in thickness. It is being used for the windows of armoured cars and cashiers' cages in banks. In 1910, no rayon was being made in the United States. In 1931, 144 million pounds were produced. Methods of manufacturing rayon are continually improving, greatly increasing its strength and its resistance to