

has attained the volume represented by the membership roll of a million and a half of the National Congress of Parents and Teachers of the United States, entirely independent, as it is, of State direction. In 1927, however, sufficiently widespread interest had been aroused in other countries to justify the organisation of an International Federation of Home and School. This was accomplished at Toronto in connexion with a meeting of the World Federation of Education Associations, the declared object being "to bring together for conference and co-operation all those agencies which concern themselves with the care and training of children in home, school, and community; and with the education of parents to meet these responsibilities". Twenty-two countries are represented on the board of management, the first action of which was to undertake a survey of the present situation. Some of the salient features revealed by reports received from thirty-three countries are recorded in an article by the president of the Federation, published in the November issue of *School Life*, the organ of the United States Office of Education. From this we learn that next in size and seniority to the American Congress of Parents and Teachers is a West Australian federation, which concerns itself specially with the provision of playing fields and other matters of importance to the physical welfare of school children. The movement was introduced into Canada in 1916 and quickly spread from Ontario to other provinces. Here, too, special emphasis is laid upon improvement of school conditions affecting the health of pupils. In almost every country of Europe systematic attempts are, it is found, in progress to establish conscious community of purpose and co-operation in home and school.

THE International Federation of University Women celebrated its tenth anniversary and held its fifth conference at Geneva last August. Some five hundred delegates from thirty-one national associations were present. Among the matters discussed in the course of the proceedings, which lasted seven days, was "The Value of Research". Madame Ramart-Lucas from the Sorbonne contributed a survey of "The Creative Effort of the Chemists", and Dr. Luise Lammert, who, after a year of study in Australia as holder of one of the Australian university women's fellowships, is working at the Leipzig Meteorological Institute, gave an account of solar radiation observations, including her own researches in Australia. The Federation's project for the establishment of international fellowships has not hitherto met with the encouragement it seems to deserve, the capital, contributed by eighteen associations, amounting to less than £4000, whereas the sum required to endow one fellowship is £5000. The Carnegie Endowment for the Promotion of Peace has marked its appreciation of the Federation's efforts by granting 5000 dollars to be used for travelling expenses. Among resolutions adopted at the conference was one providing for assistance in the translation of scientific works. A scheme was formulated for utilising and co-ordinating for this purpose the linguistic and technical knowledge of the Federation's members. In that part of the conference report relating to the work of the various national associations, their activities are described under the following heads: encouragement of independent research work, stimulation of interest in national and municipal policy, social service, intelligence service, assistance towards finding employment, facilities for social intercourse, educational and cultural work, and other activities. The headquarters of the Federation are at Crosby Hall, Cheyne Walk, London, S.W.3.

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Historic Natural Events.

Feb. 2, 1282. Severe Winter.—Stow records that "From Christmas to the Purification of our Lady [Feb. 2] there was such a frost and snow as no man living could remember the like: wherethrough five arches of London Bridge were borne downe and carried away by the streame; and the like hapned to many other bridges in England. And, not long after, men passed over the Thames between Westminster and Lambeth dryshod." The frozen Thames was used as a highway, and the damage to the bridges was caused by the break up of the ice. The winter was also severe in Europe, and at the end of February such heavy snow fell in Austria that many houses could scarcely be seen. The melting of the snows caused great floods, and Paris was inundated by the Seine.

Feb. 2, 1887. Drought.—In January 1887 a great area of high pressure lay over Europe, and in February this moved westward over England. In London a drought began on Feb. 2, the first of 17 consecutive days without rain. In March the anticyclone moved still farther west, and until the end of August with few interruptions pressure remained abnormally high over the Atlantic west of Ireland. The year 1887 was consequently very dry; over the British Isles as a whole the rainfall was the smallest on record since at least the beginning of the nineteenth century, though in south-east England the drought was less severe than in 1921. The level of Lake Derwentwater fell lower than ever previously recorded; at Maresfield, Sussex, threepence a pail was paid for water, and at Langho, near Blackburn, water was brought in cans like milk and strictly rationed by the station-master.

Feb. 4, 1579. Snow.—Holinshed records that on Feb. 4, and the following night "fell such abundance of snow, that . . . in the morning, the same snow was found in London to lie two foot deep in the shallowest and otherwise, being driven by the wind very boisterous in the northeast, banks one ell or a yard and a half deep. In the which drifts of snow, far deeper in the country, many cattle, and some men and women were overwhelmed and lost. It snowed till the eighth day of that month, and froze till the tenth, and then followed a thaw with continual rain a long time after, which caused such high waters, and great floods, that the marshes and low grounds being drowned for the time, and the water of the Thames rose so high into Westminster Hall, that after the fall thereof, some fishes were found to remain in the said hall."

Feb. 5, 1783. Earthquake.—The series of great Calabrian earthquakes beginning on Feb. 5 are of interest as the first to be carefully studied. There were six great shocks, the strongest being those of Feb. 5 and Mar. 28. The meizoseismal areas were all small, one town being ruined, while another a few miles away escaped damage. Besides being shallow, the focus oscillated to and fro over a distance of 60 miles from Messina to Girifalco. By Oct. 1786, 1186 after-shocks were felt at Monteleone.

Feb. 5 and 7, 1892. Low Temperature.—The lowest temperature ever recorded on the earth's surface was -90° F. at Verkhoyansk, Siberia, 200 miles from the mouth of the Lena River.

Feb. 7, 1921. Drought.—From February to October 1921 barometric pressure was above normal over the whole of Europe except the north of Scandinavia, over the United States, and most of Asia. These nine months, and the year as a whole, were exceptionally dry over a large part of the northern hemisphere. In London, the drought began on Feb. 7, and no

appreciable rain fell until Feb. 25. The year was not especially dry in Scotland and Ireland, but in England it was the driest since at least the beginning of the nineteenth century; in parts of east Kent the rainfall was less than half the average, and at Margate the total rainfall for the year was only 10 inches. In July the flow of the River Thames at Teddington fell to less than one-third of the normal July flow. In western Europe the drought was equally severe; in Belgium and northern France it was without precedent in historic times, Switzerland and northern Italy suffered severely, and in the Trentino the water of one of the lakes fell so low that a small island appeared for the first time since the great drought of 1806. In Russia the harvest failed, causing widespread famine and many deaths.

Feb. 8, 1843. Earthquake.—By the destructive earthquake of Guadeloupe, Pointe-à-Pitre, the principal town and port of the island, was reduced to a heap of ruins. The shock was felt in Barbados and along the coast of British Guiana, so that the disturbed area must have contained at least one million square miles. The wharves of Pointe-à-Pitre subsided throughout their length, in one place by about a foot.

Societies and Academies.

LONDON.

Royal Society, Jan. 23.—Lord Rayleigh: Normal atmospheric dispersion as the cause of the 'Green flash' at sunset, with illustrative experiments (see NATURE, Jan. 25, p. 144).—F. W. Aston: The photometry of mass-spectra and the atomic weights of krypton, xenon, and mercury. The relative abundance of isotopes can be deduced from the photometry of their lines in mass-spectra with sufficient accuracy for a preliminary survey. Numerical results are given for the six isotopes of krypton, nine isotopes of xenon, and seven isotopes of mercury. The 'isotopic moment' of an element is defined and its value given for these three elements. Atomic weight of mercury determined from the abundance results is in good accordance with the accepted value; those for krypton and xenon suggest that those deduced from the densities are about 1 per cent too low.—P. A. M. Dirac: A theory of electrons and protons. It is proposed that nearly all the states of negative energy are occupied, so that an electron in a state of positive energy cannot jump into them, by the exclusion principle. A state of negative energy that is not occupied may then be identified as a proton, as it will appear to have a positive energy and positive charge (see also p. 182).—R. V. Southwell and L. Chitty: On the problem of hydro-dynamic stability (1). The paper deals with stability of steady shearing motion in a viscous fluid. The method of normal co-ordinates appears to be satisfactory for infinitesimal disturbances. Within the range of 'Reynolds' number' covered, all normal disturbances have a decreasing time-factor, which depends on Reynolds' number in an extremely complicated way. The looped diagrams representing this dependence have no counterpart in ordinary problems of vibration theory.—T. E. Stern: Some remarks on the conduction of electricity in metals and upon allied phenomena. There are two classes of phenomena: (1) Those associated with the flow of electricity in closed circuits, to be investigated only by making use of transport theories; and (2) those associated with insulated conductors, to be investigated by general equilibrium theories. Various consequences of this difference—such as difference between cooling effects of evaporation of electrons from insulated and from uninsulated conductors—are investigated. Special phenomena arising in case of

non-isotropic conductors are considered.—A. Harvey: The Zeeman effect in the band spectrum of helium (2). Estimates are given of magnitudes of (unresolved) Zeeman patterns in He₂ bands of type ³D→²P³Π. Effects are widely different for different initial terms D_ε, D_π, and D_Δ, and appear to be closely related to uncoupling of electronic orbital angular momentum L from the inter-nuclear axis. A few observations on the singlet system were possible, results being generally similar to those for the triplet system.

GENEVA.

Society of Physics and Natural History, Oct. 24.—T. Tommasina: Experimental proof, in the heat radiation, of dynamic ultra-red rays. A double radiometer, revolving in opposite directions, is placed under a triple glass wall, in order to eliminate the direct action of heat. With a previously heated pad of cloth, or piece of wood charcoal, coke, or anthracite, there is an immediate rotation of the vanes. The author concludes from this that heated black bodies emit penetrating radiations.—R. Matthey: The chromosomes of saurians. The author has established the chromosome formula of ten species, representing eight families. A classification based on the chromosome formula fits in fairly well with modern systematics.—E. Briner and A. Rivier: The chemical action of electric discharges; the influence of the electrodes on the production of nitric oxide by the arc. Relying upon electronic theories, more especially on the laws regulating the electronic emission of solid bodies, the authors have realised, using appropriate material for the electrodes, marked improvements in the chemical yield of the electric arc in the fixation of nitrogen in the form of oxide.

Nov. 7.—E. Cherbuliez and St. Ansbacher: The physiological presence of copper in certain organs in the higher animals. A very exact method of estimation has shown the presence of copper in the organs of the higher animals. The liver and the spleen are much richer in this element in the newly born than in the adult; in the tuberculous guinea-pig the proportion of copper is increased in the liver and reduced in the spleen. These facts suggest a hitherto unsuspected physiological rôle for copper.—G. Tiercy: Generalisation of the Plantamour method for the measurement of the error of compensation of chronometers. The Plantamour method, applied at Teddington, Besançon, and Geneva, has been proposed by Plantamour for the case of three thermal periods. The author shows that it also applies in a very simple manner to the case of *n* periods.—R. Wavre: Complement to the theory of planetary figures. The author, by a rigorous and short method, had obtained a system of theoretical relations giving the free surface of fluid stars in slow rotation. Wishing to pass from theory to practice, he puts these relations in a form directly utilisable in geodesy, making evident the quantities physically measurable. The results obtained suggest that an agreement is possible between the geodesic measurements and the value of a certain constant furnished by the precession of the equinoxes.

LENINGRAD.

Academy of Sciences (*Comptes rendus*, No. 19).—E. Selivanova: *Coelanthus subtilis* (Tratt.) Seidel. This grass, known hitherto from a few localities in western Europe, Siberia, and North America, has been found by the author near the river Volchov, in the Novgorod province of European Russia.—P. Piatkov: Botanical and soil investigations on Novaya Zemlya, in the area of the polar geophysical observatory 'Matochkin Shar', during 1927–1928. A brief preliminary account of the investigations.—A. N. Labuntsov: The deposits of molybdenite in the Khibin tundra. A description of the deposits is presented.