

THE International Federation of University Women held a meeting at Budapest in September last, when twenty-six national federations were represented. Among the resolutions adopted was one deprecating the "tendency, increasingly evident in the majority of countries, by new regulations to debar women from careers for which they are well qualified, whether on grounds of sex or marriage" and declaring such regulations to be "inimical to the family which is itself the foundation of society". Another deplors the contravention in certain countries of the principles that teaching history, etc., in schools should be impartial and that art, literature and science are a common human heritage and not the appanage of particular nations or races. The German Federation has passed through a difficult period, and it is hoped to reconstruct it on a basis which will eliminate discrimination on any racial, political or religious grounds. The Austrian Federation was concerned about the bad effect of recent legislation on the position of women. The Indian Federation reported a surprisingly large number of members—400. The British Federation gave scholarships last year enabling three German scholars and scientific workers who had lost their positions on account of their non-Aryan nationality or political opinions to live at Crosby Hall, London. The next conference of the International Federation is to be held in 1936 in Poland.

"FREEDOM or Indoctrination: an Enduring Dilemma of Education": a paper by Prof. Marvin L. Darsie of the University of California, contributed to *School and Society* of February 2, deals judiciously with this theme—one that is in the forefront of current educational topics of discussion in the United States. The recent development in Germany of authoritarianism in educational as in other fields has proved a powerful irritant provoking such discussion. Prof. Darsie's paper attempts an analysis of some of the complex factors associated with capitalism, scientific technology and the increasing solidarity of organised labour, in which the age-long conflict between the advocates of free intellectual inquiry and the guardians of established doctrine is to-day entangled. Starting from the position that the concepts of freedom and indoctrination have to do with the interweaving of the "two innately conditioned desires for self-expression or pre-eminence and security within the immensely complex maze of social patterns constituting a culture or civilization" he proceeds to consider the resulting problems confronting the educator. The public school teacher functions in an agency maintained by society for the direct purpose of indoctrinating the young with the established institutional patterns: but these represent nuclei of public opinion substantial at the core but with continuously fluctuating margins. It is peculiarly the function of the enlightened teacher "to keep alive this fringe of experimental thinking and at the same time to prevent its detachment from the institutional matrices which guard the stability of any organized society". In this delicate task he must beware of endorsing or promoting any propagandist movement, but his obligation to human welfare requires him to defend and preserve the fringe of free experimental inquiry. The dilemma is discussed in terms of national policies in a short article, "The Great Rift in Education", by Dr. J. F. Abel in *School Life* of December.

Science News a Century Ago

Loads Carried by South American Miners

On April 27, 1835, Darwin set out from Valparaiso on horseback for Coquimbo, which he reached on May 14. On May 12 he stayed at some mines, and writing of the loads carried by the miners, he said: "Captain Head has described the wonderful load which the 'Apires', truly beasts of burden, carry up from the deepest mines. I confess I thought the account exaggerated; so that I was glad to take an opportunity of weighing one of the loads, which I picked out by hazard. It required considerable exertion on my part, when standing directly over it, to lift it from the ground. The load was considered under weight when found to be 197 pounds. The apire had carried this up eighty perpendicular yards, —part of the way by a steep passage, but the greater part up notched poles, placed in a zigzag line up the shaft. According to the general regulation, the apire is not allowed to halt for breath except the mine is six hundred feet deep. . . . These men, excepting from accidents, are healthy and appear cheerful. Their bodies are not very muscular. They rarely eat meat once a week, and never oftener, and then only the hard dry charqui. Although with a knowledge that the labour was voluntary, it was nevertheless quite revolting to see the state in which they reached the mouth of the mine; their bodies bent forward, leaning with their arms on the steps, their legs bowed, their muscles quivering, the perspiration streaming from their faces over their breasts, their nostrils distended, the corners of their mouth forcibly drawn back, and the expulsion of their breath most laborious. . . . After staggering to the pile of ore, they emptied the 'carpacho', in two or three seconds recovering their breath, they wiped the sweat from their brows and apparently quite fresh descended the mine again at a quick pace. . . ."

Bird Distribution

Much new light on the distribution of bird life outside Europe was shed at the meeting of the Zoological Society of London on May 12, 1835, with Mr. N. A. Vigors in the chair. The skin of a kiwi, *Apteryx Australis*, Shaw, sent by the Colonial Secretary for New South Wales, was exhibited, along with an account of the habits of the bird, its probing of the ground with its long bill for earth-worms and its scant distribution in New Zealand, whence it had been obtained by a correspondent who had seen only two during his stay there. Colonel Sykes exhibited a series of bird skins presented to the Society from the Cape region of South Africa by Capt. Spiller, and these, stated Sykes, had enabled him to make a comparison with the collection of birds he had shot in India, and those of Europe, to draw up a list of fifteen species of bird found equally in South Africa and India, four species found in South Africa, India and Europe, and two species 'universal', providing *Strix Javanica*, Horsf. was identical with *Strix flammea*, Linn. A female hybrid pheasant, *Phasianus colchicus*, produced by a cock pheasant and greyhen (*Tetrao tetrix*) from the Merlington Covers of Mr. R. A. Slaney, near Shrewsbury, was exhibited and described by Thomas C. Eyton.

Geology of Seeland and Møen

At a meeting of the Geological Society on May 13, 1835, Lyell read a paper entitled "On the Cretaceous

and Tertiary Strata of the Danish Islands of Seeland and Møen". According to a report in the *Philosophical Magazine*, "Mr. Lyell examined, in company with Dr. Forchhammer, the cliffs of Seeland and Møen during the summer of 1834, and the following are the results at which he arrived. The two formations of which Denmark and Danish Holstein chiefly consist are chalk, and an overlying tertiary deposit. Part of the latter resembles in composition the argillaceous and sandy beds of the English crag. Another part corresponds with deposits usually called diluvial, especially those associated with the English crag, in parts of Norfolk. Large erratic blocks are also strewn over the surface of Denmark, connected with, and sometimes buried in the gravel, or 'diluvium'. In some sections on the banks of the Elbe, the yellow tertiary sands are divided regularly into thin strata and are exposed for a thickness of about 200 feet. . . . The white chalk of Denmark is characterised by the same fossils as those of the upper chalk of France and England."

Water from the Well of Zem-zem

At a meeting of the Royal Society on May 14, 1835, a communication from John Davidson was read giving "An Account of the Water of the Well Zem-zem, with a quantitative analysis of the same by Professor Faraday". Davidson had sent home about three quarts of the water from the well of Zem-zem near Jedda, to which the Mohomedans ascribed a sacred character and extraordinary virtues. The can containing the water had been sealed, but unfortunately it had been opened in the London Docks and the gas with which it was charged had escaped. The precipitate thrown down was found by Faraday "to consist of carbonate of protoxide of iron in the enormous proportion of 100.8 grains to the imperial pint of water. The clear liquid was neutral and contained much muriate, and a little sulphate but no carbonate; together with a little lime, potash and soda. There was also found an alkaline nitrate in considerable quantities; this Mr. Faraday conjectures to have been saltpetre, which had been added to the water by the priests".

Societies and Academies

PARIS

Academy of Sciences, March 25 (*C.R.*, 200, 1077-1160). ROBERT LESPIEAU and PAUL HEITZMANN: The C_8H_4 hydrocarbons arising from the action of crotyl bromide upon its magnesium derivative. Three isomers have been isolated from the product of this reaction: their probable constitution is indicated. GASTON FAYET was elected a member of the Section of Astronomy in succession to the late Benjamin Baillaud. JEAN LERAY: The topology of the abstract spaces of M. Banach. JEAN DELSARTE: The application of a general principle of development of the functions of a variable to the series of Bessel's functions. K. NIKOLSKY: The electromagnetic field of Dirac's electron. EDGAR PIERRE TAWIL: Considerations on the development of electricity by quartz. The electricity developed by the torsion of quartz is named strephoelectricity, and reasons are given for regarding this as distinct from piezoelectricity. ALBERT MILHOUD: The electromotive force produced by the outflow of steam. Study of the effects on the electromotive force of the presence

of traces of electrolytes in the drops of water in the steam jet. J. CAYREL: Remarks on the energetics of thin plates placed in the midst of a polarisable medium. ROBERT BOSSUET: The quantitative spectrographic analysis of the alkali metals. Application to caesium in mineral waters. The salts are volatilised in an oxyacetylene flame and the dilution determined at which the line 4555.3 vanishes. Figures are given for the caesium found by this method in ten French mineral springs. JEAN TERRIEN: The absorption and fluorescence of the vapours of the cuprous halides. CHARLES LAPICQUE: The distribution of light in the retinal image of a distant point. MARC ANTOINE FOËX: The application of electrical conductivity to the study of separations in fused glasses. CHARLES DUFRAISSE and MARIUS BADOCHÉ: Relations between the optical properties of the medium and the photochemical constants of tetraphenylrubene. Individual influence of the chemical nature of various solvents. The chemical nature of the solvent exerted a marked influence on the oxidation velocity. MME. PAULETTE BERTHIER: The rôle of evaporation in the phenomenon of imbibition presented by porous bodies. PIERRE DUBOIS: The decomposition of permanganic acid and of manganese peroxide. Details of the precautions necessary during the preparation of the peroxide to obtain pure MnO_2 . ANDRÉ MORETTE: A new method for the preparation of pure vanadium. Metallic vanadium containing more than 99 per cent of the metal can be prepared by the action of magnesium on vanadium tetrachloride or dichloride at 700°-800° C. Y. RENÉ NAVES, GEORGES BRUS and JEAN ALLARD: Contribution to the study of the citronellol-rhodinol isomerism by means of Raman spectrography. Comparison of alcohols obtained from various sources and carefully purified. DANIEL GARDNER, MICHEL PROCOFIEF, GEORGES JUSOV and MARIA LUCIANA CASELLI: The synthesis of carvacrol. Description of a complete synthesis of carvacrol, starting with paracymene. A second method is from orthocresol and isopropyl alcohol, by treatment with phosphorus pentoxide. MME. NELICIA MAYER: The composition of solutions of glucides after treatment with alkali. RAYMOND PAUL: Oxidation and reduction phenomena observed in the catalytic dehydration of the furylalkylcarbinols. PAUL GAUBERT: Modification of the facies of crystals of phloroglucinol by colouring matters, and the action of heat on the coloration. G. CHOUBERT: The enclosures of some lodes in the neighbourhood of Bresse (Vosges). MME. ODETTE THELLIER: Simultaneous measurements of various elements of atmospheric electricity. V. GRÉGOIRE: New data on the morphogenesis of the leaf axis in the Dicotyledons. FERNAND OBATON: The biological behaviour of *Sterigmatocystis Phoenicis* compared with that of *Sterigmatocystis nigra*. PAUL RIOU and JOACHIM DELORME: The presence of manganese in maple sugar and in cane sugar. MME. E. LE BRETON, MAURICE NICLOUX and GEORGES SCHAEFFER: The coefficient of ethyl-oxidation and basic metabolism in some homeotherm species. NICOLAS T. KORESSIOS, HENRI TILLÉ and JEAN CHASSANG: Comparative studies on certain physiological effects of cobra poison, filtered and unfiltered. The best conditions for experimenting with venoms. MARCEL GESLIN: Contribution to the study of the argon-nitrogen ratio in natural gases. Gases arising from the natural destruction of animal or vegetable organisms show a ratio of argon to nitrogen lower than that found in air. This is