At the opening ceremony of the exhibition in the Clementinum, the delegates enjoyed a performance to ancient Bohemian polyphonous music sung by the Bohemian madrigalists conducted by Prof. B. Špidra. This improvised concert deeply impressed the visitors, as also did the compositions of Rejcha and Mozart played in the large hall of the Wallenstein Palace by the Prague brass quintette. The performance of Weber's "Oberon" in the Prague German Theatre, and that of Smetana's "Libuše" in the National Theatre, as well as the concert of the Czech Philharmonic Orchestra at the Smetana Hall conducted by Mr. Rafael Kubelik, offered further opportunities for the delegates to become acquainted with the cultural life of Czechoslovakia.

Among the resolutions submitted and approved at the final meeting of the Congress was a proposal that history of science should be included in the teaching of secondary and high schools, and also a request for the publication of Isaac Newton's correspondence.

An invitation from the Swiss Government to hold the next congress at Lausanne in 1940 was accepted, and Prof. Arnold Raymond, formerly rector of the University of Lausanne, was elected president. An invitation from the Brazilian Government to an extraordinary congress in 1938 was also accepted.

Overvoltage in Light and Heavy Water

BY means of the polarographic method with a dropping mercury cathode, Prof. J. Heyrovský, in collaboration with Dr. J. Novák, has been able to advance knowledge of hydrogen overvoltage (*Coll. Czechoslovak Chem. Com.*, 9, 207, 273 and 344 ; 1937). By this delicate method they were able to register significant differences in current voltage curves in light and heavy water, with special reference to hydrogen overvoltage. They find that in $0 \cdot 001 \, N$ hydrochloric acid in ordinary water at 20° C. the overvoltage differs from that in 99·6 per cent deuterium oxide by $+ 87$ millivolts ; in 94·6 per cent D_2O by 63 millivolts ; in 76·5 per cent D_2O by 31 mv. and in 49·8 per cent D_2O by 15 mv. At 60° C. the differences with the purest heavy water is $+ 71$ millivolts. The factor b in Tafel's term, $b \log i$, is 113 millivolts at 20° C. in heavy water and 102 in light water.

The electro-reduction of hydrogen peroxide is similarly inhibited in heavy water. On the other hand, the electro-reduction of oxygen, and of maleic acid in acetic acid solution, and the electro-deposition of thallous ions in heavy water proceed at an unchanged potential or at a distinctly more positive one than in light water. The theoretical significance of these experimental results is discussed by Prof. Heyrovský, who gives a general theory of hydrogen overvoltage which appears to account well for the observed facts. He regards the electro-deposition of the isotopic hydrions as indifferent, but the evolution of hydrogen, including its molalization, as 5·4 times less in heavy water ; 5·4 is the ratio of the ionic products of H_2O and D_2O, and signifies that the rate of dissociation of water is 5·4 times that of deuterium oxide. The molalization takes place through the interaction of the deposited hydrogen atoms with the hydrions of the solution :

$$H + H^+ = H_2^+$$
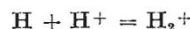
The formula finally deduced for the overvoltage is

$$\pi = + \frac{RT}{F} \log \frac{([H^+] + [D^+])^2}{i + \overline{\omega} i^2} (C_{H_2O} K_1 + C_{HOD} (K_1' + K_2') + C_{D_2O} K_2),$$

where $\overline{\omega}$ is the mean adsorption coefficient of the freshly formed hydrogen molecules, C_{H_2O}, C_{HOD} and C_{D_2O} denote the molar fractions of the solvent, and K_1 $(K_1' + K_2')$ and K_2 are the dissociation constants of H_2O, HOD and D_2O respectively.

The validity of the equation has been tested by substituting calculated quantities of light and heavy water, and the observed results are in good agreement with theoretical requirements. The electrolytic separation coefficient for the hydrogen isotopes at cathodes with large overvoltage is dependent on the composition of the mixture and on the current density. The mean value of 5·4 should increase to 50 in concentrated heavy water and decrease to 2·7 in ordinary water.

Employment of University Graduates

YEAR by year some 15,000 students enter the universities of Great Britain. Their intentions, hopes and aspirations and those of their parents and other counsellors are almost as various as their pedigrees, but they are admitted on the assumption that their undergraduate years are to be dedicated more or less to preparation for their life's work, and the shaping of university policies is to a large extent determined by that ideal. In their careers after the completion of their undergraduate courses, the value of that preparation is tested, and the employment of graduates is, obviously, a matter of concern not only to them but also to university administrators and to the community as a whole.

The University Grants Committee in its quinquennial report published last year dealt at considerable length with problems of student numbers and employment. This year the National Union of Students held a Congress at Southampton on April 1–8, at which these formed the main subject of