Heavy Hydrogen

THE April issue of the *Journal of the American Chemical Society* contains some communications on the subject of 'heavy hydrogen' and 'heavy water' (names used by the authors). H. S. Taylor and Selwood announce an error in the calibration of apparatus which makes the viscosity previously reported erroneous; the correct value is 12·6 millipoises at 20°. The ratio of specific gravities of heavy and light waters at 25° is 1·1079, whilst Lewis and Luten give 1·1056. Pure D_2O apparently readily takes up moisture from the atmosphere. The ratio D_2O/H_2O in natural water is about 1 in 5000–6000, in agreement with the mass-spectrograph results of Bleakney and Gould.

Dole reports that the water formed by the combustion of kerosene, benzene and honey was 7, 8 and 4 parts per million, respectively, heavier than ordinary water, whilst Washburn and Smith had found that water from the combined hydrogen of a willow tree was 5 to 6 parts per million heavier. G. N. Lewis and Hanson show that the vapour pressures of mixtures of H_2^1 and H_2^2 approximate closely to Raoult's law and the temperature at which freezing begins also proved to be nearly linear with the mole fraction. While the solid phase is richer in H_2^2 than the liquid, the difference is not great, say 0·55 mole fraction for the solid when that of the liquid is 0·50.

The same investigators also report measurements of the vapour pressures of pure H_2^2 and mixtures of H_2^2 and H_2^1 in a separate communication. The triple point of H_2^2 is 45·40 cm. and 18·66° *K*. An equation of state for H_2^2 is to be published later. When H_2^2O is treated with sodium, a considerable amount of H_2^1 is present, which came from the sodium. Lewis and Schutz have measured the vapour pressures of liquid and solid H^2CN; those of liquid H^2CN differ very little from those of H^1CN. The freezing point of H^1CN is 259°*K*. and of H^2CN 261°*K*.

The same experimenters find that the ionisation constant of deutacetic acid in heavy water is less than one third as great as that for ordinary acetic acid in common water, which indicates that $(H^2)^+$ is much more firmly held by a pair of electrons of another atom than is a proton.

University and Educational Intelligence

CAMBRIDGE.—Mr. A. J. Berry, of Downing College, has been appointed University lecturer in chemistry and Dr. C. P. Snow, of Christ's College, University demonstrator in chemistry. Mr. J. A. Ramsay, of Gonville and Caius College, has been appointed University demonstrator in experimental zoology. J. H. Halliday, of Downing College, and J. F. Everett, of St. John's College, have been nominated to use the University's table at the Zoological Station at Naples.

Applications for the E. G. Fearnsides scholarship for clinical research on the organic diseases of the nervous system must be sent to the Registrary before June 27.

The Master and fellows of Pembroke College announce that the Stokes studentship, of the annual value of £400–450, will shortly become vacant. Candidates should send their applications to the Master before June 23. They must have shown capacity for research in mathematical or experimental physics or in subjects cognate thereto such as physical chemistry or the study of physical laws in relation to living matter.

OXFORD.—In presenting Dr. Edwin Powell Hubble, of the Mount Wilson Observatory, for the honorary degree of D.Sc. on May 29, the Public Orator, Mr. C. Bailey, recalled the fact that Dr. Hubble is a former Rhodes scholar at Oxford. Referring to the great telescope at Mount Wilson as a structure "worthy of giants", he directed attention to Dr. Hubble's researches on remote nebulæ, and made especial mention of his conclusions as to the speed with which they are retiring from our view. The Vice-Chancellor addressed Dr. Hubble as illustrious among the illustrious masters of astronomy, and as a revealer by his penetrating sagacity of the secrets of the universe.

Mr. Battiscombe Gunn, curator of the Egyptian Section of the University Museum, Philadelphia, has been appointed professor of egyptology in the University, to hold office from October 1.

THE Science Scholarships Committee of the Royal Commission for the Exhibition of 1851 have made the following appointments to senior studentships for 1934:—On the recommendation of the University of Cambridge: Mr. C. H. Waddington, for research in biology; and Dr. C. B. O. Mohr, for research in physics. On the recommendation of the Imperial College of Science, London: Dr. J. D. Solomon, for research in geology. On the recommendation of the University of Oxford: Mr. S. G. Hooker, for research in applied mathematics. On the recommendation of the University of Aberdeen: Dr. D. J. Bell, for research in physiology.

UNIVERSITY COLLEGE, London, continues to attract students from all parts of the world in increasing numbers. Its recently issued annual report shows that of 3,121 students enrolled in 1932–33, 56 per cent were from homes within 30 miles of the College, 24 per cent from elsewhere in the British Isles, 9 per cent from the rest of the Empire and 11 per cent from the rest of the world. India, Ceylon and Burma contributed 169 (including 57 post-graduate and research students), China and Japan 24, Palestine 16, four other Asiatic countries 23; Germany 55 (including 12 vacation course students), Scandinavian countries 30, Holland and Belgium 25, Switzerland 23, France 20, Italy 15, thirteen other European countries 60; the United States 45, Canada 15, West Indies 12; Australia and New Zealand 41 (33 postgraduate); South Africa 20, Egypt 19, seven other African countries 16. The total number of postgraduate and research students was 496, being 31 more than in the preceding year. The medical student enrolment also showed a notable increase from 200 to 230. The most conspicuous decrease was in the department of fine arts, from 299 to 253, chiefly women. The enrolment of students for the current session up to January 31 was 3,000 as compared with 2,862 at the corresponding date of 1933. The report refers to the completion of the new accommodation for the reorganised Department of Zoology and Comparative Anatomy which, it is claimed, is, alike in planning and equipment, second to none in Great Britain.