

THE EDUCATION BILL.

THE important conference between representatives of the local education authorities and Mr. Fisher, President of the Board of Education, held in London on November 20, is indicative of the keen interest taken by responsible men in the Education Bill so far as its vital clauses are concerned. Mr. Fisher was not called from his high office as Vice-Chancellor of the University of Sheffield simply that he might promote a measure embodying certain changes in methods of educational procedure and administration, or to increase the bureaucratic powers of the Central Authority with some possible advance in the essential features of education, but in response to a growing and insistent demand, largely induced by the lessons of the fierce conflict in which we are engaged, which has thrown a lurid light upon the defects of our educational system, that Parliament should initiate a liberal measure of educational reform so complete and all-embracing that no child of the nation shall be allowed to escape from its fostering care, however insistent may be the demands of industry.

Mr. Fisher has enthusiastically responded to this demand, and by his speeches in and out of the House has aroused a deep and almost universal desire that his educational reforms, by no means rising to the height of his aspirations or fulfilling the ardent hopes of some educationists, should be given a chance of legislation. Unfortunately, the measure is weighted with certain provisions which, in the opinion of many persons jealous of the claims of local government, are likely to impede the initiative and sap the public spirit and independence of the local authorities. From the tenor of the interview mentioned above it is fairly clear that Mr. Fisher is prepared to go a long way to meet the criticisms offered so far as certain of the administrative clauses are concerned, and there is hope therefore that an agreed measure may result which will dispose of the excuse that the Government cannot find the necessary time for its discussion.

Many measures of reconstruction, to take effect after the war, are afoot, but most of them are likely to be futile of result in the absence of an educational measure of the character Mr. Fisher has placed before the nation. It is accordingly with warm approval that we note that an important body like the British Science Guild has on this ground approached the Prime Minister with a demand that facilities shall be given to enable the Bill, after due consideration and such amendments as may be found necessary, to become law in the course of the present session of Parliament. In all, 331 resolutions, of which 156 are from Labour organisations, have been received by the Government urging that the Bill should be pressed forward with all possible speed. The prospects of the Bill becoming an Act have, indeed, improved greatly during the past few days. On November 23 Mr. Fisher, in a speech at Brighton, declared that the Government intends to pass the Bill, and the Parliamentary correspondent of the *Times* says it is understood that the Government is prepared to consider favourably the giving of facilities for the Bill this session, provided that a guarantee is given that the debates in the House of Commons are limited to a specific number of Parliamentary days.

A large deputation, representative of all parties in the House of Commons, waited upon the Prime Minister on Monday to urge the importance of passing the Bill into law without delay. Mr. Lloyd George was unable to give any definite pledge, but he suggested that if the present session were prolonged it might be possible to take the Bill towards the end of the session, and if not, it would be given priority next session. It is possible, therefore, that the second reading will be taken before Christmas, and, in any case, the Bill is to be given precedence next session if it does not come on before.

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MARINE BIOLOGY.

FOURTEEN papers, forming vol. xi. (1917, pp. 360), are issued from the Department of Marine Biology of the Carnegie Institution of Washington. Three papers record observations on the scyphomedusa, *Cassiopea xamachana*, which is common in shallow water near the laboratory at Tortugas, Florida. This medusa, which thrives well in aquaria, is accustomed in nature to a considerable range in salinity and in temperature, and, having commensal algal cells, is in some measure independent of the oxygen supply of the surrounding water. On removing, by means of two circular cuts, the peripheral region, including the sense-organs, and the central stomach, an annular piece of tissue is obtained which is paralysed (owing to removal of the sense-organs), but is capable of stimulation by an induction shock until a contraction wave going in one direction is entrapped in it. Such a wave may maintain itself for days with little change of rate provided the temperature, CO₂, salinity, and H-ion concentration of the sea-water remain constant. Such rings of tissue provide extremely favourable material for the study of variations in the rate of nerve-conduction in natural sea-water and in artificial sea-water solutions. Dr. A. G. Mayer concludes, after many experiments on these rings, that nerve-conduction is due to a chemical action involving the cations sodium, calcium, and potassium (magnesium is non-essential), the sodium and calcium combining with some proteid. The high temperature-coefficient of ionisation of this ion-proteid may account for the high temperature-coefficient of the rate of nerve-conduction.

Dr. L. R. Cary has carried out experiments to test the influence of the sense-organs of the medusa on metabolism and regeneration. The oral arms and stomach having been cut away, a strip of subumbrellar ectoderm, in which alone the nervous elements are contained, was removed along a diameter, and thus nervous connection between the halves of the disc prevented. Comparison of such insulated halves, in one of which the sense-organs were present, while in the other they had been removed, showed that the half-disc with sense-organs always regenerated more rapidly, especially in the early stages. The experiments indicate that the rate of regeneration is simply an expression of the general metabolic activity of an animal, and as such is subject to the influence of the nerve-centres. Dr. S. Hatai gives an account of the composition of normal and starved medusæ.

Prof. E. N. Harvey describes experiments on, and discusses, the chemistry of light-production in animals. He has studied in detail a Japanese marine ostracod Crustacean, *Cypridina hilgendorfi*, in which light-giving material is formed in a gland opening near the mouth and, on agitation of the animal, is readily extruded as minute yellow globules which dissolve in water to a colourless solution. Oxygen is necessary for light-production, in which two substances—"photogenin" and "photophelein"—are shown to be concerned. Photogenin, present in the luminous gland cells, is colloidal, and probably a proteid. Photophelein, which is found in high concentration throughout the body of *Cypridina*, is crystalloidal and of unknown composition. One part of the gland in 1,700,000,000 of water will give visible light on the addition of photophelein. A similar photogenin-photophelein reaction was found in Japanese fireflies (*Luciola*). Mrs. Harvey records observations on *Noctiluca*, the luminescence of which is traceable to granules (photogenin) in the protoplasm, but photophelein could not be demonstrated.

Dr. A. J. Goldfarb has investigated the variability of the eggs of sea-urchins; Dr. H. L. Clark records the habits and reactions of a Comatulid (*Tropiometra*); Dr. A. L. Treadwell describes several new species of Poly-