

him, entirely on the condition of the surface layer of the egg; the nature of this cortical layer determines whether the egg be in an active or a passive phase, and the essential factor is a change in the rate of oxidation, to which the condition of the cortical layer directly leads. "The forces which induce the egg to develop are, therefore, localised at the surface of the cell." This is a somewhat hard saying, but in Prof. Loeb's hands it leads to many suggestive and stimulating reflections. The whole subject is discussed in his book on "Artificial Parthenogenesis, etc." (1913), and in a paper now before us, on the Stimulation of Growth (*Science*, May 14, 1915).

D'ARCY W. THOMPSON.

#### SIR SANDFORD FLEMING.

THE death of Sir Sandford Fleming on July 22nd at eighty-eight years of age has deprived the world not only of one of its greatest engineers, whose constructive works revolutionised trade and commerce by providing increased facilities for intercourse, but also of one who in various ways proved himself a pioneer, advocating and supporting measures the importance of which had not yet penetrated the public mind. He will be longest remembered for his work on the Canadian Pacific Railway and for his successful advocacy of a cable across the Pacific, which has proved of so much value to the commercial world. But in smaller matters he exerted himself not less strenuously and usefully. In a new country where material interests are many and pressing, he early saw the necessity of upholding pure science for the encouragement it could give to arts and industry, and with this view, so far back as 1849, he promoted the foundation of the Canadian Institute, which after demonstrating its usefulness in various directions, was recently incorporated under a Royal Charter.

Not less farseeing and useful was Sir Sandford Fleming's proposal in 1879 to legalise a universal day, beginning at mean noon of Greenwich time, the hours being counted continuously from 0 h. to 24 h. Five years later this suggestion bore fruit at the conference at Washington, summoned to consider more uniform methods of reckoning time, and at which it was resolved to adopt a single prime meridian for all nations in place of the initial meridians, favoured as this mode of reckoning was by international jealousies. At this conference Sir Sandford Fleming represented Canada, and it was there that the zone system of reckoning with which his name has been intimately connected was first ventilated. The convenience of adopting a standard time differing by an exact number of hours from universal time was insisted upon, and it was shown that it was not necessary, as maintained at a previous conference at Rome, to retain exact local time side by side with universal time. We have not yet achieved the arduous task of counting the hours consecutively from 0 to 24 h. as recommended, but the method is so eminently desirable in civil affairs as

being thoroughly explicit and rendering unnecessary the distinguishing suffix a.m. or p.m., that we may hope the practical advantages will become apparent to the public as they were to the eminent engineer whose death we regretfully record.

#### NOTES.

THE Société Helvétique des Sciences Naturelles will hold, at Geneva, on September 12-15, its ninety-seventh annual session, which will coincide with the hundredth anniversary of its foundation. On account of the disturbed conditions existing at the present time, the council of the society has decided to celebrate this anniversary very quietly, and not to send the usual invitations to foreign scientific societies, or to men of science residing outside Switzerland.

THE Toronto correspondent of the *Times* announces that the Commission appointed by the Ontario Government to investigate the production and shipment of nickel in relation to the conditions created by the war consists of Mr. G. T. Holloway, of London (chairman); Prof. W. G. Miller, provincial geologist; Mr. McGregor Young, K.C., Toronto; and Mr. T. W. Gibson, Deputy-Minister of Mines. It is understood that in the course of its investigation the Commission will visit England and Norway and the New Caledonia mines in the South Seas. The Commission will also consider if nickel can be successfully refined in Canada. The importance of nickel as a munition metal was described by Prof. Carpenter in an article in *NATURE* of July 15 (p. 539).

A NOTABLE instance of the advantage to the State of calling in the aid of science in relation to difficult problems bearing directly on the well-being of our fighting forces is illustrated in the exhibit recently installed in the central hall of the Natural History Museum showing the work done in connection with an investigation undertaken jointly by the War Office and the Museum to determine the origin of damage to army biscuit by insect pests, and to prevent or minimise such infestation. Attention was directed to the matter some time ago by the fact that ration biscuits exported to the colonies became after a time quite unfit for consumption, owing to the ravages of certain moths and beetles—this was specially noted in South Africa, Ceylon, Gibraltar, Malta, Mauritius, and the Sudan. In answer to an application from the War Office, the trustees of the British Museum placed at the disposal of the military authorities for the purpose of the inquiry the services of Mr. J. Hartley Durrant, the expert in charge of the collection of microlepidoptera at South Kensington. It is most satisfactory to learn that these researches, which have been carried out jointly by the two departments concerned, extending over a period of three years, have ensured the protection of army biscuit from the possibility of such attacks by insects in the future. The insects met with during the inquiry were all widely distributed species the range of which has doubtless been greatly extended by commerce.