"*partagée dans le feu*"—is not historic, Haüy's and Monteiro's name referring to the different fusibilities of the two constituents of the spheroids. We doubt also the primary origin assigned to the chalcedony with which the hollows of these old rhyolites are so often filled. Here, as is so frequently the case among Continental writers, the immense importance of secondary changes appears to be overlooked. In one of these lavas M. Noury has found a spherulite measuring 18 inches in diameter. The "sphérolithes," however, of certain diabase veins (p. 41) would appear to correspond to the spheroidal structure of weathered basalt rather than to the contemporaneous volcanic bombs suggested by the author.

The account of the connection between open fissures and the decomposition of dykes, and of the origin of the numerous bays, as well as of the larger inland features, is full of interest to the visitor. In the review of the history of the island the discussion of recent elevation and depression is too lengthy to allow of justice being done to the evidence relied on for the ages assigned to the various types of rock—evidence derived solely from comparison with the mainland of France. The scanty preservation, moreover, of Secondary deposits in the Hebrides makes one cautious in accepting the conclusion (p. 139) that Jersey has remained above water since Permian times. M. de Lapparent has, indeed, recently stated that the final conglomerate may be of Triassic age.

The book is written in the lucid and attractive style that French men of science have taught us to expect. A coloured geological map forms a handsome and valuable addition. G. C.

## *OUR BOOK SHELF*

*General Biology.* By William T. Sedgwick, Ph.D., and Edmund B. Wilson, Ph.D. Part I. Introductory. (New York: Henry Holt and Co., 1886.)

THIS work has been planned by the authors as an "introductory study" to biological science, after digesting which the learner may proceed to Huxley and Martin's "Practical Biology," Brooks's "Hand-book of Invertebrate Zoology," or to a second part of the present book, which is promised to be ready some time this year.

In the first four chapters of the introductory portion, Messrs. Sedgwick and Wilson deal with the generalities of biology—that is, with the nature and properties of protoplasm and the origin and modification of cellular tissues. In the remaining chapters they discuss at full length the two types selected to illustrate the two principal modifications of life. These are, the common brake (*Pteris*) and the earthworm (*Lumbricus*). The embryology and physiology of the selected types are as fully dealt with as the pure morphology. At the end of each chapter a scheme of practical work is given, which may in some cases be of much value.

On p. 123 it is stated that "all the organs of the body are originally developed from the walls of these chambers"—that is, the chambers of the body-cavity formed by the dissepiments. But it is a well-known fact that, as has been previously stated by the authors themselves (p. 152), the nerve-cords and ganglia are developed from the epiblast, or, as Messrs. Sedgwick and Wilson prefer to call it, the "ectoblast." Such being the case, it is obvious that the nerve-cords are not developed from the mesoblastic chambers.

Another and more serious error will be found on p. 143, where the *vesiculæ seminales* of the earthworm are described as the *testes*. It has been conclusively shown by Bloomfield that the large white bodies which fill up the tenth and eleventh somites of *Lumbricus* are really the *vesiculæ seminales*. The true *testes* are very small bodies, only present at certain periods of the year. There are two pairs of them, in the eleventh and twelfth somites. The *spermatozoa* are not fully matured in the *testes*, but pass into the *vesiculæ seminales* to complete their development.

Notwithstanding these few errors, Messrs. Sedgwick and Wilson's introductory essay is well adapted for the use of junior students in biology. Moreover, it is adequately illustrated by well-drawn woodcuts, far exceeding in clearness of execution the average of those found in American text-books.

## *LETTERS TO THE EDITOR*

[*The Editor does not hold himself responsible for opinions expressed by his correspondents. Neither can he undertake to return, or to correspond with the writers of, rejected manuscripts. No notice is taken of anonymous communications.*

[*The Editor urgently requests correspondents to keep their letters as short as possible. The pressure on his space is so great that it is impossible otherwise to insure the appearance even of communications containing interesting and novel facts.*]

### Industrial Studentships

I AM directed to request that you will be so good as to allow me, through the medium of your columns, to inform manufacturers and others engaged in industries in which art is more or less concerned, that the Lords of the Committee of Council on Education have decided to make arrangements for the admission of a limited number of persons employed in those industries to study in the South Kensington Museum, Library, and Schools, without the payment of any fees, for periods of from two to nine months according to circumstances.

Detailed rules with regard to these working studentships will be sent on application to the Department. Briefly, the conditions may be stated to be that the designer or workman for whom admission is sought shall show that he has sufficient power of drawing and sketching to be able to profit by the opportunities afforded; that he is actually engaged in some art industry; and that the proprietors of the works in which he is engaged undertake to maintain him while he is studying at South Kensington. When admitted, the working student will be set, under direction, to study in the Museum and Art Library from examples relating to the industry in which he is employed, and he will also receive instruction in drawing and designing in the Art School, suited as far as may be to his special case.

My Lords have taken this step with a view to render the Museum of more special and direct use to the country, and they trust that the valuable collection of examples of applied art which has now been brought together may thus be more fully appreciated and taken advantage of by the directors of industry in the country. J. F. D. DONNELLY

Science and Art Department, February 28

### Top-shaped Hailstones

IN connection with the abnormal fall of rain which is taking place this cold weather in the North-West Provinces of India, and which has clothed the outer ranges of the Himalaya with snow down to the 5000-feet level, I should like to mention a fall of hailstones which occurred on January 21 near Ramnagar, in the Terai. The hailstones were not very remarkable for size, being generally one-third of an inch across, with here and there a larger one half an inch in diameter. Some peculiarities of shape and structure, however, arrested my attention. Nearly every one that was not deformed by collision was top- or pear-shaped. Owing to their rebounding from the ground, it was impossible to see whether the broad or pointed end fell foremost; but in every case the broad end was composed of perfectly hyaline, amorphous ice, whilst the pointed end was banded crosswise by alternate layers of clear and white ice. In every case this distinction was perfectly well marked.

In some few instances I found hailstones of another, but pro-