

issued in July, 1918 (see NATURE, vol. cii., p. 50). The numerous portraits of American men of science give it distinction, and Clerk Maxwell, Huxley, and Charles Darwin are also represented. It is not stated that the portrait of Huxley is from Collier's famous painting. Some of the articles, as previously noticed, cover the progress of a particular science in the world at large during the century commemorated, 1818-1918.

The *American Journal of Science* originated in the widely cultured mind of Benjamin Silliman, professor of chemistry and mineralogy in Yale College, New Haven, and it is natural that from the first it had as "a leading object" the illustration of "American natural history, and especially our mineralogy and geology." Silliman was fortunate in having James Dwight Dana as a son-in-law, and to this day men of science throughout the world look to the *American Journal of Science* for the publication of original researches on such subjects as fossil reptiles, coral-reefs, and especially synthetic mineralogy. This memorial volume appeals, then, particularly to the geologist, who will find that half its pages are devoted to subjects with which he has some direct acquaintance. It will, moreover, supplement the various published summaries of the history of chemistry, physics, zoology, and botany by bringing into prominence the happy flow of communications that has moved in both directions across the Atlantic during the past hundred years of human thought and observation.

G. A. J. C.

La Genèse de la Science des Cristaux. By Hélène Metzger. Pp. 248. (Paris: Félix Alcan, 1918.) Price 5.50 francs.

THIS is a history of the science of crystals during the seventeenth and eighteenth centuries—that is, during the period of its origin and early development. The earliest serious attempts at a study of crystalline forms were those of the Dane, Nicolaus Steno (1669), and M. A. Cappeller (1723), but the first real advance was made by the French crystallographers, Romé de l'Isle (1772) and the Abbé Haüy (1784). Many quotations are given from the old authors, and their theories and quaint ideas are compared and commented upon. In different sections the subject is considered in its relations to (1) mineralogy, (2) biological sciences, and (3) physical sciences. Although the formation of snow and ice crystals and the growth under the microscope of crystals from mineral waters and saline solutions attracted much attention during this period, the study of crystals has always been more intimately associated with mineralogy. The book concludes with a long list of authors quoted, and a more or less complete bibliography, in which there are several misprints. A rather discursive table of contents takes the place of an index, and, as is often the case in French books, there are no head-lines to the pages. The author is a member of the French Mineralogical Society, and has contributed to its Bulletin under her maiden-name of Bruhl.

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LETTERS TO THE EDITOR.

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The Cultivation of Sponges.

THERE appeared in NATURE of April 20, 1916, an abstract of an article by me on sponge culture which was published in the *West Indian Bulletin* towards the end of 1915. In this article an account was given of Moore's work in Florida, and of a more recent commercial undertaking at the Caicos Islands, in which marketable sponges had been reared from cuttings on cement discs in comparatively shallow seawater.

This interesting, and alleged highly profitable, industry is now attracting serious attention in the Bahamas, where there has been considerable depletion of the natural beds. Farther south, in the Lesser Antilles, the Imperial Department of Agriculture for the West Indies, with which I am connected, has been trying for some time to arrange sponge-growing experiments at islands like Antigua and Barbados, where, even though the locally occurring sponges are of inferior quality, suitable conditions may be found for growing introduced types of better quality by the culture method.

The uncertainty of our knowledge concerning the behaviour of sponges amid different environments, and the paucity of our knowledge of West Indian sponges and their distribution, make a proper scientific inquiry into sponge culture very desirable. Moreover, the prevailing scepticism in certain quarters regarding the profitable character of sponge culture calls for a technical report on the economic side.

At present steps are being taken with the view of securing two marine zoologists for the British West Indies; one of them may be attached to the staff of the Imperial Department at Barbados, and the other will probably be stationed in the Bahamas. It seems, however, that some considerable time will elapse before anything is definitely settled, and even then the investigation of a subject like West Indian sponges and their culture requires careful planning and special qualifications on the part of the observers.

When in London recently I took the opportunity of bringing the matter before Dr. Harmer at the British Museum (Natural History) and Prof. Dendy at King's College. There can be no objection to stating that these authorities consider that sponge culture in the West Indies presents problems of great scientific interest, and they suggest that the inquiry might well be pushed from the purely scientific aspect. It is obvious to the least imaginative that a study of sponges along the West Indian chain through 20° of latitude (1200 miles), and including environmental experiments with different types, would be most valuable. Prof. Dendy is of opinion that the inquiry is worthy of a special expedition, for we know very little about West Indian sponges in this country.

It is intended to bring these views to the notice of the Colonial Office, and to submit that an official application for financial assistance and scientific guidance should be made to the Department of Scientific and Industrial Research. Suggestions as to any other steps desirable will be appreciated.

In concluding this letter, it may be pointed out that during the war, owing to the naval occupation of the Mediterranean, this country has been largely dependent upon the West Indies for its supply of sponges, which are essential to a large number of important