assign a new position to the rare *Beggiatoa mirabilis* of the Bahama Islands.

It is astonishing that such conspicuous forms, such as the sulphur bacteria, have never been mentioned before. It is equally surprising that the numerous anerobic bacteria found in the mud have been similarly disregarded.

As to the organisms which may be responsible for the precipitation of calcium carbonate, the following observations may be reported here:

Apart from the kinds which Drew and others have termed erroneously "calcium bacteria," going so far as to attach special names to them, there were found in many places numerous urea bacteria which to this day have escaped observation. These bacteria, like the denitrifying forms observed by Drew and other scientists, are able to precipitate calcium carbonate under certain conditions. Also the strictly anerobic sulphate reducing bacteria, which seem important in the process of calcium carbonate precipitation, were found to exist everywhere.

The presence of very active cellulose and hemicellulose destroying bacteria attracted special attention. These organisms were subjected to a closer investigation. Some of the bacteria are noted for their ability to dissolve agar-agar made from brown and red algae; these bacteria occurred in such vast quantities that they are believed to be responsible not only for the decomposition of the abundant organic matter in the mangrove swamps, but together with other bacteria they might be indirectly partly responsible in the precipitation of $CaCO_3$.

The author does not agree with Lipman's ideas (1929), whose conclusions on this subject have been based on experiments which were not sufficiently convincing; rather he is of the opinion that in reference to the vast calcium carbonate sediments in the tropical sea of to-day and of former geological periods we have to deal not with strictly chemical-physical, but primarily with microbiological processes. These results were obtained not only from the inspection of crude and pure cultures of the various organisms in the laboratory, but also from personal observation of the conditions *in situ,* as considered from the botanical-bacteriological-hydrobiological view-point; finally, from simple conclusions resulting from a study of bacteriological, botanical, geological, chemical, physical and oceanographic literature.

The author believes that the bacteriological process of calcium carbonate precipitation may be confined to certain locations. The shallow and richly manured mangrove swamps in particular may assist one in reaching this conclusion, for they represent an ideal habitat of bacteriological life, and it is here that we find especially pronounced bacterial activities.

The assumption that mangrove swamps or similar places represent the natural locations for the microbiological calcium carbonate precipitation is strongly supported by the observations of the geologists participating in the expedition. It is their opinion that we were possibly dealing with fresh or brackish water sedimentations. This view is in no way opposed to the results of the microbiological investigations, since we know that many of the bacteria mentioned may adjust themselves easily to a varying concentration of salt in the water, also that for similar processes related conditions have been found to exist.

The chemical-physical factors of this important geological process should of course not be disregarded. However, their importance may be no more than secondary and may serve to explain why such large quantities of calcium carbonate have not been precipitated at other places on the earth which possess virtually the same microflora and the same external features as the tropical sea.

We are dealing here with a complicated but not inexplicable collaboration of various factors which serve to make the problem of calcium carbonate deposits intelligible. How the different processes are probably related to each other and how the necessary investigations in the future must be carried out is to be discussed later in a detailed publication in German, probably to appear in the *Internationale Revue für die gesamte Hydrobiologie und Hydrographie.*

WERNER BAVENDAMM

TECHNISCHE HOCHSCHULE,
DRESDEN

BOOKS RECEIVED

BURT, CHARLES E. *A Study of the Teiid Lizards of the Genus Cnemidophorus with Special Reference to Their Phylogenetic Relationships.* Pp. viii + 286. 38 figures. U. S. National Museum, Smithsonian Institution. $0.80.

COULTER, JOHN M., CHARLES R. BARNES and HENRY C. COWLES. *Textbook of Botany.* Volume II. Physiology. Revised and enlarged. Pp. viii + 307. American Book Company.

GLAISTER, JOHN. *A Study of Hairs and Wools Belonging to the Mammalian Group of Animals, Including a Special Study of Human Hair, Considered from the Medico-Legal Aspect.* Pp. 187. 145 plates. Misr Press, Cairo, Egypt.

GREGORY, JOSHUA C. *A Short History of Atomism.* Pp. 258. Macmillan. $3.50.

LINDWORSKY, JOHANNES. *Experimental Psychology.* Translated from the German by Harry R. DeSilva. Pp. xix + 406. Macmillan. $3.75.

MEISTER, MORRIS. *Heat and Health.* Pp. xviii + 237. 165 illustrations. Scribner's. $1.08.

RUSSELL, G. OSCAR. *Speech and Voice; with X-rays of English, French, German, Italian, Spanish, Soprano, Tenor and Baritone Subjects.* Pp. xvii + 250. 217 figures. Macmillan. $4.00.

WETMORE, ALEXANDER and BRADSHAW H. SWALES. *The Birds of Haiti and the Dominican Republic.* Pp. iv + 483. 26 plates. U. S. National Museum, Smithsonian Institution. $1.00.