Now the cost of paper at least has decreased, SCIENCE is printed efficiently and economically in its own press, and the advertising has increased. These circumstances make it possible to print about as much material as formerly, though the increasing number of scientific men makes more exacting demands on space. There are now perhaps eight times as many men engaged in research in the United States as there were in 1894, when the present editor of SCIENCE took charge of the work.

Probably the methods adopted by SCIENCE, but for the reasons given somewhat slighted in recent years, are desirable. These include finding advisers in each subject who will consent to assist in planning and obtaining reviews. There should then be arrangements to print once or twice a year a review article in each subject, covering its advances with brief reference to text-books and general treatments; similar articles on fields of research with reference to specialized treatises and monographs; each week two or three somewhat extended reviews of books selected for their importance and general interest. Books must be chosen with some reference to the feasibility of obtaining a reviewer who is not only competent in the subject but who can write in a way that will make the review of interest to a considerable percentage of the readers of SCIENCE.

This program is admittedly difficult. The present note is written in order to ask the advice and cooperation of scientific men who may be willing to do what their time permits to make the journal of their national association as influential and as useful as may be.

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SPECIAL CORRESPONDENCE

THE PRINCETON-BUFFALO EXPEDITION TO THE WEST INDIES

DURING the latter half of July an oceanographic and stratigraphical survey was made of the Bahama region, embracing a traverse of the Gulf Stream from Miami to Bimini; the Great Bahama Bank; the West Coast of Andros Island; the South Bight; the East Coast of Andros and the Tongue of the Ocean, from Golding Cay to Nassau. The expedition was sponsored by the Summer School of Geology and Natural Resources, of Princeton University, and the Buffalo Society of Natural Sciences. The purpose of the expedition was to continue the work started by the first expedition last winter, and to study the region under summer conditions and maximum temperatures. During the winter trip the weather was so stormy that the shallow waters over the Great Bahama Bank were in a constant state of agitation, and not a single glimpse of the bottom could be obtained during the entire time at sea. The results of this trip have already been published.[1] Further and more detailed studies are now being carried on at the Buffalo Society of Natural Sciences and at Princeton University, and will appear shortly.

It has been the authors' belief, for some time, that the region of the West Indies affords an excellent natural laboratory for the study of oceanographic phenomena which should have a direct bearing on paleoceanographic and tectonic problems, and it is interesting to note that the Dutch are planning an expedition to study the eastern portion of the East Indian Archipelago for the same reason, as reported in a recent issue of SCIENCE.

During the recent expedition to the Bahamas, special emphasis was paid to the collection of plankton and a study of the bottom fauna, especially in the shallow waters off the West Coast of Andros Island and in the South Bight.

On crossing the Gulf Stream the usual rich plankton community was encountered, consisting of the customary tropical adult species and also large numbers of fish eggs and young stages of various invertebrates. The most surprising result of the collections from this area proved to be the occurrence of *Calanus finmarchicus*. As it has not heretofore been taken south of the latitude of Chesapeake Bay on the Atlantic coast, its presence in the straits of Florida is most surprising. According to Bigelow,

> So far as known, the latitude of Chesapeake Bay may be set as the southerly limit of its occurrence off the east coast of the United States in numbers sufficient to color the plankton at any season. Westward and southward from abreast of Cape Sable the zones of abundance for *Calanus finmarchicus* are bounded off-shore by the high temperatures and salinities of the Gulf Stream.

One would hardly expect to find this typically cold-water species in midsummer in the superheated water between Miami and the Island of Bimini. It is apparently added evidence of a drift from the north which passes between the Gulf Stream and the shore all along the Atlantic coast and may even be traced around the tip of Florida, where it passes just outside of the line of the islands. Although there is, no doubt, little chance that the species could establish itself in the tropics, those taken were alive and in

[1] R. M. Field, "Suggestions as to the Study of Marine Sediments," *The Canadian Field-Naturalist*, May, 1928, pp. 119 to 122, and map; and R. M. Field, "The Great Bahama Bank. A Study in Marine Carbonate Sedimentation," *American Journal of Science*, September, 1928, pp. 239–246.

good condition. Several cases of southern forms entering the northern waters have been reported, but so far as we know, on the Atlantic coast no northern boreal species has been observed so far south. The inability to reproduce in water of unfavorable temperature prevents the species from becoming established. It may be that when paleoceanography is better understood fossil examples of this sort of occurrence may be found.

Proceeding from Bimini over the shallow carbonate banks the larger plankton species become gradually less abundant both in number and variety. The average temperature of the water on the banks was 86. Close to shore the temperature was between 90 and 92. Although capable of supporting a scattered sponge colony, the water appears to be particularly devoid of life. The abundance of protozoa and diatoms has not as yet been determined, but it is safe to say that what life there is over the 20,000 square miles of lime bottom derives its food materials from the Gulf Stream and other surrounding waters. Very little can come from the low islands of the vicinity. The soft and unconsolidated bottom is everywhere punctured by several species of burrowing organisms. The holes and tunnels are very closely spaced so that the sediments are being worked over and over again. It is hoped that further studies on the biology of this region may throw important light on some of the geological and ecological problems which are now under investigation.

It is possible that the southwestward curve of the Florida keys or reefs may be due, in part, to a southward drift or current which, while not strong enough in itself to be easily detected or to influence directly the shape of the reef, may do so indirectly by the fact that it carries the principal food supply. There is good evidence to show, as cited above, that the paucity of the life on the Bahama Banks is largely due, not to the bottom conditions, but rather to lack of food supply. It is reasonable to believe that were there more plankton in these shallow waters there would be more corals and sponges. It is an interesting fact that the more or less constant stir-up of the fine calcareous muds (Drewite) seems to have little or no effect upon the sessile benthos, and certain types, such as the sponges, remain buried in the "mud" for several weeks without apparent hurt. There is also evidence that the sponges bury themselves in the carbonate mud during the reproductive period. It seems probable, therefore, that the paucity and character of the life in our epeiric Paleozoic seas, especially as represented by certain limestone and dolomite formations, may be directly the result of the poverty of the plankton, and not because of bottom conditions. Where we can trace the geographic distribution of Paleozoic plankton forms, such as the ostracods and graptolites, this would suggest the directions of the currents which must have carried the eggs and young stages of the adult sessile forms, and thus prove a valuable check on the source and migration of faunas. As so ably emphasized by Dr. E. O. Ulrich, the migration of faunas is one of the most important problems in Paleozoic stratigraphy and paleogeography, and the colonization by the bottom forms must have been partly controlled in the past—just as now—by the direction of ocean currents. It is also suggested that "land barriers" may have been overemphasized in paleogeographic problems and that "bottom control" may be more or less of a negligent factor in the shallow, warm Paleozoic seas, especially where carbonate sediments were being deposited.

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SCIENTIFIC BOOKS

The Normal and Pathological Physiology of Bone. By R. LERICHE and A. POLICARD. Translated from the French by SHERWOOD MOORE and J. ALBERT KEY. The C. V. Mosby Company, 1928. 246 pages, 33 figures.

THIS book is welcome because it is a well-balanced, sane and at the same time a highly original and suggestive account of a branch of physiology which has really been created within the last few years. The authors themselves say that recent researches on rickets have shown us "the capital importance of factors of which no one had dreamed. A few works in biochemistry have done more than almost a century of pathological anatomy."

That the presentation is authoritative is shown by the remarkable fact that although the most recent and debatable advances are discussed, Moore and Key, working in this country, state that they are "in accord with Professors Leriche and Policard in principle throughout, though differing to some extent in regard to details. Where this is true the divergence of views is embodied in footnotes."

The plan of the book is synthetic. A conception of the place of bone in vital activities is built up by a careful consideration of investigations on the subject pursued from many angles by anatomists, physiologists, radiologists, surgeons and others. To create this picture the authors have built upon the foundations laid by those who have gone before. But a tedious review of the literature is not presented.