

## CHAPTER IV.

### MATERIALS OF ORGANIC ORIGIN IN DEEP-SEA DEPOSITS.

THE dead shells and skeletons, or other hard parts of marine organisms might, in the strict sense of the term, be regarded as belonging to the mineral kingdom. By their structure, as well as by their origin, these organic remains are, however, differentiated from mineral substances properly so called. Their organic nature is at once recognised by the most casual observer, and so abundant are the remains of some species on the floor of the ocean, that their names have been employed to designate certain types of deep-sea deposits, such as Globigerina, Pteropod, Radiolarian, and Diatom Oozes. We therefore devote this chapter to a consideration of the organic substances which take part in the formation of modern marine deposits.

#### *a.* MARINE FAUNA AND FLORA IN GENERAL.

Before discussing the materials of organic origin in deep-sea deposits, it is desirable to glance at the light cast by recent investigations on the abundance and distribution of living plants and animals in the ocean, and thereafter to indicate the changes wrought by their functional activity, and by the decomposition of their dead bodies, in ocean waters and in deep-sea deposits.

It would appear to have been definitely established by the researches of the last fifty years that life in some of its many forms is universally distributed throughout the ocean. There do not seem to be any barren regions, where life is altogether absent, as was supposed by the older naturalists. It has long been well known that along all coasts the shallow waters teem with marine plants and animals, some of them living on or attached to the bottom, while others swim freely about in the surface and intermediate waters. The researches of the Americans along the eastern coast of North America, of the Norwegians off the coast of Norway, and of the British in the North Atlantic, had also, previous to the Challenger Expedition, revealed the existence of an abundant fauna in deep water.