

pounds dissolved in sea-water, which must be formed, however, when all is told, either by dissolution of the detritus or as excreta from living organisms.

It has long been recognised that the dust-like detritus plays an important part in the nourishment of certain bottom-animals (see Chapter VII. and the reference to Murray's "mud-line"). Investigations on the food of the oyster by Redeke and American investigators have proved that detritus forms the main contents of its stomach and intestines. Zoologists know that great numbers of bottom forms (holothurians, worms, and many others) are "mud-eaters," which live by passing the soft mud of the sea-bottom through their digestive tract. Lohmann and Rauschenplatt have lately shown that detritus also plays an important part in the nourishment of pelagic forms. Our ideas on this subject have recently been advanced by the systematic investigations of C. G. J. Petersen.<sup>1</sup>

Organic  
detritus.

In the Limfjord Petersen studied how detritus was formed by the disintegration of the dead plants along the coast, how it was found suspended in the water, and finally settled on the bottom as a soft layer 2 or 3 millimetres in thickness. In every respect this fine mud was similar to that found in the digestive tract of mussels and other animals. Petersen has proved this phenomenon to be of general importance in all the waters examined by him, and it will be necessary to examine the conditions in various areas of the sea in a very extensive way before we can arrive at a more perfect knowledge as to the nutrition of animals. In the open ocean conditions are still practically unexplored, and I will here only draw attention to some points worthy of examination in the future.

How far out to sea is the organic detritus carried? During our Atlantic cruise Gran was continually looking for detritus, centrifuging water-samples for this purpose, but as he tells us in Chapter VI. only insignificant quantities were found in the open ocean. If we may draw conclusions from bottom-deposits like Blue mud, there are vast differences in various areas of the ocean. In Chapters IV. and VII. we have seen that the terrigenous deposits on the eastern side of the Atlantic are limited to the African and European coast banks, while on the western side they extend far into the ocean beyond the coast banks of America (see Map IV.). These facts may obviously be explained as being due to currents (see current-chart, Fig. 508), which on the western side

<sup>1</sup> *Report of the Danish Biol. Station*, No. XX. Copenhagen, 1911.