

only found one (*M. parallelus*) which is common to the Indian, Atlantic, and Pacific Oceans. All the 19 species taken at the Sandwich Islands are known only from that locality. Some species, like *M. armatus* and *M. filicauda*, have a wide distribution, but these are exceptions from the rule. Thus, in his opinion, there are no species common to both sides of the Atlantic. The only exceptions then known (*M. simulus*, *M. goodei*, *M. berglax*, and *M. rupestris*) are explained by him as being due to these species following the cold Labrador current from their normal habitat, the eastern side of the ocean.

Brauer attempts to explain the peculiar distribution of the Macruridæ. He considers that the Macruridæ have originated from coast-fishes, and only commenced to migrate towards the abyssal region after a great variety of coast-forms had been developed. "The fact," he observes, "that only a few species have penetrated into the abyssal plain, while the main body of the species still remains on the slope, tends to show that in most cases the migration towards the abyssal plain is still going on, that it is very slow, and that it has not yet reached the borders of the abyss; or else it indicates that the abyssal plain tends to limit further distribution, acting as an almost insurmountable obstacle."

We have seen that all the deep-sea expeditions, prior to the "Michael Sars," captured only 35 individual "bottom-fishes," and that these belonged to twenty-one species. Our present knowledge must therefore be very imperfect. We have not yet learnt to fish to perfection at 2000 or 3000 fathoms, and we have as yet made too few fishing experiments at such depths. The short cruise of the "Michael Sars" in the Atlantic has essentially altered Brauer's ideas of the distribution of *deep-sea* fishes, and it appears desirable to give the interesting question raised by him a fresh trial, in view of the large amount of information which we now possess regarding the migrations of many fishes. When, for instance, we find the cod of the Norwegian Sea at one season spawning near the coasts of Norway, at another season migrating to Spitzbergen, or to the slopes of the coast-plateau, we must conclude that fishes may undertake horizontal as well as vertical migrations of enormous extent in a short space of time. Seeing that *Macrurus sclerorhynchus* has the enormous bathymetrical range of from 540 to 3655 metres, we can hardly suppose that the distribution of deep-sea fishes down the slope and on the abyssal plain could have been prevented by "lack of time." We have