

depths beyond a thousand fathoms were at any time greatly different from those of the present day. During the Silurian period, as now, and extending continuously from that early time to the present day, a continuous ocean with a mean bottom temperature oscillating about the freezing-point, has in all probability covered the greater part of the earth. During all this time an abyssal fauna, of whose existence we have evidence in

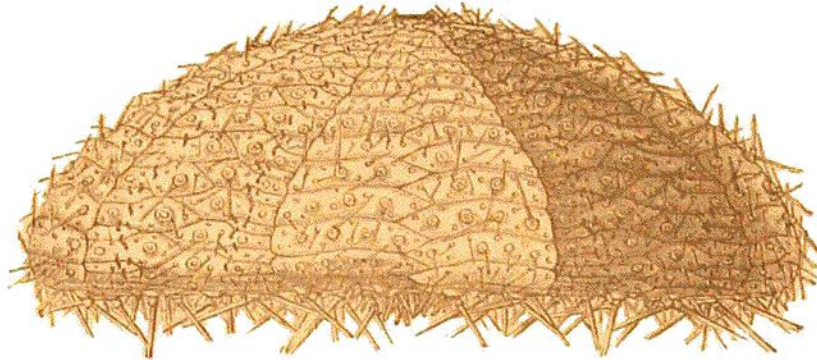


FIG. 23.—*Phormosoma uranus*, WY. T. One of the Echinothuridæ.

every rescued page of geological history, must have migrated continuously, becoming slowly changed during the lapse of immeasurable time with the slightly altering phases in the distribution of sea and land. It seems only natural that migration through so great a lapse of time, over an area under such uniform conditions, should have become at length universal, and that a singularly uniform fauna should have been the result.



FIG. 24.—*Coryphænoides*. A deep-sea fish belonging to the Macruridæ.

Although the cold water which occupies the deeper portions of the ocean-basins is comparatively still, it is by no means entirely so, and its movement, although almost secular in its slowness, has a most important influence in securing the permanence of its own temperature, and in maintaining the uniformity of its fauna and determining the direction of the migration of the animals included therein.

A cold indraught passes from the polar seas northwards and southwards over the bed of the ocean. This we can scarcely doubt, for in all parts of the world where deep temperature-soundings have been taken, from the Polar circles to the equator, the temperature sinks with increasing depth; and it is lower at the bottom than the normal temperature of the crust of the earth, an evidence that a constantly renewed supply of cold water is