

I am also of opinion that the highly specialised organs which are placed on the dorsal and ventral sides of the caudal peduncle of many Scopelids and Sternoptychids, have the function of attracting prey, and not of enabling their possessors to see. Situated at the posterior extremity of the body, they would be in a most unfavourable position to throw the light within the area of vision by the eye. On the other hand, when we recollect the peculiar motion of a Scopelus, which darts rapidly in short curves to the right and left, upwards and downwards, we can understand that these posterior organs are of great assistance to the fish in picking up any creatures which, attracted by the gleam of light issuing from its tail, are lured into too near a proximity. The explanation that these caudal organs shoot out rays of light to frighten away a pursuer, does not seem to me a happy idea. They are, as I assume, subject to the will of the fish, which when pursued would simply extinguish its lantern and escape into darkness; light would not frighten, but rather attract a pursuer.

Special organs of touch are not more generally developed in deep-sea fishes than in the littoral fauna. As such may be considered the ventral filaments of the Ophidiidæ, the more or less detached rays of the pectoral fin of *Pteroidonus*, *Microlene* and *Mixonus*, and especially of *Bathypterois* which possesses but rudimentary eyes, and the pectoral filaments of which remind one of those of the Polynemidæ. Indeed, the comparatively rare occurrence of special organs of touch in deep-sea fishes may be used as evidence that the majority depend on the sense of sight for the perception of surrounding objects, and that therefore a large amount of light must be distributed, at least locally, in depths to which the surface light does not penetrate.

The excessively elongate fin-rays of young Trachypteridæ are evidently not organs of touch; it is difficult to explain their use in those young fishes; it might be imagined that they would be rather disadvantageous to them by attracting other fishes of prey, unless they afford protection by their resemblance to delicate fronds of fucus floating in the water or gradually settling towards the bottom. Such delicate filaments can only be developed in fishes sojourning in water which is not subject to violent agitation.

In the subsequent descriptions of deep-sea fishes frequent mention is made of the reduction in size and length of the gill-laminæ. These organs appear short and shrunken; it is possible that they are longer during life, ending in delicate points, and shrunken only in consequence of the action of the spirit, but the horny rods which support the plaits of the mucous membrane are also wanting in firmness, like the parts of the skeleton, and are much shorter than in the ordinary Teleostean type. The laminæ are also reduced in number, and the gill does not possess the same extent of respiratory surface, so that the intensity of the respiratory process seems to be more diminished than in surface fishes. We can hardly doubt that the sojourn in the low temperature of the abyssal depths must have some effect upon circulation, respiration, assimilation of food