

entirely fresh. Together with typical fresh-water types such as tadpoles and gnat larvæ, he found quite equally common a species of *Mysis*, a Polychæte worm (*Nereis* or nearly allied form), and a small Hydromedusan which he has named *Halmomises*. A striking feature of this case is that these truly marine types appear to flourish better in the fresher than in the brackish water, for in the latter only occasional specimens were found.

Additional facts recorded by von Kennel,¹ concerning the fauna of the river Ortoire in Trinidad, have special significance as indicating the manner in which a river may be directly colonised by animal forms from the sea. In the wide estuary of this slowly flowing river, the tide makes itself felt for miles above the mouth, and, having but a very languid current to contend against, is enabled to carry up certain marine animals, some of which, being capable of withstanding the increased freshness of the water, have settled down permanently at considerable distances from the sea. The following forms are mentioned as having been found more than eight miles from the river-mouth, apparently perfectly adapted to life in fresh water: a species of mussel (*Mytilus*), a species of *Pholas*, and a Polychæte worm.

Nor is there wanting certain experimental evidence on this question of change of medium. Beudant² experimented with a series of marine molluscs (he included the Cirripede *Balanus*), which he attempted to gradually accustom to living in fresh water. By a sufficiently slow addition of fresh water, he obtained at last a number of different forms living on, apparently uninjured, in water which was perfectly fresh, although other species had succumbed in the process. In the converse of this experiment, which consisted in accustoming fresh-water molluscs to water increasingly salt, very similar results were reached. It was thus abundantly proved that a number of molluscan species (and *Balanus*) could live undisturbed in either sea-water or fresh.

But while laying emphasis on the fact that the freshness has not prevented representatives of most diverse classes from colonising inland waters, we have intentionally disregarded certain cases in which this freshness does appear to constitute an impassable barrier. We know from experimental evidence, and we infer from cases like those in Bengal and Trinidad, that a number of animal types, at all events, are extremely sensitive to changes in salinity, and cannot survive more than a slight variation in this respect. Why this is so in some cases and not in others, we are rather at a loss to explain. Whether this character has been acquired by more specialised types, and not by lower and more generalised ones, we can only guess; but

¹ *Op. cit.*, p. 274.

² *Vide Semper, op. cit.*, p. 153.