

though the conditions vary in different years. Below 2 metres the summer temperature decreases as we approach the bottom, but late in autumn and in winter the temperature is highest at the bottom.

In the intermediate warm salt water layers we get a fauna abounding in individuals that form a distinctive feature of the pools. There is, first of all, the oyster, *Ostrea edulis*, which finds its principal home here, and there are also quantities of *Pecten opercularis* attached to the rocks all round. The ascidian fauna is represented by several species, which are all exceedingly plentiful, the commonest being *Ascidia mentula*, *Ascidiella aspersa*, *Ciona intestinalis*, and *Clavellina lepadiformis*.¹ The most abundant of the bryozoans is *Aetea*, while a species of *Bougainvillia* appears to be the commonest hydroid. The principal sea-anemones are *Metridium dianthus*, *Urticina crassicornis*, and a species of *Sagartia*. *Parechinus miliaris* is the only echinoid, but it occurs in great numbers. *Ostrea*, *Pecten*, and *Parechinus* indicate the decidedly southern character of the fauna, and it may not be out of place to mention that among the plankton forms we get a copepod (*Paracartia grani*) belonging to a genus not met with again till we reach the west coast of Africa.

In addition to the forms having a southern distribution and of southern origin, however, we find eurythermal and euryhaline forms. *Asterias rubens*, *Carcinus maenas*, and *Mytilus edulis* are nearly always present, the last named in particular being in great abundance, frequently attached to the lines stretched across the oyster-pools for carrying the bundles of twigs or the baskets to which the oyster spat attaches itself. Mingled with this assemblage of mussels, ascidians, etc., we get enormous quantities of smaller animal forms, the crustacean family Tanaidæ being invariably represented.

Among the forms described as characteristic of the littoral zone, there are very few that do not occur in all its depths, that is to say, only a few forms are restricted to the actual strand-belt. These few, however, include most of the forms that characterise the tidal area.² No doubt even these may occasionally be met with at a depth of a few fathoms, but

Vertical
distribution of
the littoral
fauna.

¹ In enclosed places, though not actually in pools, *Corella parallelogramma* is also common.

² For instance, *Patella vulgata*, *Purpura lapillus*, *Littorina littorea*, *L. rudis*, and *L. obtusata*; besides *Balanus balanoides*, *Mytilus edulis*, *Orchestia littorea*, *Campanularia flexuosa*, *Clava squamata*, *Actinia equina*, *Alcyonidium hirsutum*; and among the burrowing species *Mya arenaria*, *Cardium edule*, and *Arenicola piscatorum*.