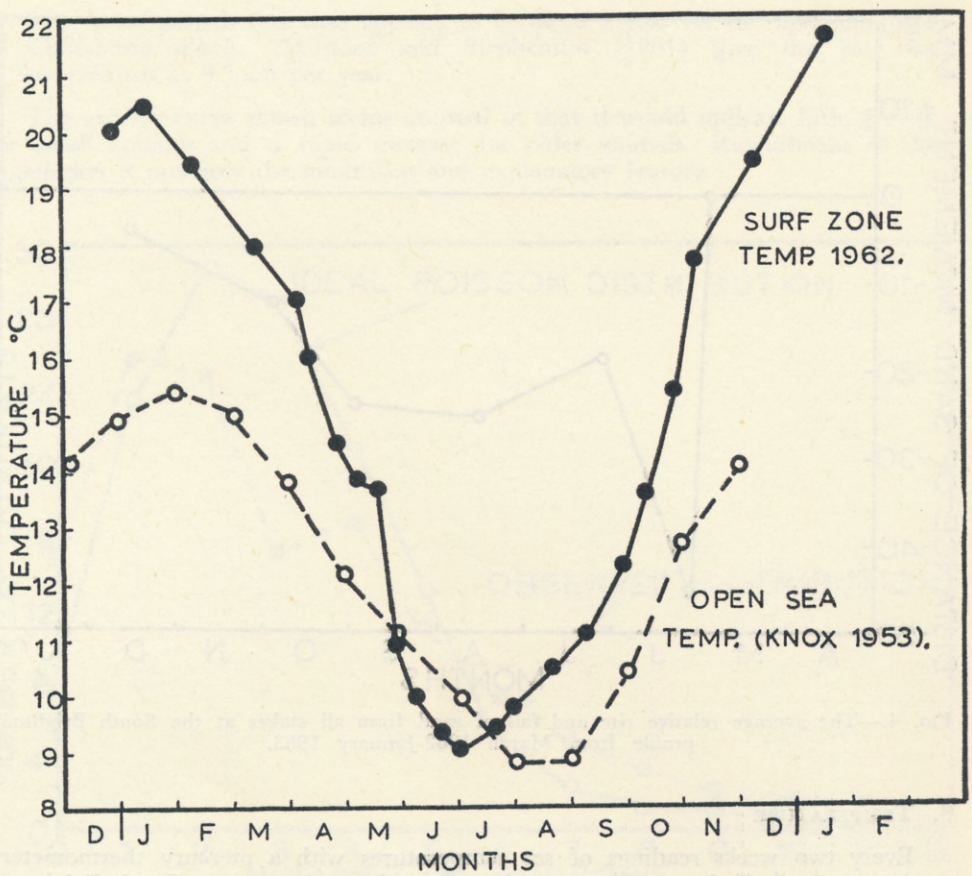

Fig. 5.—Temperature readings taken in the surf zone at South Brighton during 1962-63 compared with the open sea temperatures of Knox (1953).

burrow destroyed the burrow wall causing it to collapse. However, by digging and following the tunnels, and observing the animals burrowing between glass plates in an aquarium, it appeared that the burrows had several vertical openings, each which served as a combination " exit " or " entrance ". When water currents produced by *Callianassa* were forced out of the burrow as the tide was receding " cones " of sand and debris were formed; when water was taken into the burrows bringing sand with it, " erosion craters " were formed. The vertical shaft about 45cm deep leads down to a series of tunnels much wider than the animal's width, which were interconnected at varying depths. At the bottom of the vertical shaft and also at branches in the burrow, turning places were formed. When placed on the sand, *Callianassa* quickly digs itself below the surface as protection against predators. However, on the beach, it is difficult to observe the animals, so more accurate observations were made in the laboratory.

Firstly, using both its chelipeds as a shield to stabilise the sand, *Callianassa* digs into the sand with its second pair of legs. Pushing the sand to one side with its third and fourth legs, it eventually pulls itself below the surface of the sand. Now it proceeds to build a burrow. Digging vertically, using its second legs as a shovel, and its chelipeds to stop sand falling, it transfers the dug sand to the third maxillipeds where a mucous secretion is poured upon it to enable the sand to be used to support the wall of the burrow. It carries sand to the surface in a