unstained or supravitally stained cells, under the phase-contrast microscope, is comparable with the Golgi apparatus picture given by silver or osmic methods.

A further account of the material is being published elsewhere.

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Relationship between Blood Concentration and Environmental Salinity in *Palaemonetes varians* (Leach)

IN Britain *Palaemonetes varians*, variety *microgenitor*, commonly inhabits only saline water around the coastline and has never been recorded in fresh water. The prawn is, however, very abundant in water of extremely low salinity in the Cardiff area, where it occurs in the drainage ditches of farm-land adjacent to an area of salt-marsh[1]. In the summer months both the salt-marsh and the farm-land waterways swarm with larval prawns. The *P. varians* of these two regions are morphologically identical but differ physiologically, those from the latter habitat being in some way better suited for life in a low salinity environment. When in water of low salinity (such as that contained in the ditches traversing the cultivated area) they show a much smaller expenditure of metabolic energy (as measured by the respiratory rate) than those from the neighbouring, highly saline marsh pools[2].

Estimations of the osmotic pressure of blood taken from specimens of both habitats kept in different concentrations of sea-water have been measured by Baldes's modification of Hill's thermo-electric technique[3,4], in order to determine whether a difference in blood concentration exists in these two physiological races. A reduced blood concentration in a low-salinity medium would diminish the osmotic gradient and, as a consequence, decrease the amount of energy the animal would have to expend on osmoregulatory work.

The results are shown in Fig. 1. Both groups of prawns are isotonic at a salinity of about 20‰ sodium chloride in the external medium, which is in agreement with the figures given by Panikkar[5]. The blood concentrations vary slightly as the external medium changes in salinity; but these are comparatively minor fluctuations, being only about 5‰ sodium chloride over a range of 30‰ sodium chloride in the external environment. Both populations show a slight fall in the value for blood when the medium becomes diluted to a salinity below 10‰ sodium chloride. The small differences of values between the two sets of results are well within

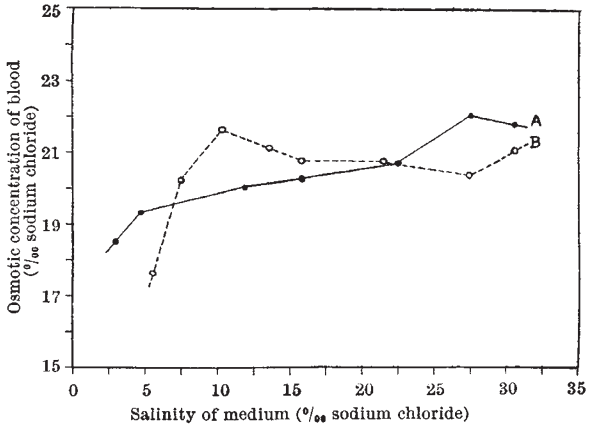

Fig. 1. Blood concentration of *Palaemonetes varians* at different environmental salinities: (*A*) salt-marsh prawns; (*B*) low-salinity prawns

the range of fluctuations due to experimental error incurred by the use of this thermo-electric technique, and shows no significant difference in their concentrations. Thus the marked difference in energy consumption in media of very low salinity, displayed by these two populations of *P. varians*, is not due to one of the groups becoming subjected to a reduction in the osmotic gradient between external environment and internal body fluid. The blood concentration is the same in both cases and both are typically homoiosmotic.

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A Spiral 'Valve' in the Hepatic Portal Vein

THE occurrence of laminar flow in the hepatic portal vein is acceptable on hydrodynamic grounds[1]. In any consideration of the probable distribution within the liver of blood from a particular tributary of the portal vein the anatomy of the vein is important. Drs. C. H. Barnett and W. Cochrane[2] suggest that the relative diameters of tributary and main vein and the angle of union are the important factors in determining the path of the streams. I have recently observed an anatomical structure in the portal vein which on theoretical grounds would appear to be more important than either of these factors.

In neoprene latex casts of the portal vein of rabbits there is a constant spiral groove, starting below the junction of the splenic with the mesenteric vein and ending above it, making two complete clockwise turns. In life this can be seen as a band of thickening in the vein wall, the wall bulging between the turns of the spiral. Within the vein the band of thickening corresponds to a flap or ridge projecting from the vein wall, composed of a fold in the intima and media, bridged by a continuous adventitial coat.