for full strength sea water, the chloride content increasing to a concentration 75 per cent higher than in the surrounding sea water. Up to the end of 118 hours no further changes of significance occur, so that the net results are an increase in the chloride concentration of 15 per cent and in the calcium concentration of 16 per cent over the respective concentrations in the surrounding diluted sea water. Upon return to full strength sea water, however, the ratios go back to their original values.

These results show that the net movements of chloride and calcium ions through the absorbing and excreting membranes of the lobster are significantly different for the two ions. Chloride at first moves outward slightly, while calcium moves inward markedly; later chloride moves inward slightly and calcium moves outward slightly until new equilibria between serum and sea water concentrations of those ions are established and maintained. In full strength sea water and in diluted sea water the lobster is capable of expending energy against a concentration gradient, the amount of that energy being determined by the change in concentration of the environmental sea water and by the duration of exposure to the new environment. An interpretation of the mechanisms involved must await determination of the concentrations of the sodium, potassium, magnesium and sulphate ions as well as of the proteins in the blood of animals in diluted sea water.

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FILMING OF MARINE INVERTEBRATES

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Approximately 3000 feet of 16 mm. kodachrome were exposed in filming various marine invertebrates. These pictures are being made up into five instructional films for use in college courses. The genera represented are: Alcyonium, Cerianthus, Clava, Haliclystus, Cyanea, Aurelia, Cristatella, Collotheca, Parasabella, Nephythys, Echiurus, Balanus, Caprella, Crago, Hippolyte, Homarus, Pagurus, Leptosynapta, Hippasteria, Asterias Ctenodiscus, Henricia, Strongylocentrotus, Crossaster, Solaster, Ophiopholis, Aeolis, Elysia, Natica, Purpura, Aporrhais, Buccinum, Mya, Modiolus, Mytilus, Cynthia, and Boltenia.

These films are available through the Department of Biophotography, Rutgers University, New Brunswick, N.J.